Case Number

Page (2)
Continued
Box

6653

Application

Transcripts.

Small Exhibits

ETC.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6652 Exhibit No. 1
Submitted by EXXON
Hearing Date 10/3

R 37 E

R 38 E

MORANCO WATERFLOOD

PROPOSED NORTH HOBBS UNIT AREA

AMOCO SOUTH HOBBS UNIT

NON-UNIT TRACTS

CONOCO STATE A-5

GETTY MEXICO 4

T 18 S

T 19 S

R 37 E PROPOSED NORTH HOBBS UNIT BOUNDARY

EXXON WORKING INTEREST LEASES

R 38 E

LEGEND

Unit Boundary (FIELDWIDE)

Tract Boundary

(31) Tract Number

Hobbs (Grayburg-S.A.)
Lea Co., New Mexico

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6652 Exhibit No. 7
Submitted by EXXON
Hearing Date 10/3

PROPOSED
NORTH HOBBS (GRAYBURG – SAN ANDRES) UNIT
Lea County, New Mexico

LEGEND
- WELL COMPLETED IN UNITIZED FORMATION
- UNIT BOUNDARY
- (67) TRACT NUMBER
- EXXON WORKING INTEREST LEASES

R 37 E
R 38 E
T 18 S
T 19 S
100%
100%
50%

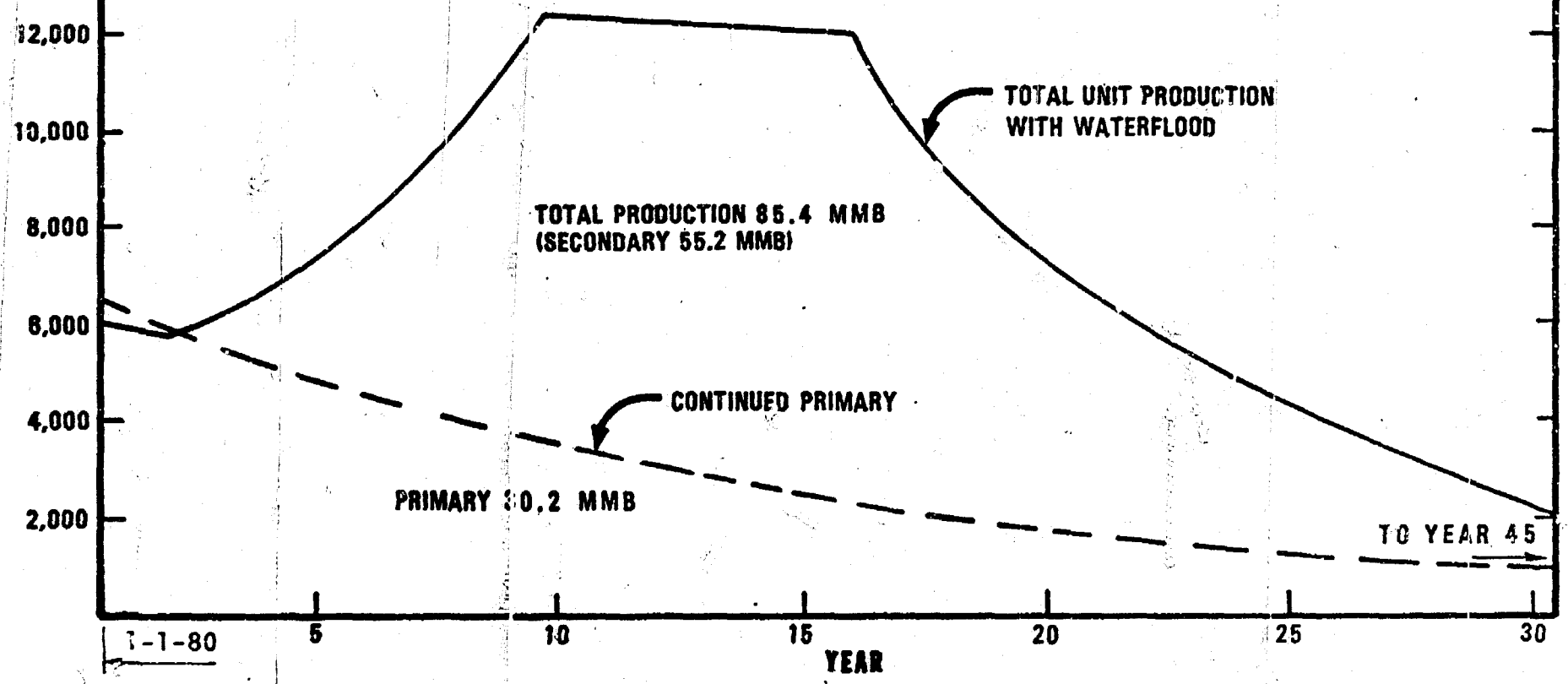
BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6652 Exhibit No. 3
Submitted by EXXON
Hearing Date 12/3

PERFORMANCE FORECAST

TECHNICAL COMMITTEE REPORT

PROPOSED NORTH HOBBS UNIT

LEA CO., NEW MEXICO



UNIT AGREEMENT FORMULA
(REVENUE PARTICIPATION)
PHASE 1
20% 1976 PRODUCING RATE
80% 1976 PRIMARY RESERVES
PHASE 2
100% 1976 PRIMARY RESERVES
PHASE 3
100% SECONDARY OIL

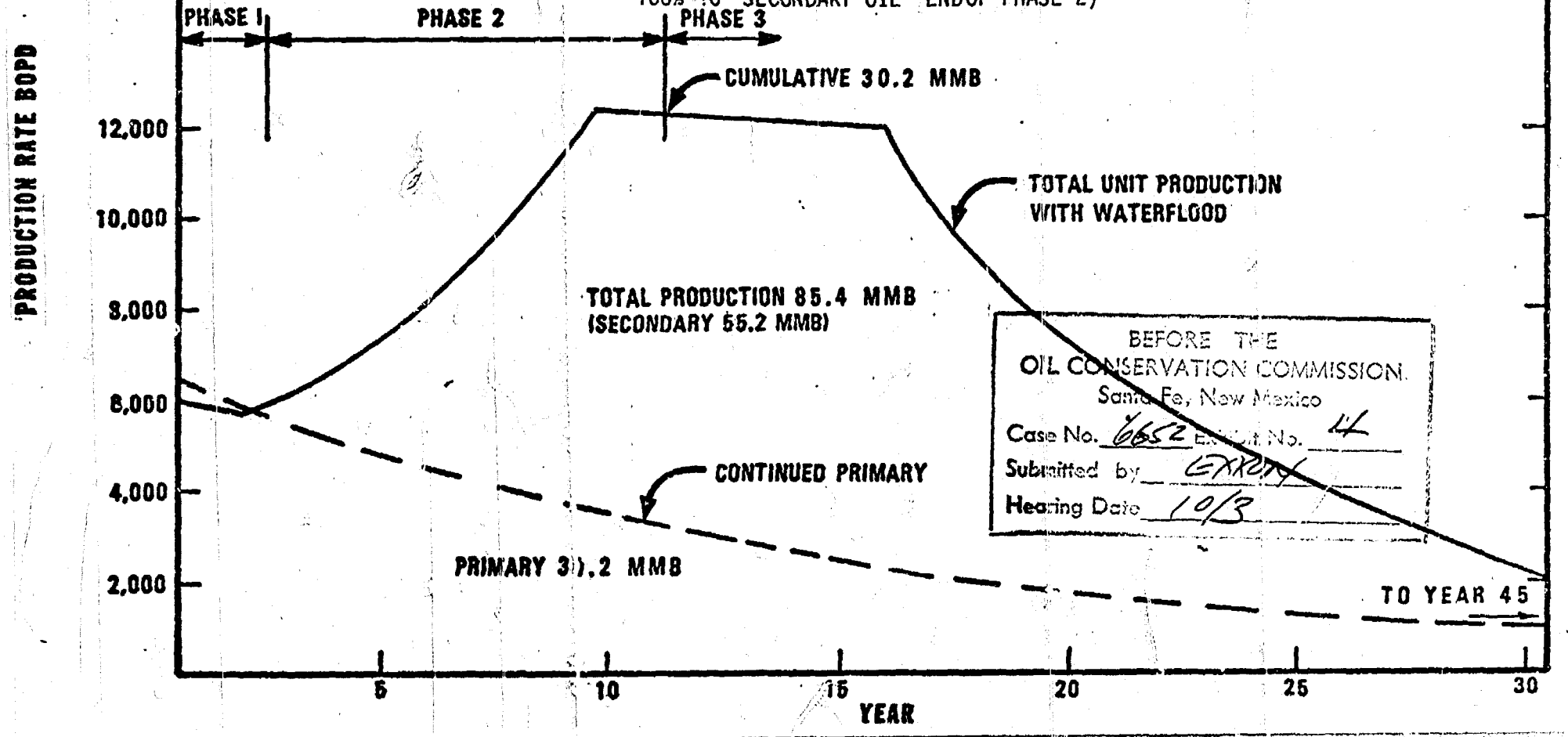
UNIT AGREEMENT FORMULA
(FOR PAYMENT OF INVESTMENT)
PHASE 1 AND 2
58% 1976 PRIMARY RESERVE
42% SECONDARY OIL
PHASE 3
100% SECONDARY OIL
(PHASE 1 AND 2 ACCUMULATED INVESTMENT ADJUSTED
100% TO "SECONDARY OIL" ENDOF PHASE 2)

PERFORMANCE FORECAST

TECHNICAL COMMITTEE REPORT

PROPOSED NORTH HOBBS UNIT

LEA CO., NEW MEXICO

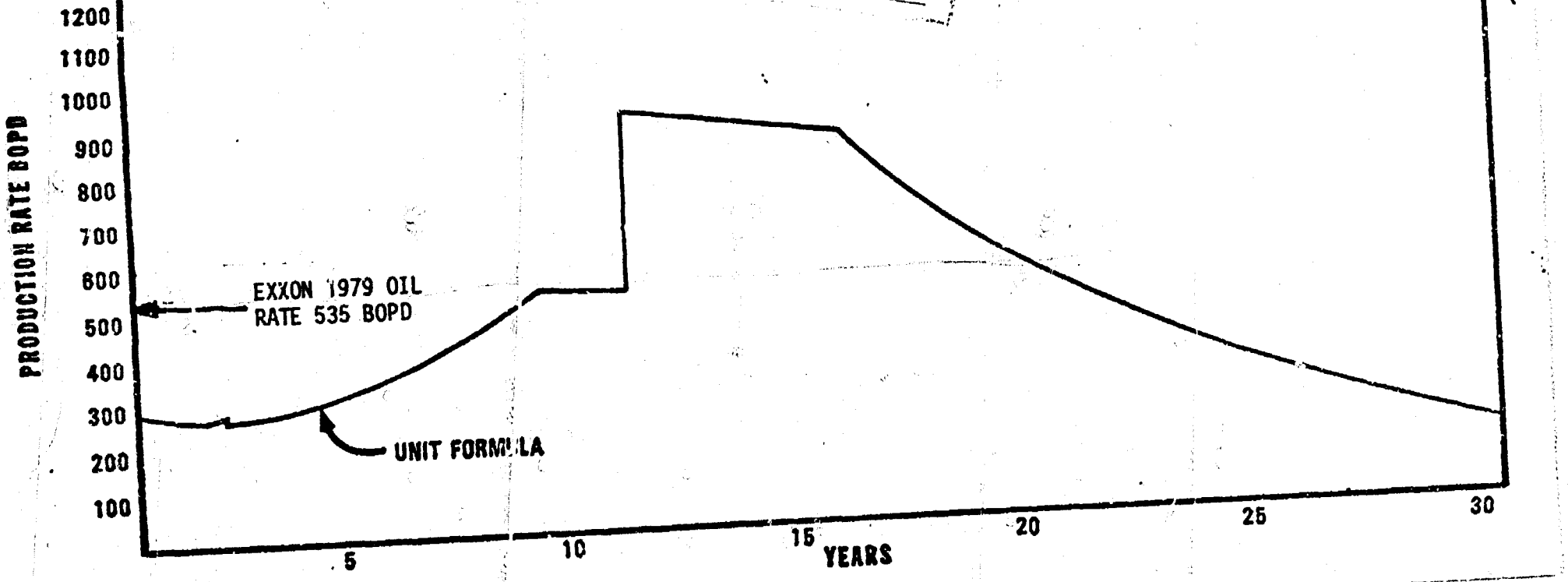


BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6652 Exhibit No. 4
Submitted by GETTY
Hearing Date 10/3

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6652 Exhibit No. 5
Submitted by EXXON
Hearing Date 10/3

PERFORMANCE FORECAST
EXXON SHARE PROPOSED UNIT

UNIT AGREEMENT FORMULA
HOBBS POOL
LEA CO., NEW MEXICO

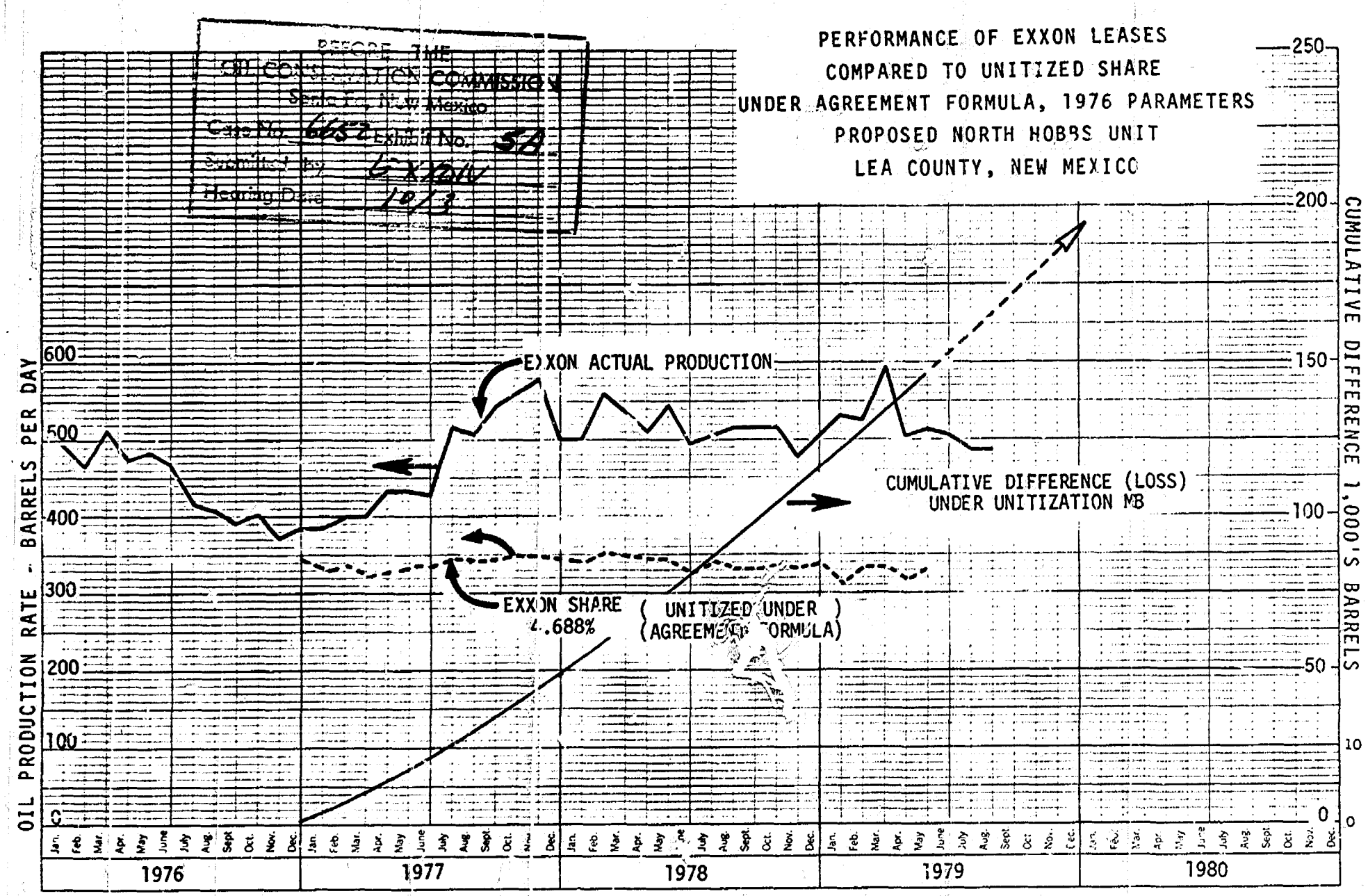


K•E 5 YEARS BY MONTHS X 100 DIVISIONS KEUFFEL & ESSER CO. MADE IN U.S.A.

46 3650

BEFORE THE OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6652 Exhibit No. 58
Submitted by EXXON
Hearing Date 10/3

PERFORMANCE OF EXXON LEASES COMPARED TO UNITIZED SHARE UNDER AGREEMENT FORMULA, 1976 PARAMETERS PROPOSED NORTH HOBBS UNIT LEA COUNTY, NEW MEXICO

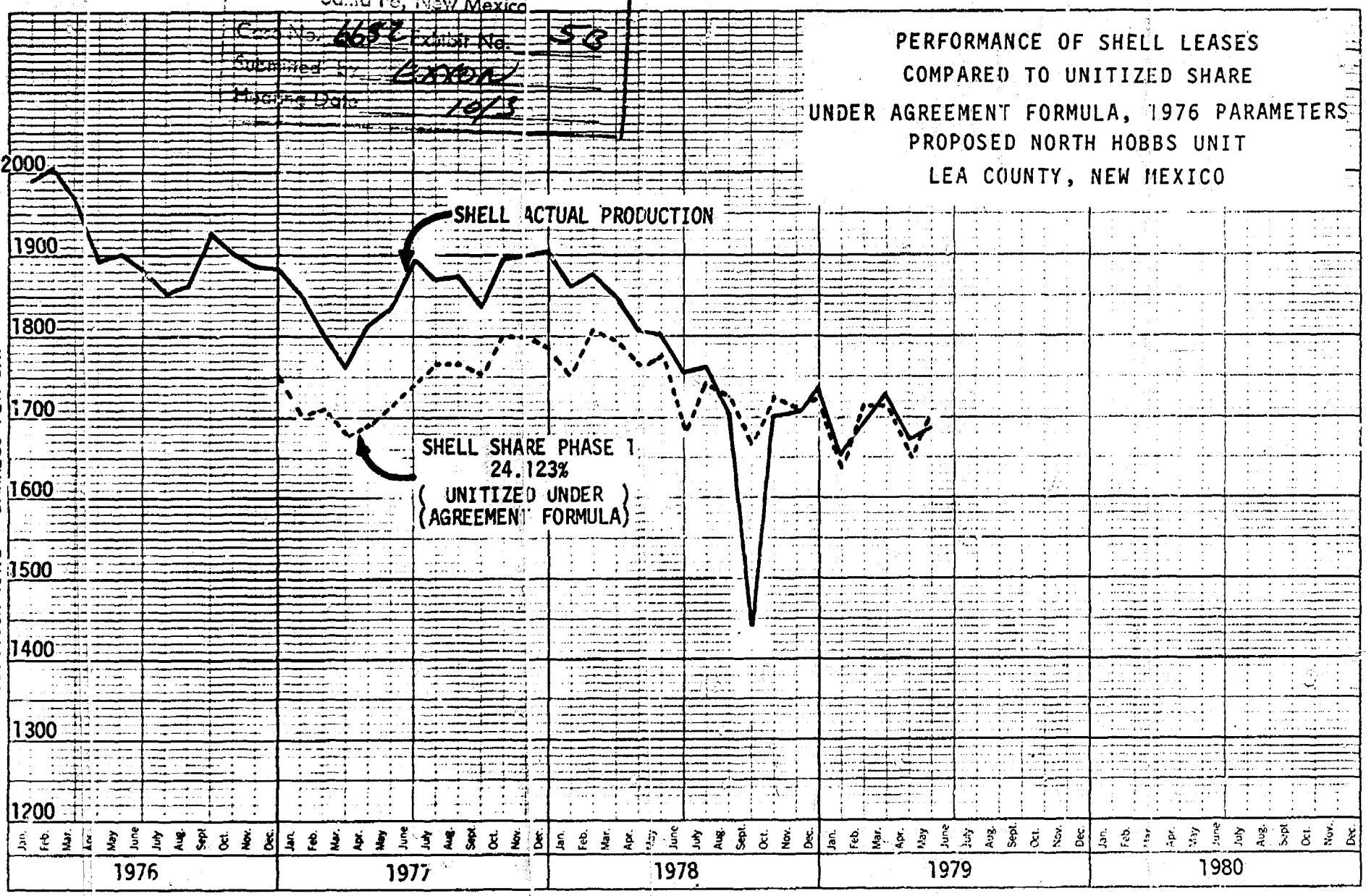


K·E 5 YEARS BY MONTHS X 100 DIVISIONS KEUFFEL & ESSER CO. MADE IN U.S.A.

46 3650

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6652 Exhibit No. 58
Submitted by: Exxon
Hearing Date: 10/5

PERFORMANCE OF SHELL LEASES
COMPARED TO UNITIZED SHARE
UNDER AGREEMENT FORMULA, 1976 PARAMETERS
PROPOSED NORTH HOBBS UNIT
LEA COUNTY, NEW MEXICO

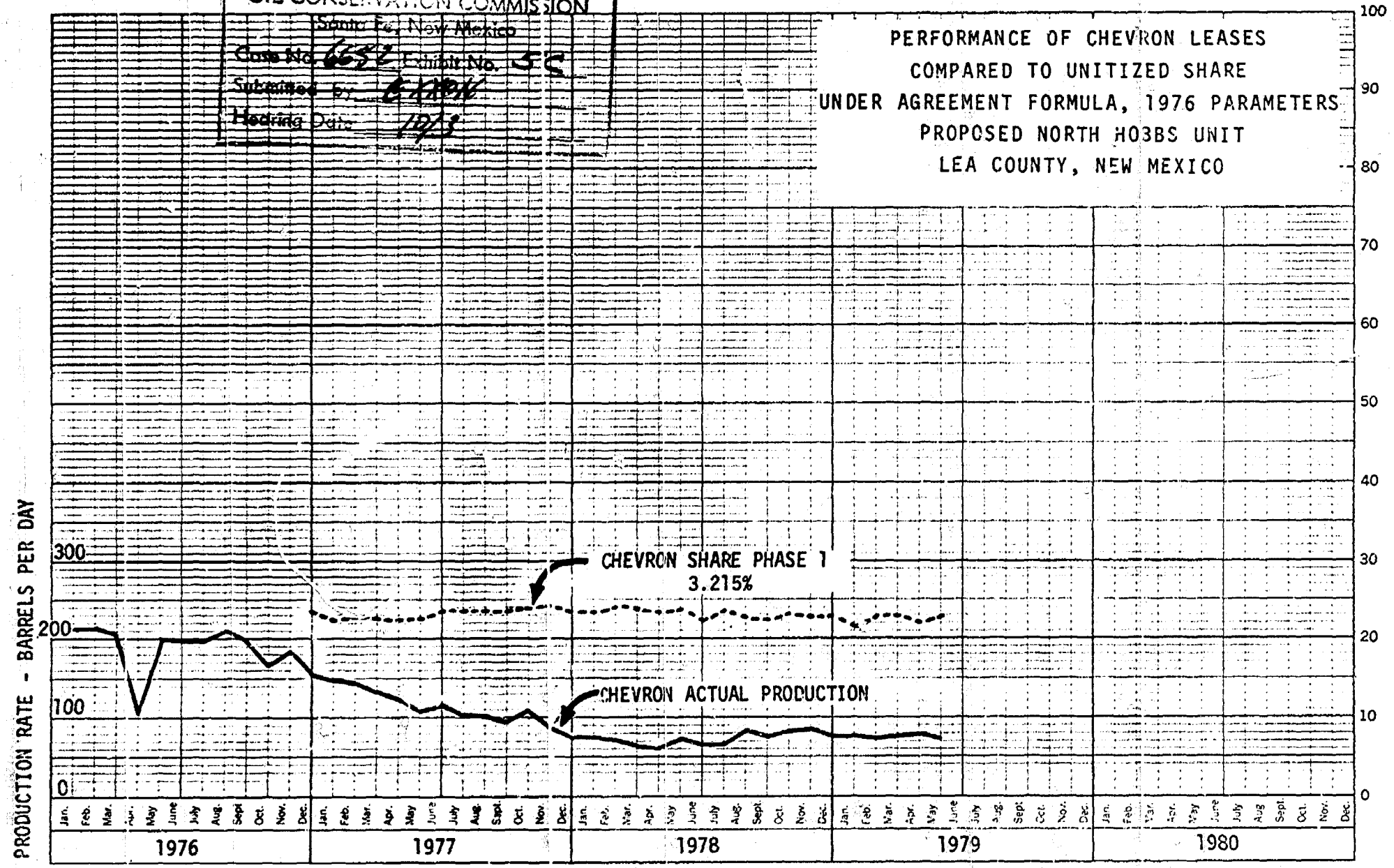


K·E 5 YEARS BY MONTHS X 100 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

46 3650

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 652 Exhibit No. 5
Submitted by: Chevron
Hearing Date: 10/5

PERFORMANCE OF CHEVRON LEASES COMPARED TO UNITIZED SHARE UNDER AGREEMENT FORMULA, 1976 PARAMETERS PROPOSED NORTH HOBBS UNIT LEA COUNTY, NEW MEXICO

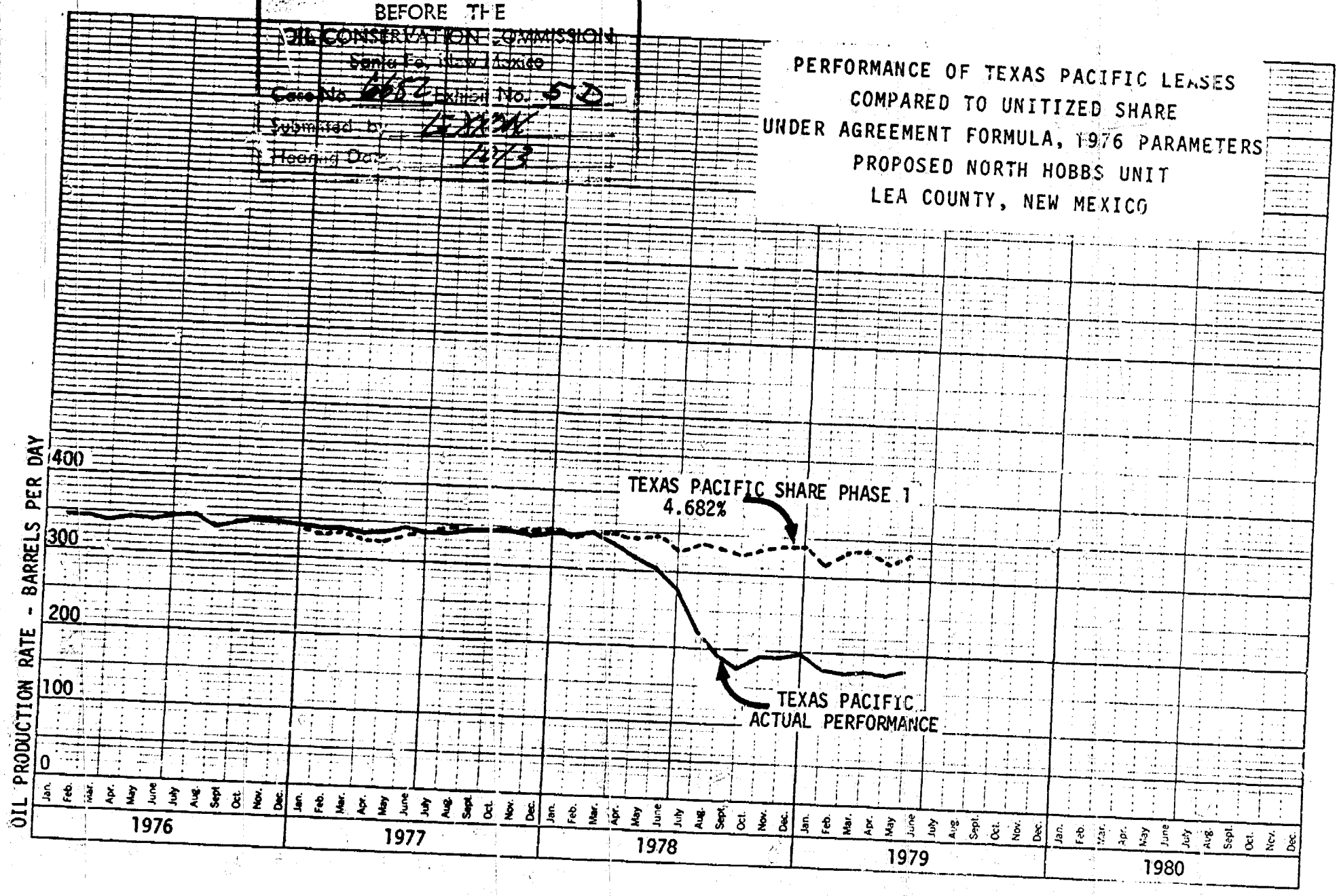


K•E 5 YEARS BY MONTHS X 100 DIVISIONS KEUFFEL & ESSER CO. MADE IN U.S.A.

46 3650

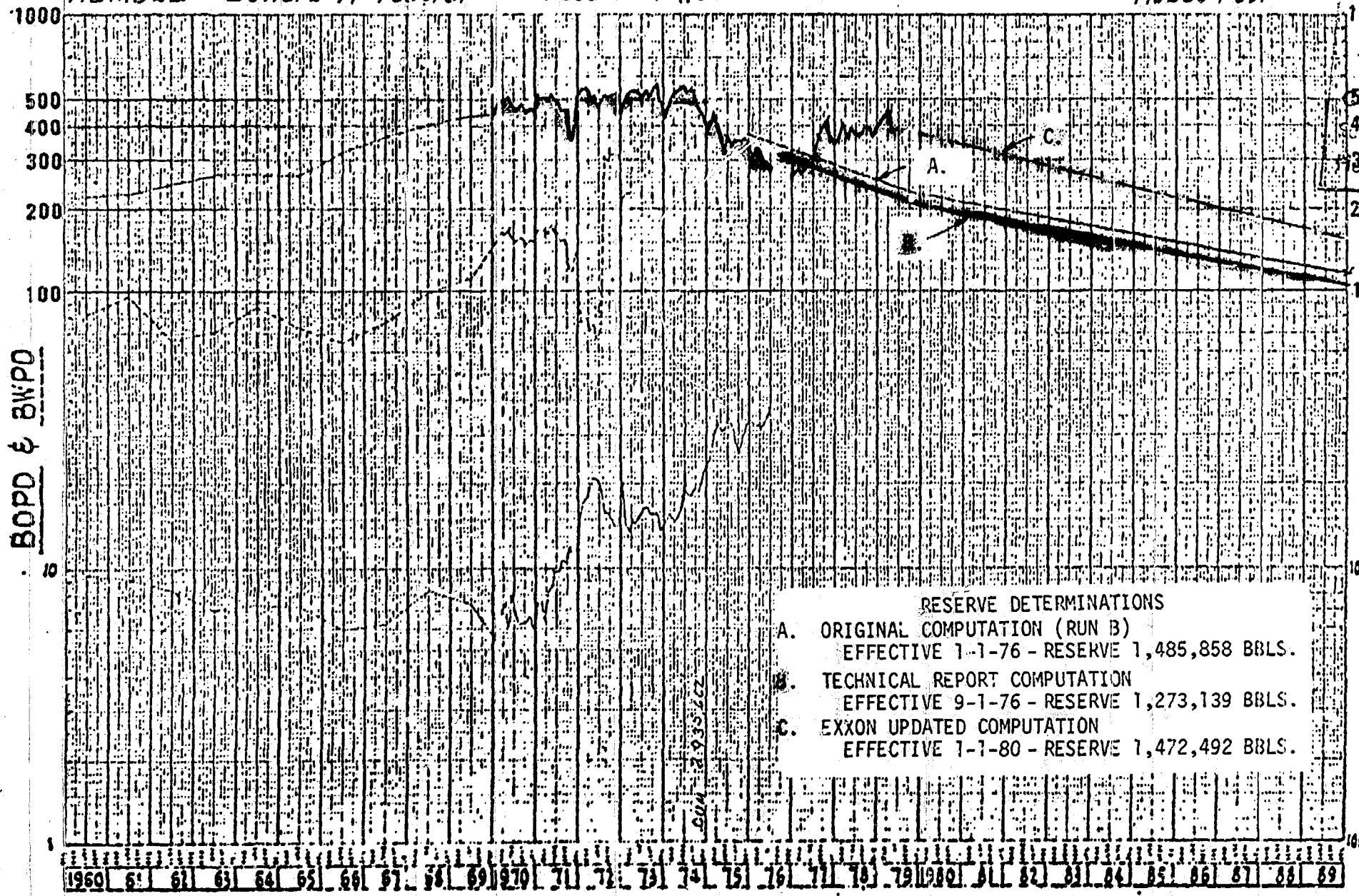
BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6452 Exhibit No. 5-D
Submitted by: Texaco
Hearing Date: 4-23

PERFORMANCE OF TEXAS PACIFIC LEASES
COMPARED TO UNITIZED SHARE
UNDER AGREEMENT FORMULA, 1976 PARAMETERS
PROPOSED NORTH HOBBS UNIT
LEA COUNTY, NEW MEXICO



EXXON

HUMBLE - Bowers "A" Federal Secs 29 & 30 Hobbs Pool



BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6652 Exhibit No. 6
Submitted by EXXON
Hearing Date 10/3
TRACT 47

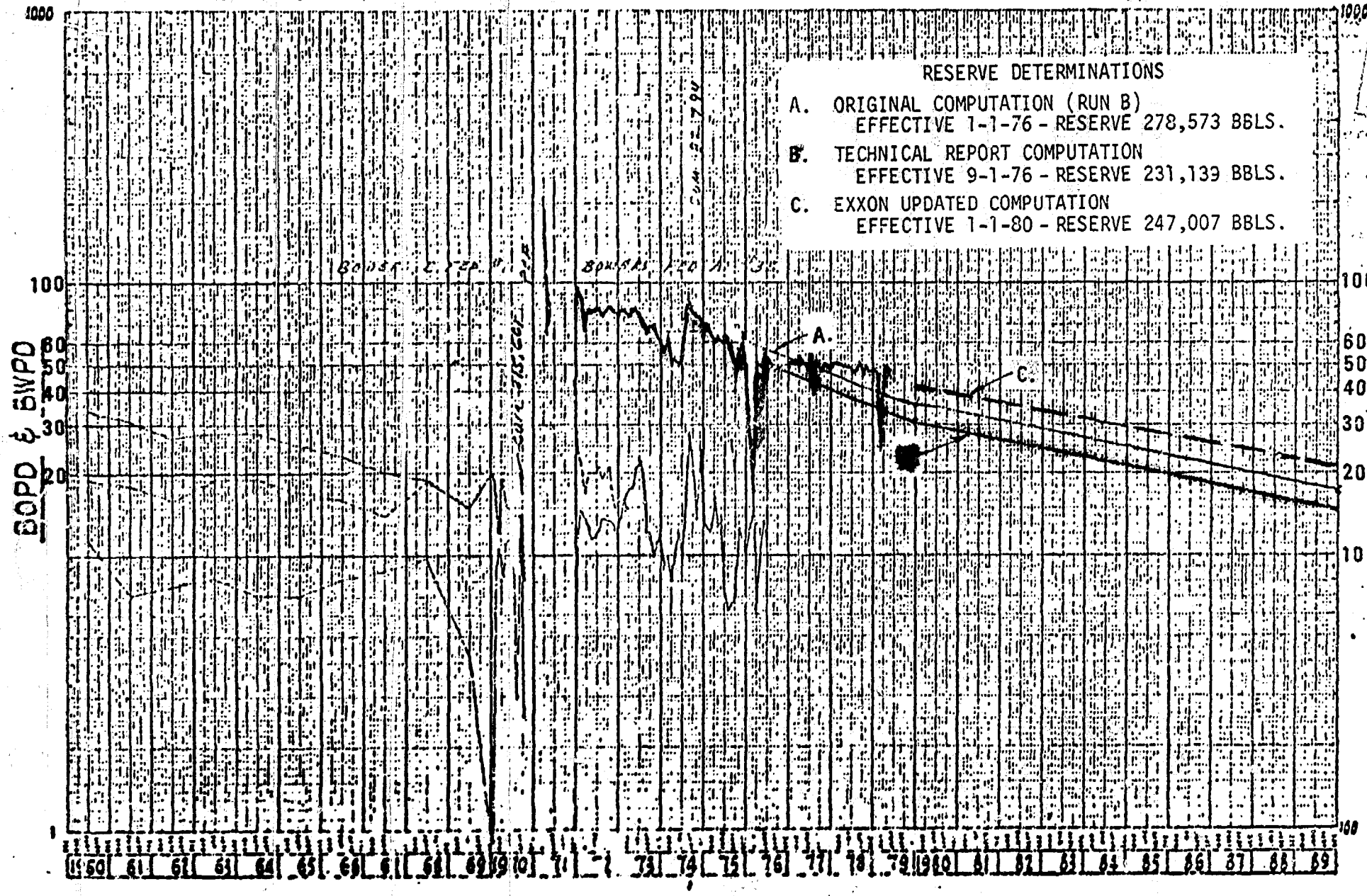
EXXON

BOWERS "A" FEDERAL

1273139.	SR76
316.	S76
206.	S80
102.	S90
21.	EL
12.04744378	%D76
6.787684787	%D80
6.792060162	%D90
2012.469599	SFYR
409.	A79
226.6160211	S79
8.540438073	%DEX
381.1485837	E80
156.0937373	E90
1472492.846	ER80
960377.6776	SR80
512115.1683	DR80

EXXON

HUMBLE – Bowers "A" Federal Common — Hobbs Pool



RESERVE DETERMINATIONS

A. ORIGINAL COMPUTATION (RUN B)
EFFECTIVE 1-1-76 - RESERVE 278,573 BBLS.

B. TECHNICAL REPORT COMPUTATION
EFFECTIVE 9-1-76 - RESERVE 231,139 BBLS.

C. EXXON UPDATED COMPUTATION
EFFECTIVE 1-1-80 - RESERVE 247,007 BBLS.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6652 Exhibit No. 7
Submitted by EXXON
Hearing Date TRACT 48 1of1

EXXON

BOWERS "A" FEDERAL COMMUN

231139.	SR76
48.	S76
32.	S80
15.	S90
3.	EL
11.45432785	%D76
7.29692757	%D80
4.234143515	%D90
2027.200422	SFYR
42.	A79
35.02713736	S79
5.350664934	%DEX
40.21445326	E80
23.20373204	E90
247007.5658	ER80
183133.0937	SR80
63874.47213	DR80

COMPARISON OF 1976 AND UPDATED PARAMETERS

FOR EXXON AND SHELL WORKING INTERESTS

A. OIL PRODUCTION RATE

	1976 OIL PRODUCTION RATE BARRELS	%	1978 OIL PRODUCTION RATE BARRELS	%
EXXON	160,433	5.854	188,000 ~~[illegible]~~	7.143
SHELL	699,966	25.540	638,905	24.282
UNIT TOTAL	2,740,636	--	2,631,234	--

B. OIL RESERVES

	1976 PRIMARY OIL RESERVES BARRELS	%	1979 PRIMARY OIL RESERVES BARRELS	%	SECONDARY OIL RESERVES BARRELS	%
EXXON	1,673,668	4.396	1,875,393	5.468	4,216,642	7.639
SHELL	9,048,999	23.769	7,776,948	23.421	10,419,216	18.875
TOTAL	38,071,683	--	33,205,631	--	55,200,000	--

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6652 Exhibit No. 8
Submitted by EXXON
Hearing Date 10/3

EXXON PARTICIPATION

UNIT AGREEMENT FORMULA

COMPARING 1976 AND UPDATED PARAMETERS

A. USING 1976 PARAMETERS

FORMULA	PERCENT	BARRELS
PHASE 1 (4MM BBLS)		
20% 1976 Oil Producing Rate .20 x 5.854%	1.171	47,000
80% 1976 Primary Oil Reserves .80 x 4.396%	3.517	140,000
	4.688	187,000
PHASE 2 (26.2 MM BBLS)		
100% 1976 Primary Oil Reserves	4.396	1,154,000
TOTAL		1,341,000

B. USING UPDATED PARAMETERS

PHASE 1 (4MM BBLS)		
20% 1978 Oil Producing Rate .20 x 7.145%	1.429	57,000
80% 1979 Primary Oil Reserves .80 x 5.648%	4.518	181,000
	5.947	238,000
PHASE 2 (26.2 MM BBLS)		
100% 1979 Primary oil Recovery	5.648	1,480,000
TOTAL		1,718,000

DIFFERENCE 377,000 Barrels

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6652 Exhibit No. 9
Submitted by EXXON
Hearing Date 10/3

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6652 Exhibit No. 10
Submitted by EXXON
Hearing Date 10/3

SHELL PARTICIPATION

UNIT AGREEMENT FORMULA

COMPARING 1976 AND UPDATED PARAMETERS

A. USING 1976 PARAMETERS

FORMULA	PERCENT	BARRELS
PHASE 1 (4MM BBLS)		
20% 1976 Oil Producing Rate .20 x 25.540%	5.108	204,000
80% 1976 Primary Oil Reserve .80 x 23.768%	19.015	760,000
	24.123	964,000
PHASE 2 (26.2 MM BBLS)		
100% 1976 Primary Oil Reserves	23.768	6,227,000
		7,191,000

B. USING UPDATED PARAMETERS

PHASE 1 (4MM BBLS)		
20% 1978 Oil Producing Rate .20 x 24.282%	4.856	194,000
80% 1979 Primary Oil Reserves .80 x 23.421%	18.737	749,000
	23.593	943,000
PHASE 2 (26.2 MM BBLS)		
100% 1979 Primary Oil Reserves	23.421	6,136,000
		7,079,000

REQUIRED INVESTMENT

EXXON SHARE UNDER UNIT AGREEMENT FORMULA

1976 PARAMETERS

PROPOSED NORTH HOBBS UNIT

LEA COUNTY, NEW MEXICO

ESTIMATED RANGE OF TOTAL UNIT INVESTMENT	EXXON INVESTMENT SHARE $M	EXXON PRODUCTION MB	EXXON COST/BBL
$ 31.0 million	2371	1341	$1.77
$106.4 million	8131	1341	$6.06

	OIL PRODUCTION SHARE		INVESTMENT SHARE $M		
				INVESTMENT TOTAL	
	%	MB	%	$31.0 MM	$106.4 MM
Phase 1	4.688	187	5.758	1,744	1,744
Phase 2	4.396	1,154	5.758	39	4,385
Sub Total	4.440	1,341	5.758	1,787	6,129
Adjustment*	-	-	1.881	584	2,002
Total	4.440	1,341	7.639	2,371	8,131
Oil Production Share			4.440	1,378	4,726
Paid By Exxon In Excess of Exxon's Share of Oil Production			3.199	993	3,405

*Adjusted to Phase 3 interest at termination of Phase 2.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6652 Exhibit No. 11
Submitted by EXXON
Hearing Date 10/3

REQUIRED INTESTMENT

SHELL SHARE UNDER UNIT AGREEMENT FORMULA

1976 PARAMETERS

PROPOSED NORTH HOBBS UNIT

LEA COUNTY, NEW MEXICO

ESTIMATED RANGE OF TOTAL UNIT INVESTMENT	SHELL INVESTMENT SHARE $M	SHELL PRODUCTION MB	SHELL COST/BBL
$31.0 million	5859	7191	$ .81
$106.4 million	20090	7191	$2.79

	OIL PRODUCTION SHARE		INVESTMENT SHARE $M		
				INVESTMENT TOTAL	
	%	MB	%	$31.0 MM	$106.4 MM
Phase 1	24.123	964	21.713	6,578	6,579
Phase 2	23.768	6,227	21.713	152	16,532
Sub Total	23.811	7,191	21.713	6,740	23,111
Adjustment*			-2.838	-881	-3,021
Total	23.811	7,191	18.875	5,859	20,090
Oil Production Share			23.811	7,391	25,344
Investment Paid by Others for Shell's Production Share of Investments			4.936	1,532	5,254

*Adjusted to Phase 3 interest at termination ~~of Phase 2.~~

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6652 Exhibit No. IV
Submitted by EXXON
Hearing Date 10/8

REQUIRED INVESTMENT

EXXON SHARE UNDER UNIT AGREEMENT FORMULA

UPDATED PARAMETERS

PROPOSED NORTH HOBBS UNIT

LEA COUNTY, NEW MEXICO

ESTIMATE RANGE OF TOTAL UNIT INVESTMENT	EXXON INVESTMENT SHARE $M	EXXON PRODUCTION MB	EXXON COST/BBL
$ 31.0 million	2371	1718	$1.38
$106.4 million	8131	1718	$4.73

	OIL PRODUCTION SHARE		INVESTMENT SHARE $M		
				INVESTMENT TOTAL	
	%	MB	%	$31.0 MM	$106.4 MM
Phase 1	5.947	238	6.484	1,966	1,966
Phase 2	5.648	1,480	6.484	44	4,933
Sub Total	5.689	1,718	6.484	2,010	6,899
Adjustment*	-	-	1.155	361	1,232
Total	5.689	1,718	7.639	2,371	8,131
Oil Production Share			5.689	1,764	6,053
Paid By Exxon In Excess of Exxon's Share of Oil Production			1.945	607	2,078

*Adjusted to Phase 3 interest at termination of Phase 2.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6652 Exhibit No. 13
Submitted by: EXXON
Hearing Date: 10/5

REQUIRED INVESTMENT

SHELL SHARE UNDER UNIT AGREEMENT FORMULA

UPDATED PARAMETERS

PROPOSED NORTH HOBBS UNIT

LEA COUNTY, NEW MEXICO

ESTIMATED RANGE OF TOTAL UNIT INVESTMENT	SHELL INVESTMENT SHARE $M	SHELL PRODUCTION MB	SHELL COST/BBL
$ 31.0 million	5859	7079	$ .83
$106.4 million	20090	7079	$2.84

	OIL PRODUCTION SHARE		INVESTMENT SHARE $M		
				INVESTMENT TOTAL	
	%	MB	%	$31.0 MM	$106.4 MM
Phase 1	23.593	943	21.512	6,523	6,523
Phase 2	23.421	6,136	21.512	146	16,366
Sub Total	23.440	7,079	21.512	6,669	22,889
Adjustment*	-	-	2.637	-810	2,799
Total	23.440	7,079	18.875	5,859	20,090
Oil Production Share			23.440	7,266	24,940
Investment Paid by Others for Shell's Production Share of Investments	4.565	1,307			4,850

*Adjusted to Phase 3 interest at termination of Phase 2.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6652 Exhibit No. 14
Submitted by EXXON
Hearing Date 10/3

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico

Case No. 6652 Exhibit No. 15
Submitted by EXXON
Hearing Date 10/3

TRACT PARAMETERS

OIL PRODUCTION RATE

		1976 OIL PRODUCTION RATE		1978 OIL PRODUCTION RATE		1979 OIL PRODUCTION RATE	
		VALUE	FRACTION	VALUE	FRACTION	VALUE	FRACTION
1	GETTY STATE B	1927	0.00070312	1889	0.00071791	804	0.00076388
2	AM HESS ST WHH	2158	0.00078741	1113	0.00042300	602	0.00057196
3	GULF LEA FO ST	1381	0.00050390	1159	0.00044048	473	0.00044940
4	T P STATE V AC1	4577	0.00167005	3133	0.00119070	1494	0.00141946
5	ESTES ENG STATE	3642	0.00132889	1587	0.00060314	596	0.00056626
6	CONOCO ST B 13	3683	0.00134385	6363	0.00241826	1658	0.00157569
7	SHELL RICE	15090	0.00550602	9640	0.00366368	3782	0.00359330
8	AM HESS BHAHOIN	0	0.0	0	0.0	0	0.0
9	GULF D HARDIN	13604	0.00496381	11385	0.00431927	4583	0.00435433
10	MORANCO ST T 17	1681	0.00061336	1453	0.00055221	772	0.00073348
11	CHEVRON ST I 17	0	0.0	0	0.0	0	0.0
12	[illegible]TY STATE A	1165	0.00042508	1066	0.00040513	436	0.00041425
13	ANTWEIL MCTOWNS	3149	0.00115575	3960	0.00150581	1767	0.00167884
14	WISER MORRIS B	4307	0.00157153	3801	0.00144457	1425	0.00135390
15	WISER MORRIS A	8816	0.00321677	6418	0.00243916	2511	0.00238571
16	GULF GRIMES C	6387	0.00233048	4321	0.00164220	1530	0.00145366
17	SWEET MCKINLY B	1126	0.00041085	1098	0.00041729	392	0.00037244
18	GETTY MCKINLY A	1154	0.00042107	1307	0.00049673	417	0.00039619
19	CHEVRON MCKINLY	15031	0.00548449	10778	0.00409618	4327	0.00411111
20	SWEET GRIMES	112	0.00004087	99	0.00003762	41	0.00003895
21	SWEET BOWERS BF	1113	0.00040575	1113	0.00042300	420	0.00039904
22	SWEET BOWERS BF	0	0.0	0	0.0	0	0.0
23	ARCO GRIMES	3216	0.00117345	4525	0.00171973	1872	0.00177860
24	SHELL MCKINLY B	53070	0.01936412	40063	0.01522594	14031	0.01333093
25	GETTY B HARDIN	15077	0.00550128	12280	0.00466701	4915	0.00466977
26	CITCO HARDIN	27971	0.01020603	18900	0.00718294	7655	0.00727306
27	SHELL MCKINLY A	166619	0.06079574	142337	0.05409515	57306	0.05444673
28	GULF GRAM ST A	55708	0.02032667	50746	0.01928601	19182	0.01822492
29	SHELL STATE D	30411	0.01109633	22893	0.00870048	8521	0.00809585
30	AM HESS ST E	10245	0.00373818	8261	0.00313959	2408	0.00228785
31	T P STATE G	116644	0.04256092	86730	0.03296172	23643	0.02246334
32	SAMEDAN ST C	111286	0.04060590	107934	0.04102030	47586	0.04521171
33	SWEET STATE F	8527	0.00311132	8962	0.00340801	3797	0.00360755
34	SHELL STATE F	1745	0.00063671	1097	0.00041691	573	0.00054441
35	T P STATE V AC2	4665	0.00170216	3691	0.00140276	1445	0.00137290
36	C C OPR SAIFF A	799	0.00029154	865	0.00032874	344	0.00032684
37	YATES SHELL ST	6070	0.00221481	4417	0.00167868	1673	0.00158953
38	WISER STATE L	286	0.00010436	395	0.00015012	75	0.00007126
39	GETTY HOBBS E	1802	0.00065751	1802	0.00068485	742	0.00070498
40	CONOCO ST B 25	5057	0.00184518	40005	0.01520389	15586	0.01480834
41	SHELL ST B	3073	0.00112124	4119	0.00156544	1527	0.00145081
42	TEXACO AM BC ST	92971	0.03392315	88500	0.03366709	33695	0.03201380
43	EXXON STATE A	36878	0.01345600	33147	0.01259751	12429	0.01180886
44	AMERADA MCKINLY	87842	0.03205168	71227	0.02706981	25622	0.02434360
45	GETTY MCKINLEY	88127	0.03215567	87272	0.03316771	37090	0.03523940
46	MARATHON ST 30	46500	0.01696686	36718	0.01395467	14972	0.01422498
47	EXXON BOWRS FED	105400	0.03845823	136522	0.05188516	61810	0.05872600
48	EXXON BOWRS COM	16198	0.00591031	17811	0.00676907	6381	0.00606262
49	AMERADA ST B	43173	0.01575291	35481	0.01348074	14676	0.01394374
50	EXXON GRIMES	3963	0.00144685	1040	0.00039525	423	0.00040189
51	CONOCO ST A 29	45178	0.01649179	68451	0.02601479	26367	0.02505142
52	GETTY WD GRIMES	24984	0.00911613	23454	0.00891369	8870	0.00842743
53	CHEVRON ST I 29	52872	0.01929187	16236	0.00617049	7074	0.00672104
54	ARCO GRIMES SOC	34014	0.01241099	28124	0.01068852	11291	0.01072764
55	SAMEDAN MOON A	41648	0.01526945	35986	0.01367657	14715	0.01398080
56	SAMEDAN MOON B	37611	0.01382051	44965	0.01708894	18783	0.01784583
57	SHELL GRIMES	73867	0.02695250	68692	0.02610638	25990	0.02469323
58	CONOCO GRIMES	51921	0.01894487	76001	0.02888417	34069	0.03236913
59	SHELL SANGER	149429	0.05452348	146984	0.05586124	60301	0.05729230
60	MORANCO HOBBS	5419	0.00197728	4315	0.00163991	1657	0.00157432
61	SHELL TURNER	58721	0.02142605	57741	0.02194446	24151	0.02294599
62	GETTY TURNER	28955	0.01056507	28902	0.01098420	12428	0.01180791
63	GETTY TURNER B2	29154	0.01063768	30263	0.01150145	10961	0.01039510
64	SAMEDAN TURNERB	12818	0.00467702	10258	0.00389855	3699	0.00351444
65	SAMEDAN TURNRB2	11143	0.00406584	5872	0.00223165	2957	0.00280946
66	SAMEDAN TURNR A	41077	0.01498813	39400	0.01497396	15819	0.01502971
67	GULF GRIMES NCB	66640	0.02431552	63887	0.02428024	25518	0.02425429
68	SHELL STATE B	40060	0.01461705	44163	0.01678414	19415	0.01844629
69	AMOCO [illegible] G	54956	0.02005228	37464	0.01423819	13007	0.01235802
70	CONOCO ST A 33	150165	0.05479203	183387	0.06969620	67901	0.06451309
71	AM HESS ST [illegible]	42053	0.01534425	45679	0.01736030	24932	0.02368802
72	SHELL ST A	33646	0.01227671	44485	0.01690652	16155	0.01534895
73	GULF GRIMES A 2	82743	0.03019117	78184	0.02971381	30185	0.02867893
74	GULF GRIMES AB2	69272	0.02527588	60557	0.02301468	28406	0.02698869
75	MARATHON ST3218	33453	0.01220629	33247	0.01263552	12142	0.01153618
76	EXXON FOWLER	62607	0.02284367	67287	0.02557041	27740	0.02635392
77	GETTY FOWLER	38735	0.01413356	37006	0.01406412	14387	0.01366916
78	SUN C FOWLER	9582	0.00349627	9714	0.00369180	3187	0.00302799
79	SHELL BERRY	77308	0.02820805	60810	0.02311083	25620	0.02434170
80	NOBILN BERRY	36174	0.01319913	32447	0.01233148	13271	0.01260885
81	AM HESS ST C	6681	0.00243776	4412	0.00167678	1857	0.00176435
82	BYROM HOLT ST	3883	0.00141682	3332	0.00126633	1469	0.00139570
83	GULF HOLT NCT D	0	0.0	0	0.0	0	0.0
TOTAL		2740636	1.00000000	2631234	1.00000000	1052515	1.00000000

TRACT PARAMETERS

OIL RESERVES

TRACT NO.	TRACT NAME	1976 PRIMARY OIL RESERVES VALUE	1976 PRIMARY OIL RESERVES FRACTION	1979 PRIMARY OIL RESERVES VALUE	1979 PRIMARY OIL RESERVES FRACTION	SECONDARY OIL RESERVES VALUE	SECONDARY OIL RESERVES FRACTION
1	GETTY STATE R	13132	0.00034493	10068	0.00030320	77157	0.00139777
2	AM HESS ST WHB	13310	0.00034960	7260	0.00021864	114241	0.00206958
3	GULF LEA FD ST	10062	0.00026429	6579	0.00019813	46155	0.00083614
4	T P STATE V ACI	38702	0.00101656	27091	0.00081586	160975	0.00291621
5	ESTES ENG STATE	12875	0.00033818	4414	0.00013293	109123	0.00197687
6	CONOCO ST A 13	11753	0.00030871	15671	0.00047194	746260	0.01351920
7	SHELL MILC	108709	0.00285538	[illegible]	[illegible]	[illegible]	[illegible]
8	AM HESS BHARDIN	0	0.0	0	0.0	1167812	0.02115601
9	GULF D HARDIN	79117	0.00207811	56831	0.00171149	714483	0.01294353
10	MORANCO ST T 17	13857	0.00036397	11779	0.00035473	22523	0.00040803
11	CHEVRON ST I 17	0	0.0	0	0.0	40169	0.00072770
12	GETTY STATE A	7968	0.00020929	4850	0.00014606	59260	0.00107355
13	ANTWEIL MCTOWNS	30642	0.00080485	43775	0.00131830	19480	0.00035290
14	WISER MORRIS B	67500	0.00177297	47927	0.00144334	10039	0.00018187
15	WISER MORRIS A	152766	0.00401159	99648	0.00300094	17299	0.00031339
16	GULF GRIMES C	61284	0.00160970	27140	0.00081733	94558	0.00171301
17	SWEET MCKINLY B	8755	0.00022996	7748	0.00023333	72019	0.00130469
18	GETTY MCKINLY A	50	0.00000131	2190	0.00006595	108286	0.00196170
19	CHEVRON MCKINLY	168560	0.00442744	138931	0.00418396	216759	0.00392679
20	SWEET GRIMES	0	0.0	0	0.0	23948	0.00043384
21	SWEET BOWERS BF	8755	0.00022996	7879	0.00023728	47299	0.00085687
22	SWEET BOWERS BF	0	0.0	0	0.0	50822	0.00092069
23	ARCO GRIMES	19360	0.00050851	24201	0.00072882	71951	0.00130346
24	SHELL MCKINLY B	830343	0.02180999	587851	0.01770335	513410	0.00930091
25	GETTY B HARDIN	130519	0.00342824	105927	0.00319003	756545	0.01370553
26	CITCO HARDIN	250448	0.00657833	184547	0.00555770	1620620	0.02935906
27	SHELL MCKINLY A	1800740	0.04729867	1889400	0.05689999	2031806	0.03680808
28	GULF GRAM ST A	548510	0.01440730	531205	0.01599744	1649733	0.02988647
29	SHELL STATE D	234712	0.00616500	164276	0.00494723	617020	0.01117790
30	AM HESS ST E	124491	0.00326991	60387	0.00181858	394858	0.00715322
31	T P STATE G	1724405	0.04529364	1016837	0.03062243	1205850	0.02184511
32	SAMEDAN ST C	1133353	0.02976892	1046398	0.03151267	768452	0.01392123
33	SWEET STATE F	83172	0.00218462	83172	0.00250476	342318	0.00620141
34	SHELL STATE F	3763	0.00009897	2930	0.00008824	131973	0.00239082
35	T P STATE V AC2	27714	0.00072794	16282	0.00049034	189441	0.00343190
36	C C OPR SAIFF A	2621	0.00006884	2359	0.00007104	17373	0.00031473
37	YATES SHELL ST	40718	0.00106951	25057	0.00075460	214237	0.00388111
38	WISER STATE L	0	0.0	1732	0.00005216	47079	0.00085288
39	GETTY HOBBS E	9196	0.00024154	8228	0.00024779	95058	0.00172207
40	CONOCO ST A 25	122580	0.00321972	291024	0.00876430	242968	0.00440159
41	SAMEDAN ST A	23321	0.00060993	27091	0.00081586	147458	0.00267134
42	TEXACO NM BC ST	1176835	0.03091103	1069289	0.03220204	643161	0.01165147
43	EXXON STATE A	188655	0.00495526	148229	0.00446397	542724	0.00983196
44	AMERADA MCKINLY	1298478	0.03410614	951790	0.02866351	1030776	0.01867348
45	GETTY MCKINLEY	143006	0.03756141	1403939	0.04228015	1564561	0.02834350
46	MARATHON ST 30	711092	0.01867771	644540	0.01941056	1098123	0.01989353
47	EXXON BOWRS FED	1240799	0.03259113	1472493	0.04434468	3372482	0.06109569
48	EXXON BOWRS COM	225943	0.00593467	247008	0.00743874	235403	0.00426455
49	AMERADA ST B	504066	0.01323992	463905	0.01397067	778077	0.01409560
50	EXXON GRIMES	36542	0.00095982	15327	0.00046158	132066	0.00239250
51	CONOCO ST A 29	800184	0.02101783	843383	0.02539879	1572538	0.02848801
52	GETTY NO GRIMES	330641	0.00868470	326638	0.00983683	682254	0.01235967
53	CHEVRON ST I 29	1125489	0.02956237	403942	0.01216486	1384281	0.02507755
54	ARCO GF [illegible] S SOC	870238	0.02285788	581446	0.01751046	602837	0.01092096
55	SAMEDAN [illegible]ON A	925933	0.02432078	748316	0.02253582	137794	0.00249627
56	SAMEDAN MOON B	959843	0.02521147	841801	0.02535115	58983	0.00106853
57	SHELL GRIMES	1131000	0.02970712	1031[illegible]08	0.03107630	1698814	0.03077562
58	CONOCO GRIMES	1801701	0.04732391	1600053	0.04818619	930424	0.01685551
59	SHELL SANGER	2552086	0.06703371	1708581	0.05145456	183495	0.00332418
60	MORANCO HOBBS	40718	0.00106951	28189	0.00084892	3631	0.00006578
61	SHELL TURNER	872424	0.02291530	699541	0.02106694	60936	0.00110391
62	GETTY TURNER	447206	0.01174642	363834	0.01095700	62987	0.00114107
63	GETTY TURNER B2	447399	0.01175149	413257	0.01244539	171717	0.00311082
64	SAMEDAN TURNERB	118976	0.00312505	84395	0.00254159	8092	0.00014659
65	SAMEDAN TURNR82	141017	0.00370399	67477	0.00203210	9171	0.00016614
66	SAMEDAN TURNR A	942535	0.02475665	586563	0.01766456	209337	0.00379234
67	GULF GRIMES NCB	805623	0.02116077	815173	0.02454924	1881021	0.03407647
68	SHELL STATE B	320671	0.00842282	376822	0.01134814	1371455	0.02484520
69	AMOCO STATE G	685404	0.01800299	427628	0.01287818	1374539	0.02490107
70	CONOCO ST A 33	1714203	0.04502567	1965835	0.05920186	4405495	0.07980969
71	AM HESS ST A	553998	0.01455144	676362	0.02036889	1128454	0.02044301
72	SHELL ST A	316414	0.00831101	387801	0.01167877	1415049	0.02563495
73	GULF GRIMES A 2	710915	0.01867306	1210808	0.03643497	[illegible]	0.03476462
74	GULF GRIMES AB2	1378346	0.03620397	815503	0.02455918	2074045	0.03757328
75	MARATHON ST321A	647954	0.01702037	388979	0.01171425	2263840	0.04101159
76	CITCO FOWLER	900733	0.02365887	987285	0.02973246	1393769	0.02524944
77	GETTY FOWLER	446513	0.01172822	509906	0.01535601	391610	0.00709438
78	SUN C FOWLER	74842	0.00196582	56582	0.00170399	239730	0.00434293
79	SHELL BERRY	878132	0.02306523	840484	0.02531149	1084508	0.01964688
80	NOBILN BERRY	315251	0.00828046	256358	0.00772032	371295	0.00672636
81	AM HESS ST C	43561	0.00114418	24201	0.00072882	331741	0.00600980
82	BYROM HOLT ST	41586	0.00109231	35023	0.00105464	65957	0.00119487
83	GULF HOLT NCI D	0	0.0	0	0.0	26255	0.00047562
	TOTAL	38071683	1.00000000	33205631	1.00000000	55200000	1.00000000

WORKING INTEREST OWNERS
AND TRACT IDENTIFICATION
PROPOSED NORTH HOBBS UNIT

TRACT NO	TRACT NAME	LOCATION	OWNER	WORKING INTEREST FRACTION
1	GETTY STATE H	14 18S 37E	GETTY	1.00000000
2	AM MESS ST 4MR	14 18S 37E	AMERADA MESS	1.00000000
3	GULF LEA FO ST	14 18S 37E	GULF	1.00000000
4	T P STATE Y AC1	14 18S 37E	TEXAS PACIFIC	1.00000000
5	ESTES FED STATE	14 18S 37E	ANDERSON ADA A	0.11718750
			ANDERSON EST	0.11718750
			ANDERSON W FONS	0.23437500
			ARMSTRONG J M	0.23437500
			ESTES A O	0.04250000
			YEAGER A A	0.23437500
6	CONOCO ST A 13	13 18S 37E	CONOCO	1.00000000
7	SHELL NCT	13 18S 37E	SHELL	1.00000000
8	AM MESS MHAUDIN	18 18S 38E	AMERADA MESS	1.00000000
9	GULF D MARDIN	19 18S 38E	GULF	1.00000000
10	MORANCO T F 17	17 18S 38E	BURLEY J W	0.04687500
			FIRST ROS CO	0.09375000
			GETTY	0.28000000
			LAFLIN G P	0.04687500
			MCPETERS K D	0.07031250
			MORANCO	0.09375000
			MORAN R M	0.09112500
			SPEAR H	0.02343750
			SHIRLEY LOYD	0.04687500
			WILLIAMSON A T	0.04687500
11	CHEVRON ST I 17	17 18S 38E	CHEVRON	1.00000000
12	GETTY STATE A	17 18S 38E	GETTY	1.00000000
13	AMERADA MCTAGGS	21 18S 38E	DEL LEA INC	1.00000000
14	WISER MORRIS H	21 18S 38E	HEADLEY K N	0.12500000
			TWO STATE	0.37500000
			WISER OIL	0.50000000
15	WISER MORRIS A	21 18S 38E	CONRAD M O	0.06250000
			CHILE M R	0.00375000
			HEADLEY K N	0.00375000
			KURO PETER	0.06250000
			JUDSON CONRA	0.01250000
			MCCARTHY K L C	0.01250000
			MURDOCH CONRA	0.01250000
			ROSE CONRAD	0.01250000
			TREADAWAY CONRA	0.01250000
			WISER OIL	0.50000000
			YEAGER JR DR H	0.04687500
			YEAGER RUTH A	0.03025000
			YEAGER W MCCLR	0.04365000
16	GULF GRIMES C	21 18S 38E	GULF	1.00000000
17	SWEET MCKINLY H	20 18S 38E	SWEET C H	1.00000000
18	GETTY MCKINLY A	20 18S 38E	GETTY	1.00000000
19	CHEVRON MCKINLY	20 18S 38E	CHEVRON	1.00000000
20	SWEET GRIMES A	20 18S 38E	SWEET C H	1.00000000
21	SWEET MCKINLY AC	20 18S 38E	SWEET BILL L	1.00000000
22	SWEET MORRIS H	20 18S 38E	SWEET BILL L	1.00000000
23	ARCO GRIMES	20 18S 38E	ARCO	1.00000000
24	SHELL MCKINLY H	20 18S 38E	SHELL	1.00000000
25	GETTY B MARDIN	19 18S 38E	GETTY	1.00000000
26	CITCO MARDIN	19 18S 38E	CITCO	1.00000000
27	SHELL MCKINLY A	19 18S 38E	SHELL	1.00000000
28	GULF GRIM ST A	24 18S 37E	GULF	1.00000000
29	SHELL STATE D	24 18S 37E	SHELL	1.00000000
30	AM MESS ST F	24 18S 37E	AMERADA MESS	0.50000000
			GETTY	0.50000000
31	T P STATE G	24 18S 37E	TEXAS PACIFIC	1.00000000
32	SAMEDAN ST C	24 18S 37E	FORBES K L	0.01900000
			FORBES ILAHAE	0.01850000
			KENNITZ A A	0.28750000
			MORRIS G D	0.01250000
			NOBLE A L	0.15298000
			PORTALIS NATLBK	0.01875000
			RORING JOHN	0.03750000
			SAMEDAN	0.37800000
			SEA PROPERTIES	0.00750000
			1ST NATL BK FW	0.01250000
			SULLIVAN E C	0.01875000
			1ST NATL CASPER	0.03750000
33	SWEET STATE F	23 18S 37E	SWEET C H	1.00000000
34	SHELL STATE F	23 18S 37E	SHELL	1.00000000
35	T P STATE Y AC2	23 18S 37E	TEXAS PACIFIC	1.00000000
36	C C OPR UNIT A	23 18S 37E	C C OPER CO	1.00000000
37	YATES SHELL ST	23 18S 37E	YATES JOHN A	1.00000000
38	WISER STATE L	26 18S 37E	WISER OIL	1.00000000
39	GETTY MORRS E	26 18S 37E	GETTY	1.00000000
40	CONOCO ST A 25	25 18S 37E	CONOCO	1.00000000
41	SAMEDAN ST R	25 18S 37E	SAMEDAN	1.00000000
42	TEXACO NM AC ST	25 18S 37E	TEXACO	1.00000000
43	EXXON STATE A	25 18S 37E	EXXON	1.00000000
44	AMERADA MCKINLY	30 18S 38E	AMERADA MESS	1.00000000
45	GETTY MCKINLEY	30 18S 38E	GETTY	1.00000000
46	MARATHON ST 30	30 18S 38E	MARATHON	1.00000000
47	EXXON ROWDS FED	29 30 18S 38E	EXXON	1.00000000
48	EXXON ROWDS COM	29 30 18S 38E	EXXON	1.00000000
49	AMERADA ST 3	29 30 18S 38E	AMERADA MESS	1.00000000
50	EXXON GRIMES	29 30 18S 38E	CITCO	0.25000000
			CONOCO	0.25000000
			EXXON	0.50000000
51	CONOCO ST A 29	29 18S 38E	CONOCO	1.00000000
52	GETTY WD GRIMES	29 30 18S 38E	GETTY	1.00000000
53	CHEVRON ST I 29	29 30 18S 38E	CHEVRON	1.00000000
54	ARCO GRIMES SDC	28 29 30 18S 38E	ARCO	1.00000000
55	SAMEDAN MOON A	24 30 18S 38E	CUSACK J P JR	0.25000000
			CUSACK M F	0.25000000
			SAMEDAN	0.48500000
			SEA PROPERTIES	0.01500000
56	SAMEDAN MOON B	24 30 18S 38E	CUSACK J P JR	0.25000000
			CUSACK M F	0.25000000
			SAMEDAN	0.48500000
			SEA PROPERTIES	0.01500000
57	SHELL GRIMES	28 30 18S 38E	SHELL	1.00000000
58	CONOCO GRIMES	28 30 18S 38E	CONOCO	1.00000000
59	SHELL SANGER	27 30 18S 38E	SHELL	1.00000000
60	MORANCO MORRS	34 30 18S 38E	DEL LEA INC	0.18750000
			LANE N RALPH	0.21000000
			MCPETERS K D	0.04600000
			MORANCO	0.23440000
			MORAN R M	0.18750000
			PARRISH MC EST	0.09380000
61	SHELL TURNER	34 30 18S 38E	SHELL	1.00000000
62	GETTY TURNER	34 30 18S 38E	GETTY	1.00000000
63	GETTY TURNER 27	34 30 18S 38E	GETTY	1.00000000
64	SAMEDAN TURNER	34 30 18S 38E	CUSACK J P	0.37500000
			SAMEDAN	0.62500000
65	SAMEDAN TURNER	34 30 18S 38E	CUSACK J P	0.37500000
			SAMEDAN	0.62500000
66	SAMEDAN TURNR A	34 30 18S 38E	CITCO	0.06250000
			SAMEDAN	0.87031250
			WILLIAMS M C	0.06250000
67	GULF GRIMES NCT	33 30 18S 38E	GULF	1.00000000
68	SHELL STATE G	33 30 18S 38E	SHELL	1.00000000
69	AMOCO STATE G	33 30 18S 38E	AMOCO	0.75435010
			LANDRETH INT	0.24564990
70	CONOCO ST A 33	33 30 18S 38E	CONOCO	1.00000000
71	AM MESS ST A	32 30 18S 38E	AMERADA MESS	1.00000000
72	SHELL ST A	32 30 18S 38E	SHELL	1.00000000
73	GULF GRIMES A 2	32 30 18S 38E	GULF	1.00000000
74	GULF GRIMES AB2	32 30 18S 38E	GULF	1.00000000
75	MARATHON ST32A	32 30 18S 38E	MARATHON	0.50000000
76	CITCO FOWLER	31 30 18S 38E	ARCO	0.50000000
			CITCO	0.50000000
77	GETTY FOWLER	31 30 18S 38E	GETTY	1.00000000
78	SUN C FOWLER	31 30 18S 38E	SUN OIL CO	1.00000000
79	SHELL BERRY	31 30 18S 38E	SHELL	1.00000000
80	MOBILN BERRY	31 30 18S 38E	MOBIL	1.00000000
81	AM MESS ST C	36 30 18S 37E	AMERADA MESS	1.00000000
82	BYRUM MOLT ST	36 30 18S 37E	BYRUM W K	0.50593750
			GULF	0.06250000
			MCPHERSON M N	0.17578130
			MCPHERSON R L	0.08789060
			WALLACE MCPHER	0.08789060
83	GULF MOLT NCT D	36 30 18S 37E	GULF	1.00000000

WORKING INTEREST OWNER SHARE
OIL PRODUCTION AND INVESTMENT
AGREEMENT FORMULA PROPOSED BY SHELL
USING 1976 PARAMETER INFORMATION

WORKING INTEREST OWNER CODE	NAME	PHASE 1 20% 1976 OIL PRODUCTION RATE 80% 1976 PRIMARY OIL RESERVES PARTICIPATION	PHASE 2 100% 1976 PRIMARY OIL RESERVES PARTICIPATION	PHASE 3 100% SECONDARY OIL RESERVES PARTICIPATION	INVESTMENT 42% PHASE 3 58% PHASE 2 PARTICIPATION
0001	AMERADA HESS	0.06566961	0.06502624	0.08602409	0.07324534
0002	AMOCO	0.01388973	0.01358055	0.01878412	0.01576405
0003	ANDERSON ADA A	0.00006285	0.00003963	0.00023166	0.00012028
0004	ANDERSON EST	0.00006285	0.00003963	0.00023166	0.00012028
0005	ANDERSON W SONS	0.00012570	0.00007926	0.00046333	0.00024057
0006	ARMSTRONG J M	0.00012570	0.00007926	0.00046333	0.00024057
0007	ARCO	0.00229580	0.00144758	0.00273022	0.00223511
0008	BYROM W K	0.00067805	0.00064002	0.00070012	0.00066526
0009	C C OPER CO	0.00011338	0.00006884	0.00031473	0.00017212
0010	CHEVRON	0.03214712	0.03398980	0.02973205	0.03220155
0011	CITCO	0.03248816	0.03202446	0.05544364	0.04166051
0012	CONRAD M D	0.00024084	0.00025079	0.00001959	0.00015368
0013	CONOCO	0.11246342	0.11713579	0.14367213	0.12828105
0014	CRILE H R	0.00036126	0.00037618	0.00002938	0.00023052
0015	CUSACK J P	0.00270443	0.00256089	0.00011728	0.00153457
0016	CUSACK J P JR	0.01136095	0.01238306	0.00089120	0.00755648
0017	CUSACK M F	0.01136095	0.01238306	0.00089120	0.00755648
0018	DEL LEA INC	0.00110920	0.00100538	0.00026523	0.00073652
0019	DUNLAVEY J W	0.00001940	0.00001706	0.00001913	0.00001793
0020	ESTES R G	0.00003352	0.00002114	0.00012355	0.00006415
0021	EXXON	0.04647617	0.04396097	0.07638844	0.05758051
0022	FIRST ROS CO	0.00 3880	0.00003412	0.00003825	0.00003586
0023	FORBES C C	0.00 0679	0.00056561	0.00026450	0.00043914
0024	FORBES ILAMAE	0.00059082	0.00055073	0.00025754	0.00042759
0025	GETTY	0.08720652	0.08742350	0.07558867	0.08245287
0026	GULF	0.09717157	0.09446546	0.15234383	0.11827438
0027	HEADLEY K N	0.00057784	0.00059780	0.00005211	0.00036861
0028	HURD PETER	0.00024084	0.00025079	0.00001959	0.00015368
0029	JUDSON CONRA	0.00004817	0.00005016	0.00000392	0.00003074
0030	KENNITZ A A	0.00918169	0.00855857	0.00400235	0.00664496
0031	LAFLIN G P	0.00001940	0.00001706	0.00001913	0.00001793
0032	LOWE N RALPH	0.00031277	0.00026734	0.00001644	0.00016199
0033	MARATHON	0.02636432	0.02718790	0.04039933	0.03273670
0034	MCCARTHY K L C	0.00004817	0.00005016	0.00000392	0.00003074
0035	MCPETERS K D	0.00008765	0.00007564	0.00003177	0.00005722
0036	MCPHERSON M N	0.00020342	0.00018201	0.00021004	0.00019958
0037	MCPHERSON R L	0.00010171	0.00009600	0.00010502	0.00009979
0038	MOBIL	0.00926419	0.00828046	0.00672636	0.00762774
0039	MORANCO	0.00033205	0.00028482	0.00005367	0.00018773
0040	MORAN R M	0.00035097	0.00030290	0.00012709	0.00022906
0041	MORRIS G D	0.00039920	0.00037211	0.00017402	0.00028891
0042	MURDOCK CONRA	0.00004817	0.00005016	0.00000392	0.00003074
0043	NOBLE R L	0.00485432	0.00452488	0.00211603	0.00351316
0044	PARRISH MC EST	0.00011735	0.00010032	0.00000617	0.00006078
0045	PORTALIS NATLBK	0.00059881	0.00055817	0.00026102	0.00043337
0046	RORING JOHN	0.00119761	0.00111633	0.00052205	0.00086673
0047	ROSE CONRAD	0.00004817	0.00005016	0.00000392	0.00003074
0048	SAMEDAN	0.05937369	0.06191291	0.01319108	0.04144674
0049	SEA PROPERTIES	0.00092118	0.00096625	0.00015788	0.00062674
0050	SHELL	0.24122710	0.23768319	0.18875389	0.21713289
0052	1ST NATL BK FW	0.00039920	0.00037211	0.00017402	0.00028891
0053	SPEAR H	0.00000970	0.00000853	0.00000956	0.00000896
0054	SULLIVAN E C	0.00059881	0.00055817	0.00026102	0.00043337
0055	SUN OIL CO	0.00227191	0.00196582	0.00434293	0.00296421
0056	SWEET BILL L	0.00026512	0.00022996	0.00177755	0.00087995
0057	SWEET C H	0.00264427	0.00241458	0.00793995	0.00473523
0058	1ST NATL CASPER	0.00119761	0.00111633	0.00052205	0.00086673
0059	TEXACO	0.03151345	0.03091103	0.01165147	0.02282201
0060	TEXAS PACIFIC	0.04681714	0.04703814	0.02819322	0.03912327
0061	TREADAWAY CONRA	0.00004817	0.00005016	0.00000392	0.00003074
0062	TWO STATE	0.00064976	0.00066486	0.00006820	0.00041427
0063	WALLACE MCRER	0.00010171	0.00009600	0.00010502	0.00009979
0064	WHITLEY LOYD	0.00001940	0.00001706	0.00001913	0.00001793
0065	WILLIAMS H C	0.00133603	0.00145050	0.00022219	0.00093461
0066	WILLIAMSON A T	0.00001940	0.00001706	0.00001913	0.00001793
0067	WISER OIL	0.00281393	0.00289278	0.00110051	0.00214003
0068	YATES JOHN A	0.00129857	0.00106951	0.00398111	0.00225038
0069	YEAGER A A	0.00012570	0.00007926	0.00046333	0.00024057
0070	YEAGER JR DR H	0.00015674	0.00016321	0.00001275	0.00010002
0071	YEAGER RUTH A	0.00011660	0.00012141	0.00000948	0.00007440
0072	YEAGER R HENRY	0.00004014	0.00004180	0.00000326	0.00002561
0073	YEAGER R PELLR	0.00016820	0.00017515	0.00001368	0.00010733
0074	LANDRETH INT	0.00852311	0.00442243	0.00611695	0.00513413
	TOTAL	1.00000000	1.00000000	1.00000000	1.00000000

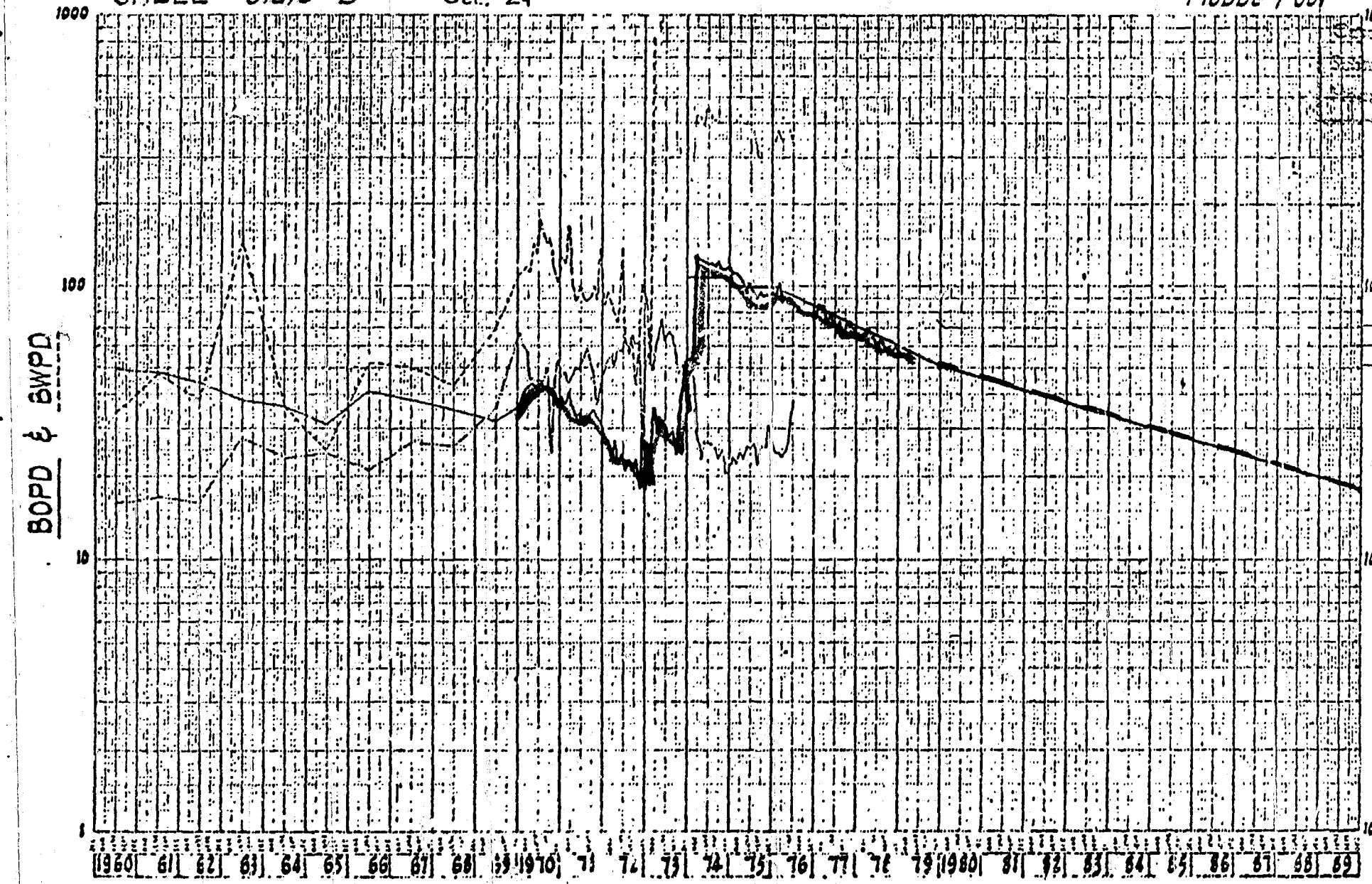
WORKING INTEREST OWNER SHARE

OIL PRODUCTION AND INVESTMENT

AGREEMENT FORMULA PROPOSED BY SHELL

USING UPDATED PARAMETERS CALCULATED BY EXXON

WORKING INTEREST OWNER CODE	NAME	PHASE 1 20% 1978 OIL PRODUCTION RATE 80% 1979 PRIMARY OIL RESERVES PARTICIPATION	PHASE 2 100% 1979 PRIMARY OIL RESERVES PARTICIPATION	PHASE 3 100% SECONDARY OIL RESERVES PARTICIPATION	INVESTMENT 42% PHASE 3 58% PHASE 2 PARTICIPATION
0001	AMERADA HESS	0.06419559	0.06485983	0.08602409	0.07374882
0002	AMOCO	0.00991984	0.00971465	0.01878412	0.01352383
0003	ANDERSON ADA A	0.00002660	0.00001558	0.00023166	0.00010633
0004	ANDERSON EST	0.00002660	0.00001558	0.00023166	0.00010633
0005	ANDERSON W SONS	0.00005320	0.00003116	0.00046333	0.00021267
0006	ARMSTRONG J M	0.00005320	0.00003116	0.00046333	0.00021267
0007	ARCO	0.02302233	0.02407641	0.03273022	0.02772341
0008	BIRCH H R	0.00001276	0.00001795	0.00070012	0.00026246
0009	C C OPER CO	0.00012258	0.00007104	0.00031473	0.00017339
0010	CHEVRON	0.01513239	0.01634882	0.02973205	0.02196578
0011	CITCO	0.03596568	0.03650959	0.05544364	0.04446189
0012	CONRAD M D	0.00018054	0.00018756	0.00001959	0.00011701
0013	CONOCO	0.14217400	0.14213847	0.14337213	0.14278261
0014	CRILE H R	0.00027080	0.00028134	0.00002938	0.00017552
0015	CUSACK J P	0.00183187	0.00171513	0.00011728	0.00104403
0016	CUSACK J P JR	0.01111566	0.01197174	0.00089120	0.00731791
0017	CUSACK M F	0.01111566	0.01197174	0.00089120	0.00731791
0018	DEL LEA INC	0.00155664	0.00147747	0.00036523	0.00101033
0019	DUNLAVEY J W	0.00001848	0.00001663	0.00001913	0.00001768
0020	ESTES R G	0.00001419	0.00000831	0.00012355	0.00005671
0021	EXXON	0.05947241	0.05647818	0.07638844	0.06448405
0022	FIRST ROS CO	0.00003696	0.00003326	0.00003825	0.00003535
0023	FORBES C C	0.00063487	0.00059874	0.00026450	0.00045836
0024	FORBES ILAMAE	0.00061816	0.00058298	0.00025754	0.00044630
0025	GETTY	0.09412323	0.09582638	0.07558867	0.08732654
0026	GULF	0.10426212	0.10463369	0.15234383	0.12467195
0027	HEADLEY K N	0.00045125	0.00046176	0.00005211	0.00028971
0028	HURD PETER	0.00018054	0.00018756	0.00001959	0.00011701
0029	JUDSON CONRA	0.00003611	0.00003751	0.00000392	0.00002340
0030	KEHNITZ A A	0.00960658	0.00905989	0.00000235	0.00693573
0031	LAFLIN G P	0.00001848	0.00001663	0.00001913	0.00001768
0032	LOWE N RALPH	0.00025178	0.00021223	0.00001644	0.00013000
0033	MARATHON	0.02426864	0.02526769	0.04039933	0.03162296
0034	MCCARTHY K L C	0.00003611	0.00003751	0.00000392	0.00002340
0035	MCPETERS K O	0.00007485	0.00006467	0.00003177	0.00005085
0036	MCPHERSON M N	0.00019283	0.00018539	0.00021004	0.00019574
0037	MCPHERSON R L	0.00009641	0.00009269	0.00010502	0.00009787
0038	MOBIL	0.00864255	0.00772032	0.00672636	0.00730285
0039	MORANCO	0.00027303	0.00023224	0.00005367	0.00017724
0040	MORAN R M	0.00029971	0.00025894	0.00012709	0.00020356
0041	MORRIS G O	0.00041768	0.00039391	0.00017402	0.00030155
0042	MURDOCK CONRA	0.00003611	0.00003751	0.00000392	0.00002340
0043	NOBLE R L	0.00507896	0.00478993	0.00211603	0.00366689
0044	PARRISH MC EST	0.00009447	0.00007963	0.00000617	0.00004876
0045	PORTALIS NATLBK	0.00062652	0.00059086	0.00026102	0.00045233
0046	RORING JOHN	0.00125303	0.00118173	0.00052205	0.00090466
0047	ROSE CONRAD	0.00003611	0.00003751	0.00000392	0.00002340
0048	SAMEDAN	0.05326644	0.05433694	0.01319108	0.03705568
0049	SEA PROPERTIES	0.00091755	0.00095465	0.00015788	0.00062001
0050	SHELL	0.23592773	0.23420573	0.18875389	0.21511596
0052	1ST NATL BK FW	0.00041768	0.00039391	0.00017402	0.00030155
0053	SPEAR H	0.00000924	0.00000231	0.00000956	0.00000884
0054	SULLIVAN E C	0.00062652	0.00059086	0.00026102	0.00045233
0055	SUN OIL CO	0.00210155	0.00170399	0.00434293	0.00291235
0056	SWEET BILL L	0.00027442	0.00023728	0.00177755	0.00088419
0057	SWEET C H	0.00296266	0.00273809	0.00793995	0.00492287
0058	1ST NATL CASPER	0.00125303	0.00118173	0.00052205	0.00090466
0059	TEXACO	0.03249505	0.03220204	0.01165147	0.02357080
0060	TEXAS PACIFIC	0.03265393	0.03192862	0.02819322	0.03035975
0061	TREADAWAY CONRA	0.00003611	0.00003751	0.00000392	0.00002340
0062	TWO STATE	0.00054134	0.00054125	0.00006820	0.00034257
0063	WALLACE MCRRER	0.00009641	0.00009269	0.00010502	0.00009787
064	WHITLEY LOYD	0.00001848	0.00001663	0.00001913	0.00001768
0065	WILLIAMS H C	0.00100344	0.00103497	0.00022219	0.00069360
0066	WILLIAMSON A T	0.00001848	0.00001663	0.00001913	0.00001768
0067	WISER OIL	0.00223784	0.00227430	0.00110051	0.00178131
0068	YATES JOHN A	0.00093942	0.00075460	0.00388111	0.00206773
0069	YEAGER A A	0.00005320	0.00003116	0.00046333	0.00021267
0070	YEAGER JR DR H	0.00011749	0.00012206	0.00001275	0.00007615
0071	YEAGER RUTH A	0.00006740	0.00009080	0.00000948	0.00005665
0072	YEAGER R HENRY	0.00003009	0.00003126	0.00000326	0.00001950
0073	YEAGER R PELLR	0.00012609	0.00013099	0.00001368	0.00008172
0074	LANDRETH INT	0.00323034	0.00316352	0.00611695	0.00440396
	TOTAL	1.00000000	1.00000000	1.00000000	1.00000000



BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6652 Exhibit No. 16
Submitted by EXXON
Hearing Date 10/3

TRACT 29

SHELL

STATE "D"

243785.	SR
90.	S7
49.	S8
19.	S9
6.	EL
16.67445767	%D
9.038889858	%D
9.767757981	%D
2001.21465	SF
56.	R7
56.11227996	S7
9.652375935	%D
51.6847296	E8
18.72964774	E9
164276.1411	ER
161746.8143	SR80
2529.326757	DR80

TESTIMONY AND EXHIBITS OF

R.W. PHILLIPS

TESTIMONY OF R.W. PHILLIPS

Q. Would you please state your name, where you reside, by whom you are employed and in what capacity?

A. My name is R.W. Phillips, I live in Houston and I am employed by Shell Oil Company as a staff production engineer.

Q. Have you previously testified before the Commission and had your qualifications accepted as a matter of record?

A. No, I have not.

Q. Would you briefly describe your educational background and employment experience?

A. I received a B.S. in Mechanical Engineering and a B.S. in Petroleum Engineering from Texas A&M University in 1949. I joined Shell in August of 1949. I have had production engineering type assignments for Shell in Elk City, Oklahoma; Wichita, Kansas; Ardmore, Oklahoma; Oklahoma City; Denver; New Orleans, and Houston. I am a Registered Professional Engineer in the States of Colorado and Louisiana.

Q. Do your duties as production engineer for Shell include responsibilities for Shell's operations in New Mexico and specifically the North Hobbs Unit under discussion today?

A. Yes, they do.

Q. Are you familiar with Shell Oil Company's application in Case Nos. 6652 and 6653?

A. Yes, I am. I have been charged by Shell with the job of coordinator of engineering with responsibility for coordinating the project planning in connection with unitization efforts. In this capacity, I have reviewed the wells to be included in the North Hobbs Unit Area as to their current completion and their proposed utilization in the unit operation. I have also coordinated engineering efforts toward the implementation of this water injection project.

Q. Mr. Chairman, are the witness' qualifications acceptable?

A. [Await answer, assume they are].

Q. I refer you now to what has been marked as Shell's Exhibit No. 23 and ask you to identify it.

A. Exhibit No. 23 is a location plat which shows the following:

1. the location of the proposed injection wells in the Unit Area;

2. the location of all other wells within a radius of two miles from the proposed injection wells;

3. the formation from which these wells are producing or have produced; and

4. the lessees within a radius of two miles from the proposed injection wells.

At the bottom of this Exhibit there exists a legend which shows the status of all wells shown on the plat, for example,

whether a well is a proposed injector, or is plugged and abandoned or what have you. You will also note on the Exhibit on the wall that we have outlined the Hobbs City Limits in red.

Q. Now I refer you to what has been marked as Shell's Exhibit No. 24 and ask you to identify it.

A. Exhibit No. 24 is the well numbering system proposed for the North Hobbs Grayburg-San Andres Unit. This Exhibit has two parts. The first part is a plat showing the method for numbering the unit wells. For example - there are no sections in the Unit that have the same number. Therefore the base unit number is the section's number as shown in the enlargement of Section 28. The individual wells within the section are identified by rows and tiers which match the established 40 acre proration units in which the well or wells are located. The enlargement identifies well No. 28-241. The well is located in Section 28, in Row 2, Tier 4 and is the only well located in this proration unit. If there was another well in this same proration unit, it would be identified as well No. 28-242.

The second part of this Exhibit is a tabulation showing the unit wells identified both by the proposed numbering system and also by the operator.

Q. I now refer you to what has been marked as Shell's Exhibit Nos. 25 and 26 and ask you to identify them.

A. Exhibit No. 25 is a diagrammatic sketch of all wells to be converted to injection wells. These sketches show all casing

string diameters and setting depths, quantities of cement used and tops of cement, completion intervals and total depth of each well. A tabular summary of all wells to be converted to injection is attached as part of this Exhibit and shows the current operator and well number and the proposed unit well number.

Exhibit No. 26 is a series of three different diagrammatic sketches which illustrate the three types of typical completions of producers which we anticipate converting to injectors. These sketches show tubing diameters and packer setting depths. In addition, these sketches show that these injectors will have corrosion inhibited inert fluid in the tubing-casing annulus and that the tubing will be internally lined with a non-reactive corrosion preventing coating. Provisions will be made for monitoring injection pressure and tubing-casing annulus pressures in order to detect any leaks that might occur.

Q. Now I refer you to what has been marked for identification as Shell's Exhibit No. 27 and ask you to identify it.

A. Exhibit No. 27 is a tabulation of wells to be drilled and their proposed location including the unit well number of each of these wells and the proposed use of these wells.

Q. Now I refer you to what has been marked for identification as Shell's Exhibit No. 28 and ask you to explain it.

A. Exhibit No. 28 is a series of four diagrammatic sketches showing how the newly drilled injectors and producers will be completed. In addition, these sketches show that the

injectors will have non-reactive internally lined corrosion protected tubing with a packer set 100 ft. above the upper most perforation. The sketches further show that the tubing-casing annulus will be filled with a corrosion inhibited inert fluid and provision will be made for monitoring injection pressure and tubing-casing annulus pressure.

Both producers and injectors will have a minimum of 350 ft. of surface casing and all casing strings will be cemented to the surface.

Q. Were all available logs with respect to wells proposed for conversion to injection within the Unit previously given to the Commission?

A. Yes they were, under the original application of August 15, 1979.

Q. At this time, Mr. Chairman, I request that the Commission take administrative notice that all these logs were submitted with Shell's application in Case No. 6653 and that the Commission make them a part of the record in these cases.

A. [Await Commission action.]

Q. Are there any wells proposed for conversion to injection for which no logs were available and in this connection, I refer you to what has been marked for identification as Shell's Exhibit No. 29.

A. Yes, there are six such wells and Exhibit No. 29 is a tabulation of these six producers proposed to be converted to injectors for which no logs are available.

Q. I now refer you to what has been marked for identification as Shell's Exhibit No. 30 and ask you to identify it.

A. Exhibit No. 30 is a tabular summary for all wells which penetrate the injection zone and which are located within one-half mile of the proposed injection wells. The tabulation consists of four parts: Part One is a tabulation of all proposed unit wells; Part Two is a tabulation of all active wells completed below the Grayburg-San Andres interval and within the unit boundary; Part Three shows all active wells outside the unit boundary; and Part Four shows all plugged wells. The tabular summary shows all casing strings setting depths, amount of cement used, cement tops, total depth, producing interval and well indentification and location.

Q. I now refer you to what has been marked for identification as Shell's Exhibit No. 31 and ask you to identify it.

A. Exhibit No. 31 is a series of diagrammatic sketches of each plugged and abandoned well which penetrates the injection zone and is located within one-half mile radius of the proposed injectors. These sketches show the position of all cement plugs placed in the well bore during abandonment work.

Q. Now I refer you to what has been marked as Shell's Exhibit No. 32 and ask you to describe it.

A. Exhibit No. 32 is a copy of the water contract that Shell successfully negotiated with the City of Hobbs, New Mexico. The contract provides for the purchase of treated waste

water which will be used for injection water in the Pressure Maintenance Project. Our initial term contract with the City of Hobbs provides for the purchase of 50,000 barrels of water per day at a cent and half per barrel and means an annual income to the City of Hobbs of $274,000.

Q. Do you plan to use any other water source for injection in your Pressure Maintenance Project?

A. Yes, we plan to use water produced by unit operations. We will have about 20,000 barrels of water per day available from this production and therefore will plan to use a total of 70,000 barrels of water per day initially for injection.

Q. I now refer you to what has been marked for identification as Shell's Exhibit No. 33 and ask you to identify it.

A. Exhibit No. 33 is a list of the proposed Special Rules and Regulations for the North Hobbs Grayburg-San Andres Unit Pressure Maintenance Project. The proposed rules encompass the method for allowable calculations, establishing drilling well locations, completion of newly drilled and converted wells, restrictions on water injection, monitoring wells for problems, and investigation of formation isolation integrity in injection wells.

Q. It is apparent that the proposed Unit Area for the North Hobbs Grayburg-San Andres Unit does not encompass the entire Hobbs Grayburg-San Andres Pool in Lea County, New Mexico, but only a part thereof. Have there been any negotiations re-

garding the development of line agreements with owners or operators of other properties within the pool, but outside the proposed Unit Area?

A. Yes. There are only two water injection projects which offset the proposed Unit Area. One of them is the Moranco Rice-Hardin Waterflood Project to the north and the other is the Amoco Operated South Hobbs Grayburg-San Andres Unit on the south. We are in the process of negotiating line agreements with both Moranco and Amoco. In the case of the Moranco Rice-Hardin Waterflood Project, we propose to convert to water injection the following wells in the North Hobbs Unit: Well No. 13-331, which is currently Shell-Rice 4; Well No. 18-131, the current Amerada-Hardin 3; Well No. 18-311, the current Gulf-Hardin 7; and Well No. 13-221, the current Conoco-State "B4". Two of these wells are not included in our current application. We will need to obtain the Unit working interest owners' approval for the conversion of these two additional wells and upon securing that approval, we will apply to the Division for administrative approval for these additional injectors.

Q. Do you have an opinion as to whether the North Hobbs Unit operations will have an adverse effect upon other portions of the Hobbs Grayburg-San Andres Pool?

A. With the completion of the North Hobbs Unit, there will be three water injection programs within the Hobbs Pool which will provide proper protection for all parties. In addition,

either the Special Rules and Regulations for the North Hobbs Unit or line agreements will further assure that there will be no adverse effect upon other portions of the Hobbs Pool.

Q. I now refer you to what has been marked for identification as Shell's Exhibit No. 34 and ask you to explain it.

A. Exhibit No. 34 is a diagram depicting the history of the efforts that have gone into developing the project and the projected schedule for implementation of the project.

The top portion of the diagram depicts the work of the Technical Committee and the negotiations of the working interest owners since initial efforts began in July, 1973. This top portion of the diagram also shows the time allocated for planning the unit implementation and the anticipated effective date of unitization.

The second line from the top of the diagram represents the time involved in searching, locating, negotiating and securing a source of make-up water. As I've already indicated, the make-up water will be obtained from the City of Hobbs.

The third line from the top reflects time and effort spent in the planning involved in the design of the production, injection and water source systems and the acquisition of sites and rights-of-way to accomodate these plans.

The bottom line of the diagram represents the planning and effort involved in developing the details of the drilling and well workover programs necessary for the implementation of the Pressure Maintenance Project.

This Exhibit graphically illustrates what the testimony that you've heard today clearly shows, that the magnitude and complexity of this project have been nothing less than monumental. Mr. Campbell has explained what efforts were involved in determining who had ownership interests in the proposed Unit Area and what efforts were involved in locating, contacting and obtaining the consent of the incredibly numerous royalty owners and working interest owners involved. Mr. Lancaster has described the Technical Committee's arduous four-year task of gathering the necessary technical data with accuracy, developing a method of evaluating that data, and in turn compiling that data into the Technical Report which was accepted by all the working interest owners as a basis for their negotiations in reaching agreement as to the fair and equitable distribution of the burdens and benefits to be obtained from the production of over 55 million additional barrels of oil.

Finally, as Mr. Buck has explained, the working interest owners sat down, rolled-up their sleeves and hammered away until they were able to reach fair and equitable formulas for the sharing of these burdens and benefits.

The Exhibit also shows that the efforts just described have only set the stage for the actual implementation of the project. If our efforts here today are successful, there remains much to be done to finally realize the very significant and important gains that the project holds.

Q. Were Exhibits 23 through 34 prepared by you or under your supervision?

A. Yes, all these Exhibits, with the exception of Exhibit No. 32 were prepared by me or under my supervision. With respect to Exhibit No. 32, this represents a copy of the actual agreement that was submitted to and executed by the City of Hobbs.

TENDER EXHIBITS

EXHIBIT 23

SUBMITTED SEPARATELY AS

Location Plat

EXHIBIT 24

NORTH HOBBS (G/SA) UNIT
WELL NUMBERS
CROSS - REFERENCE
BY UNIT WELL #

T18SR37E

N. Hobbs (G/SA) Unit Sec. 13

Unit Well #		
13-121	=	Continental - "B" State #5
13-131	=	Continental - "B" State #7
13-141	=	Continental - "B" State #2
13-211	=	Continental - "B" State #6
13-221	=	Continental - "B" State #4
13-241	=	Continental - "B" State #1
13-331	=	Shell - Rice #4
13-341	=	Shell - Rice #2
13-431	=	Shell - Rice #3
13-441	=	Shell - Rice #1

N. Hobbs (G/SA) Unit Sec. 14

Unit Well #		
14-231	=	Amerada Hess = "WHB" State #2
14-241	=	Gulf - "FO" State #1
14-321	=	Getty - "B" State #2
14-331	=	Tex. Pac. - "V" State #2
14-341	=	Amerada Hess - "WHB" State #1
14-421	=	Getty - "B" State #1
14-431	=	Tex. Pac. - "V" State #1
14-441	=	Estes. Engr. - State #1

N. Hobbs (G/SA) Unit Sec. 23

Unit Well #		
23-121	=	C&C Shipp - State #1
23-211	=	Tex. Pac. - "V" State #3
23-221	=	Tex. Pac. - "V" State #4
23-231	=	Tex. Pac. - "V" State #5
23-241	=	Tex. Pac. - "V" State #6
23-311	=	Shell - "F" State #3
23-321	=	Shell - "F" State #2
23-331	=	Yates - Shell - State #2
23-341	=	Yates - Shell - State #3
23-411	=	C. H. Sweet - "F" State #1-A
23-412	=	C. H. Sweet - "F" State #4
23-421	=	C. H. Sweet - "F" State #2-A
23-431	=	C. H. Sweet - "F" State #3
23-441	=	Yates - Shell - State #1

N. Hobbs (G/SA) Unit Sec. 24

Unit Well #		
24-111	=	Amerada Hoss "E" State #2
24-121	=	Amerada Hess "E" State #1
24-131	=	Samedan "C" State #3
24-141	=	Samedan "C" State #4
24-211	=	Shell "D" State #2
24-221	=	Shell "D" State #1
24-231	=	Samedan "C" State #2
24-241	=	Samedan "C" State #1
24-311	=	Gulf Graham - State #4
24-321	=	Gulf Graham - State #3
24-331	=	Tex. Pac. "G" State #3
24-341	=	Tex. Pac. "G" State #4
24-411	=	Gulf Graham - State #6
24-412	=	Gulf Graham - State #2
24-421	=	Gulf Graham - State #5
24-422	=	Gulf Graham - State #1
24-431	=	Tex. Pac. "G" State #2
24-441	=	Tex. Pac. "G" State #1

N. Hobbs Unit (G/SA) Unit Sec. 25

Unit Well #		
25-111	=	Continental - "B-25" State #2
25-121	=	Samedan - "B" State #2
25-211	=	Continental - "B-25" State #1
25-221	=	Samedan - "B" State #1
25-231	=	Exxon - "A" State #6
25-241	=	Exxon - "A" State #9
25-311	=	Texaco - "C" State #4
25-321	=	Texaco - "C" State #3
25-331	=	Exxon - "A" State #8
25-341	=	Exxon - "A" State #5
25-411	=	Texaco - "C" State #1
25-421	=	Texaco - "C" State #2
25-431	=	Exxon - "A" State #1
25-441	=	Exxon - "A" State #7

N. Hobbs (G/SA) Unit Sec. 26

Unit Well #		
26-311	=	Wiser - "L" State #1
26-411	=	Skelly (Getty) "E" State #1

N. Hobbs (G/SA) Unit Sec. 36

Unit Well #		
36-211	=	Gulf - "D" State #1
36-311	=	Byron - Gulf Holt State #1
36-321	=	Amerada Hess - "C" State #3
36-411	=	Amerada Hess - "C" State #1
36-421	=	Amerada Hess - "C" State #2

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N. Hobbs (G/SA) Unit Sec. 17

Unit Well #		
17-121	=	Morsnco "T17" State #1
17-131	=	Chevron "17" State #1
17-141	=	Skelly (Getty) - "A" State #1

N. Hobbs (G/SA) Unit Sec. 18

Unit Well #		
18-131	=	Amerada Hess - Hardin #3
18-141	=	Amerada Hess - Hardin #1
18-231	=	Amerada Hess - Hardin #5
18-241	=	Amerada Hess - Hardin #2
18-311	=	Gulf - Hardin #7
18-321	=	Gulf - Hardin #4
18-331	=	Gulf - Hardin #5
18-341	=	Gulf - Hardin #9
18-342	=	Gulf - Hardin #1
18-411	=	Gulf - Hardin #8
18-421	=	Gulf - Hardin #6
18-431	=	Gulf - Hardin #3
18-441	=	Gulf - Hardin #2

N. Hobbs (G/SA) Unit Sec. 19

Unit Well #		
19-111	=	Cities Service - Hardin #5
19-112	=	Cities Service - Hardin #4
19-121	=	Cities Service - Hardin #2
19-131	=	Shell - "A" McKinley #7
19-141	=	Shell - "A" McKinley #1
19-211	=	Cities Service - Hardin #3
19-221	=	Cities Service - Hardin #1
19-231	=	Shell - "A" McKinley #6
19-241	=	Shell - "A" McKinley #4
19-242	=	Shell - "A" McKinley #11
19-311	=	Getty - Hardin #3
19-321	=	Getty - Hardin #1
19-331	=	Shell - "A" McKinley #5
19-341	=	Shell - "A" McKinley #2
19-411	=	Getty - Hardin #4
19-421	=	Getty - Hardin #2
19-431	=	Shell - "A" McKinley #10
19-441	=	Shell - "A" McKinley #3

N. Hobbs (G/SA) Unit Sec. 20

Unit Well #		
#20-111	=	Skelly (Getty) - McKinley #1
#20-121	=	Chevron - McKinley #2
#20-131	=	Shell - "B" McKinley #5
#20-141	=	Shell - "B" McKinley #3

N. Hobbs (G/SA) Unit Sec. 20 (Continued)

Unit Well		
#20-221	=	Chevron - McKinley #1
20-231	=	Shell - "B" McKinley #1
20-232	=	Shell - "B" McKinley #4
20-241	=	Shell - "B" McKinley #2
20-331	=	Bill Sweet - "B" US #2-A
20-341	=	Atlantic - Grimes #1
20-421	=	C. H. Sweet - McKinley B #2
20-431	=	C. H. Sweet - Grimes #1-A
20-432	=	C. H. Sweet - Grimes #3-A

N. Hobbs (G/SA) Unit Sec. 21

Unit Well		
#21-131	=	Gulf - "C" Grimes #3
21-141	=	Gulf - "C" Grimes #1
21-241	=	Gulf - "C" Grimes #2
21-331	=	Antwiel - Hobbs CT #1
21-341	=	Wiser - Morris "A" #1
21-441	=	Wiser - Morris "B" #1

N. Hobbs (G/SA) Unit Sec. 27

Unit Well		
#27-111	=	Shell - Sanger #6
27-121	=	Shell - Sanger #4
27-131	=	Shell - Sanger #3
27-141	=	Shell - Sanger #1
27-231	=	Sehll - Sanger #5
27-241	=	Shell - Sanger #2

N. Hobbs (G/SA) Unit Sec. 28

Unit Well		
#28-111	=	Atlantic - Grimes SOC #3
28-121	=	Atlantic - Grimes SOC #1
28-131	=	Shell - Grimes #2
28-132	=	Shell - Grimes #10
28-141	=	Shell - Grimes #1
28-211	=	Atlantic - Grimes SOC #4
28-221	=	Atlantic - Grimes SOC #2A
28-231	=	Shell - Grimes #3
28-241	=	Shell - Grimes #4
28-311	=	Samedan - "A" Moon #2
28-321	=	Samedan - "A" Moon #1
28-331	=	Continental - Grimes #3
28-341	=	Continental - Grimes #1
28-411	=	Samedan - "B" Moon #2
28-421	=	Samedan - "B" Moon #1
28-431	=	Continental - Grimes #4
28-441	=	Continental - Grimes #2

N. Hobbs (G/SA) Unit Sec. 29

Unit Well	
#29-111	= Exxon - U.S.A.M.R. Bowers #35
29-121	= Exxon - U.S.A.M.R. Bowers #7
29-131	= Exxon - U.S.A.M.R. Bowers #10
29-141	= Exxon - U.S.A.M.R. Bowers #3
29-211	= Amerada Hess - "B" Hobbs State #4
29-221	= Amerada Hess - "B" Hobbs State #1
29-231	= Continental "A-29" State #3
29-241	= Continental "A-29" State #2
29-311	= Amerada Hess "B" Hobbs State #3
29-321	= Amerada Hess "B" Hobbs State #2
29-331	= Continental "A-29" State #1
29-341	= Chevron "A" State #4
29-411	= Exxon - Grimes #1
29-421	= Getty - Grimes #4
29-431	= Getty - Grimes #3
29-441	= Chevron - "A" State #3

N. Hobbs (G/SA) Unit Sec. 30

Unit Well	
#30-111	= Amerada Hess - McKinley #1
30-121	= Amerada Hess - McKinley #4
30-131	= Marathon - State #3
30-141	= Marathon - State #9
30-211	= Amerada Hess - McKinley #3
30-221	= Amerada Hess - McKinley #2
30-231	= Marathon - State #1
30-241	= Marathon - State #2
30-311	= Getty - McKinley #4
30-321	= Getty - McKinley #1
30-331	= Exxon "A" USA Bowers #2
30-341	= Exxon "A" USA Bowers #36
30-342	= Exxon "A" USA Bowers #8
30-411	= Getty - McKinley #5
30-412	= Getty - McKinley #11
30-421	= Getty - McKinley #2
30-431	= Exxon "A" USA Bowers #5
30-441	= Exxon "A" USA Bowers #4

N. Hobbs (G/SA) Unit Sec. 31

Unit Well	
#31-111	= Sun - Fowler #1
31-121	= Sun - Fowler #4
31-131	= Mobil - Berry #3
31-141	= Mobil - Berry #4
31-211	= Skelly (Getty) - Fowler #1
31-221	= Skelly (Getty) - Fowler #2
31-231	= Mobil - Berry #1
31-241	= Mobil - Berry #2
31-311	= Cities Service - Fowler #2

N. Hobbs (G/SA) Unit Sec. 31 (Cont'd)

Unit
Well #31-321 = Cities Service - Fowler #3
31-331 = Shell - Berry #2
31-341 = Shell - Berry #4
31-411 = Cities Service - Fowler #1
31-412 = Cities Service - Fowler #9
31-421 = Cities Service - Fowler #4
31-431 = Shell - Berry #3
31-441 = Shell - Berry #1

N. Hobbs (G/SA) Unit Sec. 32

Unit
Well #32-111 = Gulf - "NCT-A" Grimes #10
32-112 = Gulf - "NCT-A" Grimes #8
32-121 = Gulf - "NCT-A" Grimes #19
32-131 = Gulf - "NCT-A" Grimes #9
32-141 = Gulf - "NCT-A" Grimes #5
32-211 = Gulf - "NCT-A" Grimes #7
32-221 = Gulf - "NCT-A" Grimes #2
32-231 = Gulf - "NCT-A" Grimes #3
32-232 = Gulf - "NCT-A" Grimes #20
32-241 = Gulf - "NCT-A" Grimes #15
32-311 = Amerada Hess "A" State #1
32-321 = Shell - "A" State #2
32-322 = Shell - "A" State #4
32-331 = Marathon - State #4
32-341 = Marathon - State #5
32-411 = Amerada Hess - "A" State #2
32-421 = Shell - "A" State #3
32-431 = Marathon - State #3
32-441 = Marathon - State #2

N. Hobbs (G/SA) Unit Sec. 33

Unit
Well #33-111 = Shell - "B" State #1
33-121 = Amoco - "G" State #1
33-131 = Continental "A-33" State #2
33-141 = Continental "A-33" State #1
33-211 = Shell - "B" State #2
33-221 = Amoco - "G" State #2
33-231 = Continental - "A-33" State #3
33-241 = Continental - "A-33" State #6
33-311 = Gulf - "B" Grimes #3
33-321 = Continental - "A-33" State #7
33-331 = Continental - "A-33" State #4
33-341 = Continental - "A-33" State #5
33-411 = Gulf - "B" Grimes #4
33-421 = Gulf - "B" Grimes #2
33-431 = Gulf - "B" Grimes #1

N. Hobbs (G/SA) Unit Sec. 34

Unit Well		
#34-211	=	Skelly (Getty) - Turner #2
34-221	=	Skelly (Getty) - Turner #1
34-311	=	Shell - Turner #2
34-321	=	Shell - Turner #1
34-331	=	Samedan - "A" Turner #1
34-341	=	Samedan - "A" Turner #2
34-421	=	Moranco - Hobbs #1
34-431	=	Samedan - "B" Turner #1
34-441	=	Samedan - "B" Turner #2

NORTH HOBBS (G/SA) UNIT
WELL NUMBERS
CROSS - REFERENCE
BY CURRENT OPERATOR/WELL #

Operator	Lease Name	Well #	Unit Letter		Sec.		Unit Well #
Amerada Hess	Hardin	1	M	=	18	-	18-141
Amerada Hess	Hardin	2	N	=	18	-	18-241
Amerada Hess	Hardin	3	L	=	18	-	18-131
Amerada Hess	Hardin	5	K	=	18	-	18-231
Amerada Hess	McKinley	1	D	=	30	-	30-111
Amerada Hess	McKinley	2	F	=	30	-	30-221
Amerada Hess	McKinley	3	C	=	30	-	30-211
Amerada Hess	McKinley	4	E	=	30	-	30-121
Amerada Hess	State "A"	1	B	=	32	-	32-311
Amerada Hess	State "A"	2	A	=	32	-	32-411
Amerada Hess	State "B"	1	F	=	29	-	29-221
Amerada Hess	State "B"	2	G	=	29	-	29-321
Amerada Hess	State "B"	3	B	=	29	-	29-311
Amerada Hess	State "B"	4	C	=	29	-	29-211
Amerada Hess	State "C"	1	A	=	36	-	36-411
Amerada Hess	State "C"	2	H	=	36	-	36-421
Amerada Hess	State "C"	3	G	=	36	-	36-321
Amerada Hess	State "E"	1	E	=	24	-	24-121
Amerada Hess	State "E"	2	D	=	24	-	24-111
Amerada Hess	State "WHB"	1	O	=	14	-	14-341
Amerada Hess	State "WHB"	2	K	=	14	-	14-231
Amoco	State "G"	1	E	=	33	-	33-121
Amoco	State "G"	2	F	=	33	-	33-221
Antwiel	Hobbs "CT"	1	J	=	21	-	21-331
Atlantic	Grimes	1	O	=	20	-	20-341
Atlantic	Grimes "SOC"	1	E	=	28	-	28-121
Atlantic	Grimes "SOC"	2A	F	=	28	-	28-221
Atlantic	Grimes "SOC"	3	D	=	28	-	28-111
Atlantic	Grimes "SOC"	4	C	=	28	-	28-211
Byrom	Gulf Holt-State	1	B	=	36	-	36-311
Chevron	McKinley	1	F	=	20	-	20-221
Chevron	McKinley	2	E	=	20	-	20-121
Chevron	State "17"	1	L	=	17	-	17-131
Chevron	State "29"	3	P	=	29	-	29-441
Chevron	State "29"	4	O	=	29	-	29-341
Cities Service	Fowler	1	A	=	31	-	31-411
Cities Service	Fowler	2	B	=	31	-	31-311
Cities Service	Fowler	3	G	=	31	-	31-321
Cities Service	Fowler	4	H	=	31	-	31-421
Cities Service	Fowler	9	A	=	31	-	31-412
Cities Service	Hardin	1	F	=	19	-	19-221
Cities Service	Hardin	2	E	=	19	-	19-121
Cities Service	Hardin	3	C	=	19	-	19-211

Operator	Lease Name	Well #	Unit Letter		Sec.		Unit Well #
Cities Service	Hardin	4	D	=	19	-	19-112
Cities Service	Hardin	5	D	=	19	-	19-111
Continental	Grimes	1	O	=	28	-	28-341
Continental	Grimes	2	P	=	28	-	28-441
Continental	Grimes	3	J	=	28	-	28-331
Continental	Grimes	4	I	=	28	-	28-431
Continental	State "A29"	1	J	=	29	-	29-331
Continental	State "A29"	2	N	=	29	-	29-241
Continental	State "A29"	3	K	=	29	-	29-231
Continental	State "A33"	1	M	=	33	-	33-141
Continental	State "A33"	2	L	=	33	-	33-131
Continental	State "A33"	3	K	=	33	-	33-231
Continental	State "A33"	4	J	=	33	-	33-331
Continental	State "A33"	5	O	=	33	-	33-341
Continental	State "A33"	6	N	=	33	-	33-241
Continental	State "A33"	7	G	=	33	-	33-321
Continental	State "B-13"	1	N	=	13	-	13-241
Continental	State "B-13"	2	M	=	13	-	13-141
Continental	State "B-13"	4	F	=	13	-	13-221
Continental	State "B-13"	5	E	=	13	-	13-121
Continental	State "B-13"	6	C	=	13	-	13-211
Continental	State "B-13"	7	L	=	13	-	13-131
Continental	State "B25"	1	C	=	25	-	25-211
Continental	State "B25"	2	D	=	25	-	25-111
Mobil	Berry	1	K	=	31	-	31-231
Mobil	Berry	2	N	=	31	-	31-241
Mobil	Berry	3	L	=	31	-	31-131
Mobil	Berry	4	M	=	31	-	31-141
Exxon	Bowers A Fed.	2	J	=	30	-	30-331
Exxon	Bowers A Fed.	3	M	=	29	-	29-141
Exxon	Bowers A Fed.	4	P	=	30	-	30-441
Exxon	Bowers A Fed.	5	I	=	30	-	30-431
Exxon	Bowers A Fed.	7	E	=	29	-	29-121
Exxon	Bowers A Fed.	8	O	=	30	-	30-342
Exxon	Bowers A Fed.	10	L	=	29	-	29-131
Exxon	Bowers A Fed.	36	O	=	30	-	30-341
Exxon	Bowers A Fed. Com.	35	D	=	29	-	29-111
Exxon	Grimes	1	A	=	29	-	29-411
Exxon	New Mexico State	1	I	=	25	-	25-431
Exxon	New Mexico State	5	O	=	25	-	25-341
Exxon	New Mexico State	6	K	=	25	-	25-231
Exxon	New Mexico State	7	P	=	25	-	25-441
Exxon	New Mexico State	8	J	=	25	-	25-331
Getty	Grimes	9	N	=	25	-	25-241
Getty	Grimes	3	I	=	29	-	29-431
Getty	Hardin	4	H	=	29	-	29-421
Getty	Hardin	1	G	=	19	-	19-321
		2	H	=	19	-	19-421

Operator	Lease Name	Well #	Unit Letter		Sec.		Unit Well #
Getty	Hardin	3	B	=	19	-	19-311
Getty	Hardin	4	A	=	19	-	19-411
Getty	McKinley	1	G	=	30	-	30-321
Getty	McKinley	2	H	=	30	-	30-421
Getty	Mckinley	4	B	=	30	-	30-811
Getty	McKinley	5	A	=	30	-	30-411
Getty	McKinley	11	A	=	30	-	30-412
Getty	State "B"	1	H	=	14	-	14-421
Getty	State "B"	2	G	=	14	-	14-321
Getty	Fowler	1	C	=	31	-	31-211
Getty	Fowler	2	F	=	31	-	31-221
Getty	Hobbs "E"	1	A	=	26	-	26-411
Getty	McKinley	1	D	=	20	-	20-111
Getty	State "A"	1	M	=	17	-	17-141
Getty	Turner	1	F	=	34	-	34-221
Getty	Turner	2	C	=	34	-	34-211
Gulf	Graham State "A"	1	H	=	24	-	24-422
Gulf	Graham State "A"	2	A	=	24	-	24-412
Gulf	Graham State "A"	3	G	=	24	-	24-321
Gulf	Graham State "A"	4	B	=	24	-	24-311
Gulf	Graham State "A"	5	H	=	24	-	24-421
Gulf	Graham State "A"	6	A	=	24	-	24-411
Gulf	Grimes "A"	2	F	=	32	-	32-221
Gulf	Grimes "A"	7	C	=	32	-	32-211
Gulf	Grimes "A"	8	E	=	32	-	32-112
Gulf	Grimes "A"	10	D	=	32	-	32-111
Gulf	Grimes "A"	19	E	=	32	-	32-121
Gulf	Grimes "A" No. 2	3	K	=	32	-	32-231
Gulf	Grimes "A" No. 2	5	M	=	32	-	32-141
Gulf	Grimes "A" No. 2	9	L	=	32	-	32-131
Gulf	Grimes "A" No. 2	15	N	=	32	-	32-241
Gulf	Grimes "A" No. 2	20	K	=	32	-	32-232
Gulf	Grimes "B"	1	I	=	33	-	33-431
Gulf	Grimes "B"	2	H	=	33	-	33-421
Gulf	Grimes "B"	3	B	=	33	-	33-311
Gulf	Grimes "B"	4	A	=	33	-	33-411
Gulf	Grimes "C"	1	M	=	21	-	21-141
Gulf	Grimes "C"	2	N	=	21	-	21-241
Gulf	Grimes "C"	3	L	=	21	-	21-131
Gulf	Hardin	1	O	=	18	-	18-342
Gulf	Hardin	2	P	=	18	-	18-441
Gulf	Hardin	3	I	=	18	-	18-431
Gulf	Hardin	4	G	=	18	-	18-321
Gulf	Hardin	5	J	=	18	-	18-331
Gulf	Hardin	6	H	=	18	-	18-421
Gulf	Hardin	7	B	=	18	-	18-311
Gulf	Hardin	8	A	=	18	-	18-411
Gulf	Hardin	9	O	=	18	-	18-341

Operator	Lease Name	Well #	Unit Letter		Sec.		Unit Well #
Gulf	Holt NCT - D	1	C	=	36	-	36-211
Gulf	Lea FO State	1	N	=	14	-	14-241
Marathon	State 30	1	K	=	30	-	30-231
Marathon	State 30	2	N	=	30	-	30-241
Marathon	State 30	3	L	=	30	-	30-131
Marathon	State 30	9	M	=	30	-	30-141
Marathon	State 32	2	P	=	32	-	32-441
Marathon	State 32	3	I	=	32	-	32-431
Marathon	State 32	4	J	=	32	-	32-331
Marathon	State 32	5	O	=	32	-	32-341
Moran	Hobbs	1	H	=	34	-	34-421
Moran	State "T17"	1	E	=	17	-	17-121
C&C Shipp	"A"	1	E	=	23	-	23-121
Sun	Fowler	1	D	=	31	-	31-111
Sun	Fowler	4	E	=	31	-	31-121
Samedan	Moon "A"	1	G	=	28	-	28-321
Samedan	Moon "A"	2	B	=	28	-	28-311
Samedan	Moon "B"	1	H	=	28	-	28-421
Samedan	Moon "B"	2	A	=	28	-	28-411
Samedan	State "B"	1	F	=	25	-	25-221
Samedan	State "B"	2	E	=	25	-	25-121
Samedan	State "C"	1	N	=	24	-	24-241
Samedan	State "C"	2	K	=	24	-	24-231
Samedan	State "C"	3	L	=	24	-	24-131
Samedan	State "C"	4	M	=	24	-	24-141
Samedan	Turner "A"	1	J	=	34	-	34-331
Samedan	Turner "A"	2	O	=	34	-	34-341
Samedan	Turner "B"	1	I	=	34	-	34-431
Samedan	Turner "B"	2	P	=	34	-	34-441
Shell	Berry	1	P	-	31	-	31-441
Shell	Berry	2	J	=	31	-	31-331
Shell	Berry	3	I	=	31	-	31-431
Shell	Berry	4	O	=	31	-	31-341
Shell	Grimes	1	M	=	28	-	28-141
Shell	Grimes	2	L	=	28	-	28-131
Shell	Grimes	3	K	=	28	-	28-231
Shell	Grimes	4	N	=	28	-	23-241
Shell	Grimes	10	L	=	28	-	28-132
Shell	McKinley "A"	1	M	=	19	-	19-141
Shell	McKinley "A"	2	O	=	19	-	19-341
Shell	McKinley "A"	3	B	=	19	-	19-441
Shell	McKinley "A"	4	N	=	19	-	19-241
Shell	McKinley "A"	5	J	=	19	-	19-331
Shell	McKinley "A"	6	K	=	19	-	19-231
Shell	McKinley "A"	7	L	=	19	-	19-131
Shell	McKinley "A"	10	I	=	19	-	19-431
Shell	McKinley "A"	11	N	=	19	-	19-242
Shell	McKinley "B"	1	K	=	20	-	20-231

Operator	Lease Name	Well #	Unit Letter		Sec.		Unit Well #
Shell	McKinley "B"	2	N	=	20	-	20-241
Shell	McKinley "B"	3	M	=	20	-	20-141
Shell	McKinley "B"	4	K	=	20	-	20-232
Shell	McKinley "B"	5	L	=	20	-	20-131
Shell	Rice	1	P	=	13	-	13-441
Shell	Rice	2	O	=	13	-	13-341
Shell	Rice	3	I	=	13	-	13-431
Shell	Rice	4	J	=	13	-	13-331
Shell	Sanger	1	M	=	27	-	27-141
Shell	Sanger	2	N	=	27	-	27-241
Shell	Sanger	3	L	=	27	-	27-131
Shell	Sanger	4	E	=	27	-	27-121
Shell	Sanger	5	K	=	27	-	27-231
Shell	Sanger	6	D	=	27	-	27-111
Shell	State "A"	2	G	=	32	-	32-321
Shell	State "A"	3	H	=	32	-	32-421
Shell	State "A"	4	G	=	32	-	32-322
Shell	State "B"	1	D	=	33	-	33-111
Shell	State "B"	2	C	=	33	-	33-211
Shell	State "D"	1	F	=	24	-	24-221
Shell	State "D"	2	C	=	24	-	24-211
Shell	State "F"	2	G	=	23	-	23-321
Shell	State "F"	3	B	=	23	-	23-311
Shell	Turner	1	G	=	34	-	34-321
Shell	Turner	2	B	=	34	-	34-311
Bill Sweet	Bowers "B"	2A	J	=	20	-	20-331
C. H. Sweet	Grimes	1A	I	=	20	-	20-431
C. H. Sweet	Grimes	3A	I	=	20	-	20-432
C. H. Sweet	McKinley "B"	2	H	=	20	-	20-421
C. H. Sweet	State "F"	1A	A	=	23	-	23-411
C. H. Sweet	State "F"	2A	H	=	23	-	23-421
C. H. Sweet	State "F"	3	I	=	23	-	23-431
C. H. Sweet	State "F"	4	A	=	23	-	23-412
Texaco	New Mexico St. "C"	1	A	=	25	-	25-411
Texaco	New Mexico St. "C"	2	H	=	25	-	25-421
Texaco	New Mexico St. "C"	3	G	=	25	-	25-321
Texaco	New Mexico St. "C"	4	B	=	25	-	25-311
Tex. Pac.	State "G"	1	P	=	24	-	24-441
Tex. Pac.	State "G"	2	I	=	24	-	24-431
Tex. Pac.	State "G"	3	J	=	24	-	24-331
Tex. Pac.	State "G"	4	O	=	24	-	24-341
Tex. Pac.	State "V"	1	I	=	14	-	14-431
Tex. Pac.	State "V"	2	J	=	14	-	14-331
Tex. Pac.	State "V"	3	C	=	23	-	23-211
Tex. Pac.	State "V"	4	F	=	23	-	23-221
Tex. Pac.	State "V"	5	K	=	23	-	23-231
Tex. Pac.	State "V"	6	N	=	23	-	23-241
Wiser	Morris "A"	1	O	=	21	-	21-341

Operator	Lease Name	Well #	Unit Letter		Sec.		Unit Well #
Wiser	Morris "B"	1	P	=	21	-	21-441
Wiser	State "L"	1	B	=	26	-	26-311
Yates	Shell - State	1	P	=	23	-	23-441
Yates	Shell - State	2	J	=	23	-	23-331
Yates	Shell - State	3	O	=	23	-	23-341
Estes (Yeager)	State	1	P	=	14	-	14-441

EXHIBIT 25

WR-3198 D

PROPOSED WELL NO. 18-141

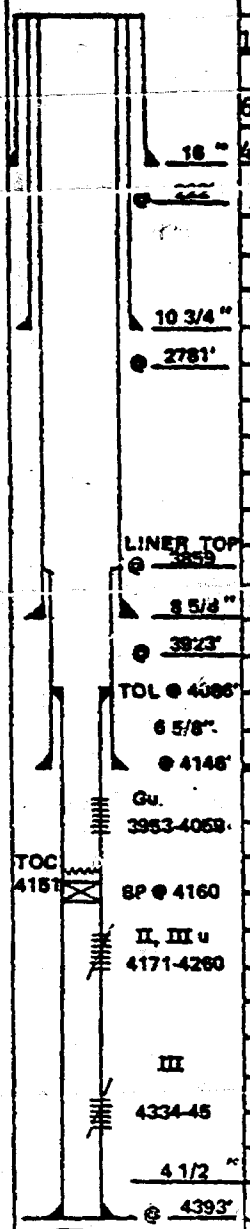
COMPLETION DATE 6-16-32 — AMERADA HARDIN NO. 1 — COMPLETION INTERNAL: 3953-4059(G)

RECOMPLETION DATE Deep. 9/40, 1/69, TA 1/76 — HOBBS (G-SA) UNIT

LOCATION 330' FSL & 330 FWL — SECTION 18M — BLOCK

SURVEY T-18-S, R-38-E — COUNTY Lea County, N.M.

DATUM 3673 [DF] G.L. ELEV. — TD 4395' — PBTD 4151' [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
16"	70#	222	250	Circ.*	18-1/2"*
10 3/4"	45#	2781	450	1656 *	13-1/2"*
8 5/8"	32#	3923	275	2133 *	10" **
6 5/8" liner		3859/4146	50	3859 *	8-1/4"**
4½" liner		4086/4393	100	4086 *	6-1/4"**

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Gu	3946	-273
GL	4044	-371
I	4059	-386
II	4140	-467
IIIu	4205	-532
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
6/32		*3925-4158	OH
9/40		*4146-4219	OH
1/69	III	*4334-38, 4343-45	2 JPF
1/69	II, IIIu	*4171-74, 4210-12, 4230-40, 4254-60	2 JPF
1/75	Gu	3953-65, 3995-4000, 4006-22, 4032-59	2 JPF

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE
1/69	4334-45	Sqz'd. w/50 SA cmt.
1/75	4171-4260	BP @ 4160' w/1 SK. cmt. to 4151'.

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
9/40		500 gal.	AT		257BO
5/68		500 gal. SAF+2500gal	15% NEA		
1/69	4334-45	500 gal. 15% NEA	AT		-
1/69	4171/4260	1000 gal. 15% NEA	AT		
1/75	Gu	3000 gal. 15% NEA	AT		

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: 6 5/8" hr., run 9-40, 4 1/2" hr. run 1/69

9-53: Ran BHP & Temp. surveys - no csg. leaks.

DATE 8/18/78 KLL

WR-3198

PROPOSED WELL NO. 36-411

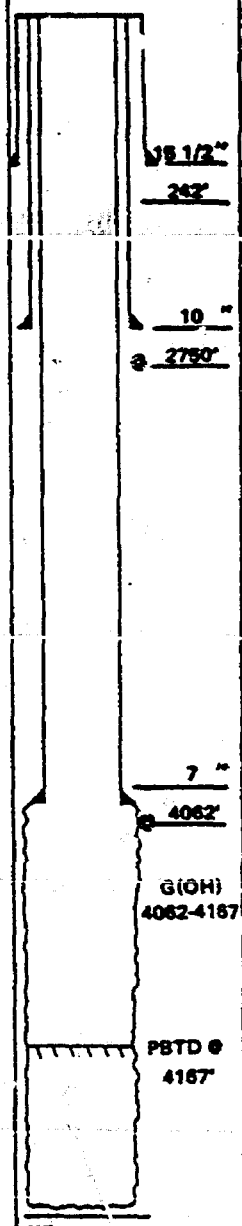
COMPLETION DATE 1/28/31 — AMERADA STATE C NO. 1 — COMPLETION INTERNAL: 4062-4167(G)

RECOMPLETION DATE _____ — HOBBS (G-SA) UNIT

LOCATION 330' FNL & 330 FEL SECTION 36 A BLOCK _____

SURVEY T-18-S, R-37-E COUNTY Lea County, N.M.

DATUM 3658' DF | G.L. ELEV. _____ TD 4236' PBTD 4167'



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
15 1/2"	70#	242	400	Circ.*	18"**
10"	45#	2750	500	1418*	12 3/4"**
7"	24#	4062	500	1038*	8 3/4"**

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Gu	4053	-395
GL	4178	-520
I	4217	-559
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTH	DENS & SIZE
1/31	G	4062-4167	OH

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE
4/54	4062/4236	Sqz'd w/100 SX; drld. out to 4167'

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
4/54	G	2500 gal. 15% acid; 6000 X 6000 frac			
4/67	G	1000 gal. 15% NEA	AT		
3/68	G	500 gal. toluene + 500 gal. 15% reg.	AT		
5/68	G	6000 gal. 15% XEW	AT		
3/77	G	1000 gal. xylene, 7500 gal. 20%	NEA		3380 9980

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER ☐

REMARKS: 3-77: Attempted to recover fish from OH-no results

DATE 8/18/78 KLL

WR-3198 B

PROPOSED WELL NO. 36-321

COMPLETION DATE 11/2/56 — AMERADA STATE C NO. 3 — COMPLETION INTERNAL: ____

RECOMPLETION DATE 10/74 (TA) — HOBBS (G-SA) UNIT

LOCATION 1650' FNL & 1650' FEL — SECTION 36 C — BLOCK ____

SURVEY T-18-S, R-37-E — COUNTY Lea County, N.M.

DATUM 3663' [DF] G.L. ELEV. ____ TD 4293' PBTD 4280' [ ]

CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	24#	374	350	Surf	12 1/4
5 1/2"	15.5#	4286	400	2925'	7 7/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Anhy	1635	
T. Salt	1738	
B. Salt	2697	
Yates	2844	
7 Riv	3077	
Queen	3660	
Gu	4167	-504
GL	4274	-611
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

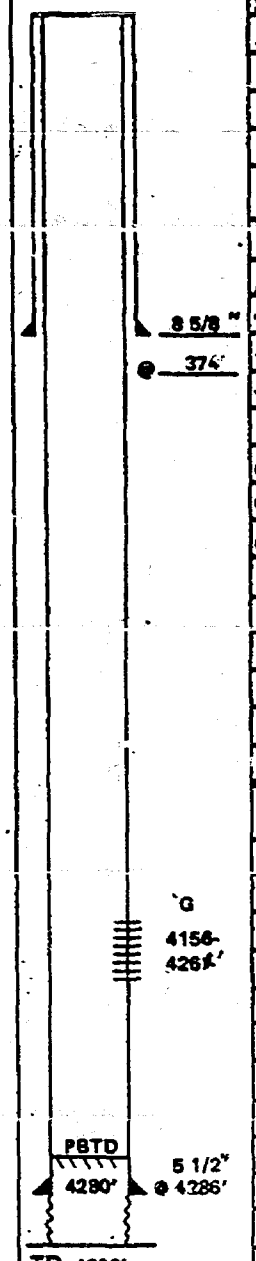
DATE	ZONE	DEPTHS	DENS & SIZE
11/56	G	4156-4224, 4240-48, 4253-62	4 JPF

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
11/56	G	1000 gal 15%; 20,000	X 11,000 frac		6480 MCFD 178W



OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE 8/18/78 KLL

WR-3198 B

PROPOSED WELL NO. 24-121

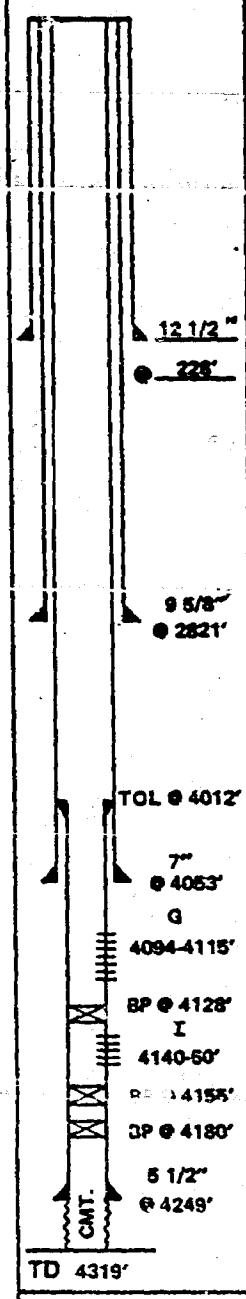
COMPLETION DATE 1/35 — AMERADA STATE E NO. 1 — COMPLETION INTERNAL: 4094-4115(G)

RECOMPLETION DATE ____ — HOBBS (G-SA) UNIT

LOCATION 1650' FNL & 990' FWL SECTION 24E BLOCK ____

SURVEY T-18-S, R-37-E COUNTY Lea County, N.M.

DATUM 3682' [DF] G.L. ELEV. ____ TD 4319' PBTD 4128' [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
12 1/2"	50#	228	250	Circ.*	16"**
9 5/8"	36#	2821	450	1170*	11 3/4"**
7"	24#	4053	300	2239*	8 3/4"**
5 1/2" liner	14#	4012/4249	-		6 1/4"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Gu	4010	-328
GL	4103	-421
I	4115	-433
GOC		
GWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
1/35	G,I	4053-4240	OH
10/41	I	4212-34	3 SPF
10/41	I	4142-4206	42 holes
10/41	I	4140-50 (dense)	30 shots
8/74	G	4094-4115	2 SPF

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE
19/41	4206	Set ret. & sqz'd w/25 SX

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
1/35		2000 gal.	4053-4240		
10/41		3000 gal.			
8/74		1500 gal.	4094-4115		
3/76		3000 gal. 20%	4094-4115*		
8/75		2000 gal. 15%	4094-4115		

OPT 7292BO, 549 BW, 4260 MCFGD — DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: *NMOCD shows 4140-50 also but believe ret. @ 4128'

DATE: 8/18/78 KL

WR-3195 B

PROPOSED WELL NO. 14-341

COMPLETION DATE 11/1/57 — AMERADA STATE WHB NO. 1 — COMPLETION INTERNAL: _____

RECOMPLETION DATE 9/3/74(TA) — HOBBS (G-SA) UNIT

LOCATION 660' FSL & 1650' FEL SECTION 14 O BLOCK _____

SURVEY T-18-S, R-37-E COUNTY Lea County, N.M.

DATUM 3688' (DF) G.L. ELEV. _____ TD 4176' PBTD _____ ( )

CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	32#	303	250	Surf	12 1/4"
5 1/2"	15.5#	4143	400	2610	7 7/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

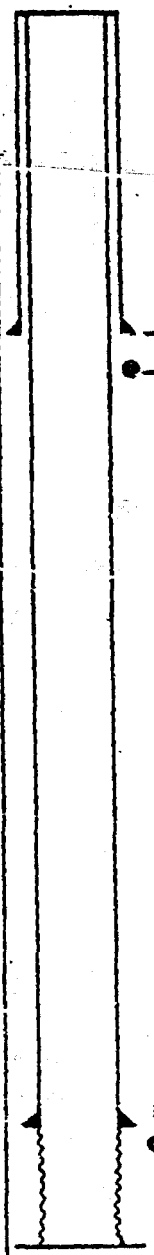
ZONE	TOP	SUBSEA
Anhy	1600	
T. Salt	1699	
B. Salt	2632	
Yates	2778	
7 Riv	3012	
Queen	3575	
Penrose	3715	
Gu	4076	-388
GL	4153	-465
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
10-57	G	4143-76	OH

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE



STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
10/57	G	500 gal. 15%; 5000, X 5000 frac,			454BO
/60	G	30,000 gal X 30,000 frac		22BO	71BO
74	G	1000 gal. 15% NEA			

OPT 454 BO

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE 8/18/78 KLL

WR-3198 B

PROPOSED WELL NO. 14-231

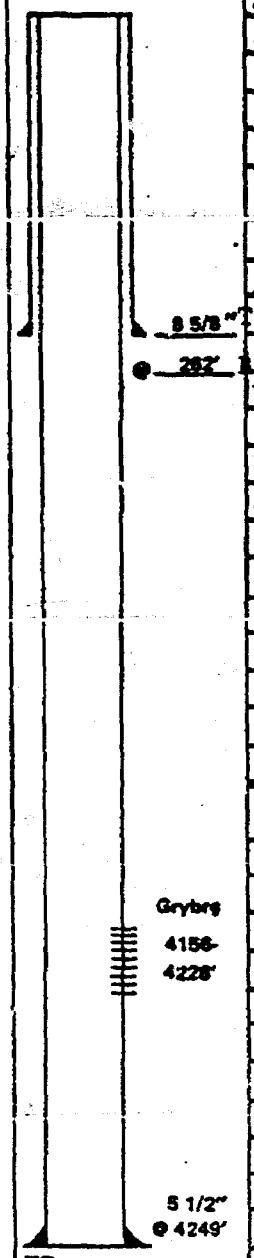
COMPLETION DATE 8/8/58 — AMERADA STATE WHB NO. 2 — COMPLETION INTERNAL: 4156-4228(G)

RECOMPLETION DATE 6/73 (TA) — HOBBS (G-SA) UNIT

LOCATION 1650' FSL & 2310' FWL. SECTION 14K BLOCK

SURVEY T-18-S, R-37-E COUNTY Lea County, N.M.

DATUM 3698' [DF] G.L. ELEV. TD 4250' PBTD 4247' [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	24.32#	262	250	Surf.	12 1/4"
5 1/2"	14#	4249	400	2705	7 7/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Anhy	1643	
T.Salt	1745	
B. Salt	2694	
Yates	2840	
7 Riv	3080	
Gu	4212	-514
GL	4346	-648
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
8/58	G	4156-84, 4188-4208, 4214-28	2 SPF

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
8/58	G	1500 gal. 15%; 10,000# 10,000 frac.			67 BO 3 BW

OPT 113 BO

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER ☐

REMARKS:

DATE: 8/18/78 KLL

WR-3198 B

PROPOSED WELL NO. 21-331

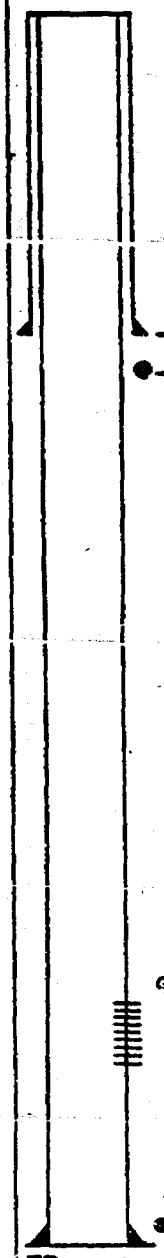
COMPLETION DATE 10/64 — ANTWEIL HOBBS CT NO. 1 — COMPLETION INTERNAL: 4185-4206' (G)

RECOMPLETION DATE _____ — HOBBS (G-SA) UNIT

LOCATION 1650' FSL & 2260' FEL SECTION 21 J BLOCK _____

SURVEY T-18-S, R-38-E COUNTY Lea County, N.M.

DATUM 3647' [GL] G.L. ELEV. _____ TD 4225' PBTD 4222' [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	20#	430	250	Circ.	11"
4 1/2"	9.5#	4224	485	2288*	7 7/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
	G	4185, 4186, 4187, 4191, 92, 4193, 4194, 4195, 4203, 4204, 4205, 4206	12 holes

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
	G	1500 gal.; 20,000 gal frac & 17,000# sd.			

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: Deviation
Cored 4125-4219'

DATE: 8/18/78KLL

WR-31568

PROPOSED WELL NO. 28-221

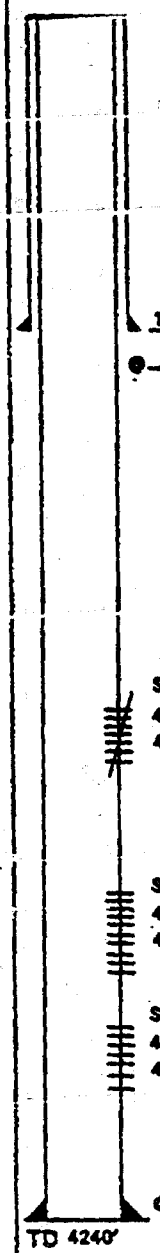
COMPLETION DATE 2-20-59 — ATLANTIC GRIMES SOC NO. 2-A — COMPLETION INTERNAL: 4164-4240(II) (III U)

RECOMPLETION DATE 7-1-71 — HOBBS (G-SA) UNIT

LOCATION 1910' FNL & 1650' FWL SECTION 28F BLOCK

SURVEY T-18-S, R-38-E COUNTY Lea County, New Mexico

DATUM 3646' [GL] G.L. ELEV. TD 4240' PBTD 4238' [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
10 3/4"	32.75#	581	600	Circ	15"
7"	20, 23#	4240	682	*116	8 3/4"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Anhy	1614	
Yates	2715	
7 Riv	2936	
Queen	3474	
Penrose	3620	
GU	4012	-366
GL	4106	-460
I	4110	-464
II	4160	-514
IIIU	4218	-572
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

ZONE	DEPTHS	DENS & SIZE
I	*4133-53	4 SPF
III	4223-28, 4232-40	
II	4164,72,76,82,85,93,95,	1 1/2" SPF
	4202,06,09	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE
7/71	4133-53	Sqz'd w/25 sx cmt.

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
2/59	I	500 gal.	AT		218BO,
					0BW
7/71		2000 gal. 15% LSTNE	AT	16BO,	52BO,
				67BW	4BW
12/74	III	2000 gal. 15% LSTNE	AT (4223-40')		35BO,
					1BW
12/74	II	2000 gal. 15% LSTNE	AT (4164-4209')		

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: Installed BOP on 12/17/74. Bradenhead leak 9/77, see attached report.

DATE: 8-21-78 KL

WR-3198 D

PROPOSED WELL NO. 28-111

COMPLETION DATE 7/10/34 — ATLANTIC GRIMES SCC NO. 3 — COMPLETION INTERNAL: 4109-4121' (G)

RECOMPLETION DATE _____ — HOBBS (G-SA) UNIT

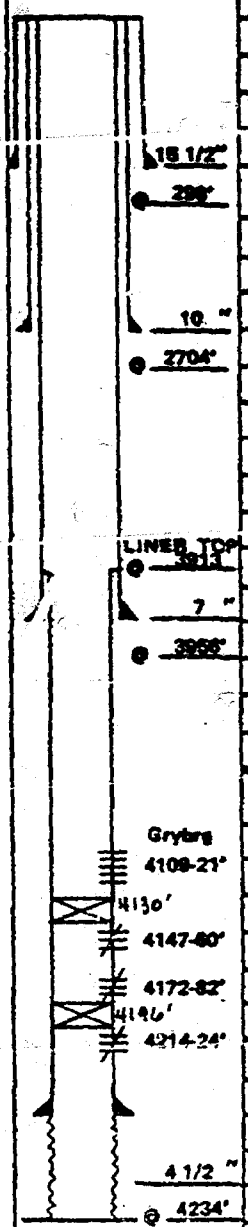
LOCATION 990' FNL & 330' FWL SECTION 28D BLOCK _____

SURVEY T-18-S, R-38-E COUNTY Lea County, N.M.

DATUM 3646' [GL] G.L. ELEV. _____ TD 4280' PBTD 4130' [ ]

Deepened 9-22-35, 8-27-61

7-9-67



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
15½"	70#	296	200	Circ.*	18"**
10"	45#	2704	150	2304*	12 3/4"**
7"	26#	3956	250	2244*	8 3/4"**
4½" lnr	11.6#	3913-4234	50	3913±	6 1/4"**

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Gu	4024	-378
GL	4120	-474
I	4125	-479
II	4189	-543
IIIu	4254	-608
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
7/34		*3956-4225	OH
8/61	II	*4214-24	
2/65	I	*4172-82	
8/67	I	*4147, 4151, 4154, 57, 60	
9/67	G	4109, 11, 14, 17, 19, 21	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE
2/65	4214-24	Retainer @ 4196' w/105 SX cmt.
6/67	4172-82	Sqz'd. w/100 SX cmt.
8/67	4234-80	(OH) - 100 SX cmt. to 4166'
9/67	4147-60	Retainer @ 4130' w/150 SX cmt.

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
7/34		1000 gal.			
9/35		5000 gal.			
9/35		7000 gal.			
8/61		250 gal. (4214-24')		23BO 0BW	64BO 8BW
2/65	G	250 gal.			32BO 140BFW
7/67		500 gal. 15% NEA (4234-80')			2BO 106BFW
7/67		250 gal. 15% NEA (4254-80')	ISIP 150#		
7/67		500 gal. 15% NEA (4242-80')	ISIP 1700#		
8/67	I	250 gal. BDA			
9/67	G	500 gal. BDA	ISIP 1400#		
9/67	C	1500 gal. 15% LST	ISIP 750#		35BO 39BW

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE 8/18/78 KLL

WR-3198 B

PROPOSED WELL NO. 23-121

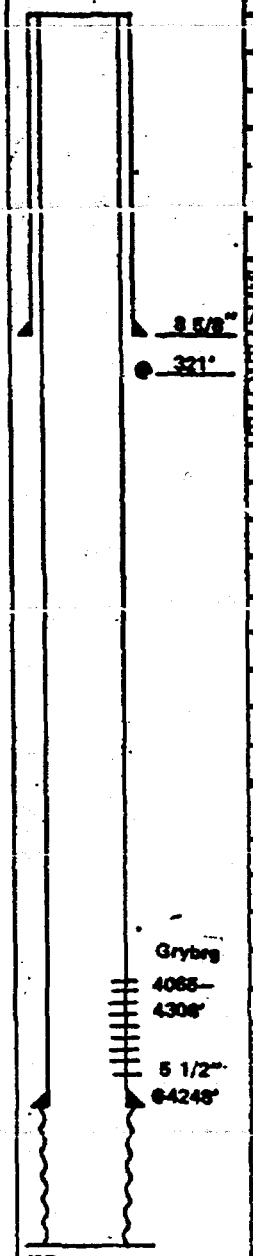
COMPLETION DATE 12-16-59 — C&C SHIPP A NO. 1 — COMPLETION INTERNAL: 4065-4308(G)

RECOMPLETION DATE Deepened 1-25-70 — HOBBS (G-SA) UNIT

LOCATION 1650' FNL & 990' FWL SECTION 23E BLOCK

SURVEY T-18-S, R-37-E COUNTY Lea County, New Mexico

DATUM 3691' [DF] G.L. ELEV. TD 4308' PBTD 4248' [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	24#	321	175	Circ.	11 1/4"
5 1/2"	14#	4248	425	2710	7 7/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Yates	2882	
7 Riv	3235	
Bowers	3460	
Queen	3715	
Penrose	3858	
GU	4176	-485
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
10/59	G	4065-4128, 4168-4230	
1/70	G	4248-4308	OH

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
10/59	G	500 gal. AT; 10x10 frac			
		(4168-4230)			
		500 gal. AT; 10x10 frac			
		(4065-4128)			14BO
1/70	G	250 gal. AT	(OH)		

OPT DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE:

WM-3198 B

PROPOSED WELL NO. 17-131

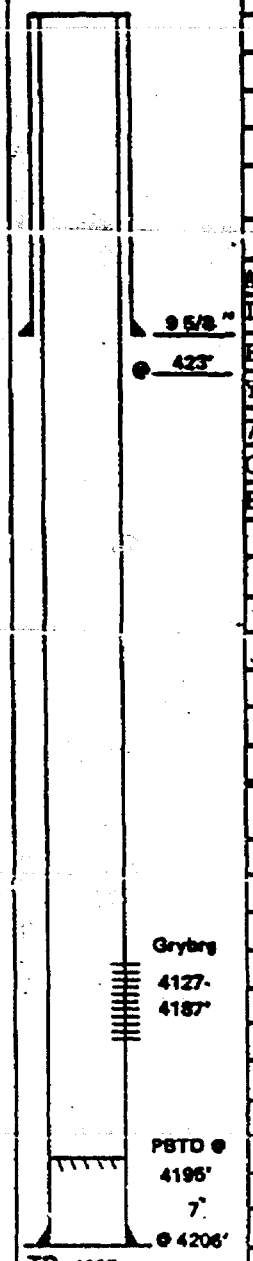
COMPLETION DATE 6-12-57 — CHEVRON STATE 17 NO. 1 — COMPLETION INTERNAL: 4127-87'(G)

RECOMPLETION DATE TA 6-73 — HOBBS (G-SA) UNIT

LOCATION 1650' FSL & 330' FWL SECTION 17L BLOCK

SURVEY T-18-S, R-38-E COUNTY Lea County, New Mexico

DATUM 3668' [DF] G.L. ELEV. TD 4207' PBTD 4195' [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
9 5/8"	32, 36#	423	240	*Circ.	12 1/4"
7"	23#	4206	925	Circ.*	8 3/4"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Anhy	1650	
T Salt	1740	
B Salt	2750	
Yates	2794	
7 Riv	3025	
Queen	3600	
Penrose	3756	
GU	4105	-437
GL	4197	-529
I	4208	-540
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
7/57	G	4127-44, 4152-58	4 JPF
7/62	G	4166, 4174, 4187	Sandjetted

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
7/57	G	500 gal. MA; 15 X 22.5	FRAC		
7/62	G	15 X 22.5	FRAC		
				9BO	50BO,
					15BW

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

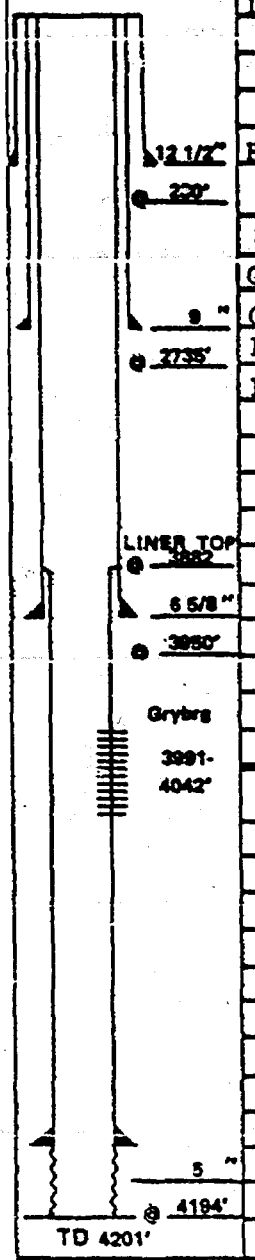
DATE:8-28-78 KL

WR-3198 D

PROPOSED WELL NO. 31-311
CITIES SERVICE FOWLER NO. 2
HOBBS (G-SA) UNIT

COMPLETION DATE 9/13/30
RECOMPLETION DATE TA 3-75
COMPLETION INTERNAL: 3991-4042' (G)

LOCATION 440' FNL & 2310' FEL SECTION 31B BLOCK
SURVEY T-18-S, R-38-E COUNTY Lea County, N.M.
DATUM 3649' (GL) G.L. ELEV. TD 4201' PBTD 4192'



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
12 1/2"	50#	230	200	Circ.*	16"**
9"	36#	2735	500	1275*	11 3/4" **
6 5/8"	24#	3951	250	2227*	8 1/4" **
5" lnr.	18#	3882'/4194	35	3882*	6 1/4" **
Hydril	FJ				

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Gu	3924	-275
GL	4072	-423
I	4078	-429
II	4141	-492
GOC		
GWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
9/30	G	*3950-4201	OH
11/69	G	*3991, 3996, 4000, 37, 42	1 SPF
		4064, 4067	
11/69	G	3991, 3996, 4000, 37, 42	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE
11/69	3991/4067	Sqz'd. w/50 SX cmt.

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
8/70	G	3000 gal.	AT-3 stages		136 BW
8/70	G	3500 gal.	AT-3 stages		4580 2078W

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: 9-1-53: 9" X 6 5/8" SIP 1000 psi. 32/64" ck. swab gas 3½ hrs. Last 2 hrs. stab. @ 97.8 MCF/D. Temp survey indicated gas coming from Yates.

DATE: 8/18/78KLL

WR-31988

PROPOSED WELL NO. 19-111

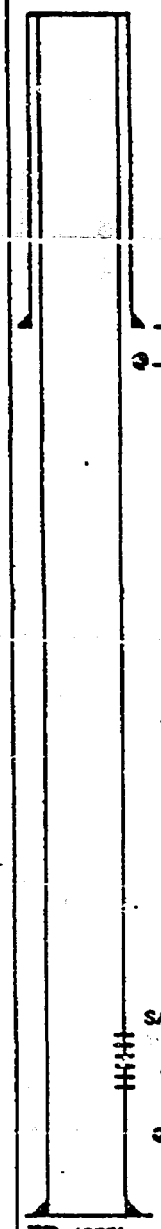
COMPLETION DATE 5-12-52 — CITIES SERVICE HARDIN NO.5 — COMPLETION INTERNAL: 4242-4248(III

RECOMPLETION DATE ____ — HOBBS (G-SA) UNIT

LOCATION 990' FNL & 990' FWL SECTION 19D BLOCK ____

SURVEY T-18-S, R-38-E COUNTY Lea County, New Mexico

DATUM 3671' (DF) G.L. ELEV. ____ TD 4255' PBTD 4253' ( )



CASING RECORD *CALCULATED **ESTIMATE						LOGGING RECORD			
SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE	DATE	CO.	TYPE	INTERVAL
8 5/8"	24 #	251	200	Circ.	11"				
5 1/2"	14 #	4254	1500	1108'	7 7/8"				

LOG TOPS			PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW			
ZONE	TOP	SUBSEA	DATE	ZONE	DEPTHS	DENS & SIZE
Anhy	1490		5/52	IIIU	4242-48'	6 SPF
Salt	1585					
Br Li	2800					
GU	3923	-252				
GL	4016	-345				
I	4016	-345				
II	4097	-426	SQUEEZE & REPAIR			
IIIU	4164	-493	DATE	DEPTH	WORK DONE	
GOC						
OWC						

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
5/52	IIIU	250 gal.	AT		272 BO
6/75	IIIU	2000 gal. 15% HCl	AT		

OPT — DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: For csg. leak repair 6/75, see attached sheet.

DATE: 8-21-78 KLL

WR-3198

PROPOSED WELL NO. 28-431

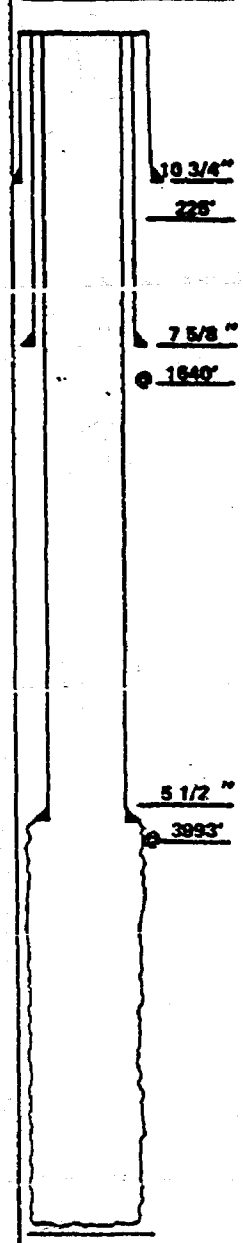
COMPLETION DATE 9/6/35 — CONTINENTAL GRIMES NO. 4 — COMPLETION INTERNAL: 3993-4084(G) 4084-4225(SA)

RECOMPLETION DATE _____ — HOBBS (G-SA) UNIT

LOCATION 990' FEL & 1650' FSL SECTION 28I BLOCK _____

SURVEY T-18-S, R-38-E COUNTY Lea County, New Mexico

DATUM 3648' [GL] G.L. ELEV. _____ TD 4225' PBTD _____ [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
10 3/4"	40#	225	150	Circ.*	13½"**
7 5/8"	26.4#	1640	400	Circ.*	9 5/8"**
5 1/2"	17 #	3993	400	1894*	7 7/8"**

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Yates	2730	
Buff	2850	
Hobbs	3600	
White	4085	
Is		
GU	3998	-350
GL	4083	-435
I	4088	-440
II	4157	-509
IIIU	4218	-570
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
	G	3993-4084	OH
	I	4084-4156	OH
	II	4156-4213	OH
	IIIU	4213-4225	OH

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
		3000 gal. Dowell xx			162 BO
		4000 gal.			173 BO
		5000 gal.			5437BO/D

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: 9-9-53: With TP @ 190 psi, 5 1/2" CP 1000 psi, 7 5/8" CP 200 psi, bradenhead was opened. Salt water flowed thru 7 5/8" csg. 5 min. & died. All pressure bled off 7 5/8" csg. & 5 1/2" CP remained @ 1000 psi.

DATE: 8-21-78 KL

WR-3198 C

Well now producing

COMPLETION DATE 9-28-30
RECOMPLETION DATE 1-76 (TA)

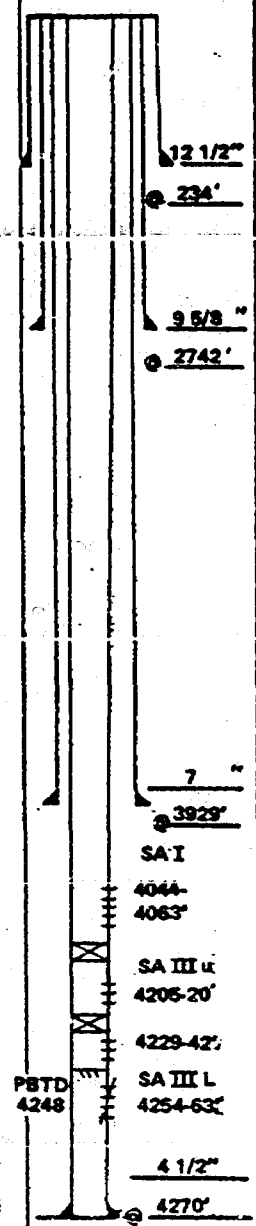
PROPOSED WELL NO. 29-331
CONTINENTAL STATE A-29 NO.1
HOBBS (G-SA) UNIT

COMPLETION INTERNAL: 4044-4063(I)
4205-4242(IIIU

LOCATION 1650' FSL & 1650' FEL SECTION 29J BLOCK

SURVEY T-13-S, R-38-E COUNTY Lea County, New Mexico

DATUM 3655' [DF] G.L. ELEV. TD 4270' PBTD 4248' [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
12 1/2"	50	234	170	Circ.*	16"**
9 5/8"	40	2742	500	907*	11 3/4"**
7"	24	3929	300	2115*	8 3/4"**
4 1/2"	10.5	4270	750	*Circ.	6 1/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Anhy	1530	
T Brn	2769	
T Salt	1670	
B Salt	2490	
Buff Is	2769	
Ector	3770	
GU	3902	-247
GL	3998	-343
I	4010	-355
II	4079	-424
IIIU	4140	-494
IIIL	4251	-596
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
7/75	IIIL	*4254-63	2 SPF
7/75	IIIU	4205-20, 4229-42	2 SPF
7/75	I	4044-52, 4058-63	2 SPF

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE
7/75	4254-63	Sqz'd w/100 sx cmt.

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
6/35		1000 gal.	AT		
8/35		2000 gal. (4121-78')	AT		
7/75		1250 gal. 28% (4254-63)	AT		
7/75		2000 gal. 28% (4205-42)	AT		
7/75		1000 gal. 28% (4044-63)	AT		

OPT

DATA AVAILABLE OST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: Found holes in 7" csg. @ 250', 1230', 1424', 1468' & 1563'

DATE 8-22-78 KL

WR-3198 D

PROPOSED WELL NO. 13-141

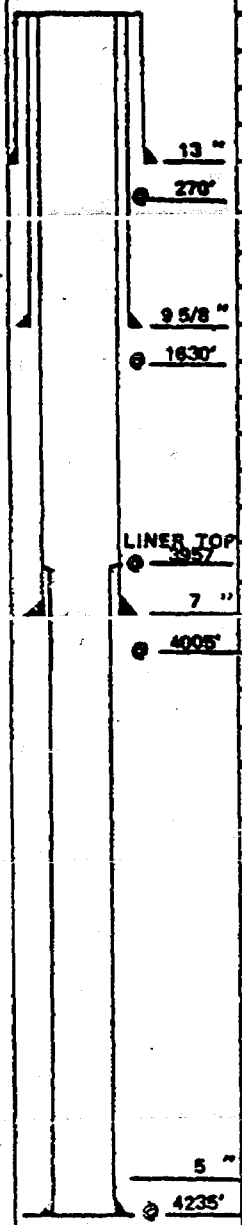
COMPLETION DATE 9/20/35 — CONTINENTAL STATE B-13 NO. 2 — COMPLETION INTERNAL: 4002-4040

RECOMPLETION DATE 1-51 (TA) — HOBBS (G-SA) UNIT

LOCATION 660' FSL & 660' FWL — SECTION 13M — BLOCK

SURVEY T-18-S, R-37-E — COUNTY Lea County, N.M.

DATUM 3684' [DF] G.L. ELEV. — TD 4235' — PBTD — [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
13"	50#	270	200	Circ.*	16"**
9 5/8"	36#	1630	400	469*	12 1/4"**
7"	24#	4005	400	1586*	8 3/4"**
5"liner		3957/4235	75	3957*	6 1/4"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Gu	3938	-254
GL	4049	-365
I	4087	-403
II	4174	-490
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

OPT 6392 BOPD w/10 mm ft^3 gas

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER ☐

REMARKS: Poss. GL

(See Attached)

DATE: 8/18/78KLL

WR-3198 B

PROPOSED WELL NO. 13-221

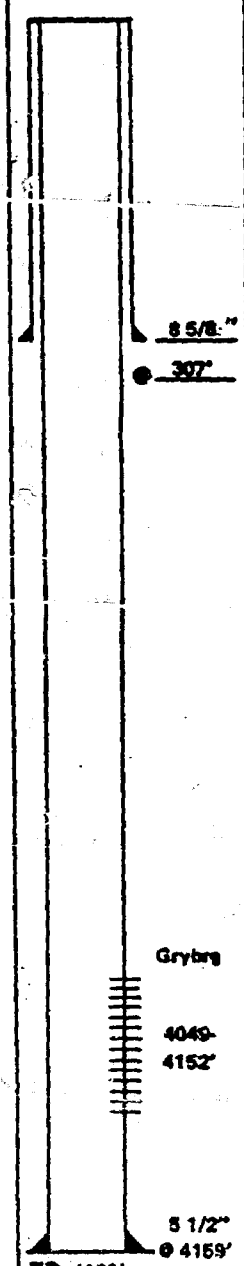
COMPLETION DATE 4/1/57 — CONTINENTAL STATE B-13 NO. 4 — COMPLETION INTERNAL: 4049-4152(G)

RECOMPLETION DATE _____ — HOBBS (G-SA) UNIT

LOCATION 1980' FNL' & 1980' FWL SECTION 13 F BLOCK _____

SURVEY T-18-S, R-37-E COUNTY Lea County, N.M.

DATUM 3688' [DF] G.L. ELEV. _____ TD 4160' PBTD 4136' [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	24#	307	300	Circ.	11"**
5 1/2"	14#	4159	1700	1750	7 7/8"**

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Anhy	1555	
T.Salt	1655	
B.Salt	2610	
Yates	2758	
7 Riv	3018	
Queen	3552	
Gu	4049	-361
GL	4152	-464
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
4/57	G	4049-64	60 shots
		4070-74	16 shots
		4076-82	24 shots
		4100-10	40 shots
		4114-18	16 shots
		4122-24	8 shots
		4140-52 SQUEEZE & REPAIR	32 shots

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
	4140-52	3000 gal. AT			
	4100-22	6000 ga. frac + 6000# sd			
	4049-82	6000 gal. frac + 6000# sd			170BO

OPT 170BO

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: S/I 8/20/74 due to uneconomical reasons.
Future plans: hold for secondary recovery

DATE 8/18/78KLL

WR-31988

PROPOSED WELL NO. 29-111

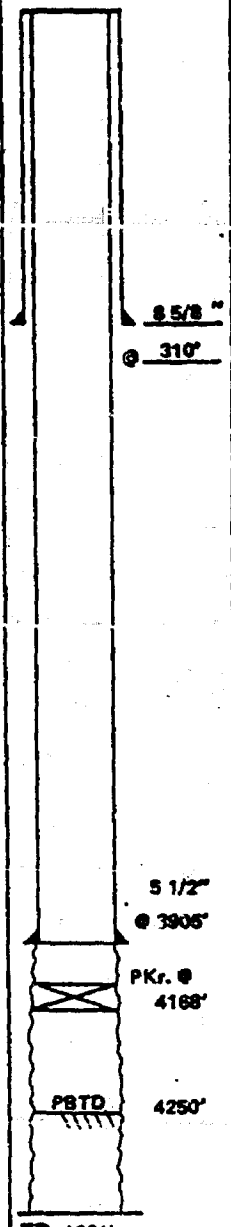
COMPLETION DATE 12-1-71 — EXXON BOWERS A FED. COM. NO. 35 — COMPLETION INTERNAL: 4168-4250'

RECOMPLETION DATE _____ — HOBBS (G-SA) UNIT

LOCATION 990' FNL & 330 FWL — SECTION 29D — BLOCK _____

SURVEY T-18-S, R-38-E — COUNTY Lea County, N.M.

DATUM 3662' [DF] G.L. ELEV. _____ TD 4331' PBTD 4250' [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	24#	310	150	Circ.	11"
5 1/2"	14#	3905	300	*2331*	7 7/8"
13 3/4"	21' of conductor w/2 yds. heavy wt				

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Gu	3988	-310
GL	4092	-430
I	4110	-448
II	4168	-506
IIIu	4240	-578
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
12-71	II	4168-4239	OH
"	IIIu	4239-4250	

SQUEEZE & RE. AIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

CPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE:

WR-3196 O

PROPOSED WELL NO. 29-411

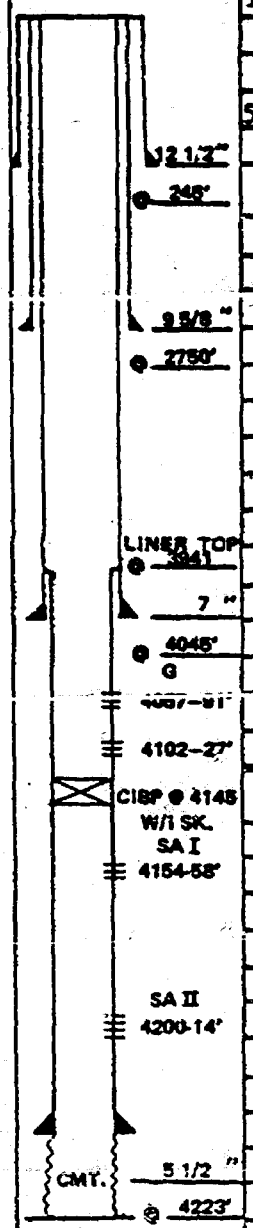
COMPLETION DATE 10-16-30 — EXXON GRIMES NO. 1 — COMPLETION INTERNAL: 4102-4127 G, 4154-4158 I, 4200-4214 II

RECOMPLETION DATE ____ — HOBBS (G-SA) UNIT

LOCATION 990' FNL & 990' FEL SECTION 29A BLOCK ____

SURVEY T-18-S, R-38-E COUNTY Lea County, New Mexico

DATUM 3647' [GL] G.L. ELEV. ____ TD 4250' PBTD 4145' [CIBP]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
12 1/2"	50#	245	250	Circ.	16"**
9 5/8"	36#	2750	650	365*	11 3/4"**
7"	26#	4045	300	2231*	8 3/4"**
5½" liner		3941/4223	30	3941*	6 1/4"**

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GU	4013	-366
GL	4118	-471
I	4127	-480
II	4186	-539
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
11/57	G	4102-27	
5/72	I	4154-58	1 SPF
9/62	II	4200-14	2 SPF
		*4223-50 (OH)	4 SPF

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE
9/62	4223-50	Sqz'd w/50 sx cmt.

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
4/34		1000 gal. AT	4045-50' (OH)		
10/42		1000 gal. AT	4220-50' (OH)		
6/47		2000 gal. AT	4223-50' (OH)		
11/57		2500 gal. AT	4102-27'		
9/62		1000 gal. AT	4200-14'		
11/77		2000 gal. AT	4057-91'		

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: Tested 9 5/8" - 7" annulus 9/16/53 100# bled down <1 min.

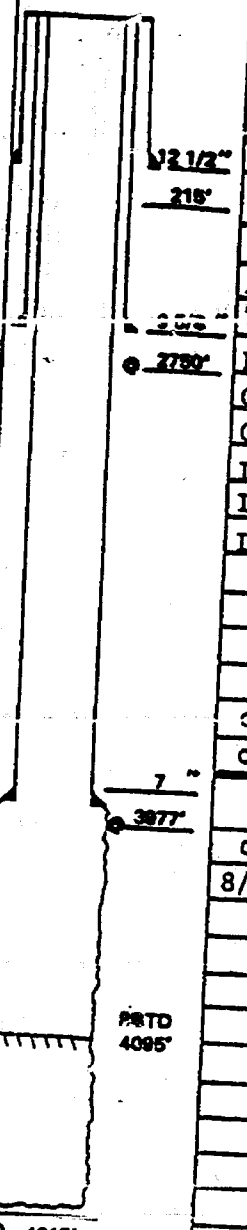
Bleeder line from bradenhead to surf. 12/57.

DATE: 8-22-78 KI

WR-3198

COMPLETION DATE 10/21/30 — PROPOSED WELL NO. 25-431
RECOMPLETION DATE — EXXON N.M. STATE NO. 1
HOBBS (G-SA) UNIT — COMPLETION INTERNAL: 3977-4095

LOCATION 330' FEL & 2310' FSL
SURVEY T-18-S, R-37-E — SECTION 25I — BLOCK —
DATUM 3649' (GL) G.L. ELEV. — COUNTY Lea County, N.M.
TD 4215' — PBTD 4095



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
12 1/2"	50#	215	260	Circ.*	16"**
9 5/8"	36#	2750	650	365	11 3/4"**
7"	26#	3977	300	2163*	8 3/4"**

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL
		RA	

LOG TOPS

ZONE	TOP	SUBSEA
Anhy	1490	
T.Salt	1670	
B.Salt	2649	
Gu	3959	-310
GL	4047	-398
I	4077	-428
II	4167	-518
IIIu	4241	-592
CCC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
10/30	G	3977-4095	OH

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
8/72		4500 gal. 20%	Tbg-csg. annulus		

OPT

REMARKS: Has had annulus pressure flow.
(See Attached)

DATA AVAILABLE OST ☐ CORE ☐ PVT ☐ OTHER

DATE 8/18/78 KLL

WR-3198 B

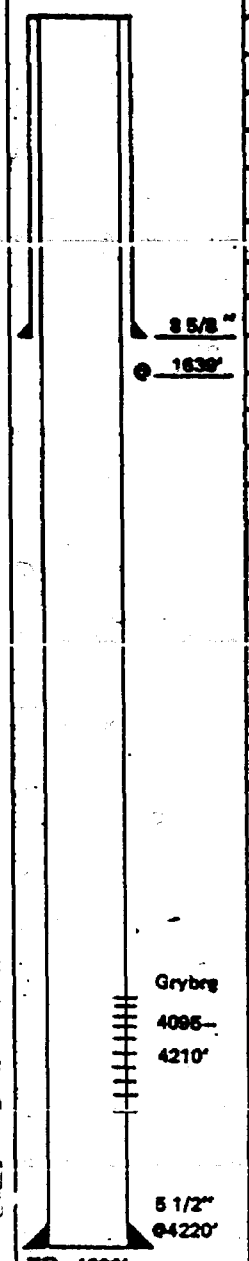
COMPLETION DATE 12/5/53 — PROPOSED WELL NO. 25-341 — COMPLETION INTERNAL: 4095-4210(G)

RECOMPLETION DATE _____ — EXXON N.M. STATE NO. 5 — HOBBS (G-SA) UNIT

LOCATION 660' FSL & 1650' FEL — SECTION 25 O — BLOCK _____

SURVEY T-18-S, R-37-E — COUNTY Lea County, N.M.

DATUM 3667' [GL] G.L. ELEV. 3656' — TD 4220' — PBTD 4220 [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT. used	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	29, 32#	1639	900	Circ.	11"
5 1/2"	15.5#	4220	1100	1620	7 7/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Bowers	3339	
Queen	3742	
Gu	4088	-421
GL	4192	-525
I	4212	-545
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTH	OPNG & SIZE
11/53	G	4095-4150	4 JPF
11/53	G	4170-4210	4 JPF

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
11/53	G	5000 gal (4170-4210)			
11/53	G	4000 gal. (4170-4220)			
8/59	G	5300 gal. frac + 13,000# sd.		21BO	36 BO
8/64	G	15000 gal. frac + 26,400# sd.		24BO 18W	41BO 42BW
7/71	G	AT - unknown volume			

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE 8/18/78 KLL

WR-31985

PROPOSED WELL NO. 25-231

COMPLETION DATE 3-1-55 — EXXON N.M. STATE NO. 6 — COMPLETION INTERNAL: _____

RECOMPLETION DATE _____ — HOBBS (G-SA) UNIT

LOCATION 2310' FSL & 2310' FWL SECTION 25 K BLOCK _____

SURVEY T-18-S, R-37-E COUNTY Lea County, N.M.

DATUM 3670' [DF] G.L. ELEV. _____ TD 4253' PBTD 4245' [ ]

CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	24#	1800	1000	Circ.	11"
5 1/2"	14#	4252	1250	Circ.	6 3/4"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

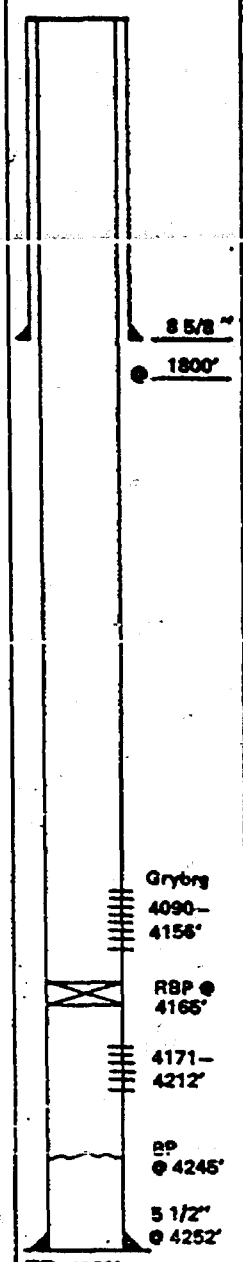
ZONE	TOP	SUBSEA
Anhy	1625	
Yates	2814	
Queen	3778	
Gu	4114	-444
GL	4207	-537
I	4222	-552
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
2/55	G	4090-4156	4 JPF
2/55	G	4171-4212	4 JPF

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE



STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
3/55	G	7000 gal	AT-2 stages		1408O
1/60		5 X 7.5 frac (4090-4156 above RBP)			
9/69		36 X 46 frac (4090-4156?)			

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: Line to surf. from bradenhead 12-57

DATE 8/18/78 KLT

WR-3198 C

PROPOSED WELL NO. 31-211

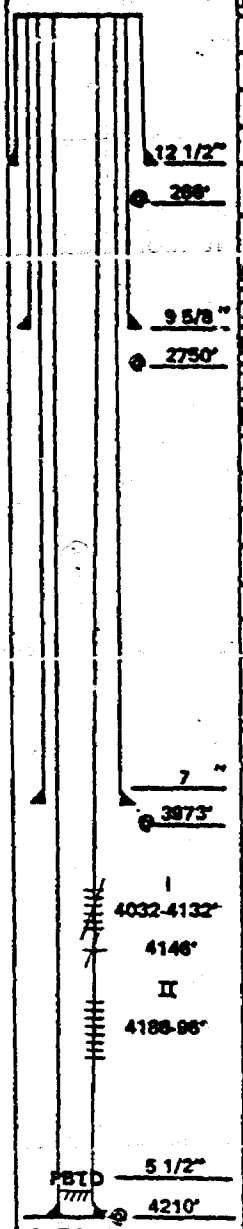
COMPLETION DATE 9-14-30 — GETTY FOWLER NO. 1 — COMPLETION INTERNAL: 4186-4196 (II)

RECOMPLETION DATE 10-18-71 — HOBBS (G-SA) UNIT

LOCATION 440' FNL & 2310' [illegible] SECTION 31C BLOCK

SURVEY T-18-S, R-38-E COUNTY Lea County, New Mexico

DATUM 3651' [DF] G.L. ELEV. TD 4215' PBTD 4200' [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
12 1/2"	50#	266	185	Circ.*	16" **
9 5/8"	36#	2750	400	1282*	11 3/4"**
7"	24#	3973	450	1252*	8 3/4"**
5"		4210	100	3025*	6 1/4"**

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Anhy	1460	
T Salt	1610	
B Salt	2532	
T Brn	2800	
Ector	3782	
GU	3958	-307
GL	4108	-457
I	4115	-464
II	4167	-516
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
9/30	G,I,II	*3973-4215	OH
6/54	I	*4146	3 Holes
7/54	I	*4032-4132	
8/76	II	4186-96	6 Holes

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE
6/54	4146	Sqz'd w/100 sx cmt. @ 6200#
6/74	4032/4196	Sqz'd w/115 sx Visqueeze Mark II
8/76	4106-96	Sqz'd w/80 sx Visqueeze Mark II

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
11/71	II	500 gal.	AT		112BO,
					74BW

OPT

DATA AVAILABLE OST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: High water prod.; prod. Zn+ comm.

DATE: 9-12-78 KLL

WR-3198

PROPOSED WELL NO. 19-311

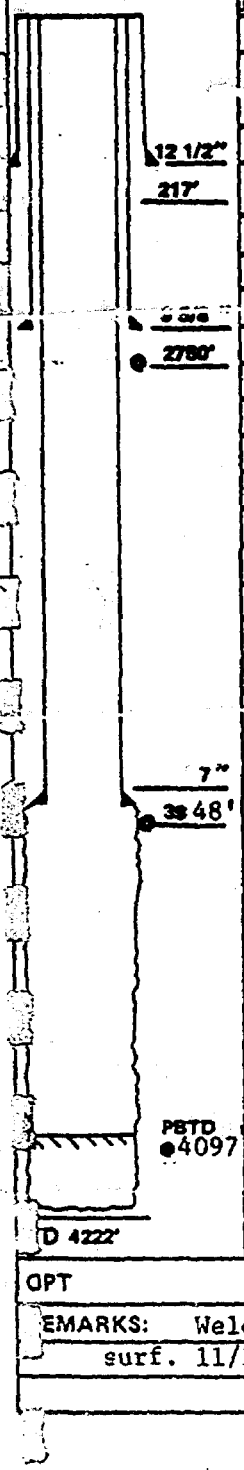
COMPLETION DATE 11-10-30 — GETTY HARDIN NO. 3 — COMPLETION INTERNAL: 3952-4086(G), 4086-4097(SA)

RECOMPLETION DATE ____ — HOBBS (G-SA) UNIT

LOCATION 1309' FNL & 2310' FEL SECTION 19B BLOCK ____

SURVEY T-18-S, R-38-E COUNTY Lea County, New Mexico

DATUM 3667' [GL] G.L. ELEV. ____ TD 4222' PBTD 4097 [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
12 1/2"	50#	217	200	Circ.*	16"**
9 5/8"	36#	2750	600	548*	11 3/4"**
7"	24#	3952	300	2138*	8 3/4"**

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GU	3984	-317
GL	4080	-413
I	4086	-419
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
	G	3952-4086	OH
	I	4086-4097	OH

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE
6/42	4127-29	Formation Packer

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
11/72		13x22.5 frac.	ISIP 2000#		

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: Welded bradenhead between surf. and intermediate. Installed bleeder line to surf. 11/18/57. Repaired csg leak 2/12/43 per attached.

DATE 8-21-78 KLL

WR-3198 A

PROPOSED WELL NO. 19-411

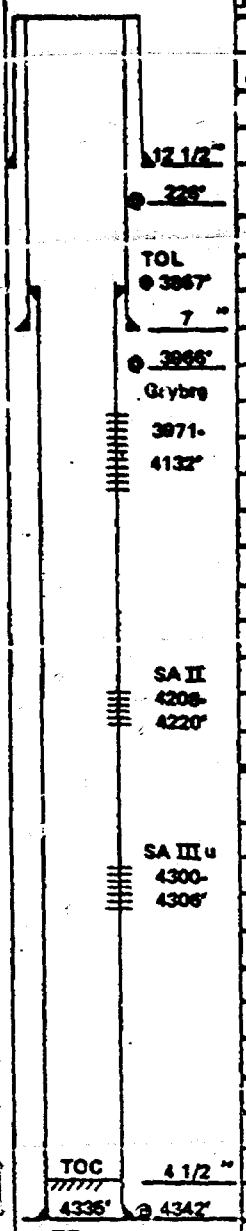
COMPLETION DATE 2-16-33 — GETTY HARDIN NO. 4 — COMPLETION INTERNAL: 3971-4108(G), 4128-4132(I), 4208-4248(II), 4300-4306(IIIU)

RECOMPLETION DATE — HOBBS (G-SA) UNIT

LOCATION 1300' FNL & 1300' FEL SECTION 19A BLOCK

SURVEY T-18-S, R-38-E COUNTY Lea County, New Mexico

DATUM 3662' [DF] G.L. ELEV. TD 4342' PBTD 4335' [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
12 1/2"	50#	226	200	*Circ.	18 1/4"
7"	36#	3966	700	*Circ.	8 3/4"**
4½" liner		3867	100	*3867	6 1/4"**
		4342			

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL
		G-N	

LOG TOPS

ZONE	TOP	SUBSEA
GU	4013	-350
GL	4112	-449
I	4120	-457
II	4192	-529
IIIU	4254	-591
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
2/33	G,I,II	*3966-4231'	OH
12/61	II,IIIU	4235-48'	
8/70	G,I	3971,87, 4009,38,46,50,	1 SPF
		66,89, 4100,08,28,32	
10/71	II	4208-4220	
1/65	IIIU	4300-06	1 SPF

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
8/70	G, I	1250 gal.	AT		
10/71	II	1000gal.	AT		

OPT — DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

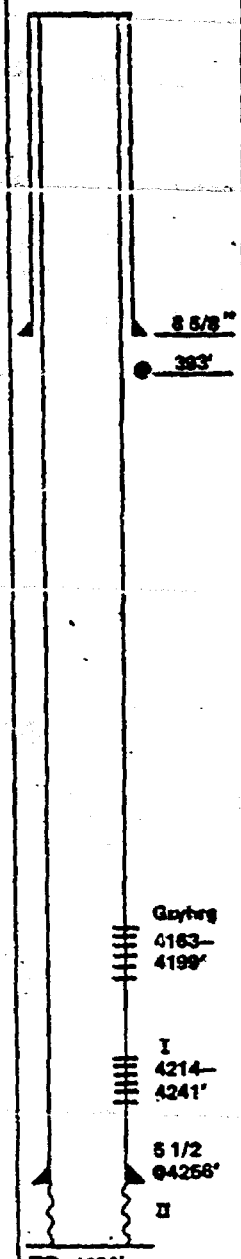
DATE 8-22-78 KLL

WR-3199 B

PROPOSED WELL NO. 26-411
GETTY HOBBS E NO. 1
HOBBS (G-SA) UNIT

COMPLETION DATE 10/1/56
RECOMPLETION DATE 9/6/69 (Deep.)
COMPLETION INTERNAL: 4163-4199(G) 4214-4276(SA)

LOCATION 330' FNL & 330' FEL SECTION 26A BLOCK
SURVEY T-18-S, R-37-E COUNTY Lea County, N.M.
DATUM 3679' [DF] G.L. ELEV. TD 4276' PBTD [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	24#	393	200	Circ.	11"
5 1/2"	14#	4256	400	2157*	7 7/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Anhy	1650	
T.Salt	1752	
B.Salt	2713	
Yates	2853	
7 Riv.	3190	
Queen	3644	
Gu	4144	-465
GL	4239	-560
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
10/56	G	4163-4199	132 holes
10/56	I	4214-4241	
10/56	II	4256-4276	OH

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
10/56	G,I	500 gal. AT; 15,500	frac		84BO
8/69	II	750 gal. 15% NEA	AT - 2 stages		46BO 1BW
12/71	G,I,II	750 gal. 15% paragon	AT		7BO 2BW
5/73	G,I,II	1000 gal. 15% NEA; 25	888X22,200 frac		11BO 6BW

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: DST #1 (4130-4256)-Open 3 hrs., gas to surf. in 15 min.; rec 140' brackish heavy gas-cut drlg. wtr., 430' HO & GCM est. 50% oil & 230' free oil. HP in 2480# out 2455#, 1FP 135#, FFP 383#, 30 min bldup 1140#.

DATE 8/21/78KLL

WR-3198 B

PROPOSED WELL NO. 14-321

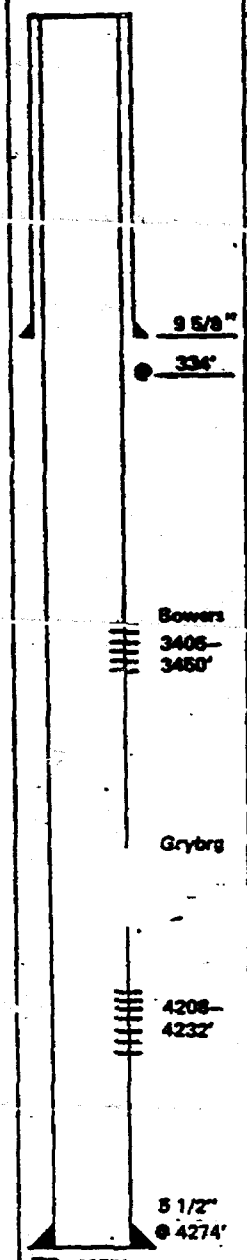
COMPLETION DATE 12-10-59 — GETTY STATE B NO. 2 — COMPLETION INTERNAL: 4208-4232(G) 3405-3450 (BOWERS

RECOMPLETION DATE 9-17-74 — HOBBS (G-SA) UNIT

LOCATION 2310' FNL & 1650' FEL SECTION 14G BLOCK

SURVEY T-18-S, R-37-E COUNTY Lea County, New Mexico

DATUM 3698' (DF) G.L. ELEV. TD 4275' PBTD 4270' ( )



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
9 5/8"	25.4#	334	325	Circ.	11"
5 1/2"	15.5#	4274	600	2595	7 7/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Anhy	1613	
Yates	2826	
Tansil	2673	
Bowers	3094	
Queen	3641	
Penrose	3794	
GU	4203	-505
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
11/59	G	4208-18 4226-32	2 SPF
9/74	Bowers	3405,07,10,41,45,50	1 SPF

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
11/59	G	1000 gal. AT; 10x10 frac			37BO,
					17BW
11/74	G	1750 gal. 15% AT;			
		17x21.5 frac.			
11/74	Bowers	840 gal. 15% NEA; 10x20			
		frac			9BO,2BW

OP:

DATA AVAILABLE OST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: Request for downhole commingling approved 10/22/74.

DATE: 8-21-78 KL

WR-3186 D

PROPOSED WELL NO. 33-411

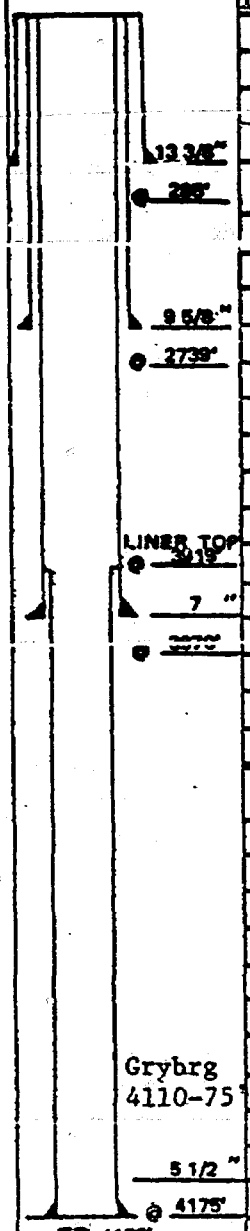
COMPLETION DATE 11-16-34 — GULF GRIMES B NO. 4 — COMPLETION INTERNAL: 4110-4175 (II, IIIU)

RECOMPLETION DATE 5-56 — HOBBS (G-SA) UNIT

LOCATION 560' FNL & 660' FEL — SECTION 33A — BLOCK

SURVEY T-18-S, R-38-E — COUNTY Lea County, New Mexico

DATUM 3642' [GL] G.L. ELEV. — TD 4175' — PBTD [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
13 3/8"	54.5#	285	200	Circ.*	17"**
9 5/8"	36#	2739	350	1723*	12 1/4"**
7"	24#	3970	150	3063*	8 3/4"**
5½" liner	14#FJ	3919/ 4175	40	3919*	6 1/4"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GU	3915	-273
GL	4008	-366
I	4008	-366
II	4064	-422
IIIU	4122	-480
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
	II	*4077-4122	OH
	IIIU	*4122-75	OH
5/56	II,IIIU	4110-14,4130-42,4145-75	4 1/2" SPF

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
11/34	II,IIIU	4000 gal.	AT - 2 Stages		
5/77		1500 gal. 15% NEA	AT		

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: Suspected csg. leak - could not find it.

DATE: 8-22-78 KL

WR-31988

PROPOSED WELL NO. 18-331

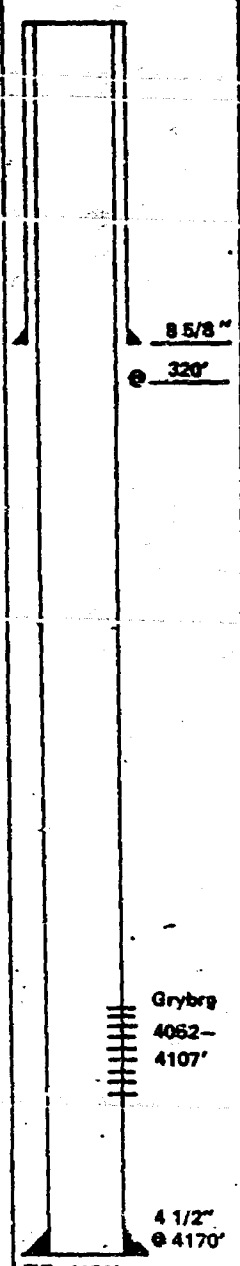
COMPLETION DATE 5-14-59 — GULF HARDIN NO. 5 — COMPLETION INTERNAL: 4052-4107(C)

RECOMPLETION DATE _____ — HOBBS (G.-SA) UNIT

LOCATION 1980' FSL & 1980' FEL SECTION 18J BLOCK _____

SURVEY T-18-S, R-38-E COUNTY Lea County, New Mexico

DATUM 3675' [DF] G.L. ELEV. _____ TD 4170' PBTD 4165' [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	24 #	320	310	Circ	12 1/4"
4 1/2"	9.5 #	4170	1027	1710	7 7/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Anhy	1586	
Yates	2732	
7 Riv	2978	
Queen	3514	
Penrose	3661	
GU	4008	-333
GL	4094	-419
I	4114	-439
II	4183	-508
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
5/59	G	4052-59, 4062-64, 4072-74	40 Holes
		4086-88, 4092-94, 4105-07	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
5/59	G	20,000 x 1-2.5#/gal.			58BO
		frac.			
6/68	G	500 gal. 15% FE NEA			
12/70	G	1000 gal. 15% NEA			

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE 8-21-78 KLI

WR-3198 B

PROPOSED WELL NO. 18-421

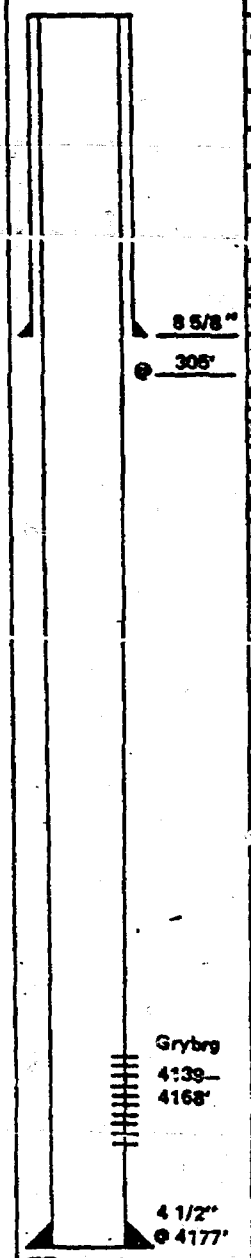
COMPLETION DATE 9/9/59 — GULF HARDIN NO. 6 — COMPLETION INTERNAL: 4139-4168(G)

RECOMPLETION DATE _____ — HOBBS (G-SA) UNIT

LOCATION 1880' FNL & 660' FEL SECTION 18H BLOCK _____

SURVEY T-18-S, R-38-E COUNTY Lea County, N.M.

DATUM 3673' [DF] G.L. ELEV. _____ TD 4177' PBTD 4172' [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	24#	305	300	Circ	12 1/4
4 1/2"	9.5#	4177	350	2799	6 3/4

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Anhy	1663	
Yates	2817	
7 Riv	3072	
Queen	3614	
Penrose	3716	
Gu	4100	-427
GL	4181	-508
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
	G	4139-41, 4146-48, 4156-58	4 SPF
		4166-68	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
9/59	G	20,000 X 1-2.5#/gal	frac		144BO
10/64	G	1,000 gal. 15%	AT	48BO 0BW	108BO 0BW
6/68	G	1,000 gal. 15% FE NEA	AT		
12/70	G	1,000 gal. 15% NEA	AT		

OPT

DATA AVAILABLE DST ☐ CORE ☐ P'T ☐ OTHER

REMARKS:

DATE 8/21/78 KLL

WR-3198 B

PROPOSED WELL NO. 18-311

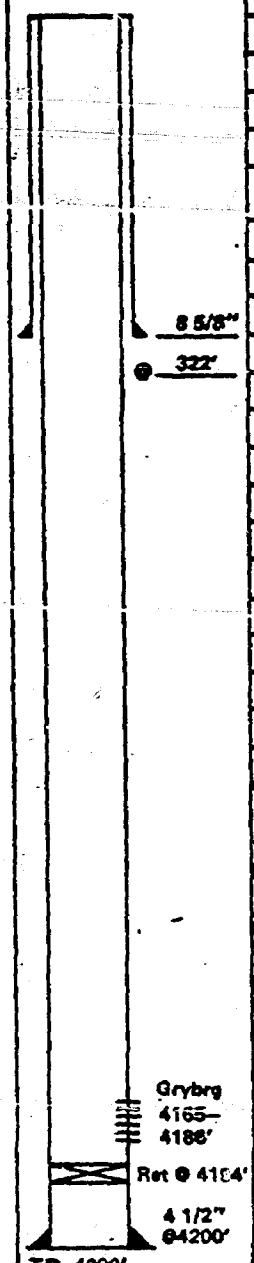
COMPLETION DATE 9/21/60 — GULF HARDIN NO. 7 — COMPLETION INTERNAL: 4165-4186' (C)

RECOMPLETION DATE ____ — HOBBS (G-SA) UNIT

LOCATION 990' FNL & 2310' FEL SECTION 18 B BLOCK ____

SURVEY T-18-S, R-38-E COUNTY Lea County, N.M.

DATUM 3680' [DF] G.L. ELEV. ____ TD 4200' PBTD 4194' [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	24#	322	200	Circ.	12¼"
4 1/2"	9.5#	4200	373	3318	7 7/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Anhy	1642	
Yates	2810	
7 Riv	3068	
Queen	3614	
Penrose	3766	
Gu	4116	-436
GL	4208	-528
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
9/60	G	4165, 4175, 4186	4 SPF

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE
	4194'	Cmt. ret. sqz'd w/27 SX cmt.

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
9/60	G	15,300 X 1-1.5#/gal.	frac		152BO
9/64	G	1,000 gal. 15%	AT	5BO ORW	17BO ORW
3/66	G	1,000 gal. 15% NEA	AT		
5/68	G	1,000 gal. 15% FE NEA	AT		
12/70	G	1,000 gal. 15% NEA	AT		

OPT

DATA AVAILABLE OST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE 8/21/78 KLL

WR-3198 B

PROPOSED WELL NO. 18-341

COMPLETION DATE 8/1/71 — GULF HARDIN NO. 9 — COMPLETION INTERNAL: 3999-4040(G)

RECOMPLETION DATE ____ — HOBBS (G-SA) UNIT

LOCATION 580' FSL & 2310' FEL SECTION 18 O BLOCK ____

SURVEY T-18-S, R-38-E COUNTY Lea County, N.M.

DATUM 3672' [DF] G.L. ELEV. ____ TD 4340' PBTD 4207' [ ]

CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	24#	295	275	Circ.	11"
5 1/2"	14#	4339	285	2525	7 7/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Anhy	1552	
Yates	2800	
Queen	3490	
Gu	3972	-300
GL	4061	-389
I	4068	-396
II	4151	-479
IIIu	4231	-559
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

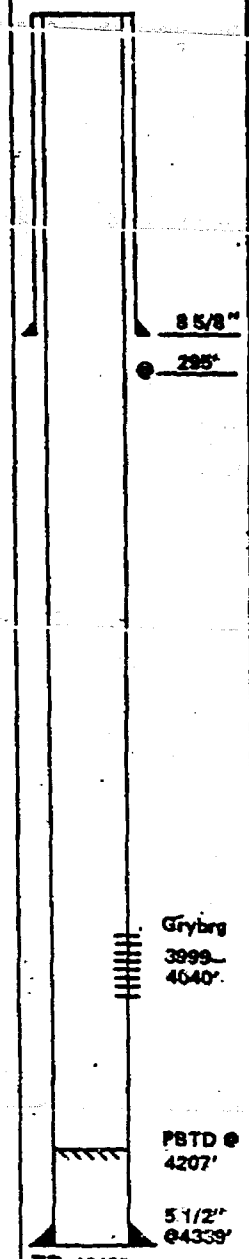
DATE	ZONE	DEPTHS	DENS & SIZE
8/71	G	3999-4001, 4018-20,	4 1/2" SPF
		4038-40	
6/75		*2493-94	4 1/2" SPF
6/75		*1415	4 1/2" SPF

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE
6/75	2493-94	Sqz'd w/500 SX cmt.
6/75	1410	Sqx'd w/350 SX cmt.

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
8/71	G	1000 gal 15% NEA; 14	Y 21 frac		3080 BW



OPT

DATA AVAILABLE OST ☐ CORE ☐ PVT ☐ OTHER ☐

REMARKS:

DATE 8/21/78 KLT

WR-3198 B

PROPOSED WELL NO. 36-211

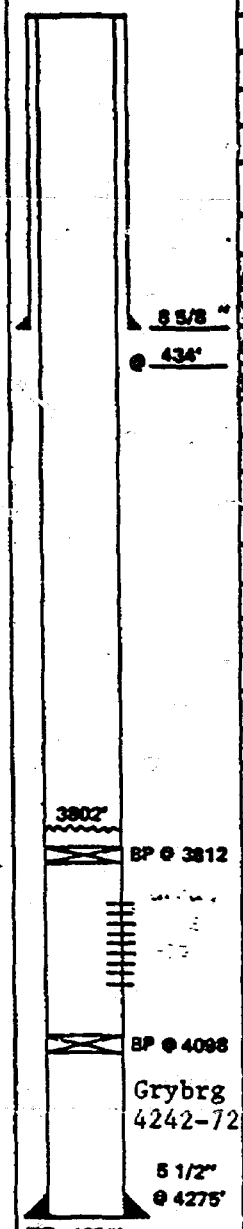
COMPLETION DATE 6-57 — GULF HOLT NCT-D NO. 1 — COMPLETION INTERNAL: ____

RECOMPLETION DATE 1-75 (TA) — HOBBS (G-SA) UNIT

LOCATION 330' FNL & 2310' FWL — SECTION 36C — BLOCK ____

SURVEY T-18-S, R-37-E — COUNTY Lea County, New Mexico

DATUM ____ [ ] G.L. ELEV. 3670' — TD 4275' — PBTD T.A. [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	24#	434	325	Circ.	11"
5 1/2"	14#	4275	400	*2223	7 7/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Anhy	1658	
Yates	2920	
Queen	3720	
Penrose	3870	
GU	4210	-540
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
8/57	G	4242-72	4 SPF

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE
3/70		CIBP @ 4098', capped w/1 sk.
		CIBP @ 3812' & capped w/1.5 sx cmt.
		to 3802

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
10/57	G	12,000 gal. AT; 10x10	frac (4242-72')		
2/63	G	1000 gal. 15% NE FE	AT	8BO,1BW	23BO, 10BW
4/70	G	1000 gal. 15% NEA; sand			
		frac'd (3838-4034')			

OPT

DATA AVAILABLE OST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE: 8-21-78 KL

WR-31989

PROPOSED WELL NO. 30-141
MARATHON STATE 30 NO. 9
HOBBS (G-SA) UNIT

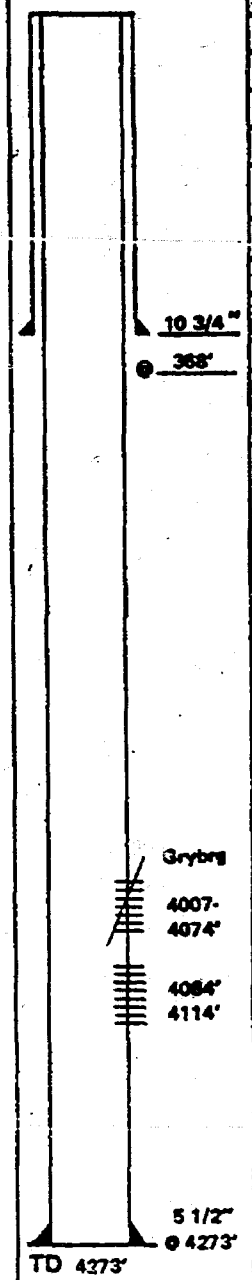
COMPLETION DATE 10-7-55
RECOMPLETION DATE

COMPLETION INTERNAL: 4084-4114(G)

LOCATION 990' FSL & 990' FWL SECTION 30M BLOCK

SURVEY T-18-S, R-38-E COUNTY Lea County, New Mexico

DATUM 3663' [DF] G.L. ELEV. TD 4273' PBTD 4227' [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
10 3/4"	32.75#	368	200	Circ.	13 3/4"
5 1/2"	15.5 #	4273	3000	Circ.	8 3/4"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
B Salt	2606	
Yates	2690	
7 Riv	2928	
Queen	3480	
GJ	3962	-299
GL	4107	-444
I	4123	-460
II	4187	-524
IIIU	4246	-583
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
10/55	G	*4007-12, 4016-30, 4040-	6 JPF
		52, 4062-74	
11/65	G	4084-4114	1 SPF
1/73	G	4084-90, 4099-4101, 4107-	
		14	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE
11/65	4007-74	Sqz'd w/150 sx cmt.
12/72	4084-90	Sqz'd w/75 sx cmt. (to reduce GOR)

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
10/55	G	500 gal. AT; 10x10 frac			46BO
11/65	G	1000 gal. 15% AT;			
		20x35 frac.			
8/70	G	1000 gal. 15%	AT		47BO,5B
1/73	G	2000 gal. 15%	AT		18BO,67

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER ☐

REMARKS:

DATE: 8-21-78 KL

WR-3198 B

COMPLETION DATE 2-18-50 — PROPOSED WELL NO. 31-141 — COMPLETION INTERNAL: 4097-4182(G)

RECOMPLETION DATE ____ — MOBIL BERRY NO.4 — HOBBS (G-SA) UNIT

LOCATION 990' FSL & 990' FWL SECTION 31M BLOCK ____

SURVEY T-18-S, R-38-E COUNTY Lea County, New Mexico

DATUM 3650' (GL) G.L. ELEV. ____ TD 4317' PBTD 4200' ( )



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC.	HOLE SIZE
10 3/4"	32.75#	435	200	Circ.*	13 3/4
7"	23#	3303	500	279*	8 3/4"
5"	15#	4317	100	3132*	6 1/4"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Anhy	1640	
T Salt	1710	
B Salt	2750	
Yates	2850	
Bowers	3346	
GU	4087	-437
GL	4201	-551
I	4226	-576
II	4302	-652
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
2/50	Bowers	*4210-20	8 Holes
1/65	G	4097-4182	2 JPF

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE
1/65	4210-20	Sqz'd w/200 sx cmt; ret. @ 4200'

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
2/50	Bowers	250 gal.	AT		12 O, 4
1/65	G	500 gal. 15% NEA + 40			
		x 40 frac.		4BO,12BW	157BO,
					OBW
5/66	G	2000 gal. 28% NEA AT			

OPT — DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE: 7/78 KLL

WR-3198 B

PROPOSED WELL NO. 34-421

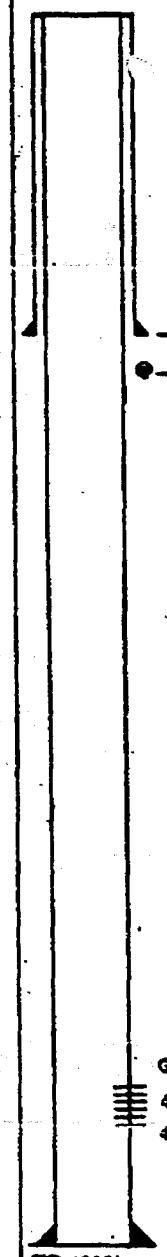
COMPLETION DATE 1-10-62 — MORAN HOBBS NO.1 — COMPLETION INTERNAL: 4236-4250(G)

RECOMPLETION DATE _____ — HOBBS(G-SA) UNIT

LOCATION 2485' FNL & 1184' FEL SECTION 34 H BLOCK _____

SURVEY T-18-S, R-38-E COUNTY Lea County, N.M.

DATUM 3630' [GL] G.L. ELEV. _____ TD 4303' PBTD 4264' [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	24#	372	250	Circ.	12 1/4"
4 1/2"	11.6#	4303	500	2620	7 7/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Anhy	1695	
Yates	2855	
Queen	3645	
Gu	4176	-546
GL	4257	-627
I	4269	-639
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
1/62	G	4236-40, 4248-50	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
1/62	G	2000 g	AT		

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE: 7/78 KLL

WR-3198 B

PROPOSED WELL NO. 25-121

COMPLETION DATE 1-9-58 — SAMEDAN STATE 8 NO.2 — COMPLETION INTERNAL: 4140-4236(G

RECOMPLETION DATE _____ — HOBBS (G-SA) UNIT

LOCATION 1650' FNL & 990 FWL — SECTION 25E — BLOCK _____

SURVEY T-18-S, R-37-E — COUNTY Lea County, N.M.

DATUM 3667' [DF] G.L. ELEV. _____ TD 4261' PBTD _____ [ ]

CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	24#	287	250	Circ	12 1/4"
5 1/2"	14#	4260	250	2930	7 7/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Anhy	1633	
Salt	1735	
Yates	2840	
7 Riv	3345	
Queen	3634	
Gu	4139	-472
GL	4234	-567
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

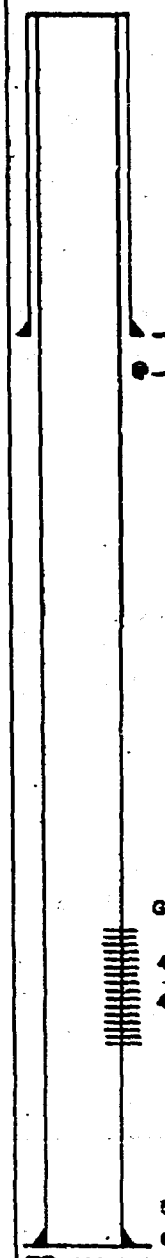
DATE	ZONE	DEPTHS	DENS & SIZE
	G	4231-36, 22-28, 08-14,	4 SPF
		4199-4204, 4186-94,	
		4166-72, 4155-61, 40-48	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
12/57	G	17.5X17.5 frac.	4 intervals-unable to		
			treat rest @8500 psi		
		ball sealers?	intervals unknown		



OPT

DATA AVAILABLE OST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE: 8/21/78KLL

WR-3198 D

PROPOSED WELL NO. 28-231

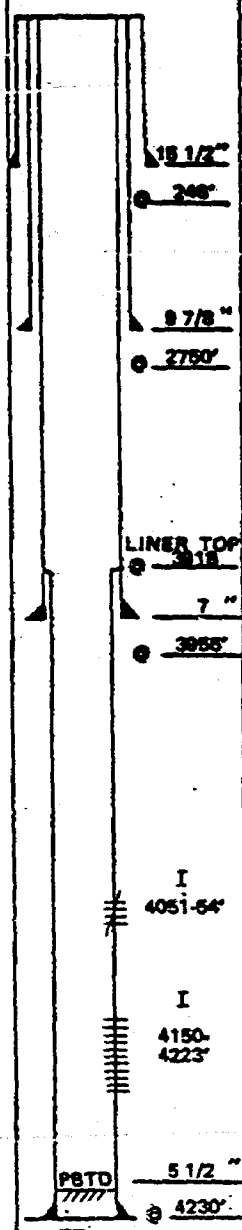
COMPLETION DATE 11-14-33 — SHELL GRIMES NO. 3 — COMPLETION INTERNAL: 4150-4223(III

RECOMPLETION DATE 1946 (Deepened) — HOBBS (G-SA) UNIT

LOCATION 1325' FSL & 1325' FWL — SECTION 28 K — BLOCK

SURVEY T-18-S, R-38-E — COUNTY Lea County, New Mexico

DATUM 3651' [GL] G.L. ELEV. — TD 4231' — PBTD 4228' [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
15 1/2"	70#	246	150	Circ.*	18"**
9 5/8"	36#	2750	150	2315	12 1/4"**
7"	24#	3955	250	2443*	8 3/4"**
5 1/2"	15.5#	3918	100	3918*	6 1/4"**
Lnr.		4230			

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GU	3902	-251
GL	3986	-335
I	3999	-348
II	4069	-418
IIIU	4130	-479
IIIL	4231	-580
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	GENS & SIZE
1/46	III	4150-4223	4 1/2" JPF
12/73	I	*4051-4054	4 1/2" JPF
11/33		3955-4200 OH	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE
9/76	4051-54	Sqz'd w/50 sx cmt.

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
2/34		1000 gal. 50%	AT - OH		
2/34		1500 gal. 50%	AT - OH	892BO	2333BO
4/34		1000 gal. 50%	AT - OH	*	3150BO
2/46	III	500 gal. 15%	AT		
3/70	III	1500 gal. 15% NEA	AT	67BO,	77BO, 3BW
5/71	III	3000 gal. 15% NEA	AT - 3 Stages	54BO, 7BW	119BO, 16BW
6/72	III	1000 gal. Para-Clean	AT - 4 Stages	14BW	100BO, 13BW
12/73	I	2000 gal. 15% NEA	AT - 5 Stages		
9/76	III	500 gal. 15%	AT	29BO, 275BW	31BO, 298 BW
5/78	III	1000 gal. 15% HCl w/NE	AT	25BO, 28BW	38BO, 76 BW

OPT — DATA AVAILABLE OST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: 2120' of 7" csg. pulled & repaired by replacement w/new pipe & lead seals.

DATE: 7-21-78 KLL

WR-3198 D

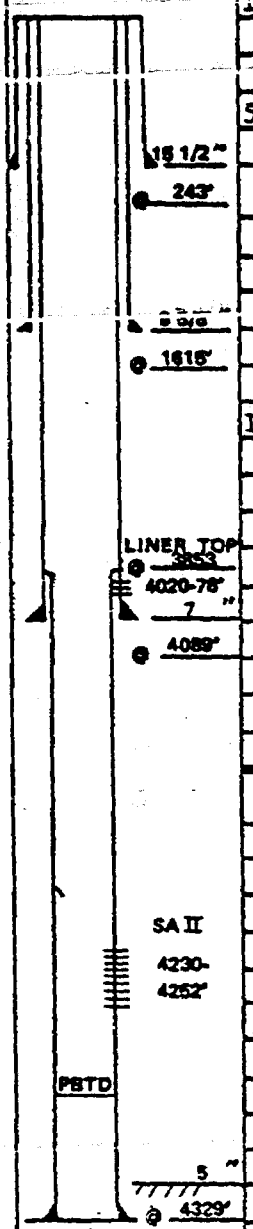
PROPOSED WELL NO. 20-232
SHELL MCKINLEY B NO. 4
HOBBS (G-SA) UNIT

COMPLETION DATE 7/33
RECOMPLETION DATE 2/73(Deep.)
COMPLETION INTERNAL: 4230-4252(II)

LOCATION 1325' FSL & 1325' FWL SECTION 20K BLOCK

SURVEY T-18-S, R-38-E COUNTY Lea County, N.M.

DATUM 3656'. [DF] G.L. ELEV. TD 4330' PBTD 4280' [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
15 1/2"	70#	243	150	Circ.*	18"**
9 5/8"	36#	1615	75	1397*	12¼"**
7"	24#	4089	250	2577*	8 3/4"**
5" lnr.	15#	3853/4329	55	3853*	6¼"**

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Gu	4067	-411
GL	4157	-501
I	4157	-501
II	4219	-563
III u	4288	-632
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
3/55	G	*4020-78	4 JPF
2/73	II	*4225, 4229, 4232, 35, 39	7 holes
		4245, 4252	
10/74	II	4230, 4232, 4235,39,47,50	7 holes
		4252	
10/74	II	4249-50, 4251-52	8 holes

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE
10/74	4225-52	Sqz'd. w/250 SX cmt.

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
1/51	G,I	500 gal. 15% LST	AT		
6/54	G,I	1500 gal. 15% LST	AT		
3/55	G	1500 gal. 15% LST, 13,200 gal Petrogel - AT			
2/73	II	1500 gal. 15% NEA	AT		
10/74	II	1200 gal. 15% NEA	AT	4480 40BW 172MCFG	
10/74	II	2000 gal. 15% NEA	AT		
10/74	II	3000 gal. 15% NEA	AT		2880 38BW 170MCFG

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER ☐

REMARKS:

DATE:7/20/78 KLL

WR-3198 D

PROPOSED WELL NO. 13-431

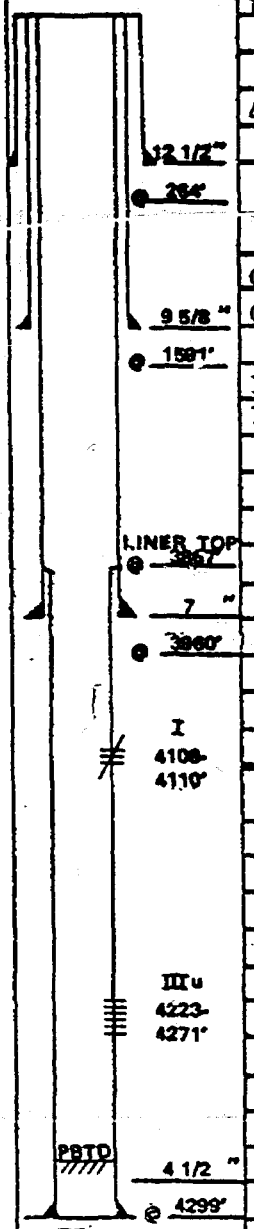
COMPLETION DATE 12/14/35 — SHELL RICE NO. 3 — COMPLETION INTERNAL: 4223-4271(III

RECOMPLETION DATE _____ — HOBBS (G-SA) UNIT

LOCATION 1650' FSL & 990' FEL SECTION 13 I BLOCK _____

SURVEY T-18-S, R-37-E COUNTY Lea County, N M

DATUM 3676' [DF] G.L. ELEV. _____ TD 4300' PBTD 4282' [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
12 1/2"	50#	264	220	Circ.	16"
9 5/8"	36#	1591	630	Circ*	12"
7"	24#	3960	160	2992*	8 3/4"
4½" liner	11.6#	3867/4299	100	3867*	6 1/4"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Gu	3932	-256
GL	4022	-346
I	4063	-387
II	4138	-462
IIIu	4216	-540
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
6/74	I	*4108, 4109, 4110	3 holes
6/74	III	4223, 4230, 4239, 54, 60 4271	6 holes

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE
6/74	4108-10'	Sqz'd. w/275 SX cmt.

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
2/58	I	15 X 15 frac			
11/59	G, I	1000 gal. 15% LST AT	OH (4004-88')	7BO 8BW	22BO 22BW
5/61	G, I	2000 gal. 15% NEA	OH (4004-88')	11BO 8BW	52BO 8BW
3/65	G, I	1500 gal. 15% NEA	OH (4004-88')		
7/66	G, I	2000 gal. 28% NEA	OH (4004-88')	6BO 10BW	6BO 10BW
10/71	G, I	3000 gal. 15% NM	OH (4004-88')	3BO 60BW	3BO 156BW
6/74	I	2000 gal. 15% NEA			
6/74	III	2000 gal. 15% NEA			22BO 519BW/D

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER ☐

REMARKS: For csg. leak info. see attached.

DATE: 9/12/78KLL

WR-31968

PROPOSED WELL NO. 27-111

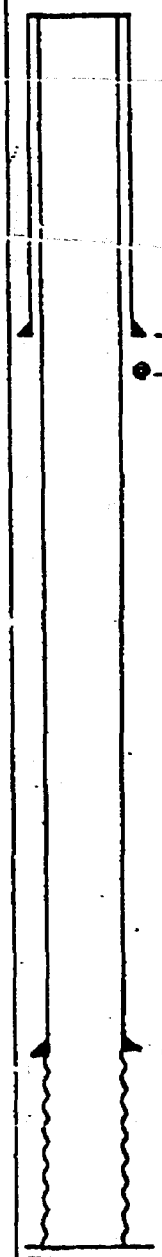
COMPLETION DATE 2-77 — SHELL SANGER NO.6 — COMPLETION INTERNAL: 4222-4260 (G) 4260-4360(SA)

RECOMPLETION DATE 3-74 (Deep.) — HOBBS (G-SA) UNIT

LOCATION 1200' FNL & 470' FWL SECTION 27D BLOCK

SURVEY T-18-S, R-38-E COUNTY Lea County, New Mexico

DATUM 3641' [GL] G.L. ELEV. TD 4360 PBTD [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	24 #	347	275	Circ.*	12¼"
5 1/2"	15.5 #	4222	450	1861*	? 7/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Yates	2861	
Bowers	3365	
Queen	3585	
Penrose	3774	
GU	4159	-518
GL	4249	-608
I	4260	-619
II	4299	-658
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
2/70	T	4262-75 OH	
4/71	G,I	4222-75 OH	
3/74	G,I,II	4222-4360 OH	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
1/70	4275	600 g. 15% HCl, 2000 g			
		28% HCl	AT - 3 Stgs.		
2/70	4262-75	2000 g. 28% NEA	AT		
4/71	G,I	2000 g. 15% NE + 26.5			
		x 34.6 frac.		13BO, 7BW	22BO, 22BW
3/74	G,I,II	2000 g. 15% NE-FEA	AT - 2 Stages	16 BO, 12 BW	16 BO, 10BW
5/78		1000 g. 15% HCl w/NE	Dump AT	9BO, 10BW	9BO, 8BW

OPT

DATA AVAILABLE OST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

Rev. 12-8-78

DATE: 7-20-78 KL

WR-3198 D

PROPOSED WELL NO. 24-211

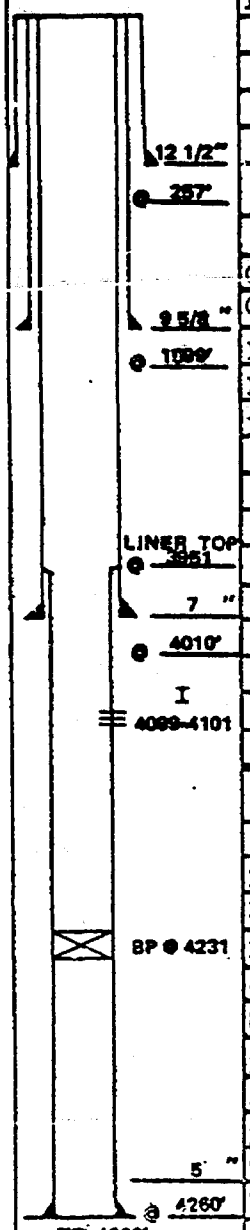
COMPLETION DATE 3-30-35 — SHELL STATE D NO. 2 — COMPLETION INTERNAL: 4099-4101(I)

RECOMPLETION DATE 5-10-41 — HOBBS (G-SA) UNIT

LOCATION 660' FNL & 1980' FWL SECTION 24C BLOCK

SURVEY T-18-S, R-37-E COUNTY Lea County, N.M.

DATUM 3675' [DF] G.L. ELEV. TD 4260' PBTD 4231' [BP]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
12 1/2'	50#	257	150	Circ.	16"
9 5/8'	36#	1599	200	865*	11-3/4**
7"	24#	4010	250	2498*	8-3/4**
5"lnr.	15#	3932/4260	100	3952*	6 1/4"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Gu	3945	-270
GL	4030	-355
I	4035	-360
II	4128	-453
IIIu	4210	-535
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
4/41	III	*4231-35	3 1/2" JPF
7/47	II	*4186-94	4 1/2" JPF
7/47	III	*4215-25	4 1/2" JPF
7/47	II	*4178-80	4 1/2" JPF
5/48	II	*4201-09	4 1/2" JPF
1/73	II	*4137, 4142, 4149, 4153	1 1/2" JPF

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE
7/47	4231-35	
	4178-80	Sqz'd w/cmt.
2/73	4137-53	Sqz'd w/95SX cmt.
5/73	4137-53	Sqz'd w/33SX cmt.
5/73	4141-52	Sqz'd w/75 SX cmt.

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
3/35	4010/4260	2000 gal. Dowell X	AT		
2/48	II	8000 gal. 15% LST	AT-2 stages		
3/48	II	5000 gal. 15%	AT		
5/48	II	500 gal. 15%, LST	AT		
8/50	II	1000 gal. 15% LST	AT		
3/60	II	500 gal. 15% NEA	AT	12BO	64BO 27BW
5/61	II	1500 gal. 15% NEA	AT	18BO	30BO 47BW
3/64	II	1500 gal. 15%NEAw/FE	AT	17BO 36BW	33BO 36BW
9/66	II	2000 gal. 28% NEA	AT	16BO 38BW	27BO 74BW
9/71	II	3000 gal. 15% NM	AT	11BO 32BW	20BO 53BW
10/72	II	1000 gal. 15% MCA	AT	14BO 16BW	31BO 46BW

OPT — DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE 9/12/78 KLL

WR-3198 B

PROPOSED WELL NO. 23-321
SHELL STATE "F" NO.2
HOBBS (G-SA) UNIT

COMPLETION DATE 7/15/57
RECOMPLETION DATE

COMPLETION INTERNAL: 4106-4158 (G)

LOCATION 1650' FNL & 1650' FEL SECTION 23G BLOCK

SURVEY T-18-S, R-37-E COUNTY Lea County, N.M.

DATUM 3688' [DF] G.L. ELEV. TD 4265' PBTD 4162' [ ]

CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	32#	309	300	Circ.	12 1/4"
5 1/2"	15.5#	4265	1355	Circ.	7 7/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Gu.	4068	-380
GL	4159	-471
T	4194	-506
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

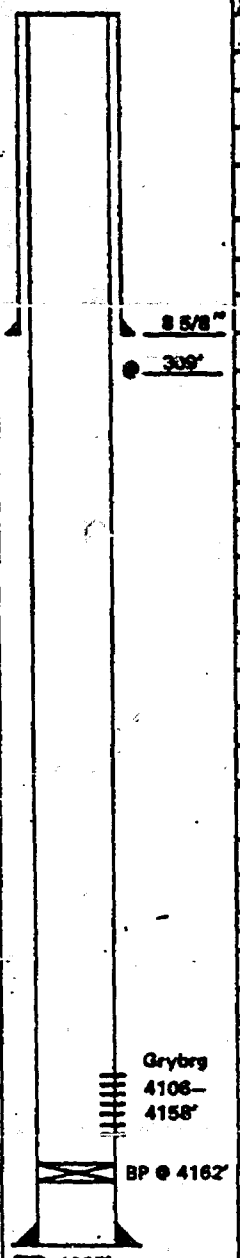
DATE	ZONE	DEPTHS	DENS & SIZE
6/57	G	*4106-20, 4134-60, 4184-90	4 1/2" JPF
7/57	G	4106-20, 4136-40, 4148-58	4 1/2" JPF

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE
6/57	4106-90	Sqz'd w/375 SX cmt.

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
6/57	G	6000g. MCA + 15 X 15 FRAC			
1/62	G	1000g. 15% NEA			330, 61W
3/64	G	1000g. 15% NEA-FE		200, 39W	230, 49W
3/65	G	1500g. 15% NEA		160, 38W	220, 118W
10/71	G	3000g. 15% NM		40, 50W	140, 126W
11/74	G	500g. 15% NEA		20, 90W	80, 125W



OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE: 7/78 KLL

WR-3198 B

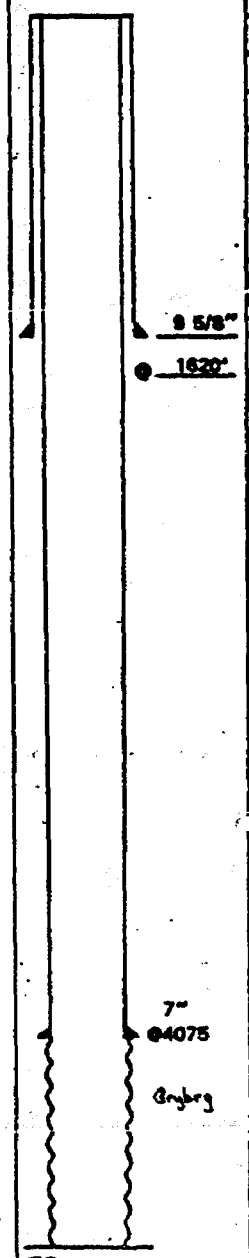
COMPLETION DATE 4-11-49 — PROPOSED WELL NO. 31-121 — COMPLETION INTERNAL: 4075-4189(G)

RECOMPLETION DATE _____ — SUN FOWLER NO. 4 — HOBBS (G-SA) UNIT

LOCATION 1980' FNL & 990' FWL SECTION 31E BLOCK _____

SURVEY T-18-S, R-38-E COUNTY Lea County, New Mexico

DATUM 3655' [DF] G.L. ELEV. _____ TD 4189' PBTD _____ [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
9 5/8"	36#	1620	800	Circ.	12 1/4"
7"	23#	4075	400	2608	8 3/4"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GU	4054	-399
GL	4180	-525
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
4/49	G	4075-4189	OH

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: See attached for remedial work done on this well.

DATE: 8-21-78 KT

WR-3196 B

PROPOSED WELL NO. 20-331

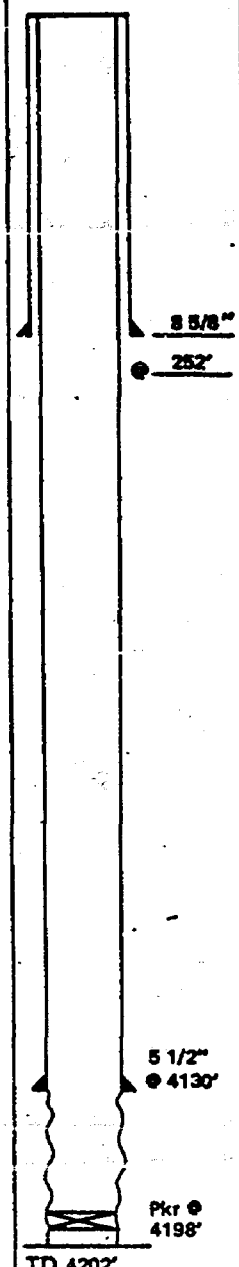
COMPLETION DATE 3-18-54 — B. SWEET BOWERS B NO.2-A — COMPLETION INTERNAL: 4198-4202(I)

RECOMPLETION DATE _____ — HOBBS (G-SA) UNIT

LOCATION 1650' FSL & 2010' FEL SECTION 20J BLOCK _____

SURVEY T-18-S, R-38-E COUNTY Lea County, New Mexico

DATUM 3654' [GL] G.L. ELEV. _____ TD 4202' PBTD _____ [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	40#	252	150	Circ.	11"**
5 1/2"	15.5#	4130	600	982*	7 7/8"**

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Anhy	3013	
Yates	4194	
GU	4099	-445
GL	4189	-535
I	4192	-538
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
3/54	I	4198-4202	OH

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
3/54		200 gal.	AT		66BO

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: All bradenheads closed w/bleeder lines brought to surf. w/valve attached.
Valves will be open permanently.

DATE: 8-21-78 KLI

WR-3198 B

PROPOSED WELL NO. 20-421

COMPLETION DATE 5/12/52 — C.H. SWEET McKINLEY B NO. 2 — COMPLETION INTERNAL: 4252-4256(I)

RECOMPLETION DATE _____ — HOBBS (G-SA) UNIT

LOCATION 2310' FNL & 990' FEL — SECTION 20 H — BLOCK _____

SURVEY T-18-S, R-38-E — COUNTY Lea County, N.M.

DATUM 3654' [GL] G.L. ELEV. _____ — TD 4414' — PBTD _____ [ ]

CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	28#	302	150	Circ.	11"
5 1/2"	15.5#	4278	200	2952	6 3/4"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Gu	4128	-474
GL	4216	-562
I	4223	-569
II	4283	-629
IIIu	4343	-689
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

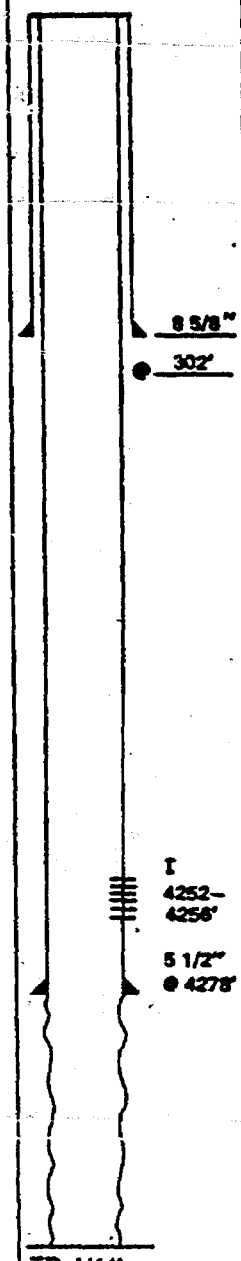
DATE	ZONE	DEPTHS	DENS & SIZE
5/52	I	4252-56	

SQUEEZE & PEPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
5/52	I	500 gal.	AT		



OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: Cored 4135-56, 4156-4213, 4216-38, 4243-57, 4257-78, 4278-93, 4293-4325

DATE 8-21-78 KLL

WR-3196 B

PROPOSED WELL NO. 23-411

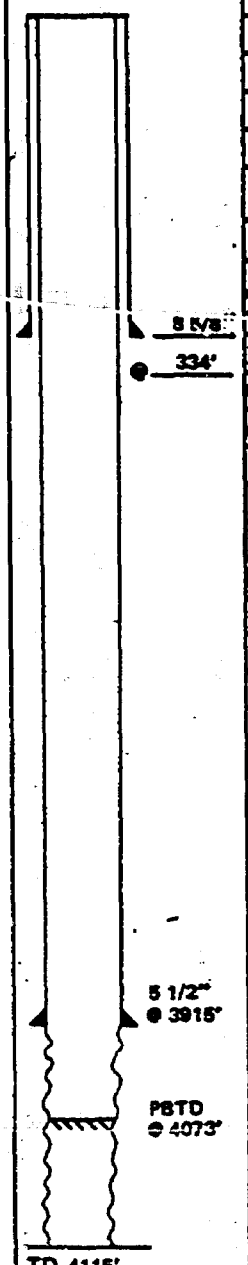
COMPLETION DATE 6/19/51 — C.H. SWEET STATE F NO. 1-A — COMPLETION INTERNAL: 3915-4073(G)

RECOMPLETION DATE 8-63 (TA) — HOBBS (G-SA) UNIT

LOCATION 330' FNL & 330 FEL SECTION 23A BLOCK

SURVEY T-18-S, R-37-E COUNTY Lea County, N.M.

DATUM 3686' [DF] G.L. ELEV. TD 4115' PBTD 4073' [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	23.7#	334	125	Circ	11"
5 1/2"	15.5#	3915	75	3406	6 3/4"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Anhy	1600	
T.Salt	2450	
B.Salt	2750	
Gu	3975	-289
GL	4086	-400
I	4110	-424
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
6/51	G	3915-4073	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
6/51		1000 gal. AT (3950-4030)			
6/51		1000 gal. AT (4035-4095)			
6/51		1000 gal. AT (4095-4115)			90BO 0BW
5/53		5000 gal. AT (3950-4101)			53BO 0BW

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE: 8/21/78 KLL

WR-3198 B

PROPOSED WELL NO. 23-431

COMPLETION DATE 1/17/53 — C.H. SWEET STATE F NO. 3 — COMPLETION INTERNAL: _____

RECOMPLETION DATE _____ — HOBBS (G-SA) UNIT

LOCATION 2310' FSL & 330'FEL SECTION 23I BLOCK _____

SURVEY T-18-S, R-37-E COUNTY Lea County, N.M.

DATUM 3681' [DF] G.L. ELEV. _____ TD 4191' PBTD _____ [ ]

CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	24.7#	252	125	Circ.	12"
5 1/2"	15.5#	3993	300	1922*	7 3/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Anhy	1610	
T.Salt	2460	
B.Salt	2760	
Gu	4049	-368
GL	4144	-463
I	4152	-471
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

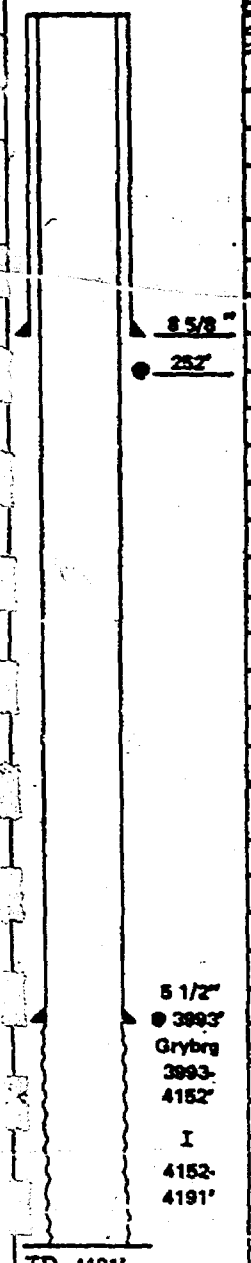
DATE	ZONE	DEPTHS	DENS & SIZE
1/53	G	3993-4152	OH
1/53	I	4152-4191	OH

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
1/53	G,I	1000 gal.	AT		
		5000 gal.	AT		5780 .3%W



)PT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER ☐

REMARKS:

DATE 8/21/78KLL

WR-3136 B

PROPOSED WELL NO. 14-431

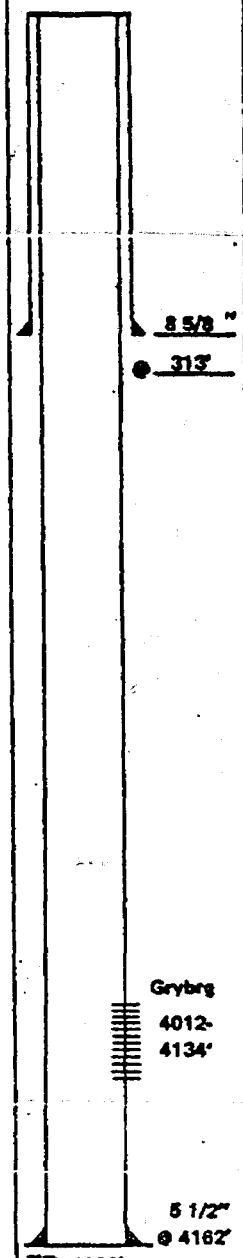
COMPLETION DATE 1/13/58 — TEXAS PAC STATE V NO. 1 — COMPLETION INTERNAL: 4012-4134 (G)

RECOMPLETION DATE _____ — HOBBS (G-SA) UNIT

LOCATION 1650' FSL & 330' FEL SECTION 141 BLOCK _____

SURVEY T-18-S, R-37-E COUNTY Lea County, N.M.

DATUM 3690' [DF] G.L. ELEV. _____ TD 4162' PBTD 4159' [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	28#	314	300	Cir.	12 1/4"
5 1/2"	14#	4162	300	2558'	7 7/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
7 Riv	3012	
Queen	3537	
Penrose	3674	
Gu	4016	-326
GL	4128	-438
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
1/58	G	4012-26, 56-78, 4092-4102	288 holes
		4108-18, 4124-34	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
1/58	G	1000 gal. AT; 30 X 30	frac		2088D OBW

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: Cored 4050-4100: rec. 50', oil show; 4100-32: rec. 32', oil show; ran logs.

DATE: 8/21/78KLL

WR-3198 B

PROPOSED WELL NO. 23-211

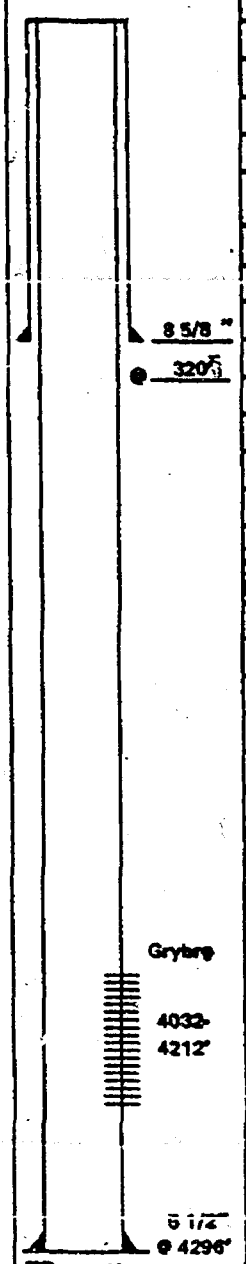
COMPLETION DATE 2-22-59 — TEXAS PAC STATE V NO. 3 — COMPLETION INTERNAL: 4032-4212(G)

RECOMPLETION DATE _____ — HOBBS (G-SA) UNIT

LOCATION 330' FNL & 2310' FWL SECTION 23C BLOCK _____

SURVEY T-18-3, R-37-E COUNTY Lea County, N.M.

DATUM 3689' [DF] G.L. ELEV. _____ TD 4296' PBTD 4286' [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	28#	320	325	Circ	12 1/4"
5 1/2"	14#	4296	300	2905	7 7/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Anny	1632	
Yates	2817	
7 Riv	3090	
Bowers	3390	
Queen	3690	
Gu	4129	-440
GL	4262	-573
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
1/59	G	*4238-78	4 SPF
2/59	G	4088-4108, 4128-42, 48-70,	4 SPF
		4186-98, 4204-12	
3/64	G	4032, 4036, 4040, 4048,	1 SPF
		4064, 4069	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE
2/59	4238-78	Sqz'd w/77 SX cmt.

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
1/59	G	500 gal. AT 15X15	frac		120BO 80 BW
2/59	G	25.5X25.5 frac (3stg. down tbg. & annulus)		240 BO I60BW	166 BO, 0BW
3/64	G	1000 gal. AT; 1000x250	frac	7BO, 28W	18BO 0BW

OPT — DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE: 8/21/78 KH

WR-3198 B

PROPOSED WELL NO. 23-231

COMPLETION DATE 6/12/59 — TEXAS PAC STATE V NO. 5 — COMPLETION INTERNAL: 4146-4256(G)

RECOMPLETION DATE ____ — HOBBS (G-SA) UNIT

LOCATION 2310' FSL & 2110' FWL — SECTION 23K — BLOCK ____

SURVEY T-18-S, R-37-E — COUNTY Lea County, N.M.

DATUM 3690' [DF] G.L. ELEV. ____ — TD 4330' — PBTD 4300' [ ]

CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	24#	310	350	Circ.	12"
5 1/2"	15.5#	4330	300	2630	7 7/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

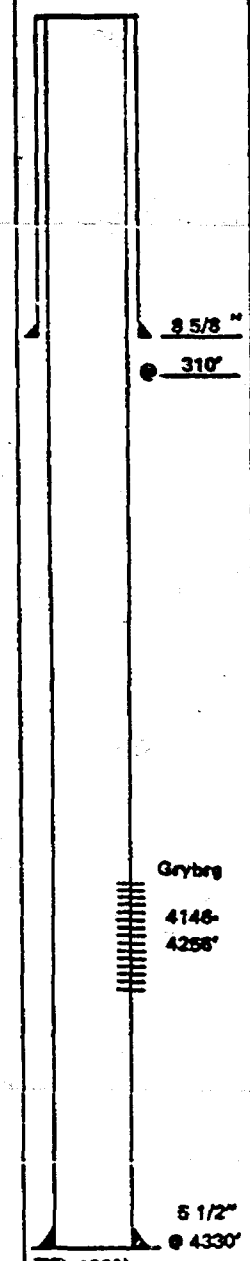
ZONE	TOP	SUBSEA
Yates	2868	
7 Riv	3150	
Bowers	3434	
Queen	3680	
Penrose	3838	
Gu	4148	-458
GL	4241	-551
I	4276	-586
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
6/59	G	4146-60, 4164-70, 4174-80	4 SPF
		4188-92, 4196-4204, 4228-56	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE



STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
6/59	G	1000 gal. AT; 20X20	frac		189BO 35BW

OPT

DATA AVAILABLE OST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE 8/21/78 KLL

WR-31986

PROPOSED WELL NO. 23-341

COMPLETION DATE 5-23-56 — YATES SHELL STATE NO. 3 — COMPLETION INTERNAL: 4144-4228(G)

RECOMPLETION DATE _____ — HOBBS (G-SA) UNIT

LOCATION 1650' FEL & 990' FSL — SECTION 230 — BLOCK _____

SURVEY T-18-S, R-37-E — COUNTY Lea County, New Mexico

DATUM 3683' [DF] G.L. ELEV. _____ — TD 4302' — PBTD _____ [ ]

*CALCULATED **ESTIMATE

CASING RECORD

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"		352	180	Circ.	12 1/2"
5 1/2"		4302	750	*367	7 7/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

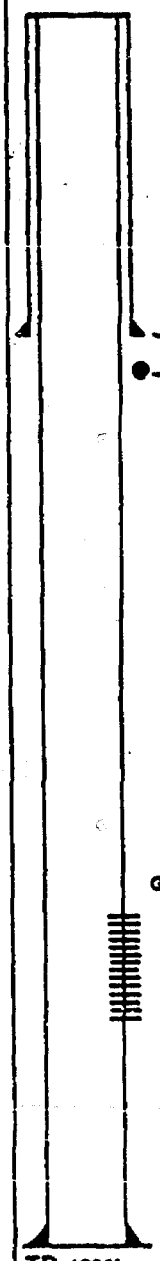
ZONE	TOP	SUBSEA
Anhy	1655	
B Salt	2715	
Yates	2860	
7 Riv	3130	
Queen	3675	
GU	4142	-459
GL	4234	-551
I	4252	-569
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
5/56	G	4144-52, 4180-96, 4222-28	4 SPF

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE



STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
5/56	G	15 x 15	frac		62BO

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: DST #1 5/12/56 (4253-70') - Open 2 hrs., closed in 20 min. No gas to surf. Rec. was 60' of gas cut drlg. mud & 30' grev colored drlg mud. DST #2 5/12/56 (4280-90') - Open 2 hrs., closed in 20 min. Gas to surf. in 5 min. No fluid to surf. Rec. 330' of oil & gas cut mud & 200' of salty water.

DATE 8-21-78 KLL

PROPOSED NORTH HOBBS (G-SA) UNIT
PROPOSED FOR CONVERSION TO INJECTION

OPERATOR-LEASE	WELL NUMBER	PROPOSED WELL NUMBER
Amerada Hess		
Hardin	1	18-141
State "C"	1	36-411
State "C"	3	36-321
State "E"	1	24-121
State WH "B"	1	14-341
State WH "B"	2	14-231
Antweil		
Hobbs Cone Townsite	1	21-331
Atlantic		
Grimes "SOC"	2A	28-221
Grimes "SOC"	3	28-111
C&C Operating Corp.		
Shipp "A"	1	23-121
Chevron		
State "17"	1	17-131
Cities Service		
Fowler	2	31-311
Hardin	5	19-111
Continental		
Grimes	4	28-431
State "A-29"	1	29-331
State "B-13"	2	13-141
State "B-13"	4	13-221
Exxon		
Bowers "A" Fed. Com.	35	29-111
Grimes	1	29-411
New Mexico "A" State	1	25-431
New Mexico "A" State	5	25-341
New Mexico "A" State	6	25-231
Getty		
Fowler	1	31-211
Hardin	3	19-311
Hardin	4	19-411
Hobbs "E"	1	26-411
State "B"	2	14-321

OPERATOR-LEASE	WELL NUMBER	PROPOSED WELL NUMBER
Gulf		
Grimes "B"	4	33-411
Hardin	5	18-331
Hardin	6	18-421
Hardin	7	18-311
Hardin	8	18-341
Holt NCT "D"	1	36-211
Marathon		
State 30	9	30-141
Mobil		
Berry	4	31-141
Moran		
Hobbs	1	34-421
Samedan		
State "B"	2	25-121
Shell		
Grimes	3	28-231
McKinley "B"	4	20-232
Rice	3	13-431
Sanger	6	27-111
State "D"	2	24-211
State "F"	2	23-321
Sun		
Fowler	4	31-121
Bill Sweet		
Bowers "B"	2-A	20-331
C. H. Sweet		
McKinley "B"	2	20-421
State "F"	1-A	23-411
State "F"	3	23-431
Texas Pacific		
State "V"	1	14-431
State "V"	3	23-211
State "V"	5	23-231
Yates		
Shell State	3	23-341

PROPOSED NORTH HOBBS (G-SA) UNIT
PROPOSED FOR CONVERSION TO INJECTION

Propoed Well Number	Operator-Lease	Well Number
13-141	Conoco St. "B-13"	2
13-221	Conoco St. "B-13"	4
13-431	Shell Rice	3
14-231	Amerada WH "B"	2
14-321	Getty State "B"	2
14-341	Amerada WH "B"	1
14-431	Texas Pacific State "V"	1
17-131	Chevron State "17"	1
18-141	Amerada Hardin	1
18-311	Gulf Hardin	7
18-331	Gulf Hardin	5
18-341	Gulf Hardin	9
18-421	Gulf Hardin	6
19-111	Cities Services Hardin	5
19-311	Getty Hardin	3
19-411	Getty Hardin	4
20-232	Shell McKinley "B"	4
20-331	Bill Sweet Bowers "B"	2-A
20-421	C. H. Sweet McKinley "B"	2
21-331	Antweil Hobbs Cone Townsite	1
23-121	C&C Operating Corp. Shipp "A"	1
23-211	Texas Pacific State "V"	3
23-231	Texas Pacific State "V"	5
23-321	Shell State "F"	2
23-341	Yates Shell State	3
23-411	C. H. Sweet State "F"	1-A
23-431	C. H. Sweet State "F"	3
24-121	Amerada State "E"	1
24-211	Shell State "D"	2
25-121	Samedan State "B"	2
25-231	Exxon New Mexico "A" State	6
25-341	Exxon New Mexico "A" State	5
25-431	Exxon New Mexico "A" State	1
2 26-411	Getty Hobbs "E"	1

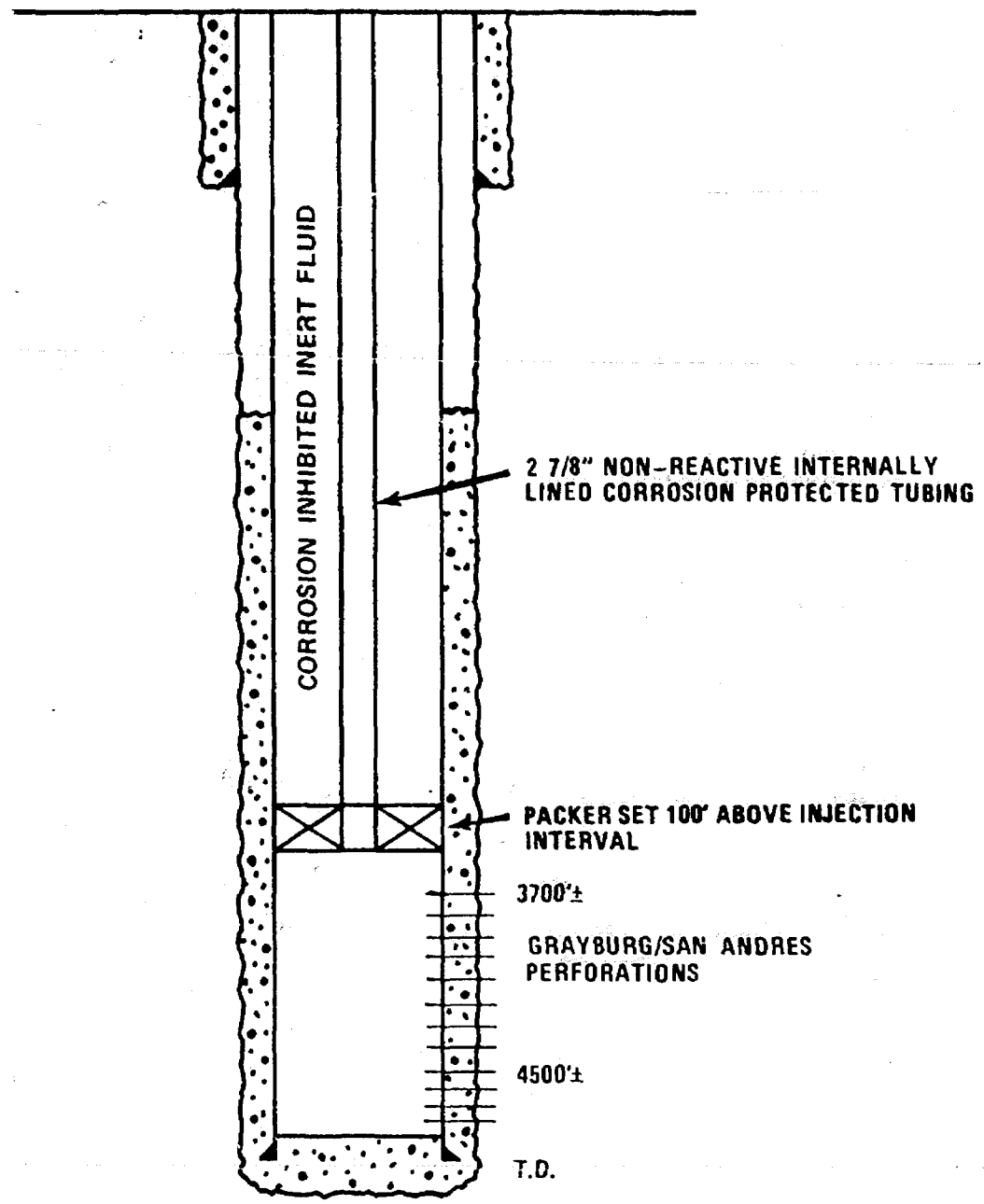
Proposed Well Number	Operator-Lease	Well Number
2 27-111	Shell Sanger	6
28-111	Atlantic Grimes "SOC"	3
28-221	Atlantic Grimes "SOC"	2A
28-231	Shell Grimes	3
28-431	Conoco Grimes	4
29-111	Exxon Bowers "A" Fed. Com.	35
29-331	Conoco State "A-29"	1
29-411	Exxon Grimes	1
30-141	Marathon State 30	9
31-121	Sun Fowler	4
31-141	Mobil Berry	4
31-211	Getty Fowler	1
31-311	Cities Service Fowler	2
33-411	Gulf Grimes "B"	4
34-421	Moran Hobbs	1
36-211	Gulf Holt NCT "D"	1
36-321	Amerada State "C"	3
36-411	Amerada State "C"	1

52

EXHIBIT 26

2200969-03

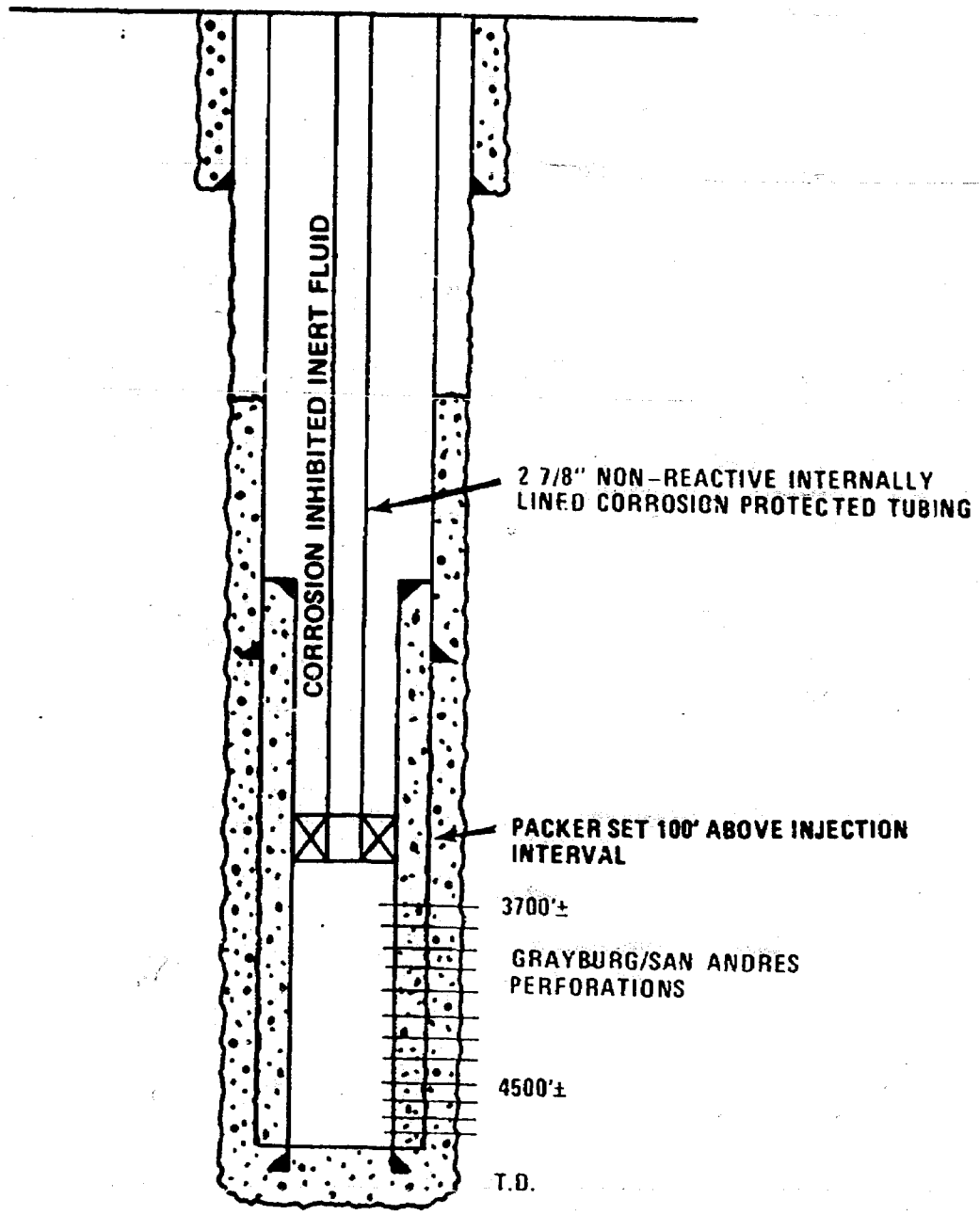
NORTH HOBBS GRAYBURG-SAN ANDRES UNIT



SCHEMATIC COMPLETION DIAGRAM
TYPICAL CONVERSION
TWO CASING STRINGS

2/00969-02

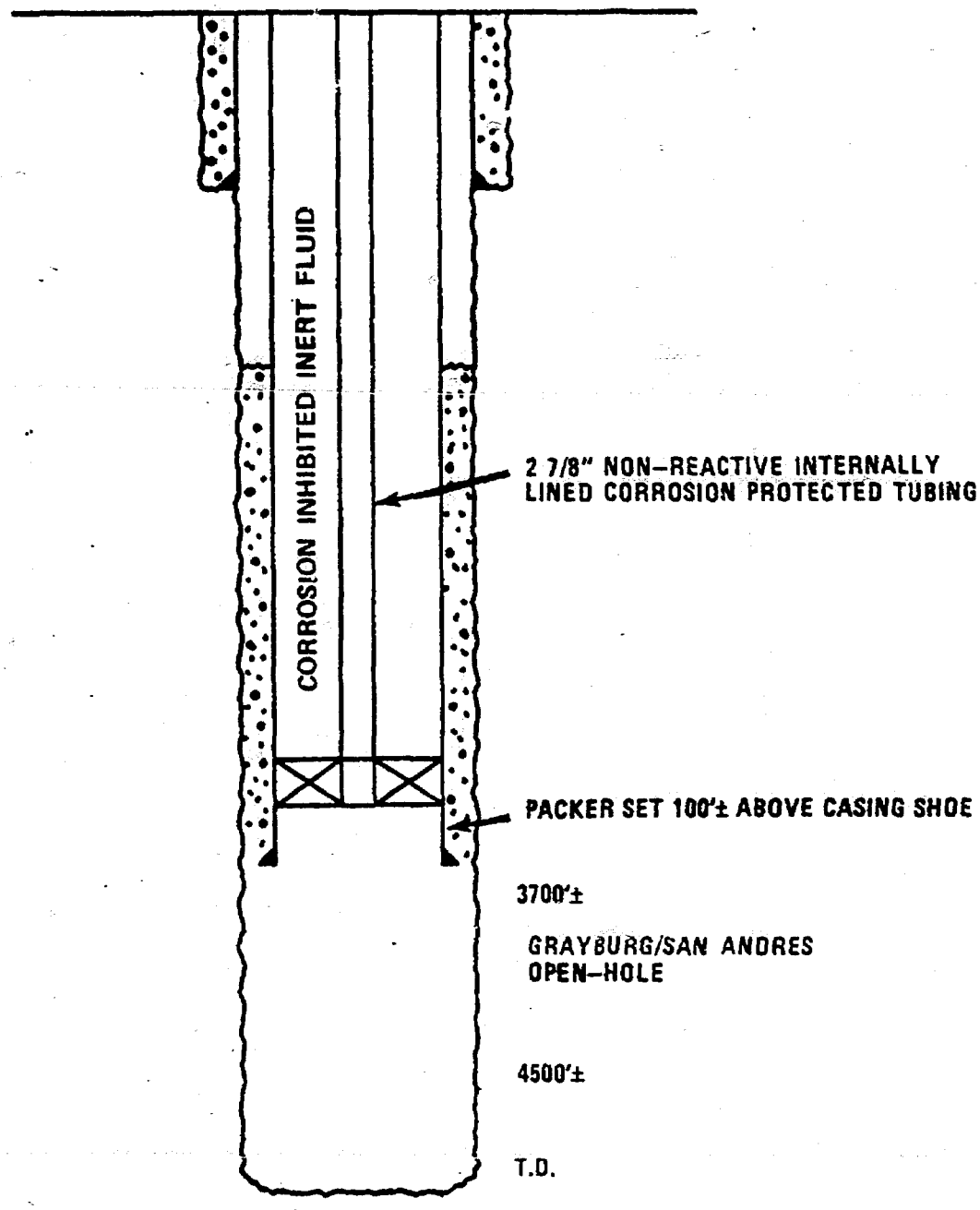
NORTH HOBBS GRAYBURG-SAN ANDRES UNIT



SCHEMATIC COMPLETION DIAGRAM
TYPICAL CONVERSION
W/LINER

2200969-07

NORTH HOBBS GRAYBURG-SAN ANDRES UNIT



SCHEMATIC COMPLETION DIAGRAM
TYPICAL CONVERSION
OPEN-HOLE COMPLETION

EXHIBIT 27

NORTH HOBBS (G/SA) UNIT

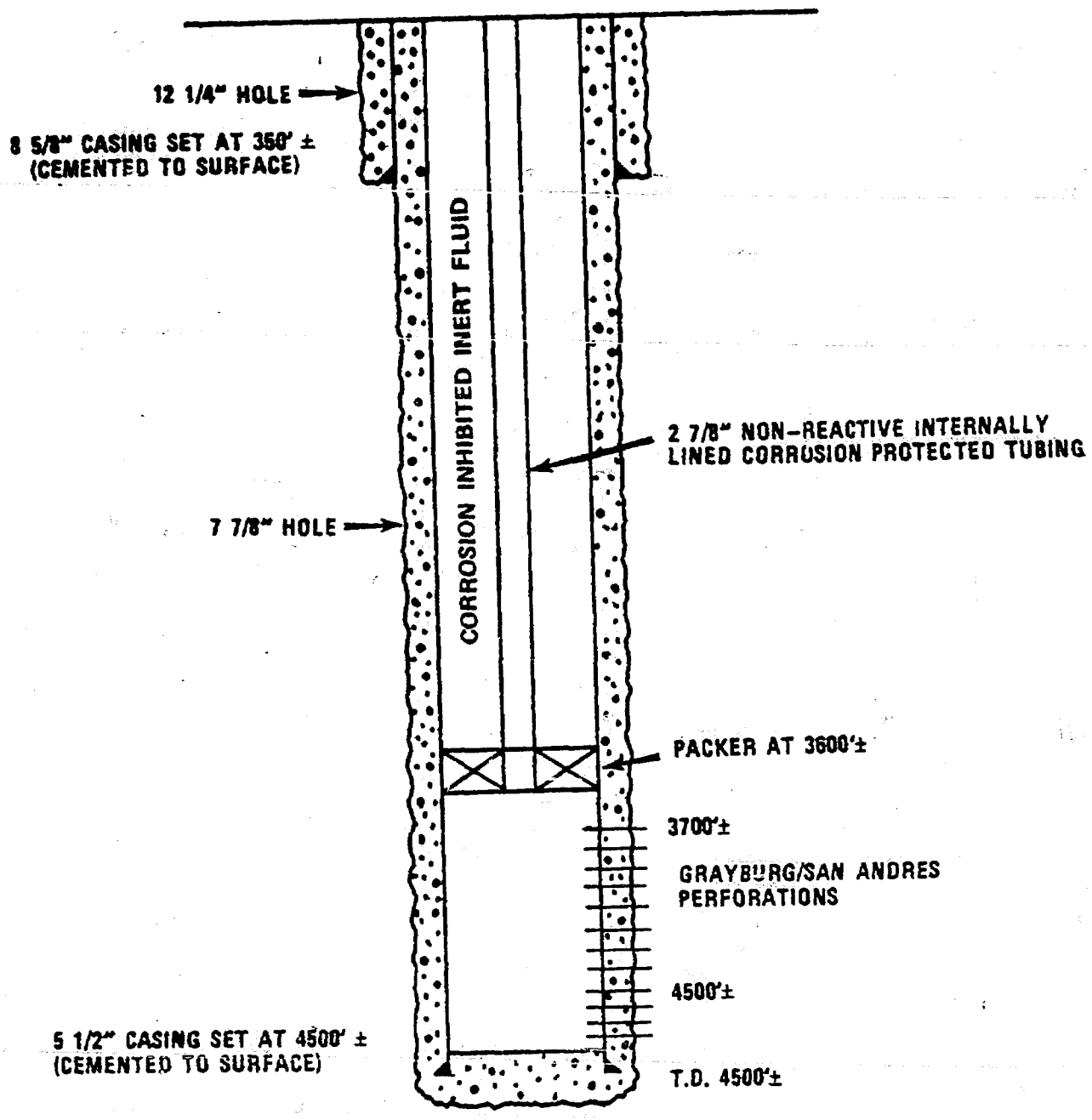
WELL NUMBERS
(BUDGET APPROVED)
NEW DRILLING WELLS

Sec.	Unit Letter	Unit Well #	Proposed Location	Type
24	N	24-242	1220' FSL & 2540' FWL	Inj.
29	M	29-142	1220' FSL & 100' FWL	Inj.
33	D	33-112	1220' FNL & 100' FWL	Prod.
18	N	18-242	1220' FSL & 2540' FWL	Inj.
19	M	19-142	1220' FSL & 100' FWL	Inj.
19	N	19-242	1220' FSL & 2540' FWL	Inj.
25	A	25-412	1220' FNL & 1220' FEL	Inj.
29	D	29-112	330' FNL & 1000' FWL	Inj.
29	N	29-242	1220' FSL & 1650' FWL	Prod.
30	F	30-222	2540' FNL & 1420' FWL	Inj.
31	I	31-432	2540' FSL & 1220' FEL	Inj.
31	P	31-442	100' FSL & 1220' FEL	Inj.
32	A	32-412	1220' FNL & 1220' FEL	Inj.
32	E	32-122	2310' FNL & 1220' FWL	Inj.
32	I	32-432	2310' FSL & 1310' FEL	Prod.
32	N	32-242	100' FSL & 1420' FWL	Inj.
32	P	32-442	100' FSL & 1220' FEL	Inj.
33	C	33-212	1220' FNL & 1440' FWL	Inj.
33	J	33-332	2540' FSL & 2540' FEL	Prod.
33	K	33-232	1420' FSL & 1420' FWL	Prod.
33	N	33-242	100' FSL & 1420' FWL	Inj.
33	O	33-342	100' FSL & 1420' FEL	Inj.
28	N	28-242	990' FSL & 1330' FWL	Inj.

EXHIBIT 28

2Z00969-01

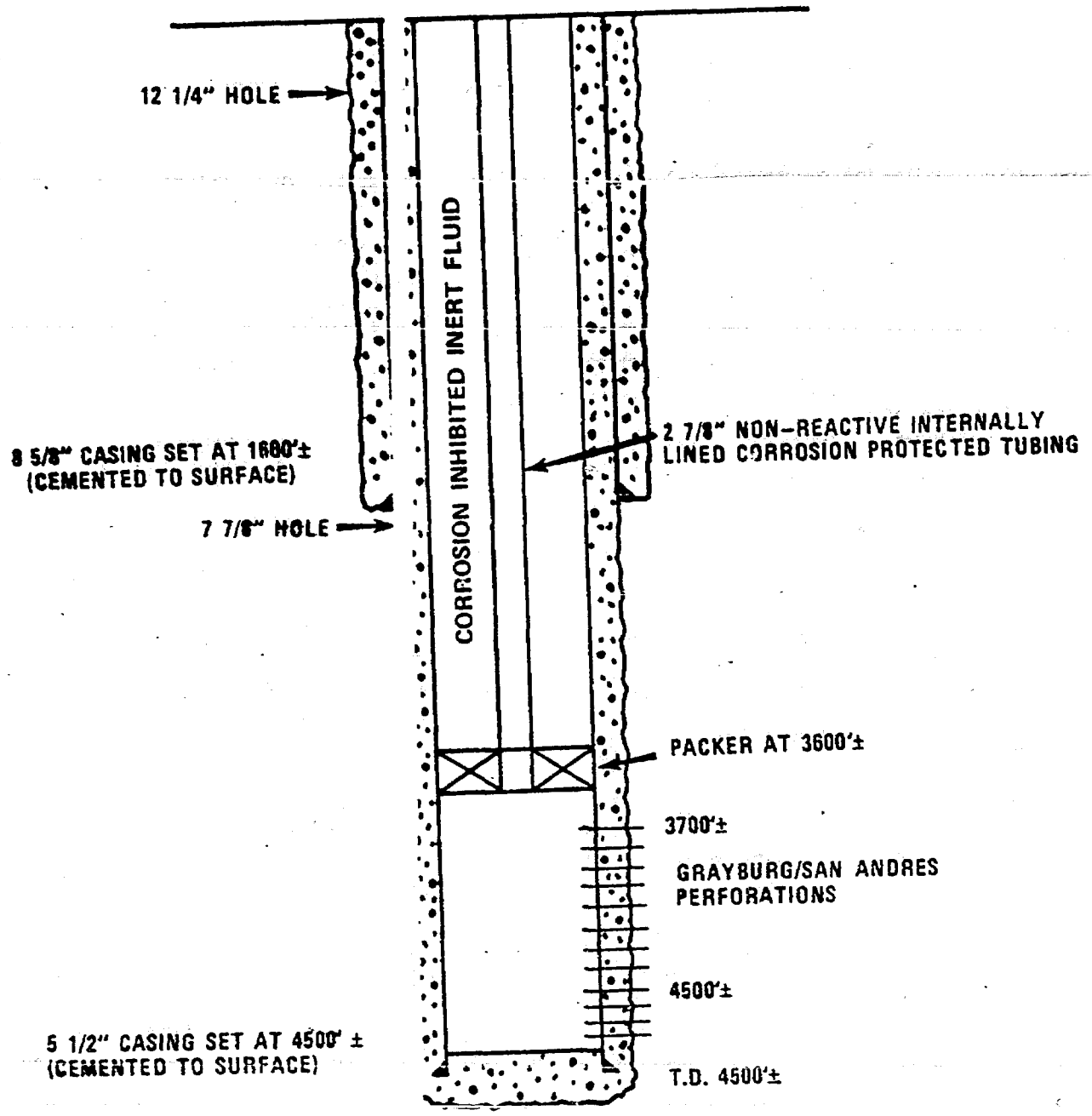
NORTH HOBBS GRAYBURG-SAN ANDRES UNIT



SCHEMATIC COMPLETION DIAGRAM
TYPICAL NEWLY DRILLED INJECTION WELL
SURFACE CASING TO 350'±

2Z00988-06

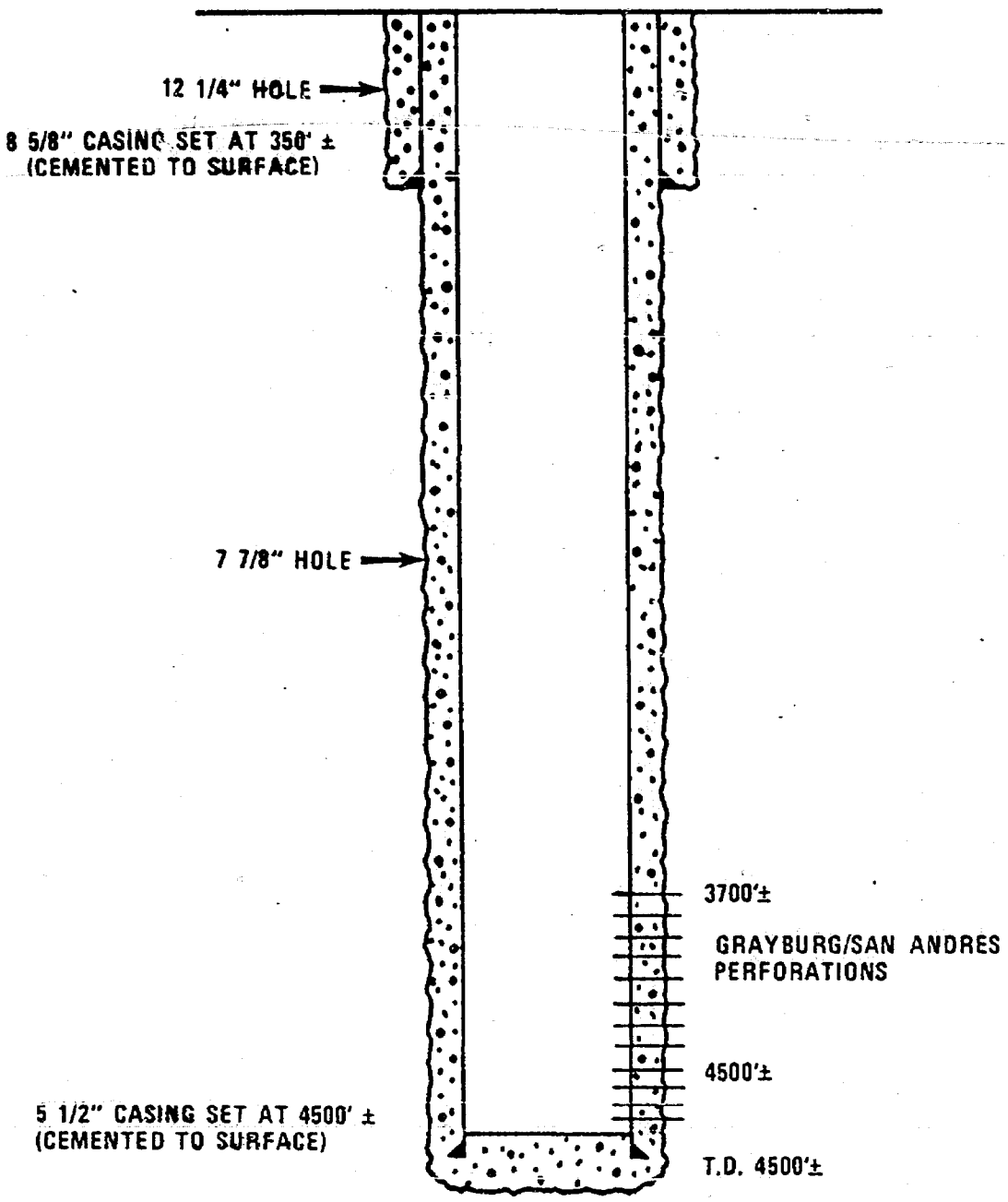
NORTH HOBBS GRAYBURG-SAN ANDRES UNIT



SCHEMATI COMPLETION DIAGRAM
TYPICAL NEWI / DRILLED INJECTION WELL
SURFA E CASING TO 1600'±

2200969-04

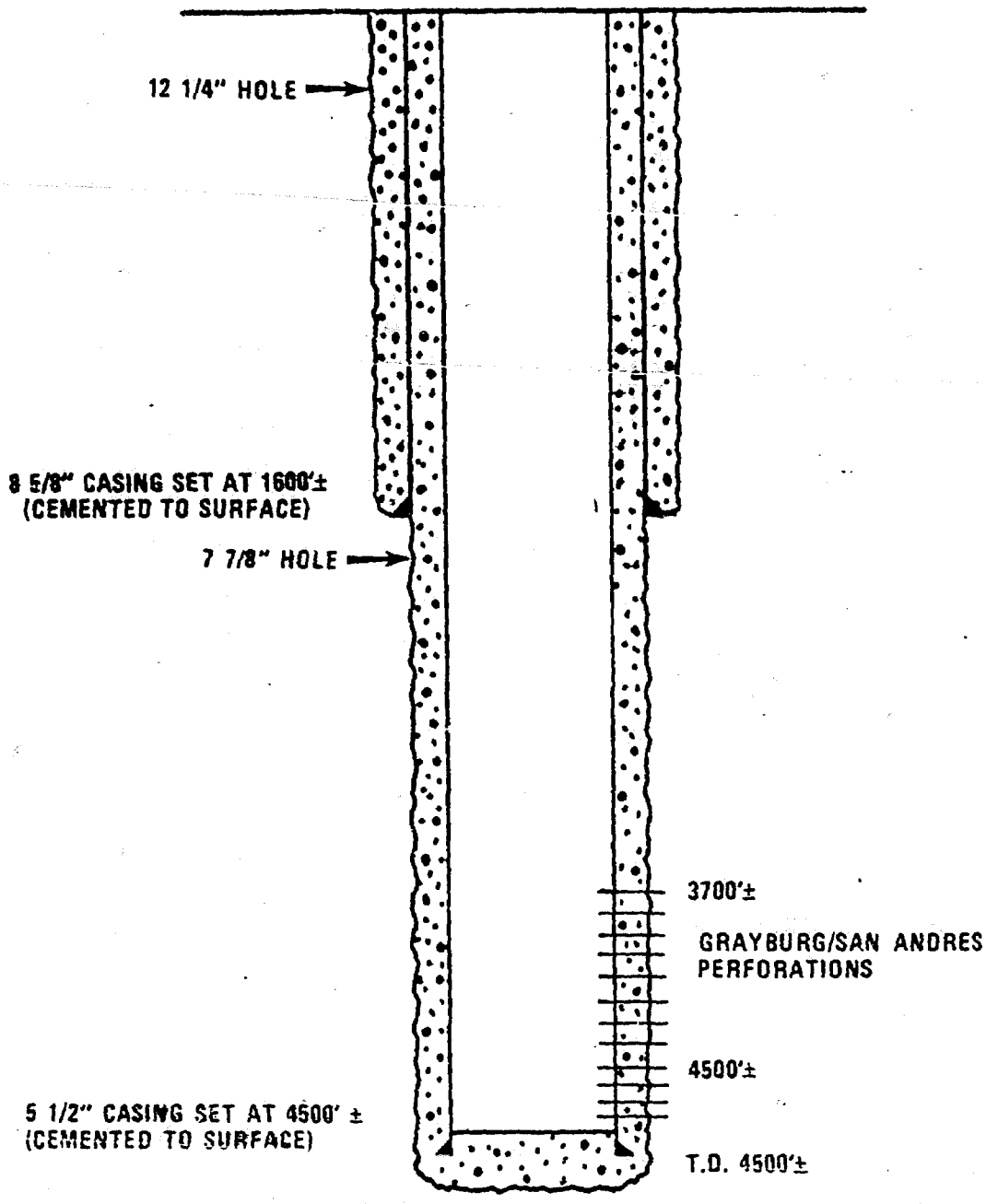
NORTH HOBBS GRAYBURG-SAN ANDRES UNIT



SCHEMATIC COMPLETION DIAGRAM
TYPICAL NEWLY DRILLED PRODUCING WELL
SURFACE CASING TO 350'±

2200969-08

NORTH HOBBS GRAYBURG-SAN ANDRES UNIT



SCHEMATIC COMPLETION DIAGRAM
TYPICAL NEWLY DRILLED PRODUCING WELL
SURFACE CASING TO 1600'±

EXHIBIT 29

UNAVAILABLE LOGS FOR PROPOSED INJECTION WELLS

OPERATOR	LEASE NAME & WELL NO.	PROPOSED UNIT NO.	LOCATION
Antwiel	Hobbs CT No. 1	21-331	1650' FSL & 2260' FEL
Cities Service	Fowler No. 2	31-311	440' FNL & 2310' FEL
Continental	Grimes No. 4	28-431	990' FEL & 1650' FSL
Exxon	New Mexico State No. 1	25-431	330' FEL & 2310' FSL
Getty	Hardin No. 4	19-411	1300' FNL & 1300' FEL
Bill Sweet	Bowers "B" No. 2-A	20-331	1650' FSL & 2010' FEL

EXHIBIT 30

*Calculated
**Estimate

PROPOSED NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT WELLS

N. Hobbs (G/SA) Unit Well No.

Sec. Unit	Operator/Lease Name/Well No. Location	Elev.	TD	PBTD	Casing Size	Wt.	Setting Depth	Amt. of Cmt.	TOC	Hole Size	Producing Interval	Completion Date	Recompletion/ Temp. Abandoned Date
10H	141 Amerada Hardin #1 330' FSL & 330' FWL	3673 DF	4395	4151	16" 10 3/4" 8 5/8" 6 5/8" Lnr. 4 1/2" Lnr.	70# 45# 32# - -	222 2781 3923 3859/4146 4006/4393	250 SX 450 SX 275 SX 50 SX 100 SX	Circ.* 1656* 2133* 3859* 4006*	18 1/2"** 13 1/2"** 10"** 8 1/4"** 6 1/4"**	3953-4059 (G)	6-32	1-76 (TA)
10N	241 Amerada Hardin #2 330' FSL & 2310' FWL	3670 DF	4325		12 1/2" 9 5/8" 7" 5 1/2" Lnr. 4" Lnr.	50# 36# 24# - -	226 2602 3937 3877/4197 4148/4321	250 SX 450 SX 300 SX 50 SX 35 SX	Circ.* 1151* 2123* 3251* 4148*	16"** 11 3/4"** 8 5/8"** 6 1/4" 5"	3992-4052 (G) 4213-4285 (SA)	11-32	6-33 (TA)
10L	131 Amerada Hardin #3 2310' FSL & 330' FWL	3674 DF	4100	4046	12 1/2" 9 5/8" 7" 4 1/2" Lnr.	50# 36# 24# -	225 2003 4134 4011/4100	250 SX 450 SX 300 SX -	Circ.* 1152* 2320* -	16"** 11 3/4"** 8 3/4"** 6 1/4**	4011-4046 (G)	6-33	6-73 (TA)
10K	231 Amerada Hardin #5 1980' FSL & 1980' FWL	3676 DF	4290	4164	7" 4 1/2"	17# 9.5#	327 4289	250 SX 185 SX	Circ. 2822	9 5/8" 6 1/4"	4004-4044 (G)	5-59	6-73 (TA)
30B	111 Amerada McKinley #1 330' FNL & 330' FWL	3650 GL	4230		12 1/2" 9 5/8" 7" 4 1/2" Lnr.	50# 40# 26# 10.5#	231 2755 3851 3704/4229	250 SX 450 SX 200 SX 220 SX	Circ.* 1104* 2102* 3704*	16"** 11 3/4"** 8 1/4"** 6 1/4"**	3851-4043 (G) 4043-4130 (SA)	7-30	
30F	221 Amerada McKinley #2 2310' FNL & 2310' FWL	3659 GL	4200		12 1/2" 9 5/8" 7" 4 1/2" Lnr.	50# 40# 26# -	260 2250 3852 3799/4207	250 SX 535 SX 250 SX 125 SX	Circ. 787* 1464* 3799*	16" 11 3/4"** 8 1/4" 6 1/4"	3851-4041 (G) 4041-4200 (SA)	6-30	
30C	211 Amerada McKinley #3 330' FNL & 2310' FWL	3654 GL	4227		12 1/2" 9 5/8" 6 5/8"	50# 40# 24#	230 2647 3972	200 SX 400 SX 250 SX	Circ.* 1179* 2240*	16"** 11 3/4"** 8 1/4"**	3972-4227 (SA)	8-30	
30E	121 Amerada McKinley #4 2310' FNL & 330' FWL	3662 DF	4198		12 1/2" 9 5/8" 7"	50# 36# 24#	232 2769 3994	200 SX 400 SX 425 SX	Circ.* 1284* 1424*	16"** 11 3/4"** 8 3/4"**	3994-4066 (G) 4066-4114 (SA)	9-30	
32B	311 Amerada State A #1 990' FNL & 2310' FEL	3630 GL	4160		12 1/2 " 9 5/8" 7"	50# 40# 24#	207 2739 3930	200 SX 425 SX 350 SX	Circ.* 1179* 1821*	16"** 11 3/4"** 8 3/4"**	3939-3964 (G) 3964-4160 (SA)	8-30	
32A	411 Amerada State A #2 330' FNL & 330' FEL	3650 DF	4160		12 1/2" 9 5/8" 7"	50# 36# 24#	224 2748 3939	200 SX 400 SX 300 SX	Circ.* 1272* 915*	16"** 11 3/4"** 8 3/4"**	4095-4160 (SA)	9-30	
29F	221 Amerada State B #1 2310' FNL & 1650' FWL	3653 DF	4214		12 1/2" 9 5/8" 5 1/2" 4 1/2"	50# 36# 24# -	210 2704 3997 4213	200 SX 400 SX 500 SX -	Circ.* 1256* 1373* -	16"** 11 3/4"** 7 7/8"** 5"**	4175-4185 (SA)		
29G	321 Amerada State B #2 2310' FNL & 1650' FEL	3652 DF	4207		12 1/2" 9 5/8" 7"	50# 36# 24#	221 2756 3995	250 SX 500 SX 300 SX	Circ.* 921* 2186*	16"** 11 3/4"** 8 3/4"**	3995-4058 (G) 4058-4207 (SA)		
29B	311 Amerada State B #3 990' FNL & 1650' FEL	3653 DF	4269		12 1/2" 9 5/8" 7" 5 1/2"	50# 36# 24# 15.5#	241 2776 4008 4234	250 SX 400 SX 500 SX 100 SX	Circ.* 1388* 384* 2343*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4044-4110 (C)	10-30	
29C	211 Amerada State B #4 330' FNL & 2310' FWL	3656 DF	4253		12 1/2" 9 5/8" 7" 5 1/2" Lnr.	50# 36# 24# -	243 2796 4007 3957/4228	250 SX 400 SX 500 SX 130 SX	Circ.* 1328* 983* 3957*	16"** 11 3/4"** 8 3/4"** 6 1/8"	4125-4130 (G) 4130-4253 (SA)	11-30	11-40 (Proposed SA)
36A	411 Amerada State C #1 330' FNL & 330' FEL	3658 DF	4236	4167	13 1/2" 10" 7"	30# 45# 24#	242 2730 4062	400 SX 500 SX 500 SX	Circ.* 1418* 1038*	18"** 12 3/4"** 8 3/4"**	4062-4167 (G)	1-31	
36H	421 Amerada State C #2 1650' FNL & 330' FEL	3658 DF	4210		8 5/8" 5 1/2"	24# 15.5#	347 4210	300 SX 400 SX	Circ.* 2111*	12 1/4" 7 7/8"	4064-4209	9-56	
36G	321 Amerada State C #3 1650' FNL & 1650' FEL	3663 DF	4293	4200	8 5/8" 5 1/2"	24# 15.5#	374 4286	350 SX 400 SX	Circ. 2835	12 1/4" 7 7/8"	4156-4262 (G)	11-56	10-74 (TA)
24E	121 Amerada State E #1 1650' FNL & 990' FWL	3682 DF	4319	4128	12 1/2" 9 5/8" 7" 5 1/2" Lnr.	50# 36# 26# 14#	228 2821 4053 4017/4263	250 SX 450 SX 300 SX -	Circ.* 1170* 2239* -	16"** 11 3/4"** 8 3/4"** 6 1/4"	409' 4115 (G) 4142-4150 (SA-Drone)	1-35	

*Calculated
**Estimate

PROPOSED WHITE WASH
(GRAYBURG - SAN ANDRES)
UNIT WELLS

Sec. Unit	Operator/Lease Name/Well No. Location	Elev.	TD	PBTD	Casing Size	Wt.	Setting Depth	Amt. of Cmt.	TOC	Hole Size	Producing Interval	Completion Date	Recompletion/ Temp. Abandoned Date
	U. Hobbs (G/SA) Unit Well No.												
34O	111 Amerada State C #2 330' FNL & 990' FWL	3685 DF	4373		10 3/4" 7" 5 1/2" Lnr.	40# 24# 15#	211 3998 3943/4298	350 SX 500 SX 30 SX	Circ.* 934* 3913*	15 1/2"** 8 3/4"** 6 1/4"	4014-4054 (G) 4082-4140 (SA)	2-55	
140	341 Amerada State WNB #1 660' FNL & 1650' FEL	3686 DF	4176		8 5/8" 5 1/2"	32# 15.5#	329 4141	250 SX 400 SX	Circ. 3610	12 1/4" 7 7/8"	4143-4176 (G)	11-51	9-74 (TA)
14K	231 Amerada State WNB #2 1650' FNL & 2180' FWL	3696 DF	4250	4247	8 5/8" 5 1/2"	24, 32# 14#	263 4249	250 SX 400 SX	Circ. 2705	12 1/4" 7 7/8"	4156-4228 (G)	8-58	6-73 (TA)
33E	121 Amoco State C #1 2310' FNL & 330' FWL	3640 GL	4279	4251	12 1/2" 9 5/8" 7" 4 1/2" Lnr.	50# 40# 26# 9.5#	104 2755 3951 4251/4279	- - - 135 SX	- - - 4251*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4208-4223 (SA)	8-58	
33F	221 Amoco State C #2 2310' FNL & 1320' FWL	3643 GL	4262		12 1/2" 9 5/8" 7" 5"	50# 40# 24# -	269 2000 4002 4262	- - - 200 SX	- - - 3057*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4203-4216 (SA)	9-58	
21J	331 Antwell Hobbs CT #1 1650' FSL & 2260' FEL	3647 GL	4225	4222	8 5/8" 4 1/2"	20# 9.5#	430 4224	250 SX 485 SX	Circ. 2,000*	11" 7 7/8"	4185-4206 (G)	10-64	
20O	341 Atlantic Grimes #1 330' FSL & 2310' FEL	3643 GL	4248		12 1/2" 9 5/8" 7" 4 1/2" Lnr.	50# 36# 26# 9.5#	232 2790 4031 3886/4248	240 SX 500 SX 300 SX 70 SX	Circ.* 915* 2223* 3886*	16"** 11 3/4"** 8 3/4"** 6 1/4"	4017-4150 (G)	10-58	
20Z	121 Atlantic Grimes SOC #1 2310' FNL & 330' FWL	3643 GL	4250	4247	12 1/2" 9 5/8" 7" 4 1/2" Lnr.	50# 36# 26# 11.6#	228 2750 3942 3893/4250	265 SX 700 SX 300 SX 65 SX	Circ.* 181* 2120* 3893*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4139-4243 (SA)	9-58	
20Y	221 Atlantic Grimes SOC #2A 1980' FNL & 1650' FWL	3648 GL	4240	4230	10 3/4" 7"	32, 35# 20, 23#	501 4240	600 SX 682 SX	Circ.* 1160*	15" 8 3/4"	4164-4240 (SA)	2-59	7-71 (Recr.)
20U	111 Atlantic Grimes SOC #3 990' FNL & 330' FWL	3646 GL	4200	4130	15 1/2" 10" 7" 4 1/2" Lnr.	70# 45# 26# 11.6#	300 2704 3936 3911/4234	200 SX 150 SX 250 SX 50 SX	Circ.* 2300* 3444* 3913*	18"** 12 3/4"** 8 3/4"** 6 1/4"**	4109-4121 (C)	7-76	
20C	211 Atlantic Grimes SOC #4 990' FNL & 2310' FWL	3649 GL	4220		15 1/2" 10 3/4" 7"	70# 45# 26#	243 2733 4036	300 SX 200 SX 600 SX	Circ.* 2620* 3617*	18"** 15"** 8 3/4"**	4036-416) (C) 4161-4220 (SA)	9-55	
36B	311 Byrom Gulf Unit St. #1 330' FNL & 1650' FEL	3651 GL	4225	4212	8 5/8" 5 1/2"	24# 14#	260 4225	320 450 SX	Circ.* 3605*	13 3/4" 8 3/4"	4114-4160 (C)	3-53	
20V	221 Chevron McKinley #1 2310' FNL & 1320' FWL	3644 GL	4290		13 3/8" 9 5/8" 7" 4 1/2" Lnr.	54.5# 36# 26# -	237 2770 4026 3900/4290	162 SX 700 SX 150 SX -	220 730* 3119* -	17"** 12 1/4"** 8 3/4"** 6 1/8"	4227-4236 (C)	10-58	
20Z	121 Chevron McKinley #2 1980' FNL & 660' FWL	3648 GL	5391		16" 7" 4 1/2" Lnr.	70# 26# -	206 4054 -	159 275 SX -	225 SX 4022 -	19 3/4" 8 5/8" 6 3/4"**	4216-4224 (SA)	5-53	
17L	131 Chevron State 17 #1 1650' FSL & 330' FWL	3648 DF	4207	4195	9 5/8" 7"	32, 36# 23#	423 4206	240 SX 925 SX	Circ.* Circ.*	12 1/4" 8 3/4"	4127-4187 (C)	6-57	6-73 (TA)
29F	441 Chevron State 29 #3 330' FNL & 330' FWL	3643 GL	4220		13 3/8" 9 5/8" 7" 5" Lnr.	54.5# 36# 24# -	232 2343 3950 4020/4172	150 SX 1400 SX 300 SX 22 SX	Circ.* Circ.* 2136* 4020*	17"** 12 1/4"** 8 3/4"** 6 1/4"**	4030-4080 (SA) 4150-4220 (SA)	10-58	
29D	361 Chevron State 29 #5 2310' FNL & 330' FWL	3643 GL	4220		13 3/8" 9 5/8" 7" 5"	54.5# 36# 24# -	219 2750 3934 4162	150 SX 700 SX 500 SX 350 SX	Circ.* 710* 2120* Circ.	17"** 12 1/4"** 8 3/4"** 6 1/4"	4000-4035 (SA) 4160-4220 (SA)	10-58	
31A	411 Cities Service Fowler #1 330' FNL & 330' FEL	3645 GL	4175		12 1/2" 8" 6 5/8"	50# 24# 24#	242 2764 3938	50 600 200	193* 1060* 1248*	16"** 11 3/4"** 8 1/4"**	3930-4035 (G) 4035-4175 (SA)	7-70	

*Calculated
**Estimate

PROPOSED NORTH HOBBS
(GRAYBURG - SAN ANDRES)
UNIT WELLS

N. Hobbs (G/SA) Unit Well No.

Sec., Unit	Operator/Lease Name/Well No. Location	Elev.	TD	PBTD	Casing Size	Casing Wt.	Casing Setting Depth	Amt. of Cmt.	TOC	Hole Size	Producing Interval	Completion Date	Recompletion/ Temp. Abandoned Date
31B	311 Cities Service Fowler #2 660' FNL & 2310' FEL	3649 GL	4201	4152	12 1/2" 9" 6 5/8" 5" Lnr.	500 360 240 180	230 2335 3951 3803/4196	200 SX 500 SX 250 SX 35 SX	Circ.* 1235* 3227* 3803*	16"** 11 3/4"** 8 1/4"** 6 1/4"**	3991-4042 (G)	9-30	3-75 (TA)
31G	321 Cities Service Fowler #3 2200' FNL & 2310' FEL	3644 GL	4212		12 1/2" 9" 7"	500 360 240	222 2750 3957	150 SX 500 SX 200 SX	Circ.* 1209* 2748*	16"** 11 3/4"** 8 3/4"**	3957-4099 (G) 4099-4212 (SA)	11-30	
31H	421 Cities Service Fowler #4 1375' FNL & 330' FEL	3651 GL	4190	4173	12 1/2" 9 5/8" 7" 5 1/2"	500 400 240 15.50	262 2760 3955 4190	300 SX 300 SX 150 SX 635 SX	64* 1659* 3060* Circ.*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4103-4133 (SA)	4-34	
31A	412 Cities Service Fowler #9 660' FNL & 660' FEL	3651 GL	4260	4130	13 3/8" 8 5/8" 5 1/2"	480 24, 32# 14, 15.5, 20#	343 3799 6255	350 SX 500 SX 400 SX	Circ. 2372 3000	17 1/2" 11" 7 7/8"	4047-4097 (G) 4066-4151 (SA)	7-69	
19F	221 Cities Service Hardin #1 2310' FNL & 2310' FWL	3661 DF	4209		12 1/2" 9" 7"	500 400 240	241 2750 3991	200 SX 500 SX 200 SX	Circ.* 1209* 2702*	16"** 11 3/4"** 8 3/4"**	3991-4014 (G) 4054-4209 (SA)	9-30	
19E	121 Cities Service Hardin #2 2310' FNL & 333' FWL	3666 DF	4250		12 1/2" 9" 7" 4 1/2" Lnr.	500 400 240 -	245 2759 4020 3984/4250	200 SX 500 SX 200 SX 45 SX	Circ.* 1291* 2811* 3954*	16"** 11 3/4"** 8 3/4"** 6 3/4"**	4230-4248 (SA)	9-30	
19C	211 Cities Service Hardin #3 1309' FNL & 2310' FWL	3663 DF	4270	4263	12 1/2" 9" 7" 5" Lnr.	500 360 240 -	261 2750 3983 3925/4266	200 SX 500 SX 200 SX 50 SX	Circ.* 1045* 2736* 3925*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4186-4281 (SA)	11-30	
19D	112 Cities Service Hardin #4 330' FNL & 330' FWL	3672 DF	4204	4088	12 1/2" 9" 7"	500 360 240	230 2770 3945	150 SX 500 SX 250 SX	Circ.* 1309* 3633*	16"** 11 3/4"** 8 3/4"**	3945-4088 (G)	9-32	4-52 (TA)
19B	111 Cities Service Hardin #5 990' FNL & 990' FWL	3671 DF	4255	4253	8 5/8" 5 1/2"	240 140	251 4254	200 SX 1500 SX	Circ. 1100	11" 7 7/8"	4242-4260 (SA)	5-52	
24D	341 Continental Grimes #1 2310' FNL & 330' FEL	3642 GL	4278		13 3/8" 9 5/8" 7" 5"	480 360 240 -	222 1637 3975 4276	180 SX 300 SX 600 SX 100 SX	Circ.* 766* 1556* 3091*	17"** 12 1/4"** 8 3/4"** 6 1/4"**	4128-4258 (SA)	7-34	
24F	431 Continental Grimes #2 660' FNL & 330' FEL	3642 GL	4220		10 3/4" 7 5/8" 5 1/2"	400 26.40 170	243 1634 4015	150 SX 300 SX 300 SX	Circ.* 185* Circ.*	13 1/2"** 9 5/8"** 6 1/4"*	4015-4060 (G) 4040-4220 (SA)	1-35	
24J	331 Continental Grimes #3 2310' FNL & 1650' FEL	3649 GL	4225		10 3/4" 7 5/8" 5 1/2" 4"	450 26.40 170 -	245 1635 4015 4200	150 SX 300 SX 300 SX 100 SX	Circ.* 186* Circ.* 2420*	13 1/2"** 9 5/8"** 6 1/4"** 5"**	4015-4060 (G) 4040-4225 (SA) 4256-60	3-35	
24I	431 Continental Grimes #4 990' FNL & 1650' FEL	3648 GL	4225		10 3/4" 7 5/8" 5 1/2"	400 26.40 170	225 1640 3993	150 SX 400 SX 400 SX	Circ.* Circ.* 1094*	13 1/2"** 9 5/8"** 7 7/8"**	3993-4004 (G) 4004-4225 (SA)	9-35	
29J	331 Continental State A29 #1 1650' FSL & 1650' FEL	3655 DF	4270	4246	12 1/2" 9 5/8" 7" 4 1/2"	500 400 240 10.50	234 2742 3929 4270	170 500 SX 300 SX 750 SX	Circ.* 907* 2115* Circ.*	16"** 11 3/4"** 8 3/4"** 6 1/8"	4064-4063 (SA) 4205-4242 (SA)	9-30	1-76 (TA)
29H	241 Continental State A29 #2 330' FNL & 2310' FWL	3645 GL	4184		12 1/2" 9 5/8" 7"	500 400 240	217 2730 3929	160 SX 500 SX 300 SX	Circ.* 895* 2115*	16"** 11 3/4"** 8 3/4"**	4115-4184 (SA)	10-30	
29E	231 Continental State A29 #3 1650' FNL & 2310' FWL	3650 GL	4220		15 1/2" 9 5/8" 7"	700 400 240	252 2729 3933	1000 SX 600 SX 300 SX	Circ.* 987* 2139*	18"** 12 1/4"** 8 3/4"**	4176-4190 (SA)	10-30	
33H	141 Continental State A33 #1 660' FSL & 660' FWL	3635 GL	4258		12 1/2" 9 5/8" 7" 5" Lnr.	504 400 264 130	209 2738 3936 3828/4256	165 SX 500 SX 275 SX 45 SX	Circ.* 903* 2313* 3828*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4236-4249 (SA)	9-30	
33L	131 Continental State A33 #2 2310' FNL & 330' FWL	3635	4243		15 1/2" 9 5/8" 7" 5"	700 400 240 180	208 2740 3933 3922	373 SX 500 SX 300 SX 100 SX	Circ.* 1289* 2139* 3057*	18"** 12 1/4"** 8 3/4"** 6 1/4"**	4193-4230 (SA)	10-30	

*Calculated
**Estimate

PROPOSED NORTH HOBBS
(GRAYBURG - SAN ANDRES)
UNIT WELLS

N. Hobbs (G/SA) Unit Well No.

Ser. No.	Operator/Lease Name/Well No. Location	Elev.	TD	PBTD	Casing Size	Wt.	Setting Depth	Amt. of Cmt.	TOC	Hole Size	Producing Interval	Completion Date	Recompletion/ Temp. Abandoned Date
33K	231 Continental State A33 #3	3645 GL	4259		13 1/2" 9 5/8" 7" 5" Lnr.	70# 40# 24# -	103 2732 3946 3940/4235	350 SX 600 SX 510 SX 50 SX	Circ.* 990* 2011* 3940*	18"** 12 1/4"** 8 3/4"** 6 1/4"**	4190-4239 (SA)		
33J	331 Continental State A33 #4 1920' FSL & 1780' FEL	3644 GL	4234		13 1/2" 9 5/8" 7" 5" Lnr.	70# 40# 24# -	216 2751 3937 3871/4232	425 SX 600 SX 525 SX 50 SX	Circ.* 1009* 1972* 3871*	18"** 12 1/4"** 8 3/4"** 6 1/4"**	4181-4209 (SA)	11-31	
33O	341 Continental State A33 #5 1980' FSL & 660' FEL	3633 DF	4247		13 1/2" 9 5/8" 7" 5" Lnr.	70# 40# 24# -	213 2755 3981 3978/4237	350 SX 600 SX 525 SX 100 SX	Circ.* 1013* 2016* 3978*	18"** 12 1/4"** 8 3/4"** 6 1/4"**	4237-4247 (SA)	12-31	
33M	241 Continental State A33 #6 660' FSL & 1980' FWL	3637 DF	4252		13 1/2" 9 5/8" 7" 5 1/2" Lnr.	70# 40# 24# -	223 2754 3971 3911/4236	350 SX 600 SX 567 SX 150 SX	Circ.* 1012* 1631* 3911*	18"** 12 1/4"** 8 3/4"** 6 1/4"**	4236-4252	2-32	
33G	321 Continental State A33 #7 1950' FNL & 1950' FEL	3648 GL	4244		13 1/2" 9 5/8" 7" 5 1/2"	70 40 26 15.5	257 2756 3970 4244	335 SX 600 SX 350 SX+400 300 SX	Circ.* 1619* 1813* 1407*	18"** 12 1/4"** 8 3/4"** 6 1/4"**	4235-4234 (SA)	1-33	
13H	241 Continental State B13 #1 660' FNL & 1980' FWL	3688 DF	4035		10 3/4" 7 5/8" 5 1/2"	40# 26.4# 17#	236 1615 4002	150 SX 300 SX 400 SX	Circ.* 1660* Circ.*	13 1/2"** 9 5/8"** 6 1/4"**	4002-4026 (G) 4026-4035 (SA)	6-35	1-76 (TA)
13N	141 Continental State B13 #2 660' FSL & 660' FWL	3684 DF	4235		13" 9 5/8" 7" 5" Lnr.	50# 36# 24# -	220 1630 4005 3957/4235	200 SX 400 SX 400 SX 75 SX	Circ.* 469* 1586* 3957*	16"** 12 1/4"** 8 3/4"** 6 1/4"	4002-4060 (G)	9-35	1-51
13F	221 Continental State B13 #4 1980' FNL & 1980' FWL	3688 DF	4160	4156	8 5/8" 5 1/2"	24# 14#	197 4159	300 SX 1300 SX	Circ. 1750	11"** 7 7/8"**	4060-4152 (G)	4-57	
13E	121 Continental State B13 #3 1980' FNL & 660' FWL	3692 DF	4235	4190	8 5/8" 5 1/2"	- -	304 4199	202 SX 1000 SX	Circ.* Circ.*	11"** 7 7/8"**	4092-4235 (G)	6-57	
13C	211 Continental State B13 #6 660' FNL & 1980' FWL	3691 DF	4257		8 5/8" 5 1/2"	32# 14#	318 4256	300 SX 1800 SX	Circ. 1025 (TS)	11"** 7 7/8"**	4172-4248 (G)		
13L	131 Continental State B13 #7 330' FSL & 1980' FSL	3691 DF	4154	4110	8 5/8" 5 1/2"	24# 14#	343 4153	375 SX 950 SX	Circ.* Circ.*	11" 7 7/8"	4002-4114 (G)	4-61	
25C	211 Continental State B 25 #1 330' FNL & 2310' FWL	3673 DF	4223	4219	13 1/2" 9 5/8" 7"	70# 40# 24#	214 2767 4026	225 SX 600 SX 325 SX	Circ.* 1025* 2061*	18"** 12 1/4"** 8 3/4"**	4026-4108 (G) 4108-4225 (SA)	3-33	
25O	111 Continental State B25 #2 660' FNL & 660' FWL	3675 DF	4200		8 5/8" 5 1/2"	20# 14#	302 4199	250 SX 1500 SX	Circ.* Circ.*	11"** 7 7/8"**	4087-4100 (G)	4-57	
31K	231 Mobil Berry #1 1250' FWL & 2196' FSL	3644 GL	4190		13 3/8" 9 5/8" 7" 5" Lnr.	- - - -	245 2000 3955 3867/4190	- - 300 SX 110 SX	- - 2161* 3867*	17"** 12 1/4"** 8 3/4"** 6 1/4"**	4094-4110 (G)		
31H	241 Mobil Berry #2 990' FSL & 2310' FWL	3646 GL	4155		9 5/8" 7" 5"	36# 24# 15#	470 3225 4141	200 SX 800 SX 90 SX	Circ.* Circ.* 3074*	12 1/4" 8 3/4" 6 1/4"	4010-4136 (G) 4141-4155 (SA)	5-48	
31L	131 Mobil Berry #3 900' FNL & 2310' FWL	3651 GL	4207		9 5/8" 7" 5"	36# 23# 15#	430 3240 4165	350 SX 500 SX 90 SX	Circ.* Circ.* 3094*	12 1/4" 8 3/4" 6 1/4"	4039-4202 (G) 4202-4207 (SA)	11-49	
31N	141 Mobil Berry #4 990' FSL & 990' FWL	3650 GL	4317	4200	10 3/4" 7" 5"	32.75# 23# 15#	435 3303 4317	350 SX 500 SX 100 SX	Circ.* 279* 3132*	13 3/4" 8 3/4" 6 1/4"	4097-4182 (G)	2-50	
30J	331 Exxon Bowers A Fed. #2 2335' FSL & 2310' FEL	3654 DF	4238		15 1/2" 12 1/2" 9 5/8" 7" 5 1/2"	70# 50# 36# 26# -	100 342 2250 3960 4238	- 225 SX 650 SX 300 SX -	- Circ.* 851* 2146*	18"** 16"** 11 3/4"** 8 3/4"** 6 1/4"**	4068-4092 (SA)	8-30	

*Calculated
**Estimate

PROPOSED MULTI ZONE
(CRAYBURG - SAN ANDRES)
UNIT WELLS

W. Hobbs (G/SA) Unit Well No.

Sec. Well	Operator/Lease Name/Well No. Location	Elev.	ID	PBTD	Size	Wt.	Casing Setting Depth	Amt. of Cmt.	TOC	Hole Size	Producing Interval	Completion Date	Recompletion/ Temp. Abandoned Date
29H	141 Exxon Bowers A Fed. #3 330' FNL & 330' FWL	3644 GL	4302	4076	12 1/2" 9" 7" 5 1/2"	50# 36# 26# -	210 2350 5440 3941	200 SX 650 SX 500 SX 250 SX	Circ.* 3514 2154* Circ.*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4052-4072 (SA)	8-30	
30F	441 Exxon Bowers A Fed. #4 330' FSL & 330' FWL	3646 GL	4206	4060	12 1/2" 9 5/8" 7"	50# 36# 26#	213 2750 3970	200 SX 650 SX 300 SX	Circ.* 365* 2156*	16"** 11 3/4"** 8 3/4"**	4031-4060 (SA)	8-30	
30I	431 Exxon Bowers A Fed. #5 2310' FSL & 990' FEL	3652 MP	4210	4062	12 1/2" 9 5/8" 7"	50# 36# 26#	214 2750 3975	200 SX 650 SX 300 SX	Circ.* 365* 2161*	16"** 11 3/4"** 8 3/4"**	3925-4016 (G) 4026-4061 (SA)	9-30	
29I	121 Exxon Bowers A Fed. #7 2970' FSL & 330' FEL	3665 MP	4302	4103	12 1/2" 9 5/8" 7" 4 1/2" Lnr.	50# 36# 23# 11.6#	211 2139 3104 2900/4201	250 SX 650 SX 300 SX 100 SX	Circ.* 354* 2499* 2900	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4103-4109 (SA)	5-47	12-61 (Sec.)
30O	342 Exxon Bowers A Fed. #8 660' FSL & 330' FWL	3654 MP	4237	4104	12 1/2" 9 5/8" 7"	50# 36# 26#	220 2750 3974	210 SX 650 SX 300 SX	Circ.* 365* 2160*	16"** 11 3/4"** 8 3/4"**	4069-4104 (SA)	10-30	9-73 (TA)
29L	131 Exxon Bowers A Fed. #10 2310' FSL & 990' FWL	3649 GL	4220		12 1/2" 9 5/8" 7" 5" Lnr.	50# 36# 26# -	225 2750 3976 3870/4220	250 SX 650 SX 300 SX 50 SX	Circ.* 365* 2162* 3870*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4100-4192 (SA)	10-30	
30G	341 Exxon Bowers A Fed. #36 990' FNL & 1650' FEL	3655 MP	4351	4202	9 5/8" 5 1/2" 3 1/2" Lnr.	36# 15.5, 17# -	3443 3956 3715/4350	500 SX 625 SX 125 SX	12* 677* 2150*	12 1/4" 7 7/8" 4 3/4"**	4056-4077 (SA)	3-76	
29O	111 Exxon Bowers A Fed. Com. #35 990' FSL & 330' FWL	3662 MP	4331	4250	8 5/8" 5 1/2"	24# 14#	310 3905	150 SX 300 SX	Circ. 2311*	11" 7 7/8"	4160-4250 (SA)	12-71	
29A	411 Exxon Grimes #1 990' FNL & 990' FEL	3647 GL	4250	4145	12 1/2" 9 5/8" 7" 5 1/2" Lnr.	50# 36# 26# -	265 2750 4065 3961/4225	250 SX 650 SX 300 SX 50 SX	Circ. 365* 2231* 3961*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4102-4122 (G) 4150-4214 (SA)	10-30	
25I	431 Exxon New Mexico State #1 330' FSL & 2310' FEL	3649 GL	4215	4095	12 1/2" 9 5/8" 7"	50# 36# 26#	215 2750 3977	250 SX 650 SX 300 SX	Circ.* 365* 2163*	16"** 11 3/4"** 8 3/4"**	3973-4095 (G)	10-30	
25O	341 Exxon New Mexico State #5 660' FSL & 1650' FEL	3667 MP	4220	4220	8 5/8" 5 1/2"	24, 32# 15.5#	1639 4220	900 SX 1100 SX	Circ. 1620	11" 7 7/8"	4095-4210 (G)	12-33	
25E	231 Exxon New Mexico State #6 2310' FSL & 2310' FWL	3670 MP	4253	4245	8 5/8" 5 1/2"	24# 14#	1000 4252	1000 SX 1250 SX	Circ. Circ.	11" 6 3/4"	4090-4156 (G)	3-55	
25P	441 Exxon New Mexico State #7 330' FSL & 990' FEL	3667 MP	4100	4139	8 5/8" 5 1/2"	24# 14#	344 4182	225 SX 1450 SX	Circ.* Circ.*	11" 6 3/4"	4024-4137 (G)	4-55	
25J	331 Exxon New Mexico State #8 1980' FSL & 1650' FEL	3668 MP	4110	4100	8 5/8" 5 1/2"	24# 14#	365 4110	200 SX 1500 SX	Circ.* Circ.*	11"** 7 7/8"**	4022-4090 (G)	2-56	
25N	241 Exxon New Mexico State #9 2310' FSL & 990' FWL	3672 GL	4260	4239	8 5/8" 5 1/2"	24# 17#	350 4260	225 SX 1200 SX	Circ.* Circ.*	11" 7 7/8"	4160-4230 (G)	7-58	
29J	431 Getty Grimes #3 2310' FSL & 330' FEL	3653 GL	4236		15 1/2" 9 5/8" 7" 5 1/2" Lnr.	Pwd 36# 26# 15.5#	228 2720 3908 3209/4229	200 SX 600 SX 300 SX 120 SX	Circ.* 978* 2086* 3209*	18"** 12 1/4"** 8 3/4"** 6 1/4"**	4155-4225 (SA)	10-30	10-60 (Sec.)
29H	421 Getty Grimes #4 2310' FNL & 330' FEL	3647 GL	4236		12 1/2" 9 5/8" 7" 5 1/2" Lnr.	50# 36# 24# -	229 2720 3908 3296/4236	200 SX 600 SX 300 SX 50 SX	Circ.* 518* 2066* 3296*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4160-4232 (SA)	12-30	6-69 (Sec.)
29G	321 Getty Hardin #1 2310' FNL & 2310' FEL	3662 GL	4260	4244	13 1/2" 9 5/8" 7" 5 1/2" Lnr.	70# 36# 24# -	219 2760 3952 3809/4244	200 SX 600 SX 300 SX 100 SX	Circ.* 1018* 2138* 3809*	18"** 12 1/4"** 8 3/4"** 6 1/4"**	4188-4260 (SA)	9-30	9-71 (Sec.) Casing Leak in 7" 5-50
29B	421 Getty Hardin #2 2310' FNL & 1305' FEL	3665 GL	4240	4135	12 1/2" 9 5/8" 7"	50# 36# 24#	217 2743 3948	200 SX 600 SX 300 SX	Circ.* 541* 2134*	16"** 11 3/4"** 8 3/4"**	3968-4135 (G)	11-30	Casing Leak in 7" 8-70
29A	311 Getty Hardin #3 1309' FNL & 2310' FEL	3667 GL	4222	4097	12 1/2" 9 5/8" 7"	50# 36# 24#	217 2750 3952	200 SX 600 SX 300 SX	Circ.* 548* 2138*	16"** 11 3/4"** 8 3/4"**	7952-4086 (G) 4086-4097 (SA)	11-30	

*Calculated
**Estimate

PROPOSED NORTH HOBBS
(GRAYBURG - SAN ANDRES)
UNIT WELLS

N. Hobbs (G/SA) Unit Well No.

Sec. Unit	Operator/Lease Name/Well No. Location	Elev.	TD	PBTD	Size	Wt.	Casing Setting Depth	Amt. of Cmt.	Type	Hole Size	Producing Interval	Completion Date	Recompletion/ Temp. Abandoned Date
19A	411 Getty Mardin #4 1300' FNL & 1300' FEL	3662 DF	4342	4335	12 1/2" 7" 4 1/2" Lnr.	50# 36# -	216 3966 3867/4342	200 SX 700 SX 100 SX	Circ.* Circ.* 3867*	16 1/4" 8 3/4"** 6 1/4"**	3971-4100 (G) 4178-4306 (SA)	2-53	
30C	321 Getty McKinley #1 2310' FNL & 2310' FEL	3654 GL	4200		12 1/2" 9 5/8" 7" 5"	50# 36# 24# -	245 2755 3854 4200	200 SX 600 SX 250 SX 405 SX	Circ.* 553* 2342* Circ.	16"** 11 3/4"** 8 3/4"** 7"**	4030-4060 (G) 4130-4130 (SA)	7-30	7-58 (Rec.)
30H	421 Getty McKinley #2 2310' FNL & 990' FEL	3648 GL	4202		12 1/2" 9 5/8" 7" 5 1/2"	50# 36# 24# 13#	251 2756 3858 4202	200 SX 600 SX 250 SX 450 SX	Circ.* 554* Circ. Circ.	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4114-4150 (SA)	7-30	9-57 (Rec.)
30D	311 Getty McKinley #4 330' FNL & 2310' FEL	3650 DF	4219		12 1/2" 9 5/8" 7"	50# 36# 24#	245 2753 3998	200 SX 600 SX 250 SX	Circ.* 551* 3486*	16"** 11 3/4"** 8 3/4"**	3936-4040 (G) 4040-4219 (SA)	8-30	
30A	411 Getty McKinley #5 330' FNL & 330' FEL	3659 DF	4223	4124	12 1/2" 9 5/8" 6 5/8"	50# 40# 24#	247 2756 4042	250 SX 600 SX 250 SX	Circ.* 554* 2318*	16"** 11 3/4"** 8 1/4"**	4042-4102 (G) 4102-4124 (SA)	12-32	
30A	412 Getty McKinley #11 760' FNL & 550' FEL	3659 DF	7100	7065	13 3/8" 9 5/8" 7"	- 40# 23, 26#	329 3848 7106	400 SX 1200 SX 865 SX	Circ.* 365* 1875*	17 1/2" 12 1/4" 8 3/4"	4009-4081 (G)	1-70	5-72 (Rec.)
14H	421 Getty State B #1 2310' FNL & 330' FEL	3681 DF	4368	4180	10 3/4" 7 5/8" 5 1/2"	40# 26.4# 17#	221 1736 4019	225 SX 500 SX 125 SX	Circ.* Circ.* 1655*	13 1/2"** 9 5/8"** 6 1/4"**	4019-4180 (G)	1-36	
14G	321 Getty State B #2 2310' FNL & 1650' FEL	3698 DF	4275	4270	9 5/8" 5 1/2"	25.4# 15.5#	334 4274	325 SX 600 SX	Circ. 2595	11" 7 7/8"	4208-4232 (G)	12-59	
31P	221 Getty Fowler #2 2200' FNL & 2310' FWL	3644 GL	4215		12 1/2" 9 5/8" 7" 5"	50# 40# 24# -	206 2796 3964 4215	200 SX 600 SX 450 SX 325 SX	Circ.* 1328* 1243* 363*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4106-4120 (G) 4120-4140 (SA)	11-30	
26A	411 Getty Hobbs E #1 330' FNL & 330' FEL	3679 DF	4276		8 5/8" 5 1/2"	24# 14#	393 4256	200 SX 400 SX	Circ. 2157*	11" 7 7/8*	4163-4199 (G) 4216-4276 (SA)	10-56	
29D	111 Getty McKinley #1 330' FNL & 330' FWL	3662 DF	4365		12 1/2" 9" 7" 5" 3 1/2" Lnr.	50# 34# 24# - -	213 2796 4040 4236 3937/4364	200 SX 500 SX 200 SX 395 SX 50 SX	Circ.* 1335* 2031* Circ. 3937*	16"** 11 3/4"** 8 3/4"** 6 1/4"** 4 3/4"**	4266-4270 (SA)	10-32	
17H	141 Getty State A #1 660' FSL & 330' FWL	3664 DF	4260	4198	12 1/2" 7"	50# 24#	212 4056	175 SX 400 SX	Circ.* 1637*	16"** 8 3/4"**	4056-4198 (G)	3-33	
34F	221 Getty Turner #1 1980' FNL & 1680' FWL	3637 GL	4222		12 1/2" 9 5/8" 7" 9 1/2"	50# 36# 24# 15.5#	220 2780 3974 4221	200 SX 700 SX 300 SX 340 SX	Circ.* 1000 1023* Circ.	16"** 11 3/4"** 8 1/2"** 6 1/4"**	4102-4157 (SA)	9-32	
34C	211 Getty Turner #2 660' FNL & 1650' FWL	3642 GL	4212		12 1/2" 7" 5 1/2"	50# 24# 15.5#	240 4012 4211	175 SX 600 SX 340 SX	Circ.* 1593* Circ.	16"** 8 3/4"** 6 1/4"**	4168-4202 (SA)	7-34	
31C	211 Getty Fowler #1 440' FNL & 2310' FWL	3651 DF	4215	4200	12 1/2" 9 5/8" 7" 5"	50# 36# 24# -	266 2750 3973 4210	185 SX 400 SX 450 SX 100 SX	Circ.* 1282* 1252* 3025*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4186-4196 (SA)		
24H	422 Gulf Graham State A #1 2310' FNL & 330' FEL	3671 DF	4225		13 3/8" 9 5/8" 6 5/8"	54# 36# 24#	217 2806 4085	200 SX 600 SX 375 SX	Circ.* 1769* 1499*	16" 13 3/4" 8 1/4"	4085-4225 (SA)	9-30	
24A	412 Gulf Graham State A #2 330' FNL & 330' FEL	3673 DF	4217	4090	13 3/8" 9 5/8" 7"	54.5# 36# 24#	229 2790 3975	200 SX 600 SX 250 SX	Circ.* 1068* 2463*	17"** 12 1/4"** 8 3/4"**	3975-4062 (G) 4062-4090 (SA)	8-32	7-61 (TA)
24G	321 Gulf Graham State A #3 2310' FNL & 2310' FEL	3671 DF	4219		13 3/8" 9 5/8" 7"	54.5# 36# 24#	292 2746 3930	415 SX 350 SX 200 SX	Circ.* 1730* 2721*	17"** 12 1/4"** 8 3/4"**	3930-4056 (G) 4056-4219 (SA)		
24B	311 Gulf Graham State A #4 660' FNL & 1980' FEL	3674 DF	4290		13" 9 5/8" 6 1/4"	40# 36# 24#	281 1588 3976	225 SX 400 SX 320 SX	Circ.* 427* 2071*	16"** 12 1/4"** 8"**	4167-4290 (SA)	8-35	

*Calculated
**Estimate

PROPOSED NORTH HOBBS
(GRAYBURG - SAN ANDRES)
UNIT WELLS

N. Hobbs (G/SA) Unit Well No.

Sec. Unit	Operator/Lease Name/Well No. Location	Elev.	TD	PBTD	Size	Wt.	Casing Setting Depth	Amt. of Cmt.	Type	Hole Size	Producing Interval	Completion Date	Recompletion/ Temp. Abandoned Date	
24H	421 Gulf Graham State A #5 1980' FNL & 760' FEL	3558 GL	6107	5120	13 3/8" 8 5/8" 5 1/2"	48# 24, 32# 15.5#	400 3903 6106	400 SX 500 SX 305 SX	Circ. 2115* 4220	17 1/2" 11" 7 7/8"	4224-4362 (G)	6-69		
24A	411 Gulf Graham State A #6 990' FNL & 330' FEL	3476 DF	4203	4163	8 5/8" 5 1/2"	24# 15.5, 17#	348 4203	321 265 SX	210 SX Circ. 2440	13 1/4" 7 7/8"	4258-4260 (SA)	7-70		
32P	221 Gulf Grimes A #2 1650' FNL & 2310' FWL	3644 GL	4155		12 1/2" 9 5/8" 7"	50# 36# 24#	307 2752 3943	- - -	- - -	16** 11 3/4"** 8 3/4"**	3943-3972 (G) 3972-4155 (SA)	8-30		
32C	211 Gulf Grimes A #7 990' FNL & 2310' FWL	3630 GL	4151		13 3/8" 9 5/8" 7"	54.5# 36# 24#	216 2739 3860	230 SX 600 SX 300 SX	Circ.* 997* 2056*	17** 12 1/4"** 8 3/4"**	3966-4151 (SA)	4-31		
32G	112 Gulf Grimes A #8 1370' FNL & 330' FWL	3642 DF	4199		13 1/2" 9 5/8" 7"	48# 36# 24#	200 2757 3954	200 350 200	Circ.* 1761* 2745*	18** 12 1/4"** 8 3/4"**	3954-4017 (G) 4017-4199 (SA)	6-34		Casing leaks in 4-54
32D	111 Gulf Grimes A #10 660' FNL & 660' FWL	3646 GL	4250	4239	9 5/8" 7" 4 1/2"	36# 23# 11.6#	360 3120 4249	306 600 SX 110 SX	175 SX Circ. 1520(TS) 3130(TS)	12 1/4" 8 3/4" 6 3/4"	4188-4213 (SA)	12-47	6-71 (Rec.)	
32E	121 Gulf Grimes A #19 1730' FNL & 330' FWL	3647 DF	4051	3485	13 3/8" 8 5/8" 5 1/2"	48# 32# 15.5#	342 3811 4050	300 SX 500 SX 455 SX	Circ.* 2023* 3663*	17** 11** 7 7/8"**	4158-4230 (SA)	5-69	2-75 (Rec.)	
32K	231 Gulf Grimes A No. 2 #3 2310' FSL & 2310' FWL	3632 GL	4230	4250	15 1/2" 9 5/8" 7" 4 1/2" Lnr.	70# 36# 24# 9.5#	207 2730 3966 3701/4194	200 SX 600 SX 300 SX 90 SX	Circ.* 996* 2132* 3701*	18** 12 1/4"** 8 3/4"** 6 1/4"**	4100-4230 (SA)	8-30		
32M	141 Gulf Grimes A No. 2 #5 330' FSL & 330' FWL	3637 DF	4192		13 3/8" 9 5/8" 7" 5 1/2" Lnr.	- 36# 24# -	257 2797 3908 3668/4192	- - - -	- - - -	17** 12 1/4"** 8 3/4"** 6 1/4"**	4158-4175 (SA)	9-30		
32L	131 Gulf Grimes A No. 2 #9 2310' FSL & 330' FWL	3639 GL	4250	4250	13 3/8" 9 5/8" 7" 4 1/2" Lnr.	54# 36# 24# 9.5#	212 2760 3966 3613/4250	200 SX 350 SX 150 SX 65 SX	Circ.* 1724* 3059* 3813*	17** 12 1/4"** 8 3/4"** 6 1/4"**	4219-4237 (SA)	9-34	11-72 (Rec.)	
32N	241 Gulf Grimes A No. 2 #13 990' FSL & 2310' FWL	3638 GL	4110	4110	13 3/8" 7"	48# 23#	328 4094	325 SX 1300 SX	Circ.* Circ.*	17** 8 3/4"**	4094-4105 (SA)	5-49		
32K	232 Gulf Grimes A, No. 2 #20 1980' FSL & 330' FWL	3628 GL	6020	4201	13 3/8" 8 5/8" 5 1/2"	48# 32# 15.5#	303 3829 6019	325 SX 500 SX 500 SX	Circ.* 2041* 3685(TS)	17 1/2"** 11"** 7 7/8"**	4100-4210 (SA)	6-69	3-76 (Rec.)	
33I	431 Gulf Grimes B #1 1920' FSL & 860' FEL	3640 DF	4190	4131	13 3/8" 9 5/8" 7" 5 1/2" Lnr.	54# 36# 24# 15.5#	231 2741 3960 3908/4190	200 SX 600 SX 225 SX 40 SX	Circ.* 999* 2579* 3908*	17** 12 1/4"** 8 3/4"** 6 1/4"**	4086-4109 (SA)	11-31	8-71 (Rec.)	
33H	421 Gulf Grimes B #2 1980' FNL & 860' FEL	3642 DF	4166		13 3/8" 9 5/8" 6 5/8" 5 1/2"	54# 36# 24# 14#	221 2761 3959 3911/4166	175 SX 500 SX 250 SX 40 SX	Circ.* 1310* 2604* 3911*	17** 12 1/4"** 8 3/4"** 6 1/4"**	4100-4163 (SA)	10-32		
33G	311 Gulf Grimes B #3 330' FNL & 2310' FEL	3652 GL	4221		13 3/8" 9 5/8" 7" 5 1/2"	54.5# 36# 24# -	292 2746 3930 4086	200 SX 350 SX 250 SX 75 SX	Circ.* 1730* 2610* 2667*	17** 12 1/4"** 8 3/4"** 6 1/4"**	4086-4221 (SA)	8-34		
33A	411 Gulf Grimes B #4 660' FNL & 660' FEL	3642 GL	4175		13 3/8" 9 5/8" 7" 5 1/2" Lnr.	54.5# 36# 24# 14# FJ	285 2739 3970 3919/4175	200 SX 350 SX 150 SX 40 SX	Circ.* 1723* 3063* 3919*	17** 12 1/4"** 8 3/4"** 6 1/4"**	4077-4175 (SA)	11-34	5-56 (Rec.)	
21N	141 Gulf Grimes C #1 330' FSL & 330' FWL	3650 GL	4219	4182	13 3/8" 8 1/4"	54.5# 32#	270 4067	200 SX 650 SX	Circ.* 2097*	17** 11**	4067-4164 (G) 4164-4182 (SA)	1-35		
21H	241 Gulf Grimes C #2 1330' FSL & 1650' FWL	3646 GL	4225	4210	13" 7" 5 1/2"	48# 24# -	281 4109 4221	225 SX 1300 SX 250 SX	Circ.* Circ.* Circ.*	16** 8 3/4"** 6 1/4"**	4176-4203 (SA)	10-35		

*Calculated
**Estimate

PROPOSED NORTH HOBBS
(GRAYBURG - SAN ANDRES)
UNIT WELLS

N. Hobbs (G/SA) Unit Well No.

Sec. Unit	Operator/Lease Name/Well No. Location	Elev.	TD	PBTD	Size	Wt.	Casing Setting Depth	Amt. of Cmt.	TOC	Hole Size	Producing Interval	Completion Date	Recompletion/ Temp. Abandoned Date
21L	121 Gulf Grimes C #3 1650' FSL & 330' FWL	3657 DF	4235		13" 7"	48# 24#	295 4106	250 SX 1300 SX	Circ.* Circ.*	16"** 8 3/4"**	4106-4205 (G) 4205-4235 (SA)	12-35	
18O	142 Gulf Hardin #1 330' FSL & 2310' FEL	3668 DF	4221	4052	13 3/8" 9 5/8" 7" 5 1/2" Lar.	54.50 36# 26# 15.50	228 2816 4026 3975/6221	180 SX 500 SX 250 SX 80 SX	Circ.* 1365* 2511* 3975*	17"** 12 1/4"** 8 3/4"** 6 1/4"**	4005-4052 (G)	11-32	3-67 (TA)
18P	441 Gulf Hardin #2 330' FSL & 990' FEL	3665 DF	4233		13 3/8" 8 5/8"	54.5# 32#	218 4022	200 SX 500 SX	Circ.* 2234*	17"** 11"**	4022-4110 (G) 4110-4253 (SA)	2-33	
18I	432 Gulf Hardin #3 1980' FSL & 660' FEL	3671 DF	4200		8 5/8" 5 1/2"	24# 14#	428 4199	325 SX 1600 SX	Circ.* Circ.*	11" 7 7/8"	4094-4166 (G)	9-57	
18C	321 Gulf Hardin #4 1980' FNL & 1980' FEL	3670 DF	4170	4161	8 5/8" 4 1/2"	24# 9.5#	433 4168	350 SX 1400 SX	Circ.* Circ.*	12 1/4" 7 7/8"*	4064-4112 (G)	3-59	
18J	331 Gulf Hardin #5 1980' FSL & 1980' FEL	3675 DF	4170	4165	8 5/8" 4 1/2"	24# 9.5#	320 4170	310 SX 1027 SX	Circ. 1710	12 1/4" 7 7/8"*	4052-4107 (G)	5-59	
18M	421 Gulf Hardin #6 1980' FSL & 660' FEL	3673 DF	4177	4172	8 5/8" 4 1/2"	24# 9.5#	305 4177	300 SX 350 SX	Circ. 2799	12 1/4" 6 3/4"	4139-4160 (G)	4-59	
18B	311 Gulf Hardin #7 990' FNL & 2310' FEL	3680 DF	4200	4194	8 5/8" 4 1/2"	24# 9.5#	322 4200	200 SX 373 SX	Circ. 3318	12 1/4" 7 7/8"*	4165-4185 (G)	9-60	
18A	411 Gulf Hardin #8 990' FNL & 990' FEL	3631 DF	4270	4257	8 5/8" 4 1/2"	24# 9.5#	315 4270	175 SX 305 SX	Circ.* 2262*	12 1/2" 6 3/8"*	4224-4266 (G)	5-62	
18O	341 Gulf Hardin #9 500' FSL & 2310' FEL	3672 DF	4340	4287	8 5/8" 5 1/2"	24# 14#	295 4339	275 SX 285 SX	Circ. 2585	11" 7 7/8"*	3999-4060 (G)	8-31	
36C	211 Gulf Hale (HCT-B) #1 330' FNL & 2310' FWL	3670 GL	4275		8 5/8" 5 1/2"	24# 14#	434 4275	325 SX 400 SX	Circ.* 2223*	11" 7 7/8"*	4243-4272 (G)	6-57	1-75 (TA)
14H	241 Gulf Lea Fo State #1 660' FSL & 2310' FWL	3697 DF	4300	4230	8 5/8" 5 1/2"	24# 14#	423 4299	300 SX 2000 SX	Circ.* Circ.*	11" 7 7/8"*	4148-4220 (G)	5-58	
30K	231 Marathon State 30 #1 2310' FSL & 2310' FWL	3662 DF	4209	4198	20" 9 5/8" 7" 5"	94# 40# 26# 15#	215 2750 3930 4200	75 SX 600 SX 550 SX 60 SX	Circ. 1589* 606* 3190	22"** 12 1/4"** 8 3/4"** 6 1/4"**	4134-4160 (G)	7-30	1-59 (Rec.)
30M	341 Marathon State 30 #2 660' FSL & 2310' FWL	3669 DF	4291	4190	12 1/2" 9 5/8" 7" 5"	50# 40# 26# -	294 2750 3900 4167	275 SX 550 SX 275 SX 60 SX	Circ. 1134* 2237* 3456*	16"** 12 1/4"** 8 3/4"** 6 1/4"**	4167-4190 (G)	9-30	
30L	131 Marathon State 30 #3 2310' FSL & 330' FWL	3665 DF	4213	4098	12 1/2" 9 5/8" 7" 5" Lar.	50# 40# 26# 15#	243 2751 3900 4207	225 SX 550 SX 350 SX 50 SX	Circ.* 733* 1783* 3760	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4053-4017 (G)	10-30	9-72 (Rec.)
30H	141 Marathon State 30 #9 990' FNL & 990' FEL	3663 DF	4273	4227	10 3/4" 5 1/2"	32.75# 15.5#	368 4273	200 SX 3000 SX	Circ. Circ.	13 3/4" 8 3/4"	4084-4114 (G)	10-55	
32P	441 Marathon State 32 #2 660' FSL & 660' FEL	3634 GL	4244		12 1/2" 9 5/8" 7" 5"	50# 40# 24# 15#	108 2750 3971 4234	125 SX 600 SX 250 SX 60 SX	Circ.* 1282* 2439* 3500	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4234-4244 (SA)	8-30	
32I	431 Marathon State 32 #3 330' FSL & 2310' FEL	3649 GL	4245	4213	12 1/2" 9 5/8" 7" 5"	50# 40# 24# 15#	205 2750 3968 4244	225 SX 475 SX 350 SX 65 SX	Circ.* 1007* 1851* 3378*	16"** 11 3/4"** 8 3/4"** 6 1/8"	4190-4220 (G)	8-30	
32J	331 Marathon State 32 #4 2310' FSL & 2310' FEL	3642 GL	4247	4243	13 1/2" 9 5/8" 7" 5"	70# 40# 24# -	300 2750 3960 4247	250 SX 300 SX 350 SX 75 SX	Circ.* 915* 1823* 3358*	18"** 11 3/4"** 8 3/4"** 6 1/4"**	4186-4224 (SA)	9-30	6-75 (TA)

*Calculated
**Estimate

PROPOSED NORTH HOBBS
(GRAYBURG - SAN ANDRES)
UNIT WELLS

N. Hobbs (G/SA) Unit Well No.

Sec. Unit	Operator/Lease Name/Well No. Location	Elev.	TD	PBTD	Casing Size	Casing Wt.	Casing Setting Depth	Amt. of Cmt.	TOC	Hole Size	Producing Interval	Completion Date	Recompletion/ Temp. Abandoned Date
330	341 Marathon State 32 #5 330' FSL & 2310' FEL	3636 GL	4236	4234	16" 9 5/8" 7" 5"	65.30 400 240 155	221 2750 3925 4235	250 SX 556 SX 335 SX 120 SX	Circ.* 1136* 9544* 2813*	18"** 12 1/4"** 8 3/4"** 6 1/4"**	4200-4230 (SA)	10-30	
348	421 Hereo Hobbs #1 2481' FNL & 1184' FEL	3630 GL	4303	4264	8 5/8" 4 1/2"	240 11.60	372 4301	250 SX 500 SX	Circ. 2420(TS)	12 1/4" 7 7/8"	4236-4250 (G)	1-62	
17E	121 Heron State T 17 #1 2310' FNL & 330' FWL	3670 DF	4236	4234	8 5/8" 4 1/2"	240 11.60	356 4236	200 SX 544 SX	Circ.* 2065*	12 1/4" 7 7/8"	4182-4216 (G)	12-61	
23E	121 C&C Shipp A #1 1650' FNL & 990' FWL	3691 DF	4300	4248	8 5/8" 5 1/2"	240 140	321 4348	175 SX 425 SX	Circ. 2710	11 1/4" 7 7/8"	4065-4300 (G)	12-59	
31B	111 Sun Fowler #1 440' FNL & 330' FEL	3651 DF	4224		- - 7"	- - 240	- - 3966	- - 425 SX	- - 1396*	- - 8 3/4"**	3944-4132 (G) 4132-4224 (SA)	10-30	
31E	121 Sun Fowler #6 1980' FNL & 990' FWL	3655 DF	4189		9 5/8" 7"	360 230	1620 4075	800 SX 400 SX	Circ. 2400	12 1/4" 8 3/4"	4073-4189 (G)	4-49	
20D	321 Snowden Moon A #1 2310' FNL & 2310' FEL	3647 DF	4200	4200	12 1/2" 7"	500 240	2551 4000	150 SX 500 SX	3323* 976*	16"** 8 3/4"**	4000-4126 (G) 4126-4200 (SA)	2-35	
20G	311 Snowden Moon A #2 1315' FNL & 330' FWL	3650 DF	4217	4217	12 1/2" 7"	500 220	235 4103	150 500 SX	Circ.* 1079*	16"** 8 3/4"**	4103-4162 (G) 4162-4217 (SA)	7-35	
20H	421 Snowden Moon B #1 2310' FNL & 1120' FEL	3648 GL	4216	4216	12 1/2" 7"	500 220	235 4020	150 SX 500 SX	Circ.* 996*	16"** 8 3/4"**	4020-4140 (G) 4140-4216 (SA)	5-35	
20A	411 Snowden Moon B #2 330' FNL & 1120' FEL	3645 GL	4225	4225	12 1/2" 7"	500 220	227 4133	160 SX 750 SX	Circ.* Circ.*	16"** 8 3/4"**	4133-4175 (G) 4175-4225 (SA)	4-36	
29F	221 Snowden State B #1 1980' FNL & 2310' FWL		4363	4153	12 1/2" 7"	500 220	205 4039	175 SX 500 SX	Circ.* 1015*	16"** 8 3/4"**	4039-4153 (G)	11-37	
29E	121 Snowden State B #2 1650' FNL & 990' FWL	3667	4261		8 5/8" 5 1/2"	240 140	207 4260	250 SX 250 SX	Circ. 2930	12 1/4" 7 7/8"	4140-4236 (G)	1-58	
24H	241 Snowden State C #1 330' FSL & 2310' FWL	3675 DF	4188		12 1/2" 9 5/8" 7" 5" Lnr.	500 360 240 130	215 2040 3930 3965/4180	150 SX 175 SX 150 SX 39 SX	Circ.* 2190* 3023* 3065*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4155-4165 (SA)	3-36	
24E	231 Snowden State C #2 1980' FNL & 1980' FWL	3679 DF	4171		12 1/2 9 5/8" 7" 5" Lnr.	500 360 240 130	199 2823 3966 3917/4171	150 SX 200 SX 150 SX 50 SX	Circ.* 2089* 3059* 3917*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4140-4150 (SA)	6-36	
24L	131 Snowden State C #3 2310' FNL & 1315' FWL	3679 DF	4200		12 1/2" 7" 5" Lnr.	500 220 130	219 4002 3942/4200	150 SX 500 SX 40 SX	Circ.* 720* 3942*	17 1/2" 8 5/8" 6 1/4"**	4135-4145 (SA)	4-35	
24M	141 Snowden State C #4 1315' FSL & 1315' FWL	3674 DF	4218		12 1/2" 7" 5" Lnr.	500 220 130	211 4035 3962/4218	175 SX 600 SX 56 SX	Circ.* Circ.* 3962*	16"** 8 3/4"** 6 1/4"**	4190-4200 (SA)	10-35	
36J	331 Snowden Turner A #1 1980' FSL & 2310' FEL	3630 GL	4215		12 1/2" 7" 5"	500 220 130	254 4055 4214	200 SX 500 SX 370 SX	Circ.* 1031* Circ.*	16"** 8 3/4"** 6 1/4"**	4136-4144 (SA) 4176-92&4198-4202 below pkr.; not producing	3-35	
36O	341 Snowden Turner A #2 1320' FSL & 2310' FEL	3620 GL	4204		12 1/2" 7" 5"	500 220 130	254 4046 4194	150 SX 500 SX 370 SX	Circ.* 1042* Circ.*	16"** 8 3/4"** 6 1/4"**	4136-4141 (SA)	5-35	
36I	431 Snowden Turner B #1 1640' FSL & 1190' FEL	3630 GL	4241		12 1/2" 7"	450 220	200 4063	200 SX 800 SX	Circ.* 1008*	17 1/2" 9 5/8"	4063-4214 (G) 4214-4241 (SA)	3-38	
36P	441 Snowden Turner B #2 400' FSL & 1190' FEL	3620 GL	4233		9 5/8" 5 1/2"	360 140	190 4150	102 SX 350 SX	Circ.* 2890*	12" 8 3/4"	4150-4204 (G) 4204-4233 (SA)	6-44	

*Calculated
**Estimate

PROPOSED NORTH HOBBS
(GRAYBURG - SAN ANDRES)
UNIT WELLS

N. Hobbs (G/SA) Unit Well No.

Sec. Unit	Operator/Lease Name/Well No. Location	Elev.	TD	PBTD	Casing Size	Wt.	Setting Depth	Amt. of Cmt.	Top	Hole Size	Producing Interval	Completion Date	Recompletion/ Temp. Abandoned Date
31P	441 Shell Berry #1 330' FSL & 330' FEL	3635 GL	4220	4211	12 1/2" 9" 6 5/8" 5" Lnr.	50# 36# 26# 11.5#	342 2800 3975 3930/4219	300 SX 600 SX 200 SX 100 SX	Circ.* 1067* 2396** 3930*	16"** 11 3/4"** 8 5/8"** 6 1/4"**	4122-4211 (SA)	9-30	8-46 (Rec.)
31J	331 Shell Berry #2 2200' FSL & 2310' FEL	3642 GL	4210	4207	12 1/2" 9 5/8" 7"	50# 36# 24#	338 2800 3941	200 SX 600 SX 225 SX	Circ.* 998* 2580*	16"** 11 3/4"** 8 5/8"**	3941-4100 (G) 4100-4207 (SA)	11-30	
31I	431 Shell Berry #3 2970' FSL & 330' FEL	3641 GL	4225		12 1/2" 9 5/8" 7" 5 1/2" Lnr.	50# 36# 24# 15.5#	353 2766 3962 3923/4224	150 SX 150 SX 250 SX 100 SX	90* 2316* 2650* 3923*	10" 11 3/4"** 8 5/8"** 6 1/4"**	4159-4214 (SA)	7-34	
32O	341 Shell Berry #4 1315' FSL & 1325' FEL	3640 GL	4229	4224	12 1/2" 9 5/8" 7" 5 1/2" Lnr.	50# 36# 24# 15.5#	251 1526 3980 3880/4229	150 SX 200 SX 250 SX 100 SX	53* 792* 2660* 4229*	17" 11 3/4"** 8 5/8"** 6 1/4"**	4161-4224 (SA)	8-46	
20H	141 Shell Grimes #1 330' FNL & 330' FWL	3647 GL	4232		12 1/2" 9 5/8" 7" 5"	50# 36# 24# 15#	236 1758 3960 4228	300 SX 600 SX 225 SX 125 SX	Circ.* 548* 2599* 2146*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4135-4225 (SA)	9-30	
20L	131 Shell Grimes #2 2310' FNL & 330' FWL	3643 GL	4234	4232	12 1/2" 9 5/8" 7" 5 1/2" Lnr.	50# 36# 24# 15.5#	220 2751 3973 3932/4233	300 SX 600 SX 225 SX 100 SX	Circ.* 549* 3612* 3932*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4190-4230 (SA)	9-30	2-55 (Rec.)
20K	231 Shell Grimes #3 1325' FNL & 1325' FWL	3651 GL	4231	4228	12 1/2" 9 5/8" 7" 5 1/2" Lnr.	50# 36# 24# 15.5#	246 2750 3935 3918/4230	150 SX 150 SX 250 SX 100 SX	Circ.* 2315 3443* 3918*	10"** 12 1/4"** 8 3/4"** 6 1/4"**	4150-4223 (SA)	11-33	
20M	241 Shell Grimes #4 330' FNL & 2310' FWL	3646 GL	4230	4225	12 1/2" 9 5/8" 7" 5 1/2"	50# 36# 24# 15.5#	256 2770 3933 4230	150 SX 150 SX 250 SX 100 SX	Circ.* 2220* 3423* 2330*	10" 11 3/4"** 8 3/4"** 6 1/4"**	4004-4010 (SA)	9-34	
20L	132 Shell Grimes #10 1980' FNL & 330' FWL	3638 DF	7130	5010	13 3/4" 9 5/8" 7" Lnr.	48# 36# 23#	352 3816 3611/7143	200 SX 1400 SX 605 SX	Circ. Circ.* 3611	17 1/2" 12 1/4" 8 3/4"	4210-4364 (SA)	10-69	
19K	141 Shell McKinley A #1 330' FSL & 330' FWL	3643 DF	4248	4244	12 1/2" 9" 7" 5 1/2" Lnr.	50# 36# 24# 15.5#	218 2703 3880 3810/4247	300 SX 500 SX 500 SX 100 SX	Circ.* 1323* 856* 3810*	16"** 11 3/4"** 8 3/4"** 6 1/4"	4144-4240 (SA)	6-30	
19O	341 Shell McKinley A #2 2310' FSL & 330' FEL	3650 DF	4246		12 1/2" 9 5/8" 7" 5 1/2" Lnr.	50# 36# 24# 15.5#	236 2750 3975 3937/4245	200 SX 600 SX 225 SX 100 SX	Circ.* 5488* 2614* 3937*	16"** 11 3/4"** 8 3/4"** 6 1/4"	4183-4218 (SA)	7-30	
19N	441 Shell McKinley A #3 330' FSL & 330' FEL	3657 DF	4262	4260	15 [illegible] 9" 6 5/8" 5" Lnr.	70# 36, 40# 24# 13#	221 2775 3982 3949/4261	200 SX 600 SX 200 SX 100 SX	Circ.* 1022* 2603* 3949*	16"** 11 3/4"** 8 1/4"** 6 1/4"**	4185-4236 (SA)	12-32	9-46 (Rec.)
19M	241 Shell McKinley A #4 330' FSL & 2310' FWL	3641 DF	4247	4244	12 1/2" 9 5/8" 7" 5 1/2" Lnr.	50# 36# 24# 15.5#	244 2750 3975 3936/4246	200 SX 600 SX 225 SX 100 SX	Circ.* 5488* 2614* 3936*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4164-4230 (SA)	9-30	
19J	331 Shell McKinley A #5 2310' FSL & 2310' FEL	3641 DF	4256	4250	12 1/2" 9 5/8" 7" 5 1/2" Lnr.	50# 36# 24# 15.5#	253 2750 3975 3923/4255	200 SX 600 SX 225 SX 23 SX	Circ.* 5488* 2614* 3923*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4148-4220 (SA)	9-30	
19I	231 Shell McKinley A #6 2310' FSL & 2310' FEL	3663 DF	4267	4264	12 1/2" 9 5/8" 7" 5 1/2" Lnr.	50# 36# 24# 15.5#	239 2750 3975 3931/4266	200 SX 600 SX 225 SX 100 SX	Circ.* 5488* 2704* 3931*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4130-4235 (SA)	9-30	
19H	131 Shell McKinley A #7 2310' FNL & 330' FWL	3667 DF	4267		12 1/2" 9 5/8" 7" 5 1/2"	50# 36# 24# 15.5#	260 2774 3990 4247	300 SX 600 SX 225 SX 150 SX	Circ.* 572* 2619* 1610*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4106-4242 (SA)	9-30	
19I	431 Shell McKinley A #10 1650' FSL & 990' FEL	3663 DF	4296	4251	7 5/8" 4 1/2"	26.4# 10.5#	277 4285	200 SX 435 SX	Circ. Circ.	12 1/4" 6 1/4"	4197-4238 (SA)	7-68	

*Calculated
**Estimate

PROPOSED NORTH HOBBS
(GRAYBURG - SAN ANDRES)
UNIT WELLS

N. Hobbs (G/SA) Unit Well No.

Sec. Unit	Operator/Lease Name/Well No. Location	Elev.	TD	PBTD	Casing Size	Wt.	Setting Depth	Amt. of Cmt.	TOC	Hole Size	Producing Interval	Completion Date	Recompletion/ Temp. Abandoned Date
19M	142 Shell McKinley A #11 420' FSL & 1980' FWL	3646 DF	7105	4224	13 3/8" 9 5/8" 5 1/2" Lnr.	48# 36# 15.5#	360 3794 3537/7103	340 sx 500 sx 950 sx	Circ. Circ. 3606*	17 1/2" 12 1/4 8 3/4"	4192-4197 (SA)	5-70	
20K	232 Shell McKinley B #1 2310' FSL & 1310' FWL	3657 DF	4210	4124	12 1/2" 9 5/8" 7"	36# 36# 24#	242 2810 4025	200 sx 600 sx 200 sx	Circ.* 600* 2815	16"** 11 3/4"** 8 3/4"**	4015-4157 (G) 4157-4210 (SA)	10-30	5-65 (TA)
20M	241 Shell McKinley B #2 330' FSL & 2310' FWL	3652 GL	4330	4283	12 1/2" 9 5/8" 7" 5" Lnr.	50# 36# 24# 15#	241 2835 3985 3805/4327	200 sx 600 sx 225 sx 100 sx	Circ.* 637* 2626* 3809*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4231-4266 (SA)	10-30	6-75 (Rec.)
20N	141 Shell McKinley B #3 330' FSL & 330' FWL	3657 DF	4252		12 1/2" 9 5/8" 7" 5" Lnr.	50# 36# 24# 15#	223 2797 3980 3929/4228	200 sx 600 sx 200 sx 44 sx	Circ.* 595* 2721* 3929*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4210-4252 (SA)	11-32	
20K	232 Shell McKinley B #4 1325' FSL & 1325' FWL	3656 DF	4330	4280	13 1/2" 9 5/8" 7" 5" Lnr.	70# 36# 24# 15#	343 1413 4000 3833/4329	150 sx 75 sx 250 sx 35 sx	Circ.* 1397* 3577* 3859*	18"** 12 1/4"** 8 3/4"** 6 1/4"**	4230-4252 (SA)	7-33	
20L	131 Shell McKinley B #5 1650' FSL & 330' FWL	3662 DF	4276	4269	8 5/8" 5 1/2"	24# 15.5#	292 4266	300 sx 600 sx	Circ. 4226	12 1/4" 7 7/8"	4227-4256 (SA)	7-69	
19P	442 Shell Rice #1 330' FSL & 330' FWL	3673 DF	4258	4253	12 1/2" 9" 7" 5 1/2" Lnr.	50# 36# 26# 15.5#	320 2706 3926 3844/4257	290 sx 600 sx 250 sx 100 sx	Circ. 1199* 1473* 3942	18" 12" 8 1/8" 6 1/4"	4000-4046 (G) 4207-4263 (SA)	9-32	
19O	341 Shell Rice #2 660' FSL & 1980' FEL	3678 DF	4263	4259	12 1/2" 9 5/8" 7" 5" Lnr.	40# 36# 26# 15#	243 1612 3960 3965/4262	150 sx 200 sx 275 sx 110 sx	Circ.* 830* 2297* 3345*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4195-4267 (SA)	12-56	
19I	431 Shell Rice #3 1650' FSL & 990' FEL	3670 DF	4300	4302	12 1/2" 9 5/8" 7" 4 1/2" Lnr.	50# 36# 26# 11.6#	264 1591 3960 3867/4299	220 sx 630 sx 160 sx 100 sx	Circ.* Circ.* 2992* 3867*	16" 12" 8 3/4" 6 1/4"	4223-4271 (SA)	10-35	
19J	331 Shell Rice #4 1980' FSL & 1980' FEL	3679 DF	4243	4090	8 5/8" 5 1/2"	32# 15.5#	318 4243	100 sx 1100 sx	Circ. Circ.*	12 1/4" 7 7/8"	3948-4004 (G)	7-57	
27K	141 Shell Senger #1 287' FNL & 330' FEL	3644 GL	4229		12 1/2" 9 5/8" 7"	50# 36# 24#	275 1648 4060	250 sx 363 sx 250 sx	Circ.* 3156* 2548*	16"** 11 3/4"** 8 3/4"**	4110-4185 (SA)	10-34	
27N	241 Shell Senger #2 330' FSL & 1325' FWL	3643 GL	4228		12 1/2" 9 5/8" 7"	50# 40# 26#	230 1648 4060	750 sx 350 sx 250 sx	Circ.* 3646 2548*	17 1/2" 11 3/4"** 8 3/4"**	4060-4130 (G) 4130-4226 (SA)	2-35	
27L	131 Shell Senger #3 1650' FSL & 412' FWL	3638 GL	4223		12 1/2" 9 5/8" 7"	50# 40.6# 26#	259 1645 4075	150 sx 200 sx 250 sx	31* 911* 2563*	16 1/2" 11 3/4"** 8 3/4"**	4075-4133 (G) 4133-4223 (SA)	6-35	
27E	121 Shell Senger #4 2645' FSL & 412' FWL	3636 GL	4221		12 1/2" 9 5/8" 7"	50# 36# 26#	270 1705 4100	250 sx 575 sx 275 sx	Circ. Circ.* 2645*	17 1/2" 11 3/4"** 8 3/4"**	4108-4187 (G) 4187-4221 (SA)	6-36	
27H	231 Shell Senger #5 1350' FSL & 1350' FWL	3639 GL	4239		13" 9 5/8" 7"	65# 36# 26#	276 1718 4093	350 sx 450 sx 250 sx	92* 412* 2581*	17 1/2" 12 1/4" 8 3/4"	4093-4209 (G) 4209-4239 (SA)	7-37	
27G	111 Shell Senger #6 1200' FNL & 430' FWL	3641 GL	4240		8 5/8" 5 1/2"	24# 15.5#	247 4222	275 sx 450 sx	Circ. 1861*	12 1/4" 7 7/8"	4222-4240 (G) 4240-4300 (SA)	2-70	
33C	321 Shell State A #2 1650' FNL & 2310' FEL	3628 GL	4185	3948	12 1/2" 9" 6 5/8"	50# 36# 24#	230 2759 3950	Unknown Unknown Unknown	- - -	16"** 11 3/4"** 8 1/4"**	3950-3955 (G) 3955-4185 (SA)	8-30	
32P	421 Shell State A #3 2310' FNL & 330' FEL	3636 GL	4216	4210	12 1/2" 9 5/8" 7" 5 1/2" Lnr.	50# 36# 24# 15.5#	245 2755 3950 3916/4215	200 sx 600 sx 225 sx 125 sx	Circ.* 553* 3589* 3916*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4212-4218 (SA)	8-30	12-65 (Rec.)

*Calculated
**Estimate

PROPOSED NORTH HOBBS
(GRAYBURG - SAN ANDRES)
UNIT WELLS

B. Bobbs (G/SA) Unit Well No.

Sec. Unit	(Operator/Lease Name/Well No. Location)	Elevation	TD	PBTD	Size	Wt.	Casing Setting Depth	Amt. of Cmt.	TOC	Hole Size	Producing Interval	Completion Date	Recompletion/ Temp. Abandoned Date
32O	322 Shell State A #4 2310' FNL & 2310' FEL	3637 GL	4251	4187	12 1/2" 9 5/8" 7" 5 1/2" Liner	500 360 260 15.50	240 2750 3960 3911/4217	200 SX 600 SX 225 SX 94 SX	Circ.* 5484 3599* 3911*	16" 11 3/4"** 8 3/4"** 6 1/4"**	4064-4078 (SA)	9-30	12-45 (Recr.)
33O	111 Shell State B #1 330' FNL & 330' FWL	3651 GL	4236	4230	12 1/2" 9 5/8" 7" 5 1/2" Liner	500 360 260 15.50	240 2750 3960 3913/4236	200 SX 600 SX 225 SX 90 SX	Circ.* 5484 2607* 3923*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4106-4201 (SA)	9-30	
33C	211 Shell State B #2 330' FNL & 2310' FWL	3647 GL	4227	4225	12 1/2" 9 5/8" 7" 5 1/2" Liner	500 360 260 15.50	295 2760 3930 3887/4236	150 SX 150 SX 250 SX 100 SX	284 2210* 3410* 3800*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4222-4232 (SA)	6-34	
34O	321 Shell State D #1 2310' FNL & 2310' FEL	3673 DF	4260	4203	12 1/2" 9 5/8" 7" 5 1/2" Liner	500 360 260 15.50	225 2002 4030 3953/4259	150 SX 150 SX 250 SX 100 SX	Circ.* 2752* 2510* 3953*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4123-4230 (SA)	10-34	
34C	211 Shell State D #2 660' FNL & 1980' FWL	3675 DF	4260		12 1/2" 9 5/8" 7" 5" Liner	500 360 260 15.50	257 1599 4030 3952/4260	150 SX 200 SX 250 SX 100 SX	Circ.* 6654 3400* 3952*	16"** 11 3/4"** 8 3/4"** 6 1/4"**	4099-4101 (SA) Plan	5-35	
23O	321 Shell State F #2 1650' FNL & 1650' FWL	3686 DF	4265	4162	8 5/8" 5 1/2"	320 15.50	309 4265	300 SX 1355 SX	Circ. Circ.	12 1/4" 7 7/8"*	4106-4158 (O)	7-57	
24O	311 Shell State F #3 330' FNL & 1650' FWL	3686 DF	4126	4126	8 5/8" 5 1/2"	320 15.50	320 4126	300 SX 730 SX	Circ.* 2964*	11"** 7 7/8"**	3932-5189 (G)	8-57	
34O	321 Shell Turner #1 330' FNL & 330' FWL	3635 GL	4230		12 1/2" 8 5/8" 4 5/8"	500 320 260	226 1637 4065	150 SX 250 SX 250 SX	Circ.* 2034* 2361*	16" 11"** 8 1/4"**	4065-4140 (O) 4140-4230 (SA)	6-35	
34O	311 Shell Turner #2 1485' FNL & 330' FWL	3641 GL	4241		12 1/2" 9 5/8" 7"	500 360 260	202 1700 4134	150 SX 625 SX 300 SX	Circ.* Circ.* 2320*	16" 11 3/4"** 8 3/4"**	4134-4241 (SA)	9-35	
28O	336 Bell Sweet Bounce B #3A 1650' FNL & 2080' FWL	3654 GL	4200		8 5/8" 5 1/2"	400 15.50	252 4130	130 SX 400 SX	Circ. 3020	11"** 7 7/8"**	4190-4202 (SA)	3-54	
30I	436 C. H. Sweet Grimes #1A 1650' FNL & 660' FWL	3644	4253	4206	8 5/8" 5 1/2"	15.50 170	305 4252	150 SX 300 SX	Circ. 3060	11" 6 3/4"	4207-4215 (SA)	6-52	8-75 (TA)
30I	432 C. H. Sweet Grimes #3A 1650' FNL & 990' FWL	3659 GL	4210	4206	10 3/4" 7"	400 250	247 4050	150 SX 600 SX	Circ. 2625	15" 9 5/8"	4050-4210 (C)	1-54	8-75 (TA)
30H	421 C. H. Sweet Hathaway B #2 2310' FNL & 990' FEL	3654 GL	4414		8 5/8" 5 1/2"	200 15.50	302 4270	150 SX 200 SX	Circ. 2952	11" 6 3/4"	4252-4256 (SA)	5-52	
23A	411 C. H. Sweet State F #1A 330' FNL & 330' FEL	3686 DF	4215	4073	8 5/8" 5 1/2"	23.70 15.50	334 3915	125 SX 75 SX	Circ. 3406	11" 6 3/4"	3915-4073 (C)	6-51	8-63 (TA)
23E	421 C. H. Sweet State F #2A 1650' FNL & 330' FEL	3685 DF	4150		8 5/8" 5 1/2"	23.79 15.50	334 3957	125 SX 175 SX	Circ.* 3362*	11" 6 3/4"	4000-4145 (C) 4145-4150 (SA)	7-51	
23I	431 C. H. Sweet State F #3 2310' FNL & 330' FEL	3681 DF	4191		8 5/8" 5 1/2"	24.78 15.50	252 3993	125 SX 300 SX	Circ. 1922*	12" 7 3/8"	3993-4152 (C) 4152-4191 (SA)	1-53	
26A	412 C. H. Sweet State F #4 990' FNL & 660' FEL	3682 DF	4204		8 5/8" 5 1/2"	- -	260 3990	125 SX 250 SX	Circ.* 2670*	11"** 7 7/8"**	3990-4142 (C) 4142-4204 (SA)	8-55	
25A	411 Texaco New Mexico St. C #1 330' FNL & 330' FWL	3670 DF	4259	4250	12 1/2" 8 1/4" 6 1/4" 4 1/2" Liner	500 320 260 11.60	220 2750 3949 3869/4257	200 SX 600 SX 200 SX 50 SX	Circ.* 1362* 3463* 4100	16"** 11 3/4"** 7 5/8"** 5 3/4"	4100-4223 (SA)	8-38	
25H	421 Texaco New Mexico St. C #2 2310' FNL & 330' FEL	3671 DF	4210	4076	12 1/2" 9" 7"	500 340 260	220 2750 3932	175 SX 600 SX 200 SX	Circ.* 1010* 3490*	16"** 11 3/4"** 8 1/2"**	3932-4076 (C)	9-38	
25C	321 Texaco New Mexico St. C #3 1980' FNL & 1980' FEL	3670 DF	4260		12 1/2" 9" 7" 4 1/2" Liner	500 340 260 11.60	222 2750 3937 3803/4267	200 SX 600 SX 200 SX 75 SX	Circ.* 997* 2503* 3803*	16"** 11 3/4"** 8 3/2"** 6 1/4"**	3906-4086 (C)		

*Calculated
**Estimate

PROPOSED NORTH HOBBS
(GRAYBURG - SAN ANDRES)
UNIT WELLS

N. Hobbs (G/SA) Unit Well No.

Sec, Unit	Operator/Lease Name/Well No. Location	Elev.	TD	PBTD	Casing Size	Casing Wt.	Casing Setting Depth	Casing Amt. of Cmt.	Casing Type	Hole Size	Producing Interval	Completion Date	Recompletion/ Temp. Abandoned Date
25B	311 Texaco New Mexico Ft. C #4 330' FNL & 1980' FEL	3672 DF	4232	4122	12 1/2" 9" 7"	50# 36# 24#	220 2754 3932	200 SX 600 SX 200 SX	Circ.* 1001* 2183*	16"** 11 3/4"** 8 1/4"**	3932-4016 (G)	3-55	
24P	441 Texas Pac. State O #1 330' FSL & 330' FEL	3668 DF	4214		20" 13" 9" 7"	90# 50# 36# 24#	105 1521 2815 5000	125 SX 300 SX 700 SX 200 SX	Circ.* Circ. 770* 2151*	22"** 15 1/2"** 11 3/4"** 8 1/4"**	3695-4045 (G) 4048-4216 (SA)	7-30	
24I	431 Texas Pac. State O #2 990' FSL & 330' FEL	3670 DF	4218		12 1/2" 9" 7"	50# 36# 24#	221 2782 3951	180 SX 510 SX 250 SX	Circ.* 1292* 2439*	15 1/2"** 11 3/4"** 8 3/4"**	3758-4045 (G) 4045-4218 (SA)	11-30	
24J	331 Texas Pac. State O #3 1330' FSL & 1325' FEL	3670 DF	4227		12 1/2" 9" 7"	50# 36# 24#	215 2810 3878	200 SX 600 SX 300 SX	Circ.* 1362* 2064*	16"** 11 3/4"** 8 3/4"**	3870-4060 (G) 4060-4227 (SA)	6-32	
24O	341 Texas Pac. State O #4 330' FSL & 990' FEL	3669 DF	4225		12 1/2" 9" 7"	50# 36# 24#	200 2810 3896	240 SX 600 SX 200 SX	Circ.* 1662* 2063*	16"** 12 3/4"** 8 3/4"**	3906-4042 (G) 4092-4213 (SA)	5-33	
14I	431 Texas Pac. State V #1 1650' FSL & 330' FEL	3690 DF	4162	4159	8 5/8" 5 1/2"	28# 14#	314 4162	300 SX 300 SX	Circ. 2358	12 1/4" 7 7/8"	4012-4134 (G)	1-58	
14J	331 Texas Pac. State V #2 1650' FSL & 1650' FEL	3691 DF	4325		8 5/8" 5 1/2"	28# 14#	328 4324	325 SX 300 SX	Circ.* 2750*	12 1/4" 7 7/8"	4168-4266 (G)	3-58	
23C	211 Texas Pac. State V #3 330' FNL & 2310' FWL	3689 DF	4296	4286	8 5/8" 5 1/2"	28# 14#	320 4296	325 SX 300 SX	Circ. 2905	12 1/4" 7 7/8"	4032-4212 (G)	2-59	
23F	221 Texas Pac. State V #4 1650' FNL & 2310' FWL	3689 DF	4306		8 5/8" 5 1/2"	28# 14#	332 4314	450 SX 300 SX	Circ.* 2940	12 1/4" 7 7/8"	4092-4236 (G)	3-59	
23K	231 Texas Pac. State V #5 2310' FSL & 2310' FWL	3690 DF	4330	4300	8 5/8" 5 1/2"	24# 15.5#	310 4330	350 SX 300 SX	Circ. 2630	12" 7 7/8"	4146-4256 (G)	6-59	
23N	241 Texas Pac. State V #6 990' FSL & 2310' FWL	3686 DF	4390	4360	8 5/8" 5 1/2"	24# 15.5#	339 4389	350 SX 300 SX	Circ.* 2815*	11" 7 7/8"	4119-4162 (G)	8-59	
23D	341 Wiser Morris A #1 330' FNL & 2310' FWL	3649 DF	4238		12 1/2" 7" 4 1/2"	50# 26# 9.5#	252 4066 4002	200 SX 468 SX 400 SX	Circ.* 1236* Circ.	16" 8 3/4" 6 1/4"**	4066-4202 (G) 4202-4238 (SA)	3-36	
23F	441 Wiser Morris B #1 330' FSL & 1090' FWL	3647 DF	4244		10 3/4" 7" 4 1/2"	36# 26# 9.5#	360 4097 4072	175 SX 400 SX 400 SX	Circ.* 2014* Circ.	13 1/2"** 9"** 6 1/4"**	4000-4218 (G) 4218-4244 (SA)	11-37	
26A	311 Wiser State L #1 330' FNL & 1980' FEL	3605 DF	4329	4310	8 5/8" 4 1/2"	24# 11.6#	353 4329	225 SX 625 SX	Circ. 2770	12 1/4" 7 7/8"	4220-4296 (G)	10-79	
23P	441 Yates Shell State #1 330' FSL & 990' FEL	3681 DF	4225		8 5/8" 5 1/2"	24# 15.5#	311 4225	160 SX 1300 SX	Circ.* Circ.*	11"** 7 7/8"**	4124-4160 (G) 4204-4224 (SA)	1-56	
23J	331 Yates Shell State #2 1650' FSL & 2310' FEL	3687 DF	4203	4210	8 5/8" 5 1/2"	24# 14#	341 4202	180 SX 1200 SX	Circ.* Circ.*	11"** 7 7/8"**	4148-4196 (G) 4226-4250 (SA)	4-56	
23O	341 Yates Shell State #3 1650' FSL & 990' FEL	3683	4302		8 5/8" 5 1/2"	- -	352 4302	180 SX 750 SX	Circ. 367*	12 1/2" 7 7/8"	4144-4228 (G)	5-56	
1	14P 441 Yates (Yeager) State #1 660' FSL & 660' FEL	3690	4150	4132	8 5/8" 4 1/2"	24# 40#	350 4149	275 SX 350 SX	Circ. 2790	12 1/4" 7 7/8"	4030-4126 (G)	6-75	

ACTIVE WELLS COMPLETED BELOW
THE HOBBS NORTH UNIT PRODUCING HORIZON

Sec. Unit	Operator/Lease Name/Well No. Location	Elev.	TD	PBTD	Casing Size	Wt.	Setting Depth	Amt. of Cmt.	TOC	Hole Size	Producing Interval	Completion Date	Recompletion Date
32S	Amerada Hess - "A" State #4 660' FNL & 2130' FEL	3654' GL	6000	5990	11 3/4" 8 5/8" 5 1/2" Lnr.	318 240 15.50	380 3810 3695/5998	300 SX 590 SX 325 SX	Circ.* 1700* 3695	15" 11" 7 7/8"	5912-5966 (Blinebry)	04-69	
32A	Amerada Hess - "A" State #5 660' FNL & 660' FEL	3660' DF	8044	6954	11 3/4" 8 5/8" 5 1/2" & 7" Lnr.	318 318 23, 15.50	381 3798 3701/6996	730 SX 990 SX 331 SX	Circ.* 2404* 3701*	15" 11" 7 7/8"	5905-5927 (Blinebry) 6674-6936 (Drinkard)	07-69	
29F	Pontotoc - "B" Hobbs St. #1 2130 FNL & 1650 FWL	3655' DF	7075	7061	9 5/8" 7" 4 1/2"	360 230 9.50	358 3850 7075	200 SX 250 SX 425 SX	Circ.* 2104* 5225*	12 1/4"** 8 1/2"** 6 1/4"**	6705-7030 (Drinkard)	01-71	
29G	Pontotoc - "B" Hobbs St. #2 2310' FNL & 1650' FEL	3654' DF	7050	7032	12 3/4" 8 5/8" 5 1/2"	508 248 15.50	356 3795 7050	400 SX 300 SX 475 SX	Circ.* 2723* 4614*	15"** 11"** 7 7/8"**	6680-6992 (Drinkard)	10-70	
33E	Amoco - "O" State #5 1980' FNL & 660' FWL	3657' KB	7040		13 3/8" 9 5/8" 7"	488 368 260	425 3958 7040	400 SX 550 SX 700 SX	Circ.* 2340* 2820*	17 1/2" 12 1/4" 8 5/8"	5856-5961 (Blinebry) 6829-6933 (Drinkard)	10-69	09-71
33F	Amoco - "O" State #6 1980' FNL & 1650 FWL	3660' DF	6009'	5972'	11 3/4" 8 5/8" 5 1/2"	420 329 140	420 3752 6009	340 SX 370 SX 400 SX	Circ. 2430* 3910*	17 1/2" 11" 7 7/8"	5930-5962 (Blinebry)		
29O	Chevron - "A" State #5 330' FSL & 2210' FEL	3653' DF	7023		11 3/4" 8 5/8" 5 1/2" Lnr.	420 320 200	364 3008 3578/7022	370 SX 300 SX 530 SX	Circ. 2736* 4302*	15" 11" 7 7/8"	5918-5968 (Blinebry) 6648-6730 (Drinkard)	07-69	
29P	Chevron - "A" State #6 330' FSL & 660' FEL	3646' GL	7015	6511	13 3/8" 9 5/8" 5 1/2" Lnr.	480 360 170	378 3888 2549/7012	400 SX 600 SX 700 SX	Circ.* 1236* 3420*	17 1/2" 12 1/4" 8 3/4"	5882-5939 (Blinebry)	10-69	
29H	Continental - "A-29" State #7 660' FNL & 1850' FWL	3653' DF	6050		11 3/4" 8 5/8" 5 1/2"	420 240 15.50	360 3500 6050	250 SX 240 SX 485 SX	Circ.* 2942* 3972*	15" 11" 7 7/8"	5823-5941 (Blinebry)	02-69	
29K	Continental - "A-29" State #8 2130' FSL & 1800' FWL	3655' DF	5960		11 3/4" 8 5/8" 5 1/2"	420 320 170	360 3000 5960	250 SX 340 SX 405 SX	Circ.* 2942* 3882	15" 11" 7 7/8"	5796-5924 (Blinebry)	04-69	
33L	Continental - "A-33" State #12 2175' FSL & 625' FWL	3649' DF	7018		13 3/8" 9 5/8" 7"	480 360 230	422 3750 7018	375 SX 325 SX 525 SX	Circ.* 2794* 3854*	17 1/2" 12 1/4" 8 3/4"	6668-6943 (Drinkard)	09-69	
30I	Exxon - "A" Bowers #1 1980' FSL & 660' FEL	3657' DF	6000		12 1/2" 9 5/8" 7" 4 1/2"	- - - -	205 2750 3982 6000	180 SX 620 SX 328 SX 275 SX	Circ.* 928* 778* 3606*	17" 11 1/2" 8 3/4" 6 1/4"	5812-5922 (Blinebry)	11-41	06-69 04-71
30P	Exxon - "A" Bowers #30 330' FSL & 660' FEL	3652' DF	6000		11 3/4" 8 5/8" 4 1/2"	318 240 9.50	362 3850 6000	300 SX 500 SX 550 SX	Circ.* 2062* 1210*	15"** 11"** 6 1/4"**	5849-5946 (Blinebry)	06-69	
29N	Exxon - HBA Bowers #28 660' FSL & 990' FWL	3650' DF	6000	5958	11 3/4" 8 5/8" 5 1/2"	420 320 15.50	373 3849 5989	300 SX 500 SX 450 SX	Circ.* 2061* 3681*	15" 11" 7 7/8"	5856-5928 (Blinebry)	04-69	
29L	Exxon - HBA Bowers #29 2150' FSL & 990' FWL	3654' DF	6000		11 3/4" 8 5/8" 4 1/2"	420 320 9.50	369 3850 6000	300 SX 500 SX 450 SX	Circ.* 2062* 2082*	15" ** 11"** 6 1/4"**	5831-5889 (Blinebry)	06-69	
29E	Exxon - HBA Bowers #31 1980' FNL & 660' FWL	3656' DF	7050		11 3/4" 8 5/8" 5 1/2"	420 320 170	372' 3836' 7038'	300 SX 500 SX 650 SX	Circ. 2300'(TS) 3690*	15" 11" 7 7/8"	6896-6958 (Drinkard)	07-69	
29J	Getty-Grimes #6 1879' FSL & 557' FEL	3659' DF	7050	7018	13 3/8" 9 5/8" 7"	480 360 230	377 3847 7049	400 SX 2100 SX 800 SX	Circ. Circ. 2100(TS)	17 1/2" 12 1/4" 8 3/4"	5940-6858 (Drinkard)	02/01/70	
30H	Getty - McKinley #8 2310' FNL & 430' FEL	3659' DF	6059	6057	13 3/8" 8 5/8" 5 1/2"	480 320 170	383 3842 6057	400 SX 1400 SX 350 SX	Circ. Circ.* 2000 (TS)	17 1/2" 11" 7 7/8"	5757-5901 (Blinebry)	06-69	
30G	Getty - McKinley #9 2235' FNL & 2310' FEL	3660' DF	7000	6970	13 3/8" 9 5/8" 7"	480 360 260	378 3851 7000	400 SX 1748 SX 450 SX	Circ.* Circ.* 3042*	17 1/2" 12 1/4" 8 3/4"	5823-5908 (Blinebry) 6927-6965 (Drinkard)	10-69	
30B	Getty - McKinley #10 405' FNL & 2272' FEL	3664' DF	6050	6045	13 3/8" 8 5/8" 5 1/2"	480 320 15.50	382 3849 6047	400 SX 1250 SX 570 SX	Circ. 600 (TS) 1500 (TS)	17 1/2" 11" 7 7/8"	5851-5951 (Blinebry)	11-69	
33H	Gulf - "B" Grimes #8 FNL &	3655' GL	7100	6935	13 3/8" 7"	480 230'	398 7100	650 SX SX 670 SX	Circ. 7510 (TS)	17 1/2"	6634-6850 (Drinkard)	02-75	

ACTIVE WELLS COMPLETED BELOW THE HOBBS [illegible] PRODUCING HORIZON

Sec. Unit	Operator/Lease Name/Well No. Location	Elev.	TD	PBTD	Casing Size	Casing Wt.	Casing Setting Depth	Casing Amt. of Cmt.	Casing TOC	Hole Size	Producing Interval	Completion Date	Recompletion Date
33B	Gulf - "B" State #7 450' FNL & 2160' FEL	3645' GL	7100	6643	13 3/8" 9 5/8" 7"	48# 36# 23#	368 3859 7099	400 SX 2000 SX 485 SX	Circ. Circ. 3635 (TS)	17 1/2"** 12 1/4"** 8 3/4"**	5848-5988 (Blinebry)	03-70	
32D	Gulf - "NCT-A" Grimes #16 800' FNL & 700' FWL	3636' GL	7050	7002	9 5/8" 7"	36# 23#	1497 7039	575 SX 2925 SX	Circ. Circ.	12 1/4"** 8 3/4"	5871-6083 (Blinebry)	08-68	
32C	Gulf - "NCT-A" Grimes #17 660' FNL & 1980' FWL	3645' GL	6150	5970	13 3/8" 9 5/8" 7"	48# 36# 23#	366 3399 6149	370 SX 1450 SX 545 SX	Circ. Circ.* 2510 (TS)	17 1/2" 12 1/4" 8 3/4"	5780-5949 (Blinebry)	11-68	
32F	Gulf - "NCT-A" Grimes #18 1650' FNL & 2080' FWL	3642' GL	6020	6000	13 3/8" 8 5/8" 5 1/2"	48# 32# 15.5#	351 3799 6019	335 SX 300 SX 595 SX	Circ.* 2727* 2470 (TS)	17 1/2" 11" 7 7/8"	5772-5928 (Blinebry)	02-69	
32J	Marathon - State #9 2130' FSL & 1980' FEL	3642' GL	7000	6260	13 3/8" 9.5/8" 7" Lnr.	48# 36# 23#	376 3799 3573/6998	360 SX 1140 SX 490 SX	Circ. 430 (TS) 4044*	17 1/2" 12 1/4" 8 3/4"**	5954-5968 (Blinebry)	01-70	
32I	Shell - "A" State #6 1930' FSL & 2310' FEL	3635' GL	6020	5952	13 3/8" 8 5/8" 5 1/2" Lnr.	48# 32# 15.5#	357 3820 3566/6020	350 SX 800 SX 500 SX	Circ. 2040* 3454*	17 1/2" 12 1/4" 7 7/8"**	5805-5929 (Blinebry)	04-69	
32H	Shell - "A" State #7 1930' FNL & 660' FEL	3646' DF	7020	6981	13 3/8" 8 5/8" 5 1/2" Lnr.	48# 24, 32# 15.5#	350 3790 3580/7015	350 SX 1300 SX 650 SX	Circ. 898* 3580	17 1/2" 12 1/4" 7 7/8"**	5829-5866 (Blinebry) 6659-6932 (Drinkard)	07-69	08-69
33D	Shell - "B" State #5 660' FNL & 660' FWL	3657' DF	7000	5497	13 3/8" 9 5/8" 7" Lnr.	48# 36# 23#	360 3799 3597/7000	350 SX 1850 SX 688 SX	Circ. Circ.* 3597*	17 1/2"** 12 1/4"** 8 3/4"**	5856-5975 (Blinebry) 5389-5462 (Paddock)	08-69	10-74
33C	Shell - "B" State #6 660' FNL & 1980' FWL	3654' DF	7100	7062	13 3/8" 9 5/8" 7" Lnr.	48# 36# 23#	350 3815 3609/7100	300 SX 1400 SX 805 SX	Circ.* Circ.* 3609*	17 1/2" 12 1/4" 8 3/4"	5948-5956 (Blinebry) 6639-6931 (Drinkard)	12-69	
28M	Shell - Grimes #9 731' FSL & 731' FWL	3657' DF	7102	7065	13 3/8" 9 5/8" 7" Lnr.	48# 36# 23#	372 3787 3513/7102	350 SX 1400 SX 720 SX	Circ.* Circ.* 3513*	17 1/2"** 12 1/4"** 8 3/4"**	5892-5979 (Blinebry) 6629-6956 (Drinkard)	10-69	
28N	Shell - Grimes #11 750' FSL & 1790' FWL	3655' DF	6350	6000	13 3/8" 9 5/8" 7" Lnr.	48# 36# 23#	348 3805 3602/6350	250 SX 1400 SX 497 SX	Circ. Circ.* 3602	17 1/2" 12 1/4" 8 3/4"	5890-5967 (Blinebry)	10-69	
25P	Rice Hobbs SWD #P-25 330' FSL & 330' FEL	3661' KB	4753		12 1/2" 9 5/8" 7" 5"	50# 36# 26# 15#	209' 600/2736' 2400/4110 4753	250 SX 650 SX 350 SX 1200 SX	Circ. 340	15"** 12"** 8 3/4"** 6 1/2"**	4446-4735	12-58	03-77
29F	Rice Hobbs SWD #P-29 1880' FNL & 1742' FWL	3653.8' KB	5052		9 5/8" 7"	32.3# 20#	450' 4706'	300 SX 600 SX	Circ. 1900'. (TS)	12 1/4" 8 3/4"	4706-5052' (6 1/4" OH)	08-60	

OUTSIDE WELLS LOCATED WITHIN ONE-HALF MILE OF THE PROPOSED NORTH HOBBS UNIT BOUNDARY

*Calculated
**Estimate

Sec. Unit	Operator/Lease Name/Well No. Location	Elev.	TD	PBTD	Casing Size	Wt.	Setting Depth	Amt. of Cmt.	TOC	Hole Size	Producing Interval
	Amoco Production Co. South Hobbs Unit										
34D	#1 660' FNL & 660' FWL	3641' DF	4246		16"	70#	224	100 SX	Circ.*	18"**	4080-4220 (G-SA)
					10 3/4"	45.5#	1647	350 SX	555*	13"**	4221-4246 (G-SA Open Hole)
					7"	24#	3976	150 SX	Circ.	8 7/8"**	
					5" Lnr.	18#	3872/4221	50 SX	3872	6 1/4"**	
34E	#2 660' FWL & 1980' FNL	3641' DF	4220		16"	70#	232	100 SX	Circ.*	18"**	4050-4218 (G-SA)
					10 3/4"	45.5#	2776	400 SX	1528*	13"**	
					8 5/8"	36#	3975	150 SX	Circ.	9 5/8"**	
					5 1/2" Lnr.	14#	3919/4220	188 SX	3919*	7 7/8"**	
					5 1/2"		Surf/3919				
34L	#3 1980' FSL & 560' FWL	3629' DF	4240		16"	70#	216	125 SX	Circ.*	18"**	4078-94 (G-SA)
					10 3/4"	45.5#	2748	400 SX	1500*	13"**	4220-40 (G-SA)
					8 5/8"	36#	3962	150 SX	Circ.	9 5/8"**	
					5 1/2" Lnr.	14#	3927/4222	75 SX	3927	7 7/8"**	
					5 1/2"		Surf/3927				
34K	#4 2004' FSL & 1740' FWL	3626' DF	4232		16"	70#	226	75 SX	42*	18"**	4045-4206 (G-SA)
					10 3/4"	40#	1637	75 SX	1403*	13"**	4211-4232 (G-SA Open Hole)
					8 5/8"	36#	3990	250 SX	1707*	9 5/8"**	
					5 1/2"	14#	4211	800 SX	740	7 3/8"	
33P	#5 660' FSL & 660' FEL	3631' DF	4241		16"	70#	209	125 SX	Circ.*	18"**	4063-4208 (G-SA)
					10 3/4"	45.5#	2752	400 SX	1504*	13"**	4220-4241 (G-SA Open Hole)
					8 5/8"	36#	3946	140 SX	1750	9 5/8"**	
					5 1/2"	14#	4220	300 SX	2543*	7 3/4"**	
34M	#6 653' FSL & 633 FWL	3622' GL	4241		16"	70#	196	75 SX	12*	18"**	4065-4207 (G-SA)
					10 3/4"	45.5#	2541	500 SX	981*	13"	4207-4241 (G-SA Open Hole)
					8 5/8"	36#	3985	250 SX	Circ.	9 5/8"	
					5 1/2" Lnr.	14#	3884/4207	750 SX	Circ.	7 7/8"**	
					5 1/2"		Surf/3884				

*Calculated
**Estimate

Sec. Unit	Operator/Lease Name/Well No. Location	Elev.	TD	PBTD	Casing Size	Wt.	Setting Depth	Amt. of Cmt.	TOC	Hole Size	Producing Interval
	Amoco Production Co. **South Hobbs Unit**										
34N	#7 1980' FWL & 660' FSL	3613' DF	4218		16"	70#	200	75 SX	16*	18"**	4106-4190 (G-SA)
					10 3/4"	40#	1622	75 SX	1260*	12 1/4"	4199-4218 (G-SA Open Hole)
					8 5/8"	36#	3990	150 SX	Circ.	9 7/8"	
					5 1/2"	14#	4199	700 SX	729	7 7/8"**	
6D	#8 330' FNL & 933' FWL	3643' GL	4272	4240	8 5/8"	22.7#	322	250 SX	Circ.	11"	4154-4220 (G-SA)
					5 1/2"	14#	4272	650 SX	861*	7 7/8"	
6C	#9 330' FNL & 2310' FWL	3642' DF	4221	4191	15 1/2"	70#	200	175 SX	Circ.*	18"**	4062-4172 (G-SA)
					10 3/4'	40.5#	2777	400 SX	1777*	13 1/2"**	
					7"	24#	3926	250 SX	2414*	8 3/4"**	
					5" Lnr.	15#	3802/4221	100 SX	3802	6 1/4"**	
6B	#10 480' FNL & 1650' FEL	3638' DF	4108		13 3/8"	36#	362	300 SX	Circ.*	17 1/2"	3980-4074 (G-SA)
					5 1/2"	15.5#	4095	1250 SX	Circ.*	7 7/8"	4095-4108 (G-SA Open Hole)
6A	#11 330' FNL & 330' FEL	3628' DF	4232		12 1/4"	-	214	75 SX	94*	16"**	4127-4214 (G-SA)
					9 5/8"	-	2810	500 SX	975*	11 3/4"**	
					7"	24#	3968	300 SX	1999*	8 5/8"**	
					4 1/2" Lnr.	9.5#	3795/4232	80 SX	3795	6 1/4"**	
5D	#12 330' FNL & 330' FWL	3629'DF	4201		16"	70#	185	75 SX	Circ.*	18"**	3974-4201 (G-SA Open Hole)
					10 3/4"	45#	2782	350 SX	1907*	13 1/2"**	
					6 5/8"	26#	3974	150 SX	3209*	8 3/4"**	
					7"	20#	1700				
5C	#13 330' FNL & 2360' FWL	3628' DF	4230		16"	70#	162	55 SX	27*	18"**	4058-4173 (G-SA)
					10 3/4"	45.5#	2749	300 SX	1999*	13 1/2"**	4190-4230 (G-SA Open Hole)
					6 5/8"	26#	3920	150 SX	Circ.	8 3/4"**	
					5"	15#	4190	750 SX	Circ.*	6 1/4"**	

*Calculated
**Estimate

Sec. Unit	Operator/Lease Name/Well No. Location	Elev.	TD	PBTD	Casing Size	Wt.	Setting Depth	Amt. of Cmt.	TOC	Hole Size	Producing Interval
	Amoco Production Co. South Hobbs Unit										
5B	#14 2317' FEL & 334' FNL	3626' DF	4175	4172	13"	50#	201	150 SX	40*	18"	4100-4165 (G-SA)
					9 5/8"	36#	2761	500 SX	1310*	12 1/4"	
					7"	26#	3930	230 SX	Circ.	8 7/8"	
					5 1/2"	15.5#	4175	50 SX	2900	6 1/4"	
5A	#15 660' FNL & 660' FEL	3628' DF	4225		13 3/8"	50#	192	150 SX	Circ.*	18"	4030-4175 (G-SA)
					9 5/8"	36#	2746	500 SX	1295*	12 1/4"**	4175-4225 (G-SA Open Hole)
					7"	26#	3984	225 SX	2724*	8 7/8"**	
					5 1/2"	15.5#	4175	50 SX	3700	6 1/2"**	
4D	#16 660' FNL & 660' FWL	3626' DF	4225		16"	70#	251	135 SX	Circ.*	18"**	4198-4225 (G-SA Open Hole)
					9 5/8"	40#	2798	700 SX	766*	12 1/4"**	
					6 5/8"	26#	3976	200 SX	Circ.	8 3/4"**	
					5" Lnr.	18#	3886/4198	75 SX	3886*	6 1/4"**	
4C	#17 660' FNL & 1980' FWL	3629' DF	4231		16"	70#	201	125 SX	46*	19 3/4"	4212-4231 (G-SA Open Hole)
					10 3/4"	45.5#	2754	400 SX	1754*	13 1/2"**	
					8 5/8"	36#	3976	150 SX	2895*	9 7/8"**	
					5 1/2" Lnr.	17#	3900/4212	75 SX	3900*	7 3/8"**	
					5 1/2"		Surf/3900				
4B	#18 660' FNL & 1980' FEL	3626' DF	4231		16"	70#	207	125 SX	Circ.*	18"**	4068-4200 (G-SA)
					10 3/4"	45.5#	2740	400 SX	1740*	13 1/2"**	4215-4231 (G-SA Open Hole)
					8 5/8"	36#	3950	135 SX	2977*	9 7/8"**	
					5 1/2" Lnr.	14#	3882/4215	82 SX	3882*	7 7/8"	
4A	#19 660' FNL & 660' FEL	3623' DF	4233		16"	70#	211	125 SX	Circ.*	18"**	4064-4170 (G-SA)
					10 3/4"	45.5#	2752	400 SX	1752*	13 1/2"**	4200-4233 (G-SA Open Hole)
					8 5/8"	36#	3952	150 SX	2871*	9 7/8"**	
					5 1/2" Lnr.	14#	2645/4200	300 SX	2645*	7 3/8"	

*Calculated
**Estimate

Sec. Unit	Operator/Lease Name/Well No. Location	Elev.	TD	PBTD	Casing Size	Wt.	Setting Depth	Amt. of Cmt.	TOC	Hole Size	Producing Interval
	Amoco Production Co. South Hobbs Unit										
3D	#20 660' FNL & 660' FWL	3621' DF	4230		16" 10 3/4" 8 5/8" 5 1/2" Lnr. 5 1/2"	70# 45.5# 36# 15.5#	203 2792 3964 3902/4204 Surf/3902	125 SX 400 SX 150 SX 75 SX	Circ.* 1792* 2883* 3902*	18"** 13 1/2"** 9 7/8"** 7 7/8"**	4070-4204 (G-SA) 4204-4230 (G-SA Open Hole)
3C	#21 663' FNL & 1935' FWL	3620' DF	4283	4281	8 5/8" 5 1/2"	24# 15.5#	303 4283	250 SX 675 SX	Circ.* 741*	12 1/4" 7 7/8"	4023-4280 (G-SA)
3C	#22 660' FNL & 1980' FWL	3615' DF	4198		16" 10 3/4" 8 5/8" 5 1/2" Lnr. 5 1/2"	70# 40# 36# 15.5#	207 1630 4003 3878/4193 Surf/3878	75 SX 75 SX 150 SX 75 SX	23* 1441* 2922* 3878*	18"** 13 1/2"** 9 7/8"** 7 7/8"**	4176-4186 (G-SA) 4193-4198 (G-SA Open Hole)
3B	#23 660' FNL & 2310' FEL	3617' DF	4240		12 1/2" 7" 5"	50# 22# 13#	208 4055 4200	150 SX 500 SX 840 SX	Circ.* 1031* Circ.*	16"** 8 3/4"** 6 1/4"	4048-4190 (G-SA) 4200-4240 (G-SA Open Hole)
3A	#24 620' FNL & 1293' FEL	3605' GL	4234	4223	9 5/8" 5 1/2" 4 1/2"	36# 14# 12.6#	194 4114 4176	175 SX 500 SX 96 SX	Circ.* 1490* Circ.	12 1/4"** 7 7/8"** 5"**	4134-4168 (G-SA) 4176-4223 (G-SA Open Hole)
6F	#25 1650' FNL & 2310' FWL	3648' KB	4322	4290	8 5/8" 5 1/2"	24# 14#	304 4322	200 SX 1780 SX	Circ. 950	11" 7 7/8"	4108-4214 (G-SA)
6H	#26 1650' FNL & 480' FEL	3641' KB	4215		10 3/4" 7" 4 1/2" Lnr.	40.5# 24# 9.5#	361 4074 3969/4199	300 SX 800 SX 50 SX	Circ.* Circ.* 3964*	13 1/2"** 8 3/4"** 6 1/4"**	4133-4180 (G-SA) 4199-4215 (G-SA Open Hole)

*Calculated
**Estimate

Sec. Unit	Operator/Lease Name/Well No. Location	Elev.	TD	PBTD	Casing Size	Wt.	Setting Depth	Amt. of Cmt.	TOC	Hole Size	Producing Interval
	Amoco Production Co.										
	South Hobbs Unit										
5E	#27	3629' KB	4312	4183	13"	50#	200	200 SX	Circ.*	17 1/2"**	4092-4172 (G-SA)
	1980' FNL & 660' FWL				9 5/8"	36#	2792	500 SX	1169*	12"**	
					7"	20#	4019	300 SX	2205*	8 3/4"**	
					4 1/2" Lnr.	9.5#	3966/4190	35 SX	3966*	6 1/4"**	
5F	#28	3624' DF	4226	4180	13"	50#	212	150 SX	30*	17 1/2"**	3966-4174 (G-SA)
	1980' FNL & 1980' FWL				9 5/8"	40#	2780	300 SX	1806*	12"**	
					6 5/8"	26#	3950	150 SX	3185*	8 3/4"**	
					4 1/2" Lnr.	9.5#	3854/4183	150 SX	3854*	6 1/4"**	
5G	#29	3634' KB	4220		13 3/8"	50#	175	175 SX	Circ.	15"	4106-4190 (G-SA)
	1980' FNL & 1980' FEL				9 5/8"	40#	2744	500 SX	1293*	12 1/4"	4200-4220 (G-SA Open Hole)
					7"	26#	3932	230 SX	2644*	8 7/8"	
					5 1/2"	14#	4200	50 SX	3254*	6 1/4"	
5H	#30	3620' DF	4175		13"	50#	192	150 SX	Circ.	17 1/2"**	4089-4162 (G-SA)
	1980' FNL & 660' FEL				9 5/8"	36#	2750	500 SX	1127*	12"**	4169-4175 (G-SA Open Hole)
					7"	26#	3950	215 SX	2650*	8 3/4"**	
					5 1/2"	15.5#	4169	50 SX	3223*	6 1/4"**	
4E	#31	3612' DF	4275		13"	50#	259	106 SX	130*	17 1/2"**	3975-4207 (G-SA)
	2310' FNL & 990' FWL				9 5/8"	45#	2785	300 SX	1811*	12"**	4215-4275 (G-SA Open Hole)
					6 5/8"	26#	3993	135 SX	Circ.	8 1/4"**	
					5" Lnr.	15.5#	3947/4215	75 SX	3947*	6 1/4"**	
4F	#32	3614' KB	4244	4210	13"	50#	253	180 SX	Circ.*	17 1/2"**	4078-4198 (G-SA)
	1980' FNL & 1980' FWL				9 5/8"	45#	2772	300 SX	1798*	12"**	4199-4210 (G-SA Open Hole)
					6 5/8"	26#	3997	135 SX	3066*	8 1/4"**	
					5" Lnr.	18#	3936/4199	75 SX	3936*	6 1/4"**	

*Calculated
**Estimate

Sec. Unit	Operator/Lease Name/Well No. Location	Elev.	TD	PBTD	Casing Size	Wt.	Setting Depth	Amt. of Cmt.	TOC	Hole Size	Producing Interval
	Amoco Production Co. South Hobbs Unit										
4G	#33 2310' FNL & 1650' FEL	3623' KB	4255		16"	70#	152	360 SX	Circ.*	18"**	4006-4248 (G-SA)
					10 3/8"	45.5#	1523	75 SX	1354*	13 1/2"**	
					8 5/8"	36#	3259	60 SX	2827*	9 7/8"**	
					6 5/8"	26#	3952	50 SX	3492*	7 7/8"**	
					4 1/2" Lnr.	10.23#	3868/4254	75 SX	3460*	6"**	
4H	#34 1980' FNL & 660' FEL	3617' DF	4206		16"	70#	199	75 SX	Circ.*	18"**	4066-4203 (G-SA)
					10 3/4"	40#	1570	75 SX	1383*	13 1/2"**	
					8 5/8"	36#	3961	150 SX	2880*	9 7/8"**	
					5 1/2"	15.5#	4206	675 SX	664*	7 7/8"**	
3E	#35 1980' FNL & 660' FWL	3613' DF	4239		16"	70#	216	100 SX	Circ.*	18"**	4010-4212 (G-SA)
					10 3/4"	40#	2790	450 SX	1665*	13 1/2"**	4210-4239 (G-SA Open Hole)
					8 5/8"	36#	3990	150 SX	2909*	9 7/8"**	
					5 1/2"	14#	4210	650 SX	Circ.	7 7/8"**	
3F	#36 1980' FNL & 1980' FWL	3617' DF	4202	4197	13 3/8"	61#	214	135 SX	37*	17 1/2"**	4120-4195 (G-SA)
					9"	34#	1653	350 SX	727*	12"	
					7"	24#	4111	150 SX	2642*	8 1/8"	
					5 1/2" Lnr.	15.5#	3977/4202	50 SX	3977*	6 1/4"**	
					5 1/2"		Surf/3977				
3G	#37 1980' FNL & 2310' FEL	3615' KB	4290		12"	50#	250	175 SX	Circ.*	16"**	4067-4164 (G-SA)
					7"	22#	4147	500 SX	865*	8 5/8"**	4180-4290 (G-SA Open Hole)
					5"	13#	4180	300 SX	624*	6 1/4"**	
3H	#38 2205' FNL & 1293' FEL	3610' DF	4233		9 5/8"	36#	196	175 SX	Circ.*	12 1/4"**	4132-4233 (G-SA Open Hole)
					5 1/2"	14#	4132	500 SX	1508*	7 7/8"**	

*Calculated
**Estimate

Sec. Unit	Operator/Lease Name/Well No. Location	Elev.	TD	PBTD	Casing Size	Wt.	Setting Depth	Amt. of Cmt.	TOC	Hole Size	Producing Interval
	Amoco Production Co.										
	South Hobbs Unit										
6G	#113	3628' GL	4168	4141	8 5/8"	24#	321	250 SX	Circ.*	12 1/4"**	3988-4067 (G-SA)
	1650' FNL & 1650' FEL				5 1/2"	15.5#	3279	800 SX	Circ.*	7 7/8"**	
					4" Lnr.	11.34#	3042/4112	130 SX	627*	5"**	
33P	State "A-3" #27	3634' GL	3220		9 5/8"	32.2#	338	250 SX	Circ.*	12 1/4"**	3160-3220 Open Hole)
	760' FSL & 610' FEL				5 1/2"	15.5#	3160	700 SX	Circ.*	7 3/8"	
4C	State "A" #11-X	3639' DF	8160	7370	13 3/8"	54.5#	1544	825 SX	Circ.	17 1/2"	3172-3224
	810' FNL & 2030' FWL				9 5/8"	32.3#	4434	815 SX	1789*	12"	
					5 1/2"	15.5#	7365	200 SX	5188*	6 3/4"	
	Moranco										
18E	Hardin B #1	3678' DF	4128		8 1/2"	24,32#	325	200 SX	Circ.*	11"**	4020-4098 (G-SA)
					5 1/2"	14#	4135	1850 SX	Circ.*	7 7/8"**	
18F	Hardin B #2	3676' DF	4130	4074	8 5/8"	24#	228	175 SX	Circ.*	11"**	4018-4065' (G-SA)
					5 1/2"	14#	4143	250 SX	2831*	7 7/8"**	
18D	Hardin B #3				8 5/8"	28#	256	200 SX	Circ.*	11"**	4066-4146' (G-SA)
	(Injector)				4 1/2"	9.5#	4169	400 SX	2070*	7 7/8"**	
18C	Hardin B #4				8 5/8"	28#	222	200 SX	Circ.*	11"**	4087-4162 (G-SA)
					4 1/2"	11.6#	4194	400 SX	2095*	7 7/8"**	
13H	Rice #1				8 5/8"	28#	268	200 SX	Circ.*	11"**	4022-4135 (G-SA Open Hole)
	(Injector)				5 1/2"	14#	4018	300 SX	2444*	7 7/8"**	
13G	Rice #2				8 5/8"	24#	270	200 SX	Circ.*	11"**	4035-4141 (G-SA Open Hole)
					5 1/2"	14#	4034	300 SX	2460*	7 7/8"**	

*Calculated
**Estimate

Sec. Unit	Operator/Lease Name/Well No. Location	Elev.	TD	PBTD	Casing Size	Wt.	Setting Depth	Amt. of Cmt.	TOC	Hole Size	Producing Interval
	Moranco										
13A	Rice #3				8 5/8"	24#	296	200 SX	Circ.*	11"**	4051-4198 (G-SA Open Hole)
					5 1/2"	14#	4055	300 SX	2481*	7 7/8"**	
13B	Rice #4 (Injector)				8 5/8"	24#	299	175 SX	Circ.*	11"**	4040- (G-SA Open Hole)
					5 1/2"	15.5#	4040	250 SX	2728*	7 7/8"**	

NORTH HOBBS (G/SA) UNIT
P&A + D&A WELLS WHICH
PENETRATE THE INJECTION ZONE

Sec, Unit	Operator/Lease Name/Well No. Location	Elev.	TD	PBTD	Casing Size	Casing Wt.	Casing Setting Depth	Casing Amt. of Cmt.	Casing TOC	Hole Size	Produced Interval	Completion Date	Date of Abandonment
29F	Amerada - Hobbs State #5 2280' FNL & 1980' FWL	3655' GL	5986	P&A	9 5/8" 7" 4 1/2"	36# 23# 11.6#	344 3826 5986	200 SX 140 SX 185 SX	Circ.* 2975* 4360*	11 1/4" 8 3/4" 6 1/4"	5833-5979' (Blinebry)	01-71	05-11-71
36I	Amerada - State "B" #1 2310' FSL & 330' FEL	3654' GL	4235	P&A	7" 4 1/2"	23# 10.5, 11.6#	1555 4235	400 SX 300 SX	Circ. 2750 (TS)	8 3/4" 6 1/4"	4138-4244 (G/SA)	12-68	10-27-70
28F	Arco - Grimes #2 1650' FWL & 2350' FNL	3654' GL	4243	P&A	15 1/2" 10" 6 5/8"	70# 45# 24#	233 2702 3974	200 SX 700 SX 250 SX	Circ.* 1945* 3270*	18"** 13"** 8 1/2"**	3914-4143 (G/SA)	12-32	04-18-59
29F	Chevron - State "A" #1 992' FSL & 988' FEL	3651' GL	4090	3260	13 3/8" 9" 6 5/8"	48# 45# 24#	217 2735 3907	200 SX 500 SX 357 SX	Circ.* 1405* 1813*	16" 12" 8 1/4"**	3907-4090 (G/SA) Producing From Bowers	08-30	10-14-46
29O	Chevron - State "A" #2 990' FSL & 1650' FEL	3631' GL	4171	3060	13 3/8" 9 5/8" 7"	30# 36# 30#	242 2822 3951	150 SX 725 SX 300 SX	70* 669* 2137*	18" 12" 8 3/4"	3155-3175 (G/SA) 3951-4170 (G/SA) Producing From Bowers	09-30	1946
13K	Continental - State "B-136" 3 3300' FNL & 3300' FEL	3684' DF	4245	D&A	13" 9 5/8" 7"	50# 36# 24#	274 1622 3951	200 SX 400 SX 400 SX	Circ.* 438* 1149*	16"** 12 1/4"** 8 1/2"**	3290-3309 (Bowers) 3931-4245 (G/SA)	06-36	06-03-36
13D	Continental - State "B" - 13 #7 660' FNL & 660' FWL	3686' DF			Not drld; cancelled 11-13-57								
13D	Continental - North Hobbs Unit #1 660' FNL & 660' FWL	3686' DF	8877	D&A	13 3/8" 9 5/8"	48# 36, 40#	330 5134	375 SX 840 SX	Circ.* 2700*	17 1/2" 12 1/4"	5134-8877 (D&A)	05-60	05-26-60
14P	Estes Engr. - Stanolind St. #1-A 330' FSL & 330' FEL	3677' DF	4135	P&A	10 3/4" 7"	40.5# 20#	265 3911	200 SX 150 SX	Circ.* 3539*	15" 10 3/4"	3911-4135 (G/SA)	12-52	01-06-65
29D	Exxon - Bowers "B" Fed. #1 330' FNL & 330' FWL	3636' DF	4186	P&A	15 1/2" 9 5/8" 7"	70# 36# 26#	235 2716 3987	225 SX 650 SX 300 SX	Circ.* 830* 1840*	18"** 12 1/4"** 8 1/2"**	3987-4186 (G/SA)	11-32	12-21-71
28J	Exxon - Bowers "B" #2 330' FSL & 330' FWL	3647' DF	4247	P&A	15 1/2" 10 3/4" 7"	70# 40# 26#	225 2810 4050	225 SX 700 SX 300 SX	Circ.* 750* 1950*	18"** 13 1/2"** 8 1/2"**	4050-4247 (G/SA)	12-32	05-06-46
29A	Exxon - Grimes #2 990' FNL & 660' FWL	3644' GL	4045	D&A	8 5/8" 5 1/2"	32# 14, 17#	100 3205	150 SX 450 SX	Circ.* 765*	11" 7 7/8"	3205-4045 (Bowers G/SA)	03-17-48	03-23-48
18E	Exxon - Boon Hardin #1 990' FNL & 330' FWL	——	4720	D&A	15 1/2" 9 5/8" 7"	70# 36# 26#	222 2820 4010	225 SX 650 SX 300 SX	Circ.* 910* 1910*	18"** 12 1/4"** 8 1/2"**	4010-4720 (G/SA)	05-11-33	05-15-33
20P	C. H. Sweet - Bowers "B" Fed. #3 330' FSL & 990' FEL	3645' GL	4226	P&A	15 1/2" 9 5/8" 7"	70# 36# 26#	250 2820 4015	225 SX 650 SX 300 SX	Circ.* 910* 1915*	18"** 12 1/4"** 8 1/2"**	4015-4226 (G/SA)	02-33	09-01-49
20P	C. H. Sweet - Bowers "B" Fed. #3-A 330' FSL & 150' FEL	3647' DF	4230	P&A	10 3/4" 7"	40# 20#	258 4138	150 SX 600 SX	Circ. 522*	13 1/2"** 8 3/4"**	4138-4230 (G/SA)	02-54	08-09-60
25J	Exxon - State "A" #3 1980' FEL & 1980' FSL	3667' DF	4220	P&A	12 1/2" 9 5/8" 7"	50# 36# 26#	207 2823 4100	250 SX 650 SX 350 SX	Circ.* 907* 1660*	14"** 12 1/4"** 8 1/2"**	4100-4220 (G/SA)	11-30	03-18-47
30O	Exxon - "A" Bowers #32 330' FSL & 1980' FEL	3646' GL	7075	P&A	13 3/8" 9 5/8" 3 1/2" 3 1/2"	48# 36# 7.7# 7.7#	385 3850 6140 7053	400 SX 550 SX 895 SX	Circ.* 610* 5620*	17 1/2" 11" 8 3/4" 8 3/4"	5825-5891 (Drinkard) 6976-6982 "	10-69	09-14-72
30J	Exxon - "A" Bowers #34 1980' FSL & 2120' FEL	3653' GL	7010	P&A	13 3/8" 9 5/8" 3 1/2" 3 1/2"	48# 36# 7.7# 7.7#	401 3850 6100 7010	400 SX 550 SX 895 SX	150* 3040* 6144*	17 1/2" 12 1/4" 8 3/4" 8 3/4"	5822-5828 (Drinkard) 6718-6979	09-69	09-26-72
29E	Exxon - USA Bowers #9 2310' FNL & 990' FWL	3654' DF	4200	P&A	12 1/2" 9 5/8" 7"	50# 36# 26#	226 2736 3976	650 SX 650 SX 300 SX	Circ.* 351* 1825*	14"** 11 3/4"** 8 1/2"**	3976-4200 (G/SA) 3222-27 (Bowers/7 Riv.)	09-30	01-02-62
29B	Exxon - USA Bowers #33 800' FNL & 660' FWL	3657' DF	6000	P&A	13 3/8" 9 5/8" 7"	48# 36# 23#	416 3850 5988	400 SX 550 SX 550 SX	Circ.* 3040* 2672*	17" 12 1/4"** 8 3/4"	5915-5953 (Blinebry)	07-69	10-03-72
14P	Getty - State "B" No. 3 2310' FNL & 2310' FWL	3688' DF	4324	D&A	8 5/8" 5 1/2"	24# 15.5#	341 4324	300 SX 600 SX	Circ.* 1096*	11" 7 7/8"	4219-4232 (G/SA)	01-60	08-27-60
29H	Getty - Grimes #5 1650' FNL & 990' FEL	3647' GL	4196	P&A	12 1/2" 9 5/8" 7"	50# 36# 24#	228 2735 3880	250 SX 600 SX 400 SX	Circ. 1173* 1084*	14"** 12 1/4"** 8 1/2"**	3880-4196 (G/SA)	12-30	06-29-50
29H	Getty - Grimes #2 2310' FNL & 990' FEL	3650' GL	4175	P&A	13" 9 5/8" 7"	70# 36# 24#	230 2718 3880	200 SX 600 SX 300 SX	Circ.* 954* 1284*	18"** 12 1/4"** 8-1/2"**	3880-4175 (G/SA)	9-30	07-03-51

Sec, Unit	Operator/Lease Name/Well No. Location	Elev.	TD	PBTD	Casing Size	Wt.	Setting Depth	Amt. of Cmt.	TOC	Hole Size	Produced Interval	Completion Date	Date of Abandonment
29J	Getty - Grimes WO #1 1650' FSL & 990' FEL	3650' GL	4160	P&A	12 1/2" 9 5/8" 8 5/8"	50# 36# 24#	236 2712 3826	200 SX 600 SX 300 SX	Circ.* 548* 3000*	14"** 12 1/4"** 8 1/4"**	3826-4200 (G/SA)	08-30	07-25-68
31B	Gulf - Morris #1 761' FNL & 2310' FEL	---	4355	P&A	10 3/4" 7	40# 24#	249 4085	155 SX 450 SX	Circ.* 961*	13" 8 1/4"	4083-4295 (G/SA)	10-42	10-27-43
21K	Gulf - North Grimes #4 1350' FSL & 1350' FWL	3645' GL	4225	P&A	15" 7"	40# 24#	247 4126	150 SX 1300 SX	Circ.* Circ.*	18" 9 7/8"	4126-4225 (G/SA)	04-46	02-08-69
21G	Gulf - Gertrude Morris #1 1980' FNL & 1980' FEL	3640' GL	11,211	D&A	13 3/8" 9 5/8" 5 1/2" Lnr	48# 36# 4287/6250	255 4899 500 SX	300 SX 2820 SX	Circ.* Circ.*	17 1/2" 12 1/4" 7 1/2"**	3688-3855 4250-4495 (G/SA) 6153-6181	11-56	01-11-57
32C	Gulf - Grimes (HCC-A) #4 330' FNL & 2310' FWL	3640' GL	4153	P&A	15 1/2" 9 5/8" 6 5/8"	70# 36# 24#	220 2742 3931	200 SX 600 SX 400 SX	Circ. 930* 1890*	18"** 12 1/4"** 8 1/4"**	3630-3700 (G/SA)	08-30	08-21-60
30M	Marathon - St. Land Sec. 30 #4 330' FSL & 330' FWL	3662' DF	4215	P&A	16" 9 5/8" 7"	65.3# 40# 24#	260 2750 3946	225 SX 500 SX 350 SX	Circ.* 1280* 1500*	18"** 12 1/4"** 8 1/2"**	3946-4215 (G/SA) 3758-3850	11-30	01-25-57
32J	Marathon - St. Land Sec. 32 #1 2970' FNL & 1650' FEL	3636' GL	4176	P&A	12 1/2" 10 3/4" 7" 5"	50# 41# 24# 15#	1482 2776 3850 3244	175 SX 200 SX 275 SX 360 ex.	1264* 2242* /192* 178*	17"** 13 1/2"** 8 5/8"** 6-1/4"**	3264-4176 (Bowers - G/SA) 3160-3203 (Bowers)	04-48	07-21-58
20O	Morton - SN - 20 #1 1650' FNL & 1650' FEL	3656' DF	6175	D&A	8 5/8"	24#	305	225 SX	Circ.	12 1/4"	D&A (Ellenburg)	03-62	10-08-62
30B	Shell St. "A" #1 2310' FNL & 1650' FEL	3638' GL	4175	3745	12 1/2" 9" 7"	50# 35# 24#	222 2755 3850	135 SX 600 SX 200 SX	15* 1065* 3062*	16"** 10 1/2"** 8-5/8"**	3850-4175 Producing From Byars Queen Can	06-16-30	08-20-41
19I	Shell - McKinley "A" #8 2310' FNL & 1330' FEL	3659' DF	4270	P&A	12 1/2" 9 5/8" 7" 4 1/2" Lnr.	50# 36# 24# 11.6#	235 2810 3970 3850/4237	300 SX 600 SX 225 SX 70 SX	Circ.* 1046* 2398* 3699*	17"** 12 1/4"** 8 1/2"** 6"**	3970-4210 (G/SA) 4237-4270 (G/SA) 3740-3841	09-30	04-17-63
19J	Shell - McKinley "A" - 19 #1 2310' FSL & 1650' FEL	3655' DF	9550	D&A	13 3/8" 9 5/8"	48# 36, 40#	480 4498	351 2500 SX	Circ.* Circ.*	17" 12 1/4"	4498-9550 3260-3301 (Bowers)	D&A 08-26-62	02-19-63
17D	Shell - State "BE" #1 990' FNL & 330' FWL	3667' DF	4360	D&A	7 5/8" 4 1/2"	24# 11.6#	266 4360	230 SX 350 SX	Circ. 2074*	9 7/8" 6 3/4"	-	01-62	03-30-62
14P	Shell - State "E" #1 4620' FNL & 330' FEL	3686' DF	4180	P&A	12 1/2" 9 5/8" 7"	50# 36# 24#	229 1612 4014	150 SX 650 SX 280 SX	65* Circ.* 2326*	17" 12" 8 3/4"	4014-4180 (G/SA)	01-36	12-21-38
23A	Shell - State "F" #1 660' FNL & 330' FEL	3673' DF	4150	P&A	8 5/8" 4 1/2"	32# 9.5#	1592 4099	525 SX 150 SX	Circ.* 3249*	11" 6 3/4"	4099-4122 (G/SA) 3300-3350 (Bowers) 2765-2860	09-48	10-15-57
27O	Shell - Saegal #1 (King) 4637' FNL & 2638' FEL	3629' GL	4286	D&A	8 5/8" 5 1/2"	32# 14, 17#	246 4069	200 SX 350 SX	Circ.* 2173*	11" 7 7/8"	4069-4286 (G/SA)	01-48	01-14-48
20O	Sun - McKinley "B" #1 330' FNL & 330' FWL	3651' GL	8010	D&A	13" 7" 5, 5 1/2"	50# 26# 15.5# 18	253 4135 7543	150 SX 875 SX 350 SX	Circ.* 1130* 4489*	16"** 9 7/8" 6 1/4"	7543-8010	01-47	02-15-47
20G	Sun - McKinley "B" #1-A 2310' FNL & 1980' FEL	3655' GL	4270	P&A	10 3/4" 7" 5"	40.5# 20# 15.5#	278 4100 4050/4270	125 SX 350 SX 50 SX	Circ.* 1985* 4050*	13" 8 3/4" 6 1/4"	4147-90 (G)	03-52	
21E	Antwell - Morris #1 2310' FNL & 330' FWL	3657' DF	4294	D&A	10 3/4" 7"	40# 20#	283 4100	150 SX 150 SX	55* 3196*	13" 8 3/4"	4100-4294 (G/SA)	09-52	11-01-52
26O	Cactus Drlg. - Fee An. St. #1 355' FNL & 990' FWL	3688' DF	4359	D&A	13 3/8" 5 1/2"	- 15.5#	310 3869	150 SX 150 SX	96* 3099*	17 1/4" 7 7/8"	3869-4359 3785-3807 3450-3595	05-57	08-57
12P	R. D. Collier - Fee An. #1 660' FNL & 660' FWL	3680' DF	4368	D&A	10 3/4" 5 1/2"	24# 17#	260 4368	100 SX 300 SX	Circ. 2828*	15"** 7 7/8"	4291-4350 (G/SA)	01-30-58	06-13-58
7O	Lundreth Prod. - State #1-A 440' FSL & 2200' FWL	3674' DF	4520	P&A	20" 12 1/2" 10" 7"	90# 50# 40# 24#	123 1727 3060 4133	Information not available				08-30	08-07-31
15H	Hobbs High Inc. - H.B. Tatum #1 990' FSL & 330' FWL	3610' DF	4100	D&A	12 1/2" 8" 6"		280 1600 4100	Information not available					05-36
20I	C. M. Sweet - Grimes #1	3647' GL	4244	P&A	12 1/2" 7"	50# 24#	232 4015	150 SX 550 SX	48* 699*	17"** 8 3/4"**	4015-4244 (G/SA)	11-36	11-20-52
[illegible]	Wiser [illegible] St. #1 330' [illegible] 50' FE[illegible]	[illegible]	[illegible]	[illegible] DF	42[illegible]	[illegible]	[illegible]	[illegible]	Cl 3[illegible]	11" 7 [illegible]	4000-4[illegible]A)	1-59	3-18-65

EXHIBIT 31

WR-3198 A

COMPLETION DATE 1/71 — AMERADA HOBBS STATE NO. 5 — COMPLETION INTERNAL: P&A

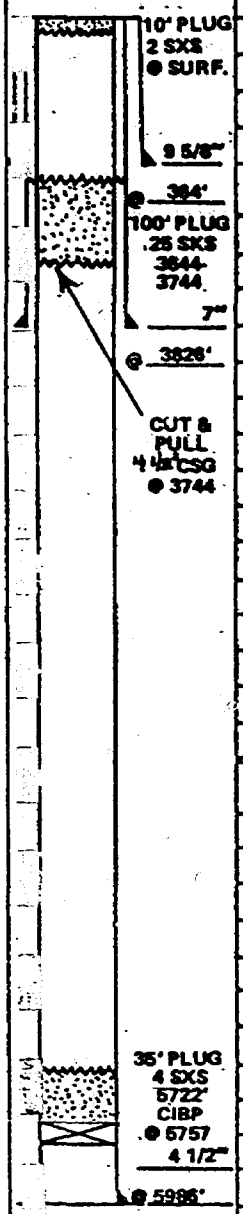
P&A DATE 5/11/73 — NORTH HOBBS (G/SA) UNIT

LOCATION 2280' FNL & 1980' FWL — SECTION 29 — BLOCK F

SURVEY T-18-S, R-38-E — COUNTY Lea, County, New Mexico

DATUM [ ] G.L. ELEV. 3655 — TD 5986 — PBTD PA [ ]

T.D. 5986'



PBTD

CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
9 5/8"	36	364	200	*Circ	12 1/4"
7"	23	3826	140	*2975	8 3/4"
4 1/2"	11.6	5986	186	*4340	6 1/4"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
	Blnbry	5813-5879	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

DST

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER ☐

REMARKS:

DATE:

W1 3198 B

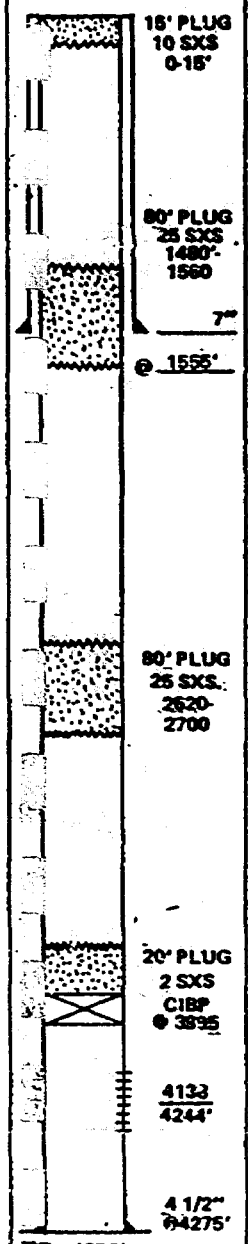
COMPLETION DATE 12-19-68 — AMERADA 'D' STATE NO. 1 — COMPLETION INTERNAL: 4138-4244(I)

RECOMPLETION DATE 10-27-70 (P&A) — HOBBS (G-SA) UNIT

LOCATION 2310' FSL & 330' FEL — SECTION 36I — BLOCK

SURVEY T-18-S, R-37-E — COUNTY Lea County, New Mexico

DATUM [ ] — G.L. ELEV. 3654' — TD 4275' — PBTD [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
7"	23#	1555	400	Circ.	8 3/4"
4 1/2"	10.5	4275	300	2750	6 1/4"
	11.6			(T.S)	

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Anhy	1625	
T.Salt	1725	
Yates	2730	
GU	4137	-482
GL	4254	-599
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
10/68	I	4138-4244	18 Holes

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
10/68	I	1000 gal. AT; 20x10			32BO,
		frac.			14BW

PT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: P&A: CIBP @ 3995' w/20' cmt. on top; 25 sx cmt. from 2620-2700', 25 sx cmt. from 1480-1560'; 10 sx cmt. 0-15 w/reg. marker. Hole laden w/mud laden fluid.

DATE: 8-23-78 KL

WR-3198

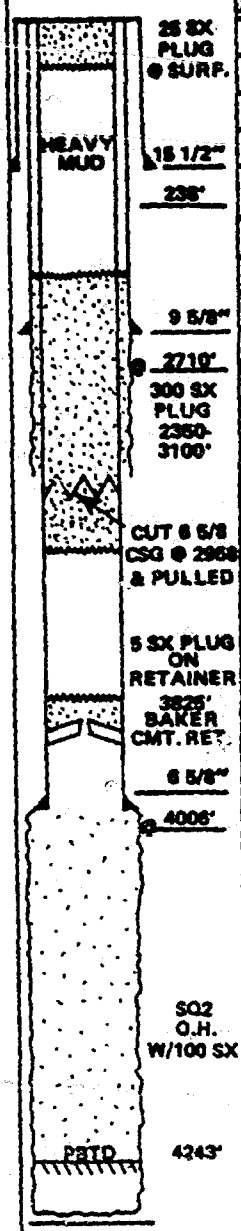
COMPLETION DATE 12-1-32 — ATLANTIC GRIMES NO. 2 — COMPLETION INTERNAL: _____

RECOMPLETION DATE 4-18-59 (P&A) — HOBBS (G-SA) UNIT

LOCATION 1650' FWL & 2350' FNL — SECTION 28 F — BLOCK _____

SURVEY T-18-S, R-38-E — COUNTY Lea County, New Mexico

DATUM 3654' [GL] G.L. ELEV. _____ — TD 4243' — PBTD P&A [ ]



**Estimate CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
15 1/2"	70#	233	200	Circ.*	18"**
10"	45#	2702	700	1945*	13"**
6 5/8"	24#	3974	250	3270*	8 1/2"**

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GU	3999	-348e
GL	4086	-435e
I	4094	-443e
II	4152	-501e
III	4211	-560e
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
		3974-4243'	OH

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE
	4243-68	PB w/10 sx cmt.

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
12/33		1000 gal.	AT		
7/34		1000 gal.	AT		

OPT

DATA AVAILABLE OST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: Tested for csg. leaks 9-9-53 - no leaks. See attached for P&A info.

DATE: 8-22-78 KLL

WR-3198

COMPLETION DATE 8-30 — CHEVRON STATE "A" NO. 1 — COMPLETION INTERNAL: _____

P&A DATE 10-14-46 — HOBBS (G-SA) UNIT

LOCATION 992' FSL & 988' FEL — SECTION 29 P — BLOCK _____

SURVEY T-18-S, R-38-E — COUNTY Lea County, New Mexico

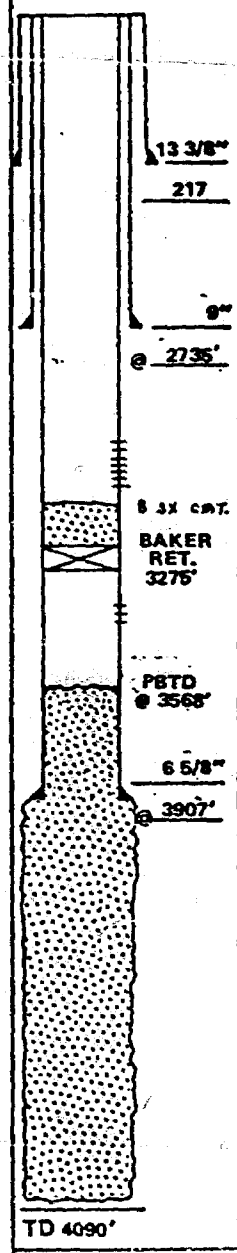
DATUM 3651' [GL] G.L. ELEV. _____ — TD 4090 — PBTD 3260' [P&A]

CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
13 3/8"	48#	217	200	Circ.*	16"
9"	45#	2735	500	1405*	12"
6 5/8"	26#	3907	357	1813*	8 1/2"**

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL



LOG TOPS

ZONE	TOP	SUBSEA
GU	3869e	-218
GL	3966e	-315
I	3981e	-330
II	4049e	-398
IIIU	4111e	-460
IIIL	4213e	-562
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
	G/SA	3907-4090	
		3150-70	
		3190-3241	
		*3287-91	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE: 12/78 KLL

6-13-79 JBK

WR-3198

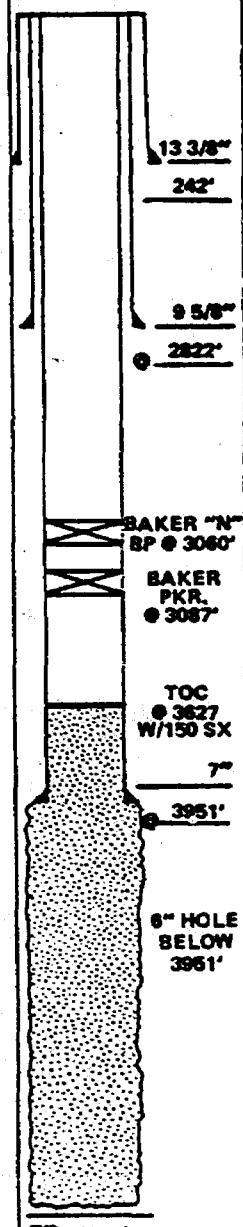
COMPLETION DATE 9-30 — CHEVRON STATE "A" No. 2 — COMPLETION INTERNAL: _____

RECOMPLETION DATE 1946 (P&A) — HOBBS (G-SA) UNIT

LOCATION 990' FSL & 1650' FEL — SECTION 29 0 — BLOCK _____

SURVEY T-18-S, R-38-E — COUNTY Lea County, N.M.

DATUM _____ [ ] G.L. ELEV. 3651' TD 4171' PBTD 3060' [BP]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
13 3/8"	50#	242	150 sx	70*	18"
9 5/8"	36#	2822	725 sx	469*	12"
7"	30#	3951	300 sx	2137*	8 3/4"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
9-30	G-SA	*3951-4171	OH
		*3155-3175	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

OPT — DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE: 1/79 KLJ

WR-3198

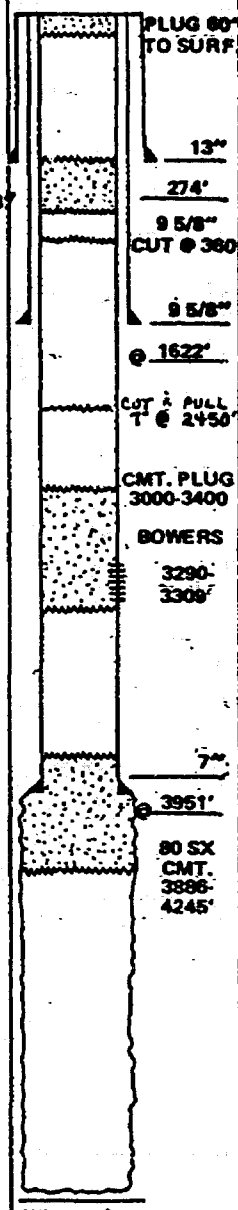
COMPLETION DATE 6-3-36 (D&A) — CONTINENTAL ST. "B-13" NO. 3 — COMPLETION INTERNAL: _____

RECOMPLETION DATE _____ — HOBBS (G-SA) UNIT

LOCATION 3300' FNL & 3300' FEL — SECTION 13 K — BLOCK _____

SURVEY T-18-S, R-37-E — COUNTY Lea County, New Mexico

DATUM 3684' [DF] G.L. ELEV. _____ TD 4245' PBTD D&A [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
13"	50#	274	200	Circ.	16"**
9 5/8"	36#	1622	400	438*	12 1/4"**
7"	24#	3951	400	1149*	8 1/2"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GU	3959	-275e
GL	4082	-398e
I	4132	-448
II	4234	-550e
III	4304	-620
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
3-36	Bowers	3290--3309'	20 holes
		3951-4245	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

OPT — DATA AVAILABLE OST ☐ CORE ☐ PVT ☐ OTHER ☐

REMARKS: P&A: 7" csg. cut @ 2450'; 1501' in hole. 9 5/8" cut @ 360'; 1262' in hole
80 sx cmt. 4245-3886'. Cmt. plug 3400-3000', Plug from 400-254'; cellar to 60'

DATE: 8-24-78 KLL

Rev. 12-78 KLL

WR-3198 B

Plugging information not available

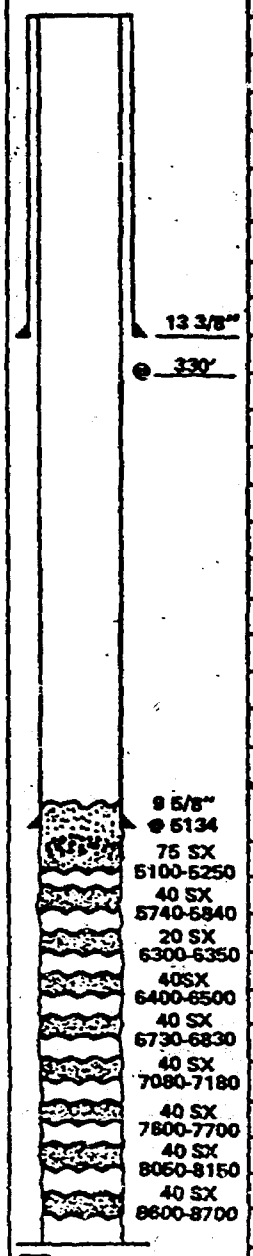
D&A DATE 5-26-60 CONTINENTAL NORTH HOBBS UNIT #1 COMPLETION INTERNAL: _____

RECOMPLETION DATE _____ HOBBS (G-SA) UNIT

LOCATION 660' FNL & 660' FWL SECTION 13 D BLOCK _____

SURVEY T-18-S, R-37-E COUNTY Lea County, New Mexico

DATUM 3686' [DF] G.L. ELEV. _____ TD 8877 PBTD D&A [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
13 3/8"	48#	330	375	Circ.*	17 1/2"
9 5/8"	36,40#	5134	840	2700*	12 1/4"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
5-60-		*5134-8877	OH

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: Was loaned to Dresser Atlas for testing logging instruments

DATE: 12/78 KLL

WR-3198 B

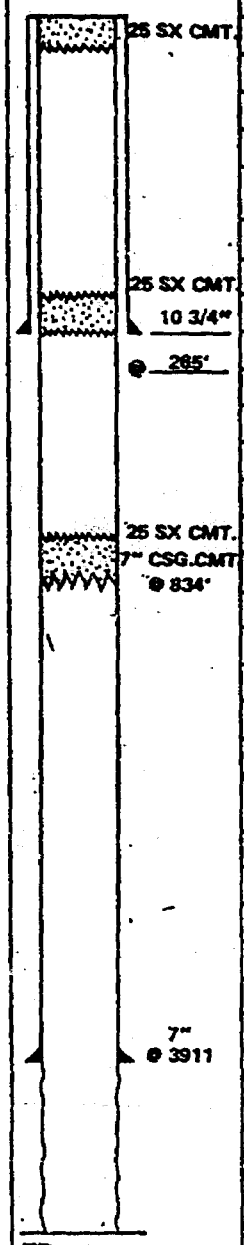
COMPLETION DATE 12-52 — ESTES-STANOLIND ST. NO. 1-A — COMPLETION INTERNAL: _____

P&A DATE 1-6-65 — HOBBS (G-SA) UNIT

LOCATION 330' FSL & 330' FEL — SECTION 14 P — BLOCK _____

SURVEY T-18-S, R-37-E — COUNTY Lea County, New Mexico

DATUM 3677' [DF] G.L. ELEV. _____ TD 4135' PBTD P&A [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
10 3/4"	40.5#	265	200	Circ.*	15"
7"	20#	3911	150	3539*	10 3/4"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
12-52	G/SA	3911-4135	OH

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE: 12/78 KLL

WR-3198

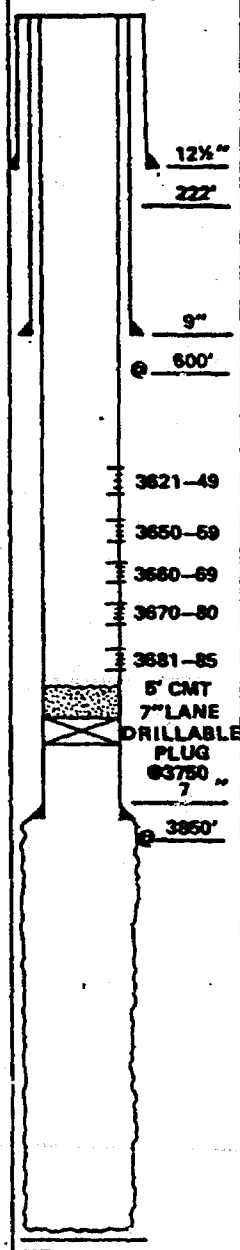
COMPLETION DATE 6-16-30 — SHELL ST. "A" #1 — COMPLETION INTERNAL: ____

RECOMPLETION DATE 8-20-41 — HOBBS (G/SA) FIELD

LOCATION 2310' FNL & 1650' FEL — SECTION 32 — BLOCK G

SURVEY T-18-S, R-38-E — COUNTY Lea

DATUM ____ [ ] G.L. ELEV. 3638 — TD 4175' — PBTD 3745' [ ]



CASING RECORD *CALCULATED AT 50% EFFICIENCY

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
12 1/2"	50#	222'	135	15'*	16"**
9"	35#	2755'	600	1045'*	10 1/2"**
7"	24#	3850'	200	3062'*	8 3/8"**

*EST LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
8-24	Byers	3681-3685	5 - 9/16"
8-24	Byers	3670-3680	16 - 9/16"
8-24	Byers	3660-3669	11 - 9/16"
8-24	Byers	3650-3659	8 - 9/16"
8-24	Byers	3621-3649	15 - 9/16"

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

OPT

DATA AVAILABLE DST ☐ PVT ☐ CORE ☐ OTHER

REMARKS: 11 SX Aquagel

DATE: 7-79 JRK

WR-3198 D

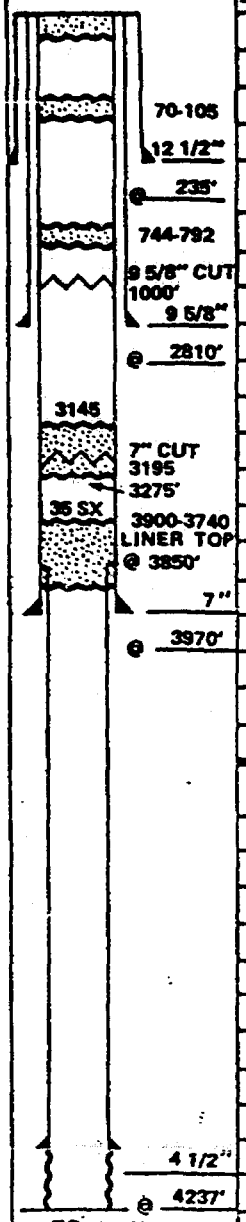
COMPLETION DATE 9/30 — SHELL McKINLEY "A" NO. 8 — COMPLETION INTERNAL: _____

P&A DATE 4/17/63 — HOBBS (G-SA) UNIT

LOCATION 2310' FSL & 1320' FEL — SECTION 19I — BLOCK _____

SURVEY T-18-S, R-38E — COUNTY Lea County, New Mexico

DATUM 3659' [DF] G.L. ELEV. _____ TD 4270' PBTD P&A [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
12 1/2"	50 #	235	300	Circ.*	17"**
9 5/8"	36 #	2810	600	1046*	12 1/4"**
7"	24 #	3970	225	2398*	8 1/2"**
4 ½"lnr.	11.6 #	3850/ 4237	70	3699*	6"**

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
9/30	G-SA	3970-4210	
	G-SA	4237-4270	
		3740-3841	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

OPT — DATA AVAILABLE OST ☐ CORE ☐ PVT ☐ OTHER ☐

REMARKS:

DATE: 12/78 KLL

WR-3198 B

D&A (G-SA)
COMPLETION DATE 8-62
RECOMPLETION DATE 2-19-63

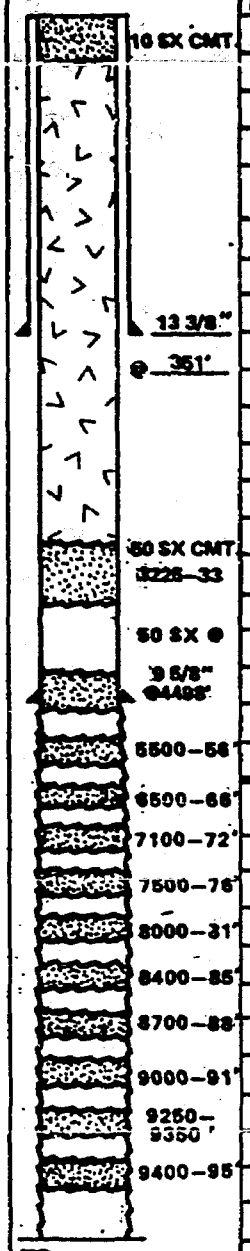
SHELL McKINLEY "A-18" NO. 1
HOBBS (G-SA) UNIT

COMPLETION INTERNAL: _____

LOCATION 2310' FSL & 1650' FEL SECTION 19J BLOCK _____

SURVEY T-18-S, R-38-E COUNTY Lea County, NM

DATUM 3655' [DF] G.L. ELEV. _____ TD 9550' PBTD D&A [ ]



CASING RECORD *CALCULATED AT 50% EFFICIENCY

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
13 3/8"	48#	351	350	Circ.*	17"
9 5/8"	36,40#	4498	2500	Circ.*	12 1/4

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
	G-SA	4498-9550	
	Bowers	3260-3301	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

OPT

DATA AVAILABLE OST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE: 12-78 KLL

WR-31989

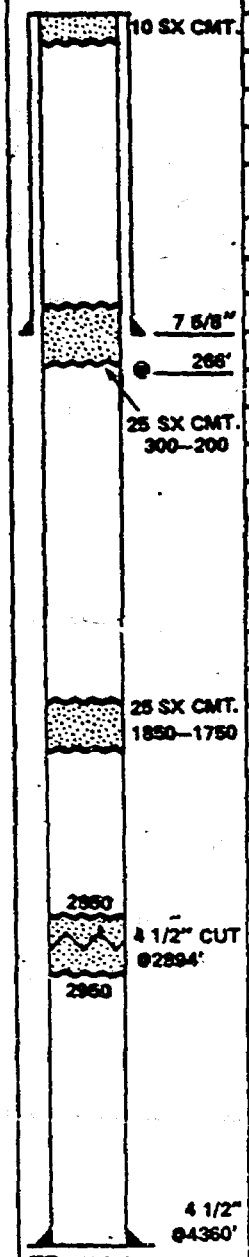
COMPLETION DATE D&A 1-62 — SHELL STATE "HG" NO. 1 — COMPLETION INTERNAL: _____

P&A DATE 3-30-62 — HOBBS (G-SA) UNIT

LOCATION 990' FNL & 330' FWL SECTION 17D BLOCK _____

SURVEY T-18-S, R-38-E COUNTY Lea County, New Mexico

DATUM 3667' [DF] G.L. ELEV. _____ TD 4360' PBTD D&A [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
7 5/8"	24#	266	230	Circ.	9 7/8"
4 1/2"	11.6#	4360	350	2074	6 3/4"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

OPT — DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE: 12/78 KLL

WR-3198

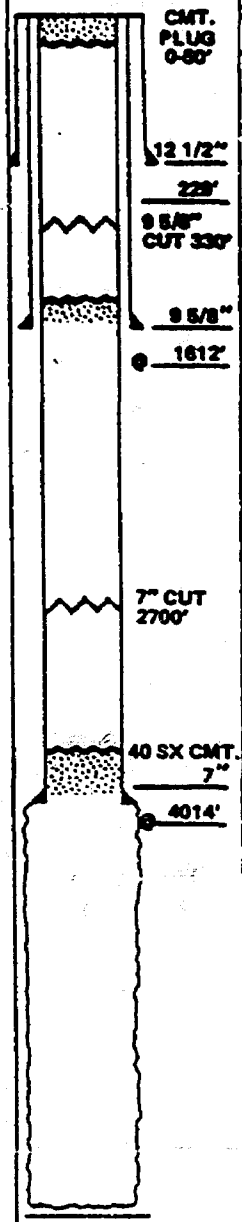
COMPLETION DATE 1-36 — SHELL STATE "E" NO. 1 — COMPLETION INTERNAL: _____

P&A DATE 12/21/38 — HOBBS (G-SA) UNIT

LOCATION 4620' FNL & 330' FEL — SECTION 14P — BLOCK _____

SURVEY T-18-S, R-37-E — COUNTY Lea County, N.M.

DATUM 3686' [DF] G.L. ELEV. _____ TD 4180' PBTD P&A [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
12 1/2"	50#	229	150	45*	17"
9 5/8"	36#	1612	650	Circ.*	12"
7"	24#	4014	280	2326*	8 3/4"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
1/36	G-SA	4014-4180	OH

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

OPT — DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE: 12/78 KLL

WR-3198 B

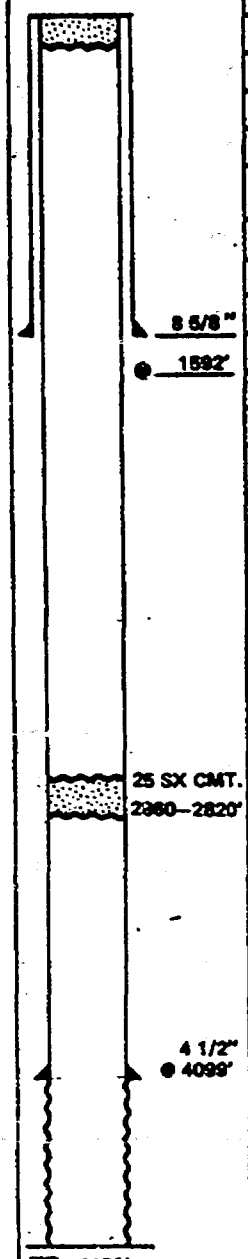
COMPLETION DATE 9/48 — SHELL STATE "F" NO. 1 — COMPLETION INTERNAL: _____

P&A DATE 10/15/57 — HOBBS (G-SA) UNIT

LOCATION 660' FNL & 330' FEL — SECTION 23A — BLOCK _____

SURVEY T-18-S, R-37-E — COUNTY Lea County, N.M.

DATUM 3673' [DF] G.L. ELEV. _____ — TD 4150' — PBTD P&A [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	32#	1592	525	Circ.*	11"
4 1/2"	9.5#	4099	130	3249*	6 3/4"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
	G-SA	4099-4122	
	Bower	3300-3350	
		2745-2860	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE: 12/78 KLL

WR-3198 B

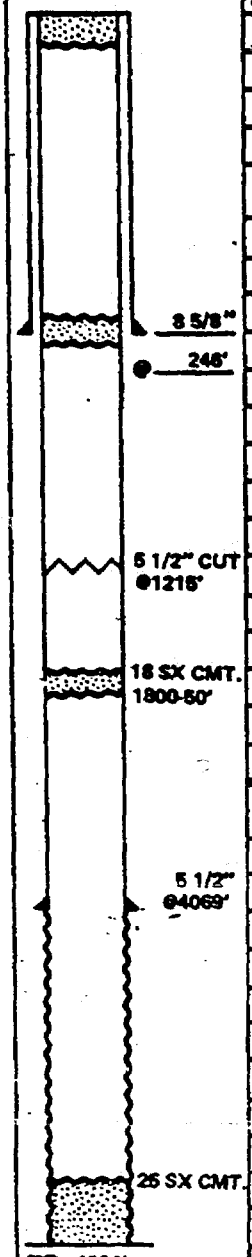
COMPLETION DATE 1/48 — SHELL SANGER NO. 1 (KING) — COMPLETION INTERNAL: _____

D&A DATE 1/48 — HOBBS (G-SA) UNIT

LOCATION 4637' FNL & 2638' FEL SECTION 27 O BLOCK _____

SURVEY T-18-S, R-38-E COUNTY Lea County, N.M.

DATUM _____ [ ] G.L. ELEV. 3629' TD 4286' PBTD D&A [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	32#	246	200	Circ.*	11"
5 1/2"	14,17#	4069	350	2173*	7 7/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
1/48	G-SA	4069-4286	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE: 12/78 KLL

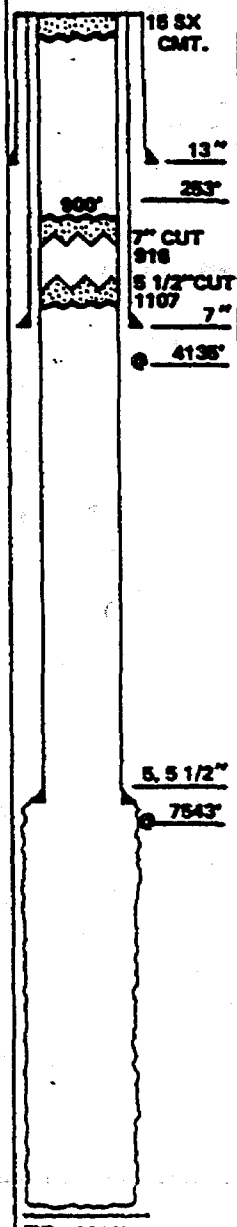
WR-3198

COMPLETION DATE 1-47 — SUN McKINLEY "B" NO. 1 — COMPLETION INTERNAL: _____
D&A DATE 2-15-47 — HOBBS (G-SA) UNIT

LOCATION 330' FSL & 330' FWL SECTION 20G BLOCK _____

SURVEY T-18-S, R-38-E COUNTY Lea County, New Mexico

DATUM _____ [ ] G.L. ELEV. 3651' TD 8010' PBTD D&A [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
13"	50#	253	150	Circ.*	16"
7"	24#	4135	875	1130*	9 7/8"
5, 5 1/2"	18, 15.5#	7543	350	4489*	6 1/4"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
		7543-8010	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

OPT — DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE: 12-78 KLL

WR-3198 A

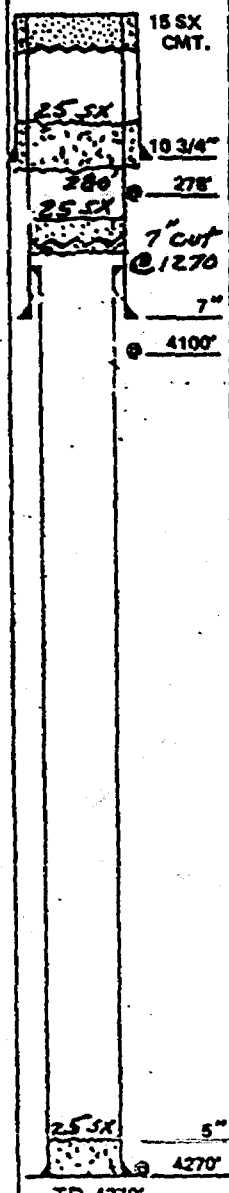
COMPLETION DATE 3-52 — SUN McKINLEY "B" NO. 1-A — COMPLETION INTERNAL: ____

RECOMPLETION DATE ____ — HOBBS (G-SA) UNIT

LOCATION 2310' FNL & 1980' FEL — SECTION 20G — BLOCK ____

SURVEY T-18-S, R-38-E — COUNTY Lea County, N.M.

DATUM ____ [ ] G.L. ELEV. 3655' — TD 4270' — PBTD P&A [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
10 3/4"	40.5#	278	125	Circ.*	13"
7"	20#	4100	350	1985*	8 3/4"
5"/nr.	15.5#	4050/4270	50	4050*	6 1/4"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
	G	4147-90	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

OPT — DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER ☐

REMARKS:

DATE: 12/78 KLL

WR-3198 B

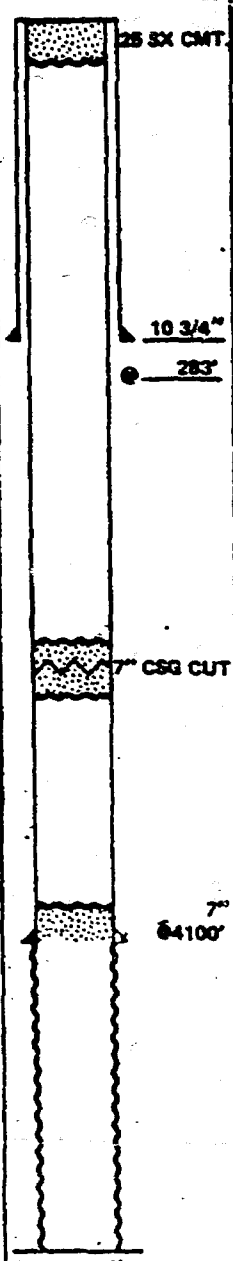
COMPLETION DATE 9-52 — ANTWEIL-MORRIS NO. 1 — COMPLETION INTERNAL: _____

P&A DATE 11-52 — HOBBS (G-SA) UNIT

LOCATION 2310' FNL & 330' FWL — SECTION 21E — BLOCK _____

SURVEY T-18-S, R-38-E — COUNTY Lea County, New Mexico

DATUM 3457' [DF] G.L. ELEV. _____ TD 4294' PBTD D&A [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
10 3/4"	40#	283	150	55*	15"
7"	20#	4100	150	3196*	8 3/4"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
9/52	G-SA	4100-4294	OH

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

OPT — DATA AVAILABLE OST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE: 12-78 KLJ

WR-3198 B

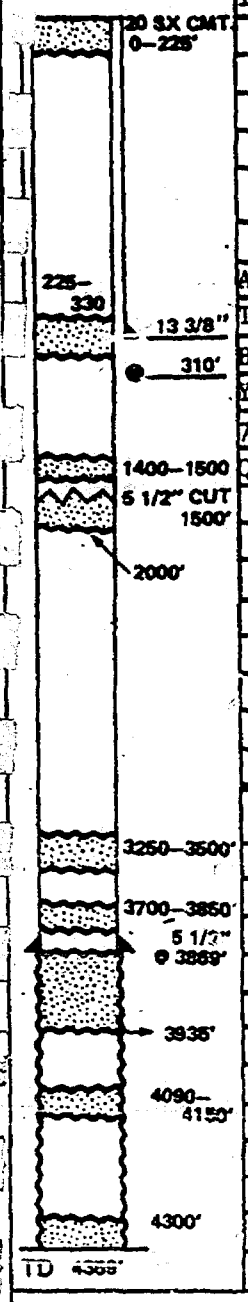
COMPLETION DATE 5-9-57 — CACTUS DRLG. PAN AM. NO. 1 — COMPLETION INTERNAL: P&A

P&A DATE 8-57 — HOBBS (G-SA) UNIT

LOCATION 355' FNL & 990' FWL — SECTION 26D — BLOCK

SURVEY T-18-S, R-37-E — COUNTY Lea County, New Mexico

DATUM 3688' [DF] G.L. ELEV. — TD 4359' — PBTD P&A [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
13 3/8"	-	310	150	96 *	17 1/4"
5 1/2"	15.5 #	3869	150	*3099	7 7/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
Anhy	1712	
T Salt	1810	
B Salt	2780	
Yates	2938	
7 Riv	3217	
Queen	3792	
G	4251	-563
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
5/57	G	3869-4359	OH
		3785-3807	
		3450-3595	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

OPT

DATA AVAILABLE OST ☐ CORE ☐ PVT ☐ OTHER ☐

REMARKS:

DATE:8-23-78 KL

WR-3198 B

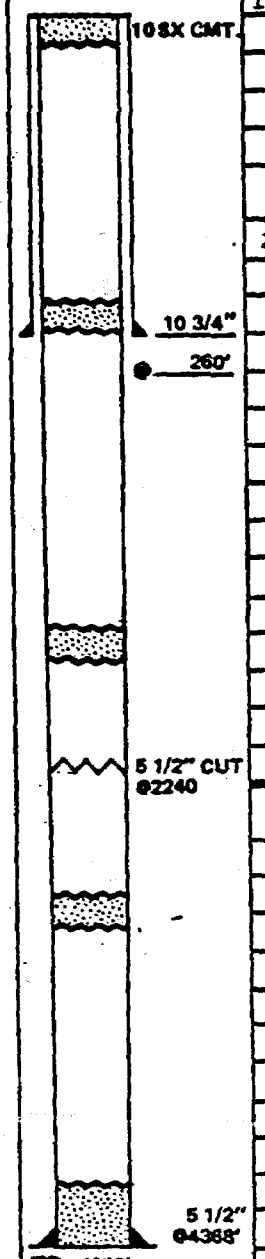
COMPLETION DATE 1/30/58 — R.D. COLLIER–PAN AM. NO. 1 — COMPLETION INTERNAL: _____

P&A DATE 6/13/58 — HOBBS (G-SA) UNIT

LOCATION 660' FSL & 660' FEL — SECTION 12P — BLOCK _____

SURVEY T-18-S, R-37-E — COUNTY Lea County, N.M.

DATUM 3680' [DF] G.L. ELEV. _____ TD 4368' PBTD D&A [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
10 3/4"	24#	260	100	Circ.	15"**
5 1/2"	17#	4368	300	2828*	7 7/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
1/58	G-SA	4291-4350	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

OPT — DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE 2/78 KLL

WR-3198 C

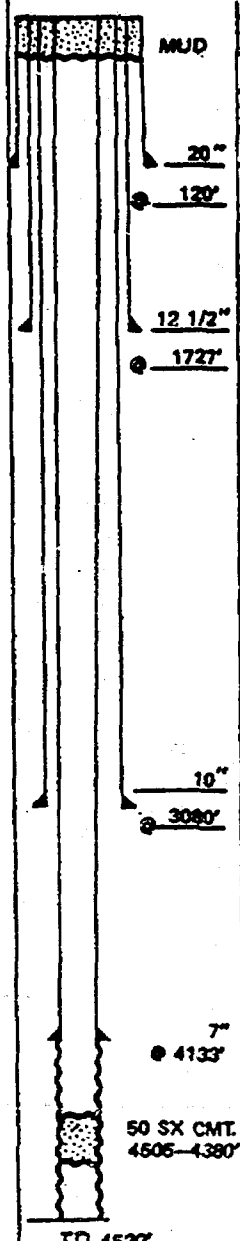
COMPLETION DATE 8/30 — LANDRETH PROD-STATE NO. 1-A — COMPLETION INTERNAL: _____

P&A DATE 8/7/31 — HOBBS (G-SA) UNIT

LOCATION 440' FSL & 2200' FEL — SECTION 7 0 — BLOCK _____

SURVEY T-18-S, R-38-E — COUNTY Lea County, N.M.

DATUM 3674' [DF] G.L. ELEV. _____ — TD 4520' — PBTD P&A [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
20"	90#	120			
12 1/2"	50#	1727	Information		
10"	40#	3080	not available.		
7"	24#	4133			

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	OENS & SIZE

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

OPT — DATA AVAILABLE OST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: No other well records available.

DATE:

WR-3198-A

Plugging information not availab

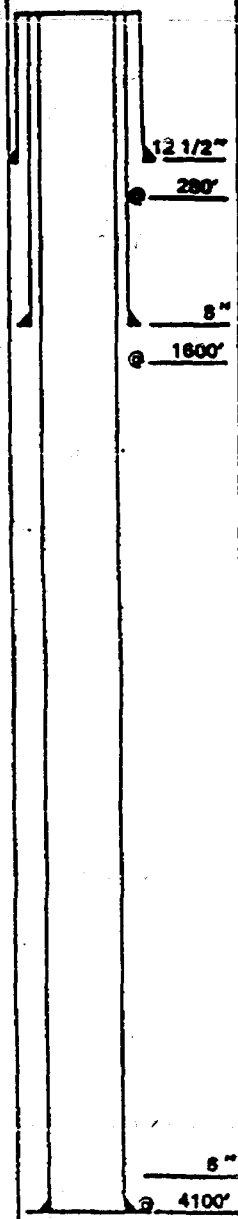
COMPLETION DATE _____ HOBBS HIGH INC-TATUMS NO. 1 COMPLETION INTERNAL: _____

P&A DATE 5/36 HOBBS (G-SA)UNIT

LOCATION 990' FSL & 330' FWL SECTION 35M BLOCK _____

SURVEY T-18-S, R-37-E COUNTY Lea County, N.M.

DATUM 3610' [DF] G.L. ELEV. _____ TD 4100' PBTD D&A [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
12 1/2"		280			
8"		1600	Information		
6"		4100	not available.		

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

OPT

DATA AVAILABLE OST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE:

WR-3198 C

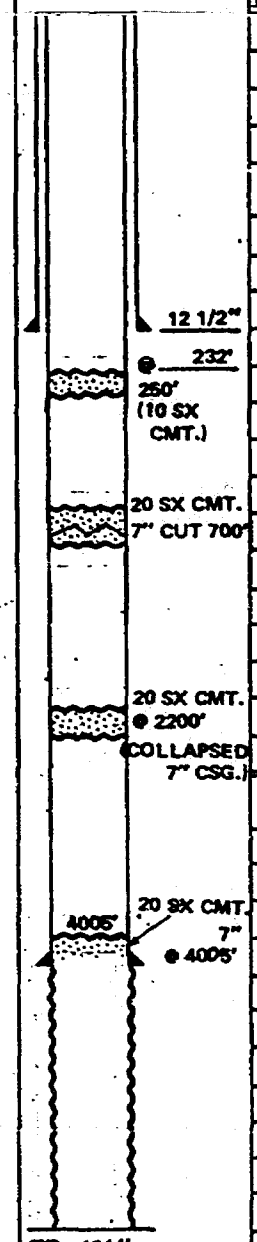
COMPLETION DATE 11-34 — C.H. SWEET-GRIMES NO. 1 — COMPLETION INTERNAL: _____

P&A DATE 11-20-52 — HOBBS (G-SA) UNIT

LOCATION _____ SECTION 20I BLOCK _____

SURVEY T-18-S, R-38-E COUNTY Lea County, New Mexico

DATUM _____ [ ] G.L. ELEV. 3647' TD 4244' PBTD P&A [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
12 1/2"	50 #	232	150	48*	17"**
7"	24 #	4015	550	699*	8 3/4"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
11/34	G-SA	4015-4244	OH

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE: 12-78 KLL

WR-3196 B

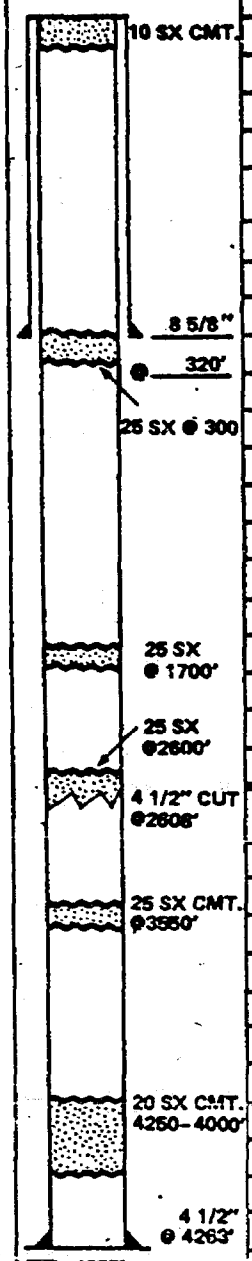
COMPLETION DATE 11/59 — WISER-GULF ST. NO. 1 — COMPLETION INTERNAL: _____

P&A DATE 6/18/65 — HOBBS (G-SA) UNIT

LOCATION 330' FNL & 1650' FEL — SECTION 26B — BLOCK _____

SURVEY T-18-S, R-37-E — COUNTY Lea County, N.M.

DATUM 3674' [DF] G.L. ELEV. _____ TD 4263' PBTD P&A [ ]



CASING RECORD *CALCULATED **ESTIMATE

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
8 5/8"	24#	320	200	Circ.*	11"
4 1/2"	11.6#	4263	240	3321*	7 7/8"

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
11/59	G-SA	4000-4256	

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER

OPT — DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE: 12/78 KLL

EXHIBIT 32

CITY OF HOBBS

RESOLUTION NO. 2091

A RESOLUTION AUTHORIZING THE MAYOR
TO EXECUTE INDUSTRIAL WATER CONTRACT
WITH SHELL OIL COMPANY

BE IT RESOLVED BY THE GOVERNING BODY OF THE CITY OF HOBBS THAT:

The Mayor be and he is hereby authorized to execute on behalf of the City of Hobbs the original Industrial Water Contract between Shell Oil Company and the City of Hobbs dated June 1, 1978, effective upon execution of the Contract. A copy of the Contract is attached hereto and incorporated herein by reference.

INTRODUCED, PASSED AND APPROVED this 7 day of September, 1978.

Bill Waldrop
MAYOR

ATTEST:

Joyce Edmiston
CITY CLERK

INDUSTRIAL WATER CONTRACT

DATED: JUNE 1, 1978

BETWEEN

SHELL OIL COMPANY

AND

CITY OF HOBBS

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Section 3	9
Section 4	9

AGREEMENT

This agreement made and entered into as of the 1st day of June, 1978, by and between the City of Hobbs, a municipal corporation, of Lea County, New Mexico, of the first part (hereinafter known as the City) and Shell Oil Company, a corporation, as prospective operator of the proposed North Hobbs (Grayburg-San Andres) Unit, of the second part (hereinafter known as the Consumer).

WITNESSETH

WHEREAS, the City has constructed an Industrial Water Treatment Plant that produces an effluent of industrial process water from wastewater discharged into it from the Water Reclamation Facility and from the acquifer adjacent to the present Treatment Plants in Hobbs, New Mexico, and after such water is treated it is a desirable product for the Consumer which has a need for such water and can beneficially apply it to industrial usage.

NOW, THEREFORE, for and in consideration of the mutual covenants, promises and agreements herein contained and for other good and valuable consideration, the parties hereto agree as follows:

ARTICLE I

Definitions

Section 1. The term "day" as used in this agreement shall mean a period of twenty-four (24) consecutive hours beginning and ending at seven (7:00) o'clock A.M.

Section 2. The term "month" as used in this agreement shall mean the period beginning at seven o'clock (7:00) A.M. on the first day of a calendar month and ending at seven o'clock (7:00) A.M. on the first day of the next succeeding calendar month.

Section 3. The term "year" as used in this agreement shall mean the period beginning at seven o'clock (7:00) A.M. on the first day of a month and ending at seven o'clock (7:00) A.M. on the first day of the same month of the next succeeding year.

Section 4. The term "barrel" shall mean a volume equivalent to 42 U.S. gallons.

ARTICLE II

Commencement of Deliveries

The City shall have its facilities ready to deliver industrial water to Consumer October 1, 1979 or as the necessary government permits are acquired. Consumer shall begin payments no later than January 1, 1980.

ARTICLE III

Delivery Point and Pressure

Consumer shall provide, construct and maintain all equipment, pipeline and facilities necessary to receive the industrial water at a point in the northwest corner of the City's property on the existing fourteen (14) inch pipeline at a mutually agreeable point. Pressure at the point of delivery is not guaranteed.

ARTICLE IV

Quantity

Section 1. Subject to other articles of this agreement, the minimum quantity of industrial water to be delivered and received under this contract, designated as "annual contract quantity", shall be as listed.

Minimum Annual Contract Quantity:

Contract Year	Contract Quantity (Barrels)
1	18,250,000

Optional Minimum Annual Contract Quantity:

Contract Year	Contract Quantity (Barrels)
2	18,250,000
3	17,520,000
4	17,160,000
5	16,790,000
6	16,430,000
7	12,050,000
8	10,950,000
9	10,950,000
10	7,300,000
11	3,480,000

Optional Minimum Annual Contract Quantity (Continued)

Contract Year	Contract Quantity (Barrels)
12	5,480,000
13	3,650,000
14	3,650,000
15	3,650,000
16	3,650,000
17	3,650,000
18	3,650,000
19	3,650,000
20	3,650,000

Section 2. The Consumer shall not be required to take a continuous equal daily flow of industrial water and the City will not be required to produce a daily minimum quantity of industrial water provided the minimum quantity available for delivery during each monthly period will equal the amount of water that the Consumer covenants to purchase. Unless the City is provided with a tentative schedule of water demand by the Consumer, and acceptable to both parties, it will be assumed that monthly demand will be 1/12 of annual contract quantity.

Section 3. The Consumer shall have the first call on any quantity in excess of contract amounts of industrial water, at the existing contract price, that the City has available for sale, excepting such amounts as may be committed by contracts with other consumers and excepting such excess quantities as may be delivered under contracts heretofore entered into with other consumers.

Section 4. It is appreciated by both parties to this agreement that mechanical failures are possible and that production and delivery problems may be encountered by the Consumer in its pipeline system or injection wells and each agrees to cooperate with the other in efforts to remedy any system failures.

ARTICLE V

Quality

The City will provide industrial processed water with the following minimum quality standards.

Parameter	Maximum Concentration
Cl_2	0.5 Mg/L
SS	25 ppm
Particle Size	25 Microns

ARTICLE VI

Metering

Consumer, at its sole cost, risk and expense shall install and maintain at the point of delivery on the City's property a flow meter of sufficient size and type to measure the contracted quantities of industrial water. Readings shall be taken daily by the City and will be available to the Consumer at its request. These readings will be used to compute the quantity for the billing period.

If for any reason, any of the measuring equipment is out of service, or out of repair, so that the volume of industrial water purchased can not be ascertained or computed from readings thereof, the volume of industrial water purchased during the period such equipment is out of service or repair shall be estimated and agreed upon by the parties hereto on the basis of the best data available.

ARTICLE VII

Price

Section 1. The City will sell and the Consumer will purchase the industrial water quantities indicated in Article IV based on a minimum monthly rate of one-twelfth (1/12) the annual quantity and a price of one and one-half cents (1-1/2¢) per barrel.

Section 2. So long as the Consumer is not in default, any minimum quantity of industrial water paid for but not taken in any monthly period may be accumulated and taken in any succeeding monthly period during the term of the contract at no additional cost to the Consumer, provided, that the City will not be required to produce such industrial water over and above its normal operating capacity to meet such accumulated demand.

Section 3. The City should have available for consumption at the point of discharge into Consumer's facilities, an amount of water equal to the quantity the Consumer agrees to purchase monthly. Any failure of the City to produce and have available such quantity of industrial water during any monthly period shall excuse the Consumer from its covenant to pay the minimum monthly charge for that month, the Consumer being liable only for the quantity consumed.

Section 4. Subject to all other provisions in this Article, Consumer shall pay, or cause to be paid, all taxes that may be appropriate from this sale.

ARTICLE VIII

Term

Section 1. The Consumer shall purchase the mentioned minimum quantities of industrial processed water for a minimum period commencing when Consumer is ready to receive such water, but not later than the date indicated in Article II, and ending December 31, 1980.

Section 2. The Consumer shall have, and the City hereby grants to the Consumer, the right at its option, at any time prior to six (6) months before the expiration of the agreement, to renew and extend this agreement for an additional term of two (2) years or more, and for successive such terms thereafter. In case the Consumer elects to renew and extend this agreement it shall signify its election by written notice mailed to the Hobbs City Manager within the time above limited. All terms, conditions and covenants contained in this agreement shall be applicable to such extensions, excepting that the annual contract quantity may be adjusted downward by Consumer and excepting that the price per barrel of water may be adjusted upward or downward based on any increase or decrease in operational costs or capital investment to supply such water. For purposes of such price adjustment, only such direct operational costs and capital investments as are necessary for production and availability of industrial water at the City's Industrial Water Treatment Plant shall be considered, and only a prorata portion of such costs and investments based on the total quantities of water produced and available (whether or not sold) at said

plant shall be attributed to water sold under this agreement. Consumer shall have a minimum of ninety (90) days notice and be supplied all records and/or design and economic data pertinent to increases in operational costs and additional capital investments and full information as to the total quantities of water produced and available at the plant.

Section 3. If the Consumer should not use the minimum contracted quantities of industrial water in the initial contract period ending December 31, 1980, or in any subsequent contract period, the unused portion will be carried into the next succeeding contract period with the Consumer paying the excess of the current unit (per barrel) price over the previous contract price and using this quantity of industrial water as a credit against the minimum annual contract quantity during the current contract period, with such credit quantity being distributed equally over the number of months involved in the current contract period.

ARTICLE IX

Payment

The Consumer shall pay monthly, within thirty (30) days of billing, for the quantity of industrial processed water consumed during the calendar month; however, at no time shall the cummulative amount paid be a smaller fraction of the total year's contract price than the fraction of the year which has expired. Consumer, at its request, may make monthly payments of 1/12 minimum annual quantities with a six-month adjustment period.

ARTICLE X

Force Majeure

Section 1. The term "force majeure" as employed herein shall mean Act of God, strikes, lockouts, or other industrial disturbances, act of the public enemy, wars, blockades, insurrections, riots, epidemics, landslides, lightning, earthquakes, fires, storms, floods, washouts, arrests and restraints, and orders of the government, either Federal or State, civil or military, civil disturbances, explosions, sabotage, malicious mischief, breakage or accident to machinery or lines of pipe, freezing of wells or lines of pipe, temporary failure of water supply, temporary or permanent plugging of injection wells, inability of any party hereto to obtain

necessary materials, supplies or permits due to existing or future rules, regulations, orders, laws or proclamations of governmental authorities (both Federal and State), including both civil and military, and any other causes, whether of the kind herein enumerated or otherwise, not reasonably within the control of the party claiming suspension of obligations by reason of force majeure.

Section 2. It is understood and agreed that the settlement of strikes or other labor difficulties shall be entirely within the discretion of the party having the difficulty and that any requirement that force majeure shall be remedied with all reasonable dispatch shall not require the settlement of labor difficulties by acceding to the demands of the opposing party when such course is inadvisable in the discretion of the party having the difficulty.

Section 3. In the event either party hereto is rendered unable, wholly or in part, by force majeure to carry out its obligations under this contract, it is agreed that such party shall give notice and full particulars of such force majeure in writing or by telegraph to the other party; thereupon, the obligations of the party giving the notice, so far as they are affected by force majeure, shall be suspended during, but no longer than, the continuance of the force majeure. The affected party shall use all reasonable means to remedy the force majeure, if possible, with all reasonable dispatch.

Section 4. It is specifically agreed that in the event Consumer is at any time rendered unable, by reason of any action or inaction by Federal or State governmental authorities or other force majeure, to inject into the North Hobbs (Grayburg-San Andres) Unit during any month a quantity of water equal to 1/12 of the current minimum annual contract quantity, such minimum annual contract quantity shall be reduced for the current year by the number of barrels Consumer is unable to inject during each such month. It is further agreed that if such disability continues for any period of six (6) consecutive months or more, Consumer shall have the right, at its option, to terminate this agreement effective upon written notice to the City thereof.

ARTICLE XI

Defaults

Section 1. It is covenanted and agreed that if either party hereto shall fail to perform any of the covenants or obligations imposed upon it under and by virtue of this contract, then in such event the other party hereto may, at its option, terminate this contract by proceeding as hereinafter provided.

Section 2. The party not in default shall cause a written notice to be served on the party in default stating specifically the cause for terminating this contract and declaring it to be the intention of the party giving the notice to terminate the same; whereupon, the party in default shall have thirty (30) days after the service of the aforesaid notice in which to remedy or remove the cause or causes stated in the notice for terminating the contract, and if within said period of thirty (30) days the party in default does so remedy or remove said cause, then such notice shall be withdrawn and this contract shall continue in full force and effect. In case the party in default does not so remedy or remove the cause or causes or does not indemnify the party giving the notice for any and all consequences of such breach, within said period of thirty (30) days, then, at the option of the party giving the notice, this contract shall become null and void from and after the expiration of said period.

Section 3. Any cancellation of this contract pursuant to the provisions of this Article XI shall be without prejudice to the right of the City to collect any amounts then due from the Consumer for industrial water delivered prior to the time of cancellation and shall be without prejudice to the right of the Consumer to receive any industrial water for which it has paid but has not received, although entitled thereto, prior to the time of cancellation, and without waiver of any remedy to which the party not in default may be entitled for violation of this contract.

ARTICLE XII

Miscellaneous

Section 1. Each party shall hold the other party harmless from any and all damages and claims that may arise by reason of any negligence

on the part of the indemnifying party, its agents or employees, in going about the premises in performance of this agreement; and in case any action is brought against such other party for any acts solely involving the employees or agents of the indemnifying party, the indemnifying party shall assume full responsibility for the defense thereof.

Section 2. Neither party to this agreement shall assign this agreement in whole or in part without the written consent of the other, provided that Consumer's rights and obligations hereunder may at any time be formally assigned and transferred to the current operator of the North Hobbs (Grayburg-San Andres) Unit.

Section 3. This agreement is executed by Shell Oil Company as prospective operator of the proposed North Hobbs (Grayburg-San Andres) Unit, in Lea County, New Mexico, acting for and on behalf of the unit working interest owners. It is hereby agreed that unless on or before January 1, 1980, (a) said unit has become effective, (b) this agreement has been approved by said working interest owners and (c) all necessary rights of way have been obtained by the unit, this agreement shall then terminate and be of no further force or effect unless otherwise mutually agreed by the parties hereto. If it should appear to Consumer at any time substantially in advance of said date that said conditions will not be met, Consumer shall notify the City thereof and if requested by the City, this agreement shall then be terminated by mutual agreement of the parties.

Section 4. All notices required under this agreement shall be considered as given when deposited in the U. S. Mail with sufficient postage thereon and addressed as follows:

CITY MANAGER
CITY OF HOBBS
P. O. BOX 1117
HOBBS, NEW MEXICO 88240

SHELL OIL COMPANY
P. O. BOX 991
HOUSTON, TEXAS 77001

IN WITNESS WHEREOF, the parties hereto execute this agreement as of the day and year first above written.

CITY OF HOBBS
A Municipal Corporation

By: _____
MAYOR

Approved as to form:

_____
CITY ATTORNEY

ATTEST:

_____
CITY CLERK

SHELL OIL COMPANY, a corporation, as prospective operator of the proposed North Hobbs (Grayburg-San Andres) Unit

By: _____
R. L. Howard
Division Production Manager
Mid-Continent Division

EXHIBIT 33

PROPOSED

SPECIAL RULES AND REGULATIONS
FOR THE
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
PRESSURE MAINTENANCE PROJECT

RULE 1. The project area of the North Hobbs (Grayburg-San Andres) Unit Pressure Maintenance Project shall consist of those basic project areas which are those proration units within the boundaries of the North Hobbs (Grayburg-San Andres) Unit upon which is located an injection well and any directly or diagonally offsetting proration unit which contains a producing well.

RULE 2. The project area shall receive a project area allowable, and said project area allowable shall be the sum of the basic project area allowable plus the water injection credit allowable.

RULE 3. The basic project area allowable shall be equal to 80 barrels of oil per day times the number of developed 40-acre proration units in the project area.

RULE 4. The water injection credit allowable shall be based upon the following formula:

$$\text{Water Injection Credit Allowable} = \left[\frac{\text{Net Water Injected}}{\text{Basic Project Area Allowable}} - 1 \right] \times \text{Basic Project Area Allowable}$$

Reservoir Voidage

The water injection credit allowable shall be calculated in accordance with the procedures and parameters depicted on Attachments "A" and "B".

In no event shall the water injection credit allowable be less than zero, i.e., negative numbers derived from application of the above formula shall be ignored.

RULE 5. The weighted average project area reservoir pressure shall be determined prior to commencement of injection of water into the reservoir and at least annually thereafter.

RULE 6. The project area allowable may be produced from the wells within the project area in any proportion provided, however, that any proration unit situated on the boundary of the North Hobbs (Grayburg-San Andres) Unit which proration unit is not directly or diagonally offset by a Grayburg-San Andres injection well outside said North Hobbs Unit or on the North Hobbs Unit boundary shall not be permitted to produce in excess of 80 barrels of oil per day.

RULE 7. Those wells within the North Hobbs Unit Area that are not included within the project area as defined above shall be prorated in accordance with the Rules and Regulations of the Division.

RULE 8. The Division Director shall have authority to approve, without notice and hearing, the drilling of wells at unorthodox locations anywhere within the unit boundary, provided however, no unorthodox location

shall be closer than ten feet to any quarter-quarter section line, and provided further, that no such unorthodox location shall be closer than 330 feet to the outer boundary of the unit area, unless such well is covered by a lease-line agreement with the operator of the lands offsetting such well, and a copy of the lease-line agreement accompanies the application for such unorthodox location, or unless such offset operator has waived objection to the proposed unorthodox location in writing, and his waiver accompanies the application.

RULE 9. No well shall be placed on water injection in the North Hobbs Unit Area unless the Division Director has approved such well for injection. Applications for injection approval shall be filed in accordance with Rule 701 of the Division Rules and Regulations.

RULE 10. Each newly drilled injection or producing well shall be equipped as follows:

a. Minimum of 350 feet of surface casing and production casing run to total depth (approximately 4500 feet) or

b. Surface casing cemented below the "red beds" (approximately 1600 ft.) and "production" casing run to total depth (approximately 4500 feet) or

c. Other procedures may be used after receiving administrative approval of the Director of the Oil Conservation Division.

All casing strings shall be cemented to the surface except that in any well in which an intermediate casing string has been run and cemented to the surface, the "production" string may be cemented back into the base of the intermediate casing.

RULE 11. Injection shall be accomplished through tubing installed in a packer set within 100 feet of the uppermost perforation, or in case of an open hole completion, 100 feet above the casing shoe. The injection tubing shall be corrosion protected by a non-reactive internal lining or coating. The casing-tubing annulus in each injection well shall be filled with an inert fluid and a surface pressure gauge or approved leak detection device shall be attached to the annulus.

RULE 12. The injection wells or system shall be equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 0.2 psi per foot of depth to the injection zone. The Division Director may administratively authorize a pressure limitation in excess of the above upon showing by the unit operator that such higher pressure will not result in fracturing of the confining strata.

RULE 13. All wells within the project area shall be equipped with risers or in some other acceptable manner as to facilitate the periodic testing of the bradenhead for pressure or fluid production.

RULE 14. The unit operator shall immediately notify the Supervisor of the Hobbs District Office of the Division of the failure of the tubing or packer in any of said injection wells, the leakage of water or oil from or

around any producing well, the leakage of water or oil from or around any plugged and abandoned well within the project area, or any other evidence of fluid migration from the injection zone, and shall take such timely steps as may be necessary or required to correct such failure or leakage.

RULE 15. Prior to placing any well on injection, other than a newly drilled well drilled under provision of Rule 9, a cement bond log shall be run on said well. Copies of all cement bond logs shall be sent to the Hobbs District Office of the Division. If any well is found to have an inadequate casing-cement bond, such measures as may be necessary to prevent leakage or migration of fluids from the Grayburg-San Andres reservoir shall be taken before placing the well on injection.

Where multiple casing strings prevent technical interpretation of bonding, the cement bond will be deemed adequate when the log shows acoustic coupling with the formation. In addition, radioactive tracer surveys, or any other acceptable survey presently available or developed in the future, that show no fluid migration out of the Grayburg-San Andres reservoir will be acceptable evidence of bonding.

NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
PRESSURE MAINTENANCE PROJECT

HOBBS (GRAYBURG-SAN ANDRES) POOL, LEA COUNTY, NEW MEXICO

WATER INJECTION CREDIT ALLOWABLE CALCULATION DATA

$$\text{Water Injection Credit Allowable} = \left[\frac{W_i - W_p}{BPAA \quad B_o + \frac{(R_p - R_s)}{(1{,}000)} B_g} - 1 \right] \times BPAA$$

W_i = _____ = Average daily water injection during previous month, barrels per day, project area only.

W_p = _____ = Average daily water produced during previous month, barrels per day, project area only.

BPAA = _____ = Basic project area allowable, 80 bopd x _____ (number of developed 40-acre tracts in project area).

P = _____ = Weighted average project area reservoir pressure, psig, from _____, 19__, survey data.

B_o = _____ = Oil formation volume factor, reservoir barrels per stock tank barrel (Attachment B).

R_p = _____ = Producing gas-oil ratio, cubic feet per barrel for previous month.

R_s = _____ = Solution gas-oil ratio, cubic feet per barrel (Attachment B).

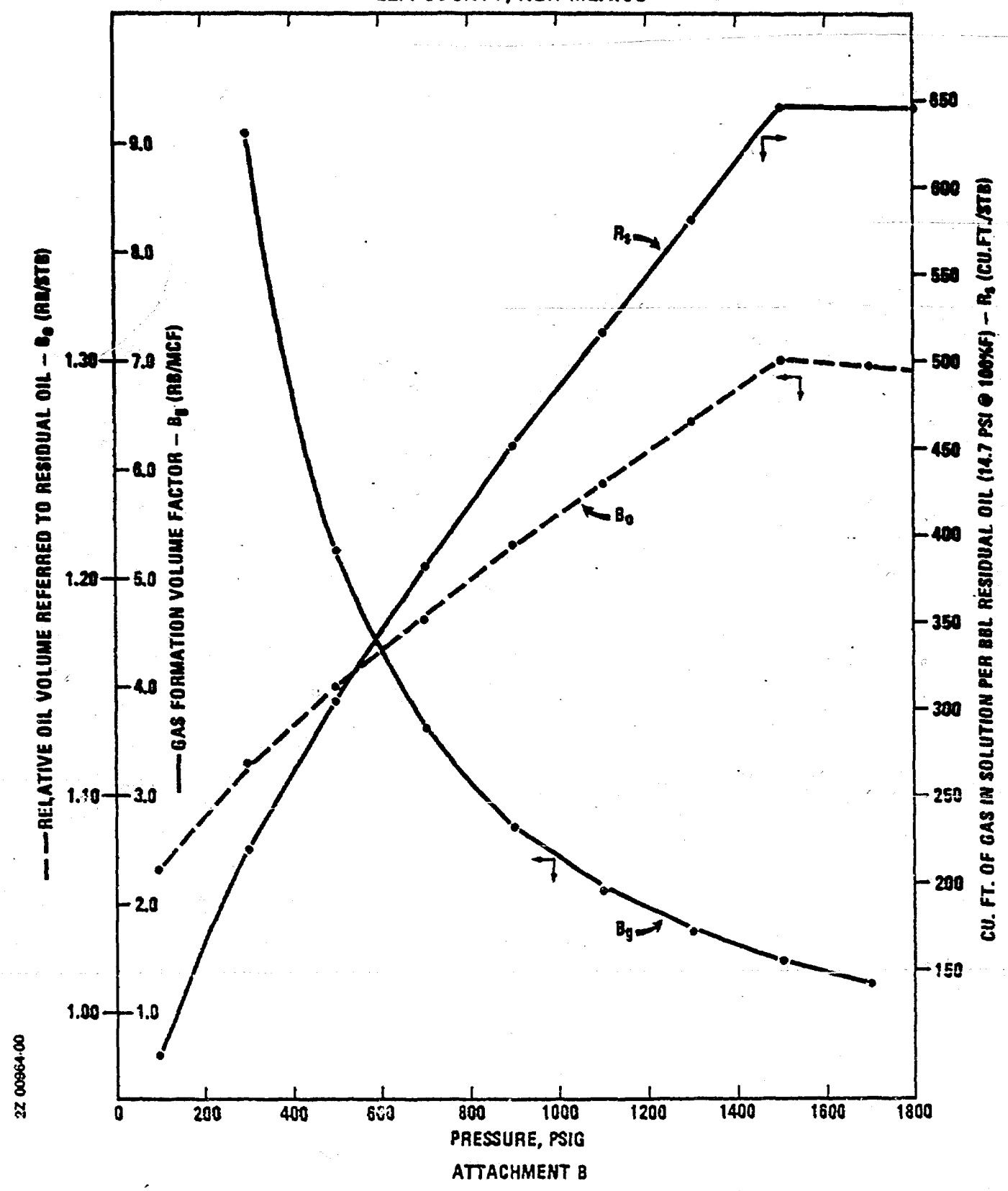
B_g = _____ = Gas formation volume factor, reservoir barrels per Mcf (Attachment B).

Water injection credit allowable for _____, 19__, = _____ barrels of oil per day.

ATTACHMENT A

OIL (B_o) AND GAS (B_g) FORMATION VOLUME FACTORS
AND GAS SOLUBILITY VS RESERVOIR PRESSURE

GRAYBURG–SAN ANDRES RESERVOIR
HOBBS FIELD
LEA COUNTY, NEW MEXICO



ATTACHMENT B

EXHIBIT 34

SUBMITTED SEPARATELY AS

Diagram depicting history & schedule project efforts

TESTIMONY AND EXHIBITS OF

BILL LANCASTER

TESTIMONY OF BILL LANCASTER

Q. Would you please state your name, by whom you are employed, and where you reside.

A. My name is Bill Lancaster, I am employed by Shell Oil Company and I reside in Houston, Texas.

Q. Have you previously testified before the Commission and had your qualifications accepted as a matter of record?

A. No, I have not.

Q. Would you then briefly describe your educational background and employment experience?

A. I graduated from Ohio State University in 1954, with a Bachelor of Science in Petroleum Engineering. Upon graduation, I spent two years, from 1954 to 1956, in the Air Force. In 1957, I received a Masters of Science in Petroleum Engineering from Texas A&M. In August of 1957 I was employed by Shell Oil Company. From 1957 to 1968 I worked in Shell's New Orleans Office, as a Production and Reservoir Engineer. From 1968 until 1977 I worked as a Reservoir Engineer in Shell's Rocky Mountain Division. In 1977, I was assigned to the Reservoir Engineering Section of the Mid-Continent Division, where my responsibilities include reservoir engineering work for fields in which Shell has an interest in West Texas and New Mexico.

Q. Mr. Lancaster, are you familiar with the history of the Hobbs Grayburg-San Andres Pool?

A. Yes, I am.

Q. How did you become familiar with this Pool?

A. I am now Chairman of the Technical Committee which was formed by the Working Interest Owner Committee to investigate the feasibility of initiating a pressure maintenance project for the purpose of recovering additional oil reserves in the Hobbs Grayburg-San Andres Pool.

Q. Then I take it that you are familiar with the applications in Case Nos. 6652 and 6653.

A. Yes, I am.

Q. Mr. Chairman, are the witness's qualifications acceptable?

A. (Await Answer, presumably they will be)

Q. Mr. Lancaster, I now ask you to briefly describe the history of this Pool, and in that connection I ask you to refer to what has been marked as Shell Exhibit No. 13.

A. Exhibit No. 13 is a graph showing the production history of the entire Hobbs Grayburg-San Andres Pool from its inception through 1975. As is shown, the Pool was discovered in 1928, and by the end of 1930 was producing about one million barrels of oil per month from 135 wells. This high production rate continued until 1935 when the rate was curtailed because of the reduced demand for oil.

Although a number of wells within the Pool continued to produce at maximum allowables after 1935, declines in production capacity were observed in most wells as a result of a continuing

decline in these wells' bottom hole pressures. By 1975, bottom hole pressures had declined from an initial 1515 pounds per square inch absolute in the Pool to approximately 400 pounds per square inch absolute in what I shall refer to as the Grayburg study zones, approximately 950 pounds per square inch absolute in the San Andres study zone I, and to approximately 800 pounds per square inch absolute in the San Andres study zones II and III. I should mention at this time that the Technical Committee decided it could better describe the past and future performance of the complex reservoir by dividing it into six study zones. In any event, this decline in production and pressure prompted operators to consider ways of supplementing the natural reservoir drive mechanisms so as to achieve greater ultimate recovery from the reservoir.

In 1970, Amoco initiated efforts to unitize the entire Hobbs Grayburg-San Andres Pool. In 1971, Moranco began injecting water into the Grayburg study zones in the northern portion of the Pool on the Moranco-operated Rice and Hardin leases. In 1973, Amoco abandoned its efforts to unitize the entire Hobbs Pool when working interest owners could not reach agreement on a participation formula. Nevertheless, Amoco continued its unitization efforts and subsequently formed a voluntary unit which comprised the southern third of the Pool. This unit became effective on January 1, 1975. When Amoco abandoned its efforts to unitize the entire Pool, Shell Oil Company was selected unit

expeditor for the remaining northern portion of the Pool by the working interest owners. Shell has continued its unitization efforts to date.

Q. What were the initial unitization efforts undertaken after Shell was selected unit expeditor for the northern portion of the Hobbs Pool?

A. All operators within this northern portion of the Hobbs Pool were asked to invite the working interest owners to a meeting on July 31, 1973. At this meeting our Technical Committee was formed by the working interest owners. This Technical Committee was to be comprised of engineering representatives of all working interest owners.

Q. What instructions, if any, were given to the Technical Committee by the Working Interest Owners Committee, and in this connection I refer you to what has been marked as Shell's Exhibit No. 14.

A. As is shown on this Exhibit, the Technical Committee was charged by the Working Interest Owners Committee with the task of determining the feasibility and profitability of instituting a pressure maintenance project for the northern portion of the Hobbs Grayburg-San Andres Pool. In addition, ~~our~~ committee was charged with the responsibility of developing values, tract by tract, for the parameters set forth on this Exhibit. This was done so that the Working Interest Owners Committee could develop a formula for the equitable sharing of the costs and the revenues to be derived from the pressure maintenance project.

Q. Did the Technical Committee in response to this charge determine whether or not the pressure maintenance project would be feasible and profitable?

A. Yes it did.

Q. What was the determination and what was the basis for that determination?

A. The Technical Committee made a comprehensive study of the Pool, including such parameters as the amount of oil in place, its location and its primary recovery efficiency, that is, as you know, the expected recovery from the Pool without a water injection program; and determined that significant volumes of oil would not be recovered under primary operations, and that by initiating a water injection program, there was a potential to increase the ultimate recovery by some 55 million barrels of oil. The committee also determined that a water injection program in this Pool was feasible and that such a program would be profitable and beneficial to the working interest owners and the royalty owners.

Q. Would you describe how the Technical Committee functioned in responding to the charges you just described and in this connection, I refer you to what have been marked for identification as Shell's Exhibits Nos. 15 and 16?

A. Since Amoco's prior attempt was abandoned because the working interest owners could not reach agreement on a method for allocating the Unit production based on the values assigned the

parameters and since Shell's undertaking of the unitization effort for the northern portion of the Hobbs Pool probably represented the last chance to unitize the entire northern portion of this reservoir, the Working Interest Owners Committee instructed the Technical Committee that a simple majority agreement on pertinent matters would not be sufficient, and that they were to reach agreement on these matters by a substantial majority. And if they failed in this endeavor, the Technical Committee was to present the issue to the Working Interest Owners Committee for resolution. To achieve these objectives our Committee proceeded in step by step manner so that a substantial majority agreement could be reached on each issue addressed before proceeding to the next. No decisions were reached unless there was a substantial majority concurrence.

In following these guidelines our Committee met for 22 sessions over a three and a half year period from September 1973 to March 1977. Minutes of each meeting were kept and they are compiled in Shell's Exhibit No. 15. Throughout the meetings, there was outstanding cooperation, and attendance averaged about 83% of the working interest ownership. The final outcome of all this work was the acceptance by the Working Interest Owners Committee of our Committee's Technical Report entitled "Waterflood Feasibility and Unitization Parameters" of the North Hobbs Grayburg-San Andres Unit dated April, 1977. This Technical Report is Shell's Exhibit No. 16.

Q. Did your committee develop any information concerning the geology of the northern portion of the Hobbs Pool?

A. Yes, we did. The entire Hobbs Grayburg-San Andres Pool is a northwest-southeast trending anticline about eight miles long by 3.5 miles wide. Within this Pool there exist two recognized geological strata known as the Grayburg and the San Andres. As I previously mentioned, the Technical Committee decided that breaking these strata into six study zones would facilitate the job of describing the reservoir performance. Now, as is shown on Figure 4 of the Technical Report, this anticline has some 400 feet of structural relief from the crest of the upper Grayburg at 217 feet subsea to the top of an oil-water transitional zone at 614 feet subsea. A large gas cap above 360 feet subsea initially covered the crestal or central portion of the reservoir.

Q. Would you describe for the Commission the six study zones?

A. For purposes of the technical study, the upper portion of the reservoir was divided into two study zones referred to as the upper and lower Grayburg. The total thickness of these two zones varies from 80 gross feet on the southeast flank to 200 feet on the northwest and southwest flanks of the Unit Area. Since the Grayburg is overlain by a large gas cap, most of the oil bearing reservoir is located around the flanks of the struc-

ture. Maximum oil pay development for both of these Grayburg study zones is found on the western flank, and production is from thinly interbedded sandstone, siltstone and dolomite layers, with most of the production coming from the sandstone layers.

Again, for the purposes of the technical study, the lower portion of the reservoir was divided into four study zones referred to as San Andres Zones I, II, III-upper, and III-lower. San Andres Zone I is a crystalline dolomite that is separated from the overlying productive interval by 10 to 80 feet of impermeable dolomite. This zone usually consists of two to three very porous layers, some of which are reported to be cavernous. This is the only study zone known to have experienced significant edge water influx.

San Andres Zone II is a dolomite layer 50 to 90 feet thick which is normally separated from Zone I by a thin shaley bed.

San Andres Zone III is separated from Zone II by a sandy break consisting of 10 to 20 feet of a dense sandy carbonate. Zone III is generally more thin-bedded than Zones I and II, but like Zone II is best developed on the crest of the structure. Based on core and petrophysical studies this zone was further divided into an upper and a lower study zone.

Q. In connection with its technical study, did the Technical Committee make any determinations with respect to the oil and gas in place within the Unit Area?

A. Yes, the Committee did.

Q. How were these determinations made?

A. Most of the wells completed in the Grayburg study zones were drilled in the 1930's and their logging surveys were not suitable for calculating porosity values. Therefore, to determine the oil in place for these particular zones, the Technical Committee developed net pay maps and used an average porosity value of 14 percent that had been determined from analyzing available core and log data. These oil and gas net pay maps are based on a gas-oil contact of 360 feet subsea and are included in the Technical Report as figures 8, 9, 10 and 11.

With respect to the San Andres study zones, there did exist sufficient core and log data in the San Andres intervals to enable the Technical Committee to prepare porosity-feet maps for each of the four San Andres study zones. Table 6 in the Technical Report is a summation of the petrophysical analysis used in constructing the net porosity-feet maps for each of the San Andres study zones. The resulting porosity-feet maps are included in the Technical Report as Figures 23, 24, 25 and 26. These porosity-feet maps were utilized by the Technical Committee to calculate initial oil in place on a tract by tract basis within the Unit Area.

Q. What other kinds of data did the Technical Committee develop with respect to their study?

A. The Committee developed a water-cut map for San Andres Zone I, and gas-oil ratio maps for San Andres Zones II, III-upper and III-lower, all of which are included in the Technical Report as figures 27 through 30 respectively.

Q. How was the data used in meeting the charge of the Working Interest Owners Committee?

A. The data was used as input in determining the remaining primary and secondary reserves, and in determining the economic profitability of instituting a program of water injection in the northern portion of the Hobbs Grayburg-San Andres Pool. This data would also provide a basis upon which the Working Interest Owners Committee could develop a fair and reasonable participation formula for all the working interest owners and royalty interest owners.

Q. How did the Technical Committee finally determine an estimate of primary reserves?

A. The Hobbs Grayburg-San Andres Pool is one of the last major Grayburg-San Andres reservoirs in the New Mexico-West Texas area to be unitized. Two factors that have contributed to the delay in forming a North Hobbs Unit are the complexity of this reservoir and the influx of water into the upper portion of the San Andres, both of which made estimating primary reserves very difficult. In forecasting the remaining primary performance of the North Hobbs Unit wells, the Technical Committee decided to determine the reserves on a well by well basis, separating the

producers into two groups. The first group consisted of those wells with only Grayburg production. The second group consisted of those wells with San Andres production.

Production from wells completed only in the Grayburg study zones is characterized by marginal oil rates, high gas-oil ratios and little or no water. Since these study zones were in the latter stages of depletion, the Technical Committee determined that the remaining reserves could be estimated by extrapolating recent production performance.

However, due to the complex reservoir performance observed in the San Andres study zones, production plots such as decline curves or oil cut-cumulative curves were not suitable for forecasting the reserve potential of the San Andres wells. After considering several proposed methods of determining primary reserves for these study zones, the Technical Committee elected to use a computerized reservoir simulation model because it is the most precise means of describing a complex reservoir performance of this type, and because it is able to utilize detailed well, production, reservoir and geological data effectively. Figure 31 of the Technical Report is a map of the North Hobbs Unit showing which of these two methods, extrapolation or computer simulation, was utilized in determining each well's primary reserves.

Q. What was your committee's final conclusion as to the remaining primary Grayburg reserves within the northern portion of the Hobbs Pool?

A. At the time the Technical Report was finalized, there were 78 wells completed in only the Grayburg study zones. The primary oil reserves from these wells were determined by extrapolating the five-year production trends between January 1, 1972 and January 1, 1977 to an economic limit of one barrel of oil per day per well. The well reserves were then summed by tract and the tract reserves are shown on Table 14 of the Technical Report. Using this method, the total Grayburg primary oil reserves were estimated to be 1.5 million barrels of oil as of January 1, 1977.

Q. How did you calculate the remaining primary reserves with respect to the San Andres study zones?

A. As I explained earlier, the analysis and the data necessary to make the computations with respect to the remaining primary reserves within the San Andres study zones were considerably more complex than those required for the Grayburg study zones. Figure No. 32 in the Technical Report shows the grid overlay that was used for the computer simulation model work in describing the San Andres Zones I, II and III. The model consisted of three layers of 200 blocks each, with each layer describing one of the San Andres study zones. Each of the blocks within the model was assigned particular reservoir characteristics, including zonal thickness, porosity, permeability, and initial oil, gas and water saturations. In addition, the simulation included an aquifer for the upper layer of the model to represent the water influx experienced in the San Andres Zone I.

Within the simulator program, oil, gas and water were withdrawn from each San Andres well located within the entire Hobbs Pool based on each well's reported production history. This, of course, included wells located in that southern portion of the Pool that Amoco unitized. The object was to construct a model so that the reservoir performance as calculated by the computer simulation would match the actual performance evidenced by the historical reservoir data. Once a match was obtained, a prediction of future performance was made starting in September 1976. The results of the simulation model study indicated that the San Andres primary reserves for the North Hobbs wells would be 36.6 million barrels of oil as of January 1, 1977. These well reserves estimates were then summed up by study zone, by tract and by working interest owner, and are presented in the Technical Report as Tables 16 and 23 A and B.

Q. How were the recoverable secondary reserves estimated?

A. Because of differences in reservoir quality, the secondary potential of the Grayburg and San Andres study zones was evaluated separately. Evaluation of the Grayburg secondary recovery potential was done using another reservoir simulation model study. In a depleted reservoir with relatively low permeability, as exists in this Grayburg Reservoir, the injection rates will be low, and the time required to reach maximum response can take a long time. Although there are numerous technical procedures for estimating recoveries and response

times, we believe the use of a simulation model, especially in this case, offers the most precise estimate of future performance. This simulation model consisted of 153 blocks on a 9 x 17 grid in a single layer, with wells located within the model to duplicate the results of installing an 80 acre five-spot water injection program. The reservoir input data was based on the average reservoir characteristics typical of the Grayburg study zones on the north and west flanks of the Pool.

The significant conclusions derived from this study were the following:

(1) Because of the low permeability, 5 millidarcies more or less, injection pressures on the order of 1500 pounds per square inch will be required to inject sufficient water to obtain a successful secondary recovery operation;

(2) Ultimate primary recovery will be 18.7% of the original oil in place and secondary recovery will be 14.4% of the original oil in place using a symmetrical closed 80 acre five-spot injection pattern;

(3) An 80 acre five-spot pattern, using existing wells, is economically attractive and will have a long life of approximately 36 years.

Applying the calculated secondary recovery percentage factor to the oil in place in the patterns surrounding the Grayburg injectors as shown on Figures 35 and 36 of the Technical Report resulted in a secondary recovery estimate of 6.6 million barrels

of oil for th Grayburg study zones. This is equivalent to a secondary to primary recovery ratio of 0.57. The estimated primary and secondary oil recoveries are again listed by zone on Table 16 and by tract and by working interest owner on Tables 24 A and B of the Technical Report.

Based on the simulator results, the anticipated average water injection rates will be 260 barrels of water per day per well into 40 injectors during fillup and 125 barrels of water per day per injector afterwards. This Grayburg water injection program will require approximately 90 million barrels of injection water over a ~~thirty~~-six year life, including 35 million barrels of makeup water which will be obtained through contract with the City of Hobbs. Peak Grayburg production, averaging 30 barrels of oil per day per producing well or about 1000 barrels of oil per day, will occur ten years after the water injection program begins.

Q. What methods were used to evaluate the secondary potential of the San Andres study zones?

A. First, no secondary recovery potential was attributed to San Andres Zone I because the reservoir analysis of its primary performance indicated a high recovery efficiency due to a strong natural water influx. With respect to San Andres Zones II and III, two methods were used to evaluate their secondary potential. These methods were: (1) to use nearby water injection projects in the same San Andres strata as an analogy to determine

what could be expected from the northern portion of the Hobbs Pool and; (2) to use a third computer simulation model to forecast the results of a water injection program. With respect to the analogy with other existing San Andres water injection programs, performance data on eight such projects were reviewed and volumetrically averaged on the basis of original oil in place and this study reflected an average ultimate recovery efficiency of 35% with a secondary to primary recovery ratio of 0.85. The water injection programs included in the study were mature projects having already recovered in excess of 60% of the estimated ultimate secondary oil reserve. In analyzing these analogous water injection programs, it was noted that the higher the permeability within the reservoir, the higher the anticipated secondary recovery efficiency. Only two of the projects studied had average permeabilities as high as the 28 millidarcies encountered in the San Andres portion of the Hobbs Pool and their ultimate recoveries were predicted to be 39.4 and 46.4% of the original oil in place.

In addition to the study of these analogous projects, the secondary potential and performance of the Hobbs Grayburg-San Andres Pool was evaluated using a third reservoir simulation model. The results of this model study confirmed the floodability of the San Andres and indicated that the ultimate recovery with a water injection program would be 44% of the original oil in place. Consequently, based on the results of these two

studies, the Technical Committee determined that the ultimate oil recovery efficiency with a water injection program for the San Andres Zones II and III would be 40% of the original oil in place.

Q. Did the Technical Committee adopt any recommendation with respect to the injection patterns for San Andres Zones II and III?

A. Yes. The recommended water injection patterns for the e zones was an inverted nine spot injection pattern with approximately 160 acre spacing as shown on pages 37 through 39 of the Technical Report. The injection wells were selected on the basis of both location and evidence of non-communication, behind pipe, with San Andres Zone I.

Q. Did the Technical Committee come to any conclusions with respect to the amount of secondary recovery potential based on the recommended injection pattern?

A. The Technical Committee determined that by installing 160 acre inverted nine spot patterns in the San Andres Zones II and III, the recovery efficiency would be increased from about 24% to 40% and that the ultimate oil recovery would be increased by 48.6 million barrels of oil. A breakdown of the secondary recovery by study zone is listed on Table 16 and by tract and working interest owner on Tables 24 A and B of the Technical Report.

Based on the simulation study it was determined that the San Andres production response will reach a peak of 9,000 barrels

of oil per day some eight years after injection begins. This constitutes an average of about 80 barrels of oil per day per producing well. This production forecast is based on an average water injection rate of 2,000 barrels of water per day per well into 30 injectors during fillup which will take approximately 160 million barrels of water. The total water injection requirement is estimated to be 550 million barrels, of which 80 million barrels will constitute makeup volume, and again, will be obtained from the City of Hobbs. The cumulative produced water oil ratio is expected to be 5 to 1.

Q. Mr. Lancaster, did the Technical Committee estimate remaining gas reserves?

A. Yes, the Technical Committee made estimates of both the volumes of the original gas cap gas in place and the remaining gas reserves. The gas cap volumetrics were calculated from the Grayburg net pay isopach maps and the San Andres porosity-feet maps included in the Technical Report as Figures 8, 10 and 22. For the Grayburg, the calculations included an average porosity of 14 percent based on log and core data and a water saturation of 30 percent which was derived from analyzing the available technical data. For the San Andres, our Committee used a water saturation of 22 percent, again based on the analysis of available technical data. The distribution of the calculated 54.2 billion cubic feet of gas by tract and by working interest owner is given on Tables 21 A and 21 B of the Technical Report.

In estimating the remaining gas reserves for the Grayburg, our Committee used the remaining Grayburg primary oil reserves for each tract as of January 1, 1977 and multiplied that figure by the produced gas oil ratio for each tract during the year 1976. For the San Andres, our Committee agreed to use the gas reserves as predicted by the reservoir computer simulator that predicted the San Andres primary recovery. The well by well estimates of the San Andres gas reserve were then summed up on a tract by tract basis. The remaining gas reserves for Grayburg and San Andres thus determined by the Technical Committee were 8.9 and 98.3 billion cubic feet respectively. The distribution of both the gas and oil reserves by tract and by working interest owner is given on Tables 25A and 25B respectively of the Technical Report.

Q. Mr. Lancaster, I now refer you to what has been marked Shell's Exhibit No. 17 and ask you to identify it.

A. Exhibit No. 17 is a summary of the capital requirements to install the North Hobbs water injection program in the event Shell's applications are granted. This tabulation is based on Table 17 of the Technical Report which has been revised using updated cost estimates. The Exhibit is fairly self-explanatory and identifies the various capital requirements allocated to various parts of the project. I might point out that the exhibit reflects the ultimate capital investment to be 33,000,000 dollars

which takes into account future capital requirements that will be necessary during the life of the project.

Q. Now Mr. Lancaster I refer you to what has been marked as Shell's Exhibit No. 18 and ask you to identify it.

A. Exhibit No. 18 is a production schedule for the North Hobbs Grayburg-San Andres Unit. In this exhibit, there are two production forecasts. The lower curve represents the predicted primary production performance of the North Hobbs wells without a water injection project. The upper curve represents the unit performance that we anticipate with the water injection program. It may be noted that the unit production is anticipated to increase to more than ten thousand barrels of oil per day. It is of interest to further note that the projected life of the Unit is on the order of 44 years, or approximately 10 years more than the projected life without unitization. As I have already mentioned we anticipate that this program of water injection will provide an additional 55 million barrels of oil over the life of the project which would not otherwise be recovered.

Q. Mr. Lancaster, I now refer you to Shell's Exhibit No. 19 and ask you to identify it.

A. Exhibit 19 is a tabulation demonstrating the difference in reserves and profitability with and without unitization of the northern portion of the Hobbs Grayburg San-Andres Pool. The first column on the exhibit shows the reserves and profitability

without unitization. The second column shows the same thing with unitization. The third column shows the difference between the first two columns.

You will note that the estimated remaining primary reserves as of January 1, 1980 are 30.3 million barrels of oil. This was obtained by subtracting estimated production between January 1, 1977 and January 1, 1980 of 7.8 million barrels from the primary reserve estimate given in the Technical Report of 38.1 million barrels as of January 1, 1977. The reserves of 85.5 million barrels of oil estimated to be recovered through unitized water injection operations includes the remaining primary of 30.3 million barrels plus the 55.2 million barrels of secondary reserves.

The next line on the Exhibit shows the initial and ultimate investment requirement anticipated for the water injection project. Of the total anticipated capital investment of 33 million dollars, 27 million dollars is forecast to be spent during 1980-81 and an additional 6 million dollars is forecast to be spent during the following eight years to handle the increasing volumes of oil and water.

The third line on this Exhibit shows the difference in profitabililty with and without unitization. The profitability was broken down into two calculations. The first subcategory shows profitability as undiscounted or without any consideration for the time values of revenue. The second subcategory shows profitability on a present value basis with a ten percent

discount which is a more common approach showing the effect of deferring income over an extended period of time. Consequently, as may be seen, the expected profit on an undiscounted basis for continued primary production is 405 million dollars without unitization, 917 million dollars with unitization, resulting in a net profit for this water injection project of 512 million dollars. Using the approach of calculating profitability on a discounted basis, you can again see that the profit without unitizaton is 178 million dollars, and with unitization is 302 million dollars resulting in an additional profit of 124 million dollars which reflects a 421% profit for the water injection project. As shown on the Exhibit, all profits listed do not include the payment of federal income tax.

Q. What factors were used in these calculations?

A. The reserve estimates were taken from the Technical Report with the primary reserves adjusted for estimated production from January 1, 1977 to January 1, 1980. The income schedule for these reserves was based on the production schedules shown in Exhibit No. 19. In addition to the 33 million dollars capital expenditure, the operating costs of unit operations was estimated to be an additional 100 million dollars more than the primary operating costs without unitization.

Revenue and expenditures were based on current unit values and no adjustments were made for future inflationary factors. In developing the profits to be derived from unit and non-unit operations, the following crude oil prices were used: $6.25 per barrel of oil for lower tier production, $14.98 per barrel of oil

for upper tier production and $26.00 per barrel of oil for stripper production.

Q. Mr. Lancaster, realizing that the cost of operations as well as the price of crude oil can change, what is your opinion as to the profit values listed on Exhibit No. 19.

A. In my opinion, the profitabilities given on Exhibit 19 are conservative.

Q. Is it your opinion that the unitized management, operation and development of the North Hobbs Grayburg-San Andres Unit is feasible and will result in a reasonable profit?

A. Yes, that is my opinion.

Q. Why is the unitized management of the North Hobbs Grayburg-San Andres Unit necessary?

A. With a water injection program, oil is forced to move from one property to another. In view of this movement, it is necessary to unitize all interests in order for the owners to receive their fair share of the income from all the oil produced within the Unit. This type of arrangement benefits both the royalty and working interest owners and protects their correlative rights which is especially difficult to achieve in a multi-layered, heterogeneous reservoir. In addition, the elimination of lease line barriers allows flexibility in the use of existing wells and allows variation in injection and withdrawal rates as will be required by the reservoir's actual performance. This flexibility will result in the maximum efficiency of recovery and the elimination of waste.

Q. In addition to determining the feasibility of the project and its profitability, what other charges were directed to the Technical Committee to answer?

A. The committee was charged with developing values of certain specified parameters or characteristics by tract in order to permit the working interest owners to develop an equitable method for the sharing of expenses and revenues from the Unit.

Q. What were these parameters or characteristics which the Technical Committee was charged to develop values for?

A. The list of parameters is included on Exhibit 14 under the subheading (F). Of the ten parameters specifically listed, we were unable to obtain two. The first was the value of the oil and gas production and the second was the floodable net acre feet. We were unable to obtain the values for the oil production parameter with sufficient accuracy because of the wide variations of income per barrel of oil under federal price control regulations. We were unable to obtain the floodable net acre feet because of the poor quality of the logs that exist as a result of the Pool being very old. However, our committee did develop two additional parameters which were (1) the primary gas reserves, and (2) the gas cap volumetrics.

Q. Is this information located in the Technical Committee Report?

A. Yes it is, on Tables 21 through 25. It might be noted that there are two tables for each set of parameters. On Table

A, the parameters are listed by tract and on Table B listed by working interest owner. In each of these tables the parameters are listed as to the magnitude and percent of the total for each tract and for each working interest owner.

Q. Mr. Lancaster, you have described for us how the Technical Committee was charged with certain tasks by the Working Interest Owners Committee and how your committee determined the feasibility and profitability of the Pressure Maintenance Project. What, if anything, was to be done with the Technical Committee's Report?

A. As I've indicated, the Technical Committee prepared the Technical Report dated April, 1977. In this report the Committee described the history and geology of the northern portion of the Hobbs Grayburg-San Andres Pool, calculated primary and secondary reserves, demonstrated the feasibility and profitability of this pressure maintenance project, made recommendations as to a plan of secondary recovery based upon water injection and provided the working interest owners with calculated values of certain parameters as a basis upon which to negotiate an equitable formula for the sharing of the expenses and income of the project. With the data from this report, the Working Interest Owners Committee would be able to determine an equitable method of sharing costs and expenses of the project and to prepare a Unit Agreement and Unit Operating Agreement for ratification.

Q. Based upon your technical expertise and your knowledge of the facts concerning the two application being heard here today, is it your opinion that the granting of the applications in these consolidated cases Nos. 6652 and 6653 will result in the prevention of waste and the protection of correlative rights?

A. Yes, that is my opinion.

Q. And is it also your opinion that the granting of these applications is reasonably necessary to carry on supplemental recovery operations so as to substantially increase the ultimate recovery of oil and gas from the Hobbs Grayburg-San Andres Pool?

A. Yes, that is also my opinion.

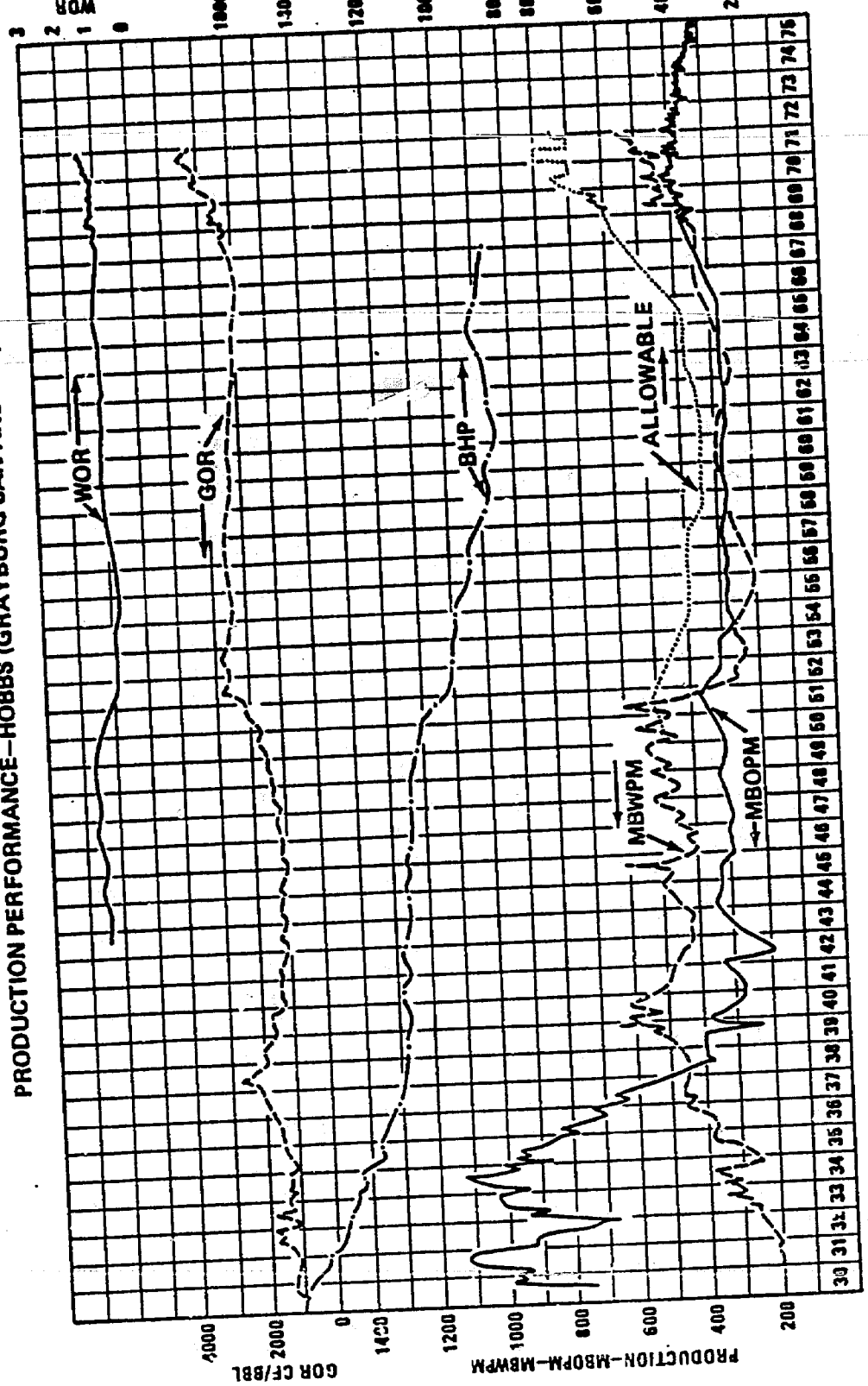
Q. Were Exhibits 13 through 19 prepared by you or under your supervision?

A. Yes they were.

TENDER EXHIBITS

EXHIBIT 13

PRODUCTION PERFORMANCE–HOBBS (GRAYBURG SAN ANDRES) FIELD



ZM–2217

GRAPH 1

EXHIBIT 14

SHELL EXHIBIT 14

PROPOSED NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT

WORKING INTEREST OWNERS' CHARGE TO THE TECHNICAL COMMITTEE

A. CONSTRUCT AN ACCEPTABLE BASE MAP.

B. DEFINE THE VERTICAL INTERVAL TO BE UNITIZED.

C. RECOMMEND A UNIT AREA OR AREAS.

D. DETERMINE FEASIBILITY OF WATERFLOODING THE GRAYBURG.

1. CONSTRUCT GRAYBURG NET PAY MAP AND (NET Øh, IF POSSIBLE).
2. DETERMINE FLOODABLE NET ACRE FEET.
3. DETERMINE SECONDARY OIL POTENTIAL.

E. DETERMINE FEASIBILITY OF WATERFLOODING THE SAN ANDRES.

1. REVIEW Øh MAPS.
2. REVIEW GOR AND WATER-CUT MAPS.
3. CONSTRUCT CONTINUOUS PAY MAPS BY ZONE.
4. DETERMINE REMAINING PRIMARY PRODUCTION.
5. ESTABLISH SECONDARY OIL POTENTIAL BY ZONES.

F. TABULATE THE FOLLOWING PARAMETERS BY TRACT, BY ZONES, AND BY WORKING INTEREST OWNERS:

1. CURRENT OIL AND GAS PRODUCTION RATE AND VALUE FOR THE MOST RECENT REPRESENTATIVE PERIOD.
2. CUMULATIVE OIL PRODUCTION.
3. USABLE COMPLETIONS.
4. ACTIVE PRODUCING WELLS.
5. TOTAL ACRES.
6. ORIGINAL OIL IN PLACE.
7. FLOODABLE NET ACRE-FEET.
8. REMAINING PRIMARY RESERVES.
9. ULTIMATE PRIMARY OIL.
10. SECONDARY RESERVES.
11. ANY OTHER PARAMETER CONSIDERED APPROPRIATE BY THE ENGINEERING SUBCOMMITTEE.

G. DEVELOP RECOMMENDED PLANS OF DEPLETION INCLUDING ECONOMIC COMPARISONS VERSUS CONTINUED PRIMARY OPERATIONS.

EXHIBIT 15

SUBMITTED SEPARATELY AS

Minutes of Technical Committee Meeting

EXHIBIT 16

SUBMITTED SEPARATELY AS

Technical Report

EXHIBIT 17

SHELL EXHIBIT 17

NORTH HOBBS WATERFLOOD CAPITAL REQUIREMENTS

I.	Injection System (60,000 BWPD @ up to 1500 psi)	
	A. Injection Station	2,500,000
	B. Injection Lines	4,500,000
	C. Well Heads & Manifolds	600,000
		7,600,000
II.	Production Handling System (185 Wells, 15,000 BOPD, 70,000 BWPD)	
	A. One Central Tank Battery	1,200,000
	B. Fourteen Satellite Stations	3,400,000
	C. Gathering & Distribution Lines	6,700,000
	D. Additional Electrification	700,000
		12,000,000
III.	Source Water Gathering System	1,200,000
IV.	Well Work	
	A. Drill & Equip _____ 20.5 Wells	4,000,000
	B. Workovers & Conversions	2,200,000
		6,200,000
	INITIAL CAPITAL INVESTMENT	27,000,000
	FUTURE CAPITAL	6,000,000
	ULTIMATE CAPITAL INVESTMENT	33,000,000

EXHIBIT 18

EXHIBIT 19

SHELL EXHIBIT 19

NORTH HOBBS GRAYBURG-SAN ANDRES

RESERVES AND PROFITABILITY

		PRIMARY	UNIT (PRIM & SEC)	SECONDARY (DIFFERENCE)
RESERVES (MMB)		30.3	85.5	55.2
CAPITOL INVESTMENT (MM$)				
1980		—	27	27
1983–1990		—	6	6
			33	33
PROFITIBILITY BEFORE FIT				
UNDISCOUNTED	(MM$)	405	917	512
	(%)	—	—	1551
DISCOUNTED @ 10%	(MM$)	178	302	124
	(%)	—	—	421

EXHIBIT —

2Z05020-00*

INDEX OF THE WORKING INTEREST OWNERS
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SHELL OIL COMPANY
PETROLEUM BUILDING
P.O. BOX 1509
MIDLAND, TEXAS 79701

July 20, 1973

Subject: North Hobbs Unit Proposed
Hobbs Field
Lea County, New Mexico

ALL OPERATORS

At the meeting of the Working Interest Owners of the proposed Hobbs (Grayburg-San Andres) Unit held July 12, 1973, it was agreed that efforts would be made to form two Units in the Hobbs Field for purposes of secondary recovery operations instead of one field wide unit previously attempted. It was further agreed that the Hobbs Field would be divided along the Township line between Townships 18S and 19S, R37-38E. Amoco Production Company will be the Unit Expeditor of the area to the south of such line and Shell Oil Company the Unit Expeditor of the area to the north.

A meeting of all Operators of properties to the north of the above stated dividing line is called for 1:30 p.m., July 31, 1973, in the Texas Electric Service Company Reddy Room, 124 North Colorado, Midland, Texas.

The agenda for the meeting will be as follows:

1. Confirm the interest of all Operators of properties to proceed with efforts to unitize and waterflood the properties of the Hobbs Field to the north of the Township line between Townships 18S and 19S, R37 and 38E, Lea County, New Mexico.

2. Discuss plans for further unitization efforts.

3. Organize an Engineering Sub-committee.

4. Develop a charge to the Engineering Sub-committee.

5. Any other business.

This meeting call is being sent only to the Operators of leases, as a list of Working Interest Owners is not as yet available. It is asked that each Operator invite the Working Interest Owners in their properties to attend the meeting if they so desire.

Yours very truly,

W E Buck

For Jack L. Mahaffey
Production Manager
Mid-Continent Division

WEB:NO

1

MINUTES OF OPERATORS MEETING
NORTH HOBBS UNIT PROPOSED
JULY 31, 1973

A meeting of the Operators of the North Hobbs Unit (Proposed) was held July 31, 1973, in Midland, Texas. Representatives attending the meeting are shown on the attached attendance list.

Mr. Buck (Shell) opened the meeting by restating the decisions reached by the Working Interest Owners of the proposed Hobbs (Grayburg-San Andres) Unit at the Operators Committee meeting of July 12, 1973. He pointed out that the purpose of the present meeting was to go further with the above decisions in determining the interest of the Operators in proceeding with unitization and secondary recovery efforts for the area of the Hobbs Field north of the township line between Townships 18S and 19S, R37-38E.

Mr. Buck then asked for comments and discussion concerning such unitization efforts. With the exception of Gulf and without motion, all representatives present agreed to proceed and to participate in an effort to form a North Hobbs Unit with Shell acting as Unit Expeditor. Mr. F. W. Moran (Gulf) then stated that while not opposing unitization, Gulf was concerned that such efforts were somewhat premature and therefore would not actively participate at this time. He further advised that Gulf would cooperate in supplying data and would from time to time review their position for possible change.

With this confirmation of interest, plans for further unitization efforts were discussed. Mr. Buck explained that a complete list of Working Interest Owners had not as yet been developed and asked that if an Operator wished the names of any non-operators be added to the mailing list to please so advise. He also stated that arrangements were being made to obtain all pertinent data from the files maintained by Amoco for the field-wide unitization effort. Mr. Buck submitted a schedule of fixed pre-unit expenses and said a ballot would be submitted for approval.

As a first step toward unitization and waterflooding, the organizing of a Technical Committee and the charge to such Committee was discussed. In answer to Mr. Buck's inquiry the following named companies advised that they would have representatives on the Technical Committee: Exxon, Skelly, Marathon, Continental, Amoco, Cities Service, Texas Pacific, Texaco, Amerada, Getty, Sun, and Chevron.

Mr. Buck then introduced Mr. M. A. Thieme (Shell) who would serve as chairman of the Technical Committee. Mr. Thieme then outlined briefly his plans for the Technical Committee. He advised that it would be the intent of the Committee to use as much data as possible from the study proposed by the Hobbs Unit. However, because of the complexity of the reservoir behavior in the north part of the field, he believed the Technical Committee should make a more detailed study in some instances. Mr. Thieme then submitted a suggested charge for the Technical Committee. After some discussion and modification, the following charge to the Technical Committee was approved by all present:

PROPOSED NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT

WORKING INTEREST OWNERS' CHARGE TO THE TECHNICAL COMMITTEE

A. Construct an acceptable base map.

B. Define the vertical interval to be unitized.

C. Recommend a Unit Area or areas.

D. Determine feasibility of waterflooding the Grayburg.

1. Construct Grayburg net pay map and (net Øh, if possible).
2. Determine floodable net acre-feet.
3. Determine secondary oil potential.

E. Determine feasibility of waterflooding the San Andres.

1. Review Øh maps.
2. Review GOR and water-cut maps.
3. Construct continuous pay maps by zone.
4. Determine remaining primary production.
5. Establish secondary oil potential by zones.

F. Tabulate the following parameters by tract, by zones, and by Working Interest Owners:

1. Current oil and gas production rate and value for the most recent representative period.
2. Cumulative oil production.
3. Usable completions.
4. Active producing wells.
5. Total acres.
6. Original oil in place.
7. Floodable net acre-feet.
8. Remaining Primary Reserves.
9. Ultimate Primary Oil.
10. Secondary reserves.
11. Any other parameter considered appropriate by the Engineering Subcommittee.

G. Develop recommended plans of depletion including economic comparisons versus continued primary operations.

It was agreed that every effort would be made to obtain general agreement of the Technical Committee on all items. If such agreement could not be reached, it was decided that the Technical Committee would bring such matter to the attention of the Operators Committee for direction or decision. It was further agreed that decisions reached by vote of Technical Committee would be fully recorded in minutes of meetings.

Through further discussion, the opinion was expressed that although it was scheduled for the Technical Committee to complete the charge by July 1974, such Committee should not be bound by this date if it became apparent that additional time would be required to complete an acceptable study. In this regard, Mr. G. R. Meyers (Texas Pacific) pointed out that one of the significant matters to be resolved is the problem of migration and that it might be necessary for Operators to spend money to help delineate and resolve the problem in certain areas of the field.

Mr. Thieme then advised that he would call the first meeting of the Technical Committee during the last part of August.

There being no further business, the meeting was adjourned.

W. E. Buck
Chairman, Operators Committee

ATTENDANCE LIST
OPERATORS COMMITTEE MEETING
NORTH HOBBS UNIT
JULY 31, 1973

Name	Company
V. T. Lyon	Conoco
Chas. F. Dwyer, Jr.	Chevron
J. C. Solari	Chevron
Ken McPeters	Moran Co.
William S. McEven	Samedan
J. E. Eakin	Getty
Bill Larsen	Wiser
S. R. Denton	Amoco
F. W. Moran, Jr.	Gulf
G. R. Meyers	Texas Pacific
Gerald Bell	Texas Pacific
F. A. Bowling	Amerada Hess
R. A. Dawson	Texaco
E. R. Frazier	Mobil
W. E. Nolan	Exxon
J. M. Shepherd	Exxon
G. A. Naert	Marathon
Frank D. McAtee	Skelly
E. H. Lowrey	Cities Service
Jack Andrews	Sun
W. E. Buck	Shell
M. A. Thieme	Shell
Jim E. Greve	Shell
Steve Pontius	Shell
George A. Teer	Shell

BALLOT

Unitization Expense
North Hobbs Unit
Lea County, New Mexico

The undersigned hereby approves the following listed flat rate unitization expenses and agrees to pay a share of such expense; the share being determined by the method stated below:

1.	Drafting, reporduction, assembling and distribution of Engineering Sub-Committee Report and Tabulations such rate not to include special computer studies or laboratory analysis.	$900.00
2.	Printing and assembling Unit Agreements.	$500.00
3.	Appearance before regulatory bodies to obtain approval of the project.	$600.00
4.	Postage, telephone, telegraph and normal and usual expenses of securing joinder. Does not include expenses of personal contacts if travel required exceeds 100 mile radius from Midland, Texas.	$1,000.00
	Total	$3,000.00
5.	Filing and recording fees and associated travel expenses will be considered Unit Expense and charged to the joint account.	

With the formation of the Proposed North Hobbs Unit, all above stated expense items will be shared on the basis of Unit Participation (Phase I). If the Unit does not become effective, then the expense items which have been incurred will be apportioned on the basis of oil produced during the period January 1, 1973 to July 1, 1973. It is understood that any Working Interest Owner may withdraw at any time by giving the Unit Expeditor written notice of such withdrawal, and by paying his share of expenses incurred prior to withdrawal. The withdrawing Owners share shall be determined on the basis of the production period stated above.

Company_____

Representative_____

Date_____

NORTH HOBBS UNIT
LEA COUNTY, NEW MEXICO

1. Operators Committee

Company_____

Representative_____

Mailing Address_____

_____

_____

_____

2. Technical Committee

Company_____

Representative_____

Mailing Address_____

_____

_____

_____

Return to:

Shell Oil Company
P. O. Box 1509
Midland, Texas 79701
Attention Mr. W. E. Buck

ADDRESSEE LIST
NORTH HOBBS UNIT
WORKING INTEREST OWNERS

AMERADA HESS CORPORATION
ATT: MR. J. C. BLACKWOOD
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
~~ATTN: MR. L. J. GRANDAL~~ Technical Comm.
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77001

ATLANTIC RICHFIELD COMPANY
ATTN: MR. A. J. BROWN (2)
P. O. BOX 1610
MIDLAND, TX 79701

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

PENROSE PRODUCTION COMPANY
ATTN: MR. H. S. WINSTON
1605 COMMERCE BUILDING
FORT WORTH, TX 76102

MR. CHARLES B. READ
READ & STEVENS, INC.
BOX 2126
ROSWELL, NM 88201

CHEVRON OIL COMPANY
ATTN: MR. R. M. DICHARRY
P. O. BOX 1660
MIDLAND, TX 79701

CITIES SERVICE OIL COMPANY
ATTN: MR. SAM J. MATTHEWS
P. O. BOX 4906
MIDLAND, TX 79701

CONTINENTIAL OIL COMPANY
ATTN: L. P. THOMPSON
P. O. BOX 460
HOBBS, NM 88240

DEL-LEA, INC.
P. O. BOX 1889
HOBBS, NM 88240

GRACKLE OIL COMPANY
P. O. BOX 2038
HOBBS, NM 88240

GETTY OIL COMPANY R.L. Walker
ATTN: ~~MR. R. J. STARRAK~~
P. O. BOX 1231
MIDLAND, TX 7970X
2

GULF OIL COMPANY - U. S.
ATTN: MR. H. E. BRAUNIG, JR.
P. O. DRAWER 1150
MIDLAND, TX 79701

EXXON COMPANY - U. S. A.
ATTN: MR. D. V. EMERY
P. O. BOX 1600
MIDLAND, TX 79701

MARATHON OIL COMPANY
ATTN: MR. G. A. NAERT
P. O. BOX 522
MIDLAND, TX 79701

MINERALS, INC.
P. O. BOX 1320
HOBBS, NM 88240

MOBIL OIL CORPORATION
ATTN: MR. JOHN D. HOWARD
P. O. BOX 633
MIDLAND, TX 79701

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MR. J. H. MORRIS AS AGENT
1615 FIRST NATIONAL BUILDING
TULSA, OK 74103

7

POLARIS PRODUCTION CORPORATION
P. O. BOX 1703
MIDLAND, TX 79701

SAMEDAN OIL CORPORATION
ATTN: MR. H. LEON VEEDER
P. O. BOX 909
ARDMORE, OK 73401

SAMEDAN OIL CORPORATION
ATTN: MR. M. G. MARTIN
2207 WILCO BUILDING
MIDLAND, TX 79701

SKELLY OIL COMPANY
ATTN: MR. C. J. LOVE
P. O. BOX 1351
MIDLAND, TX 79701

MR. ROBERT L. SUMMERS
P. O. BOX 860
HOBBS, NM 88240

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THORNTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS &
MR. JACK ANDREWS
P. O. BOX 1861
MIDLAND, TX 79701

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO, INC.
ATTN: DIVISION UNIT. ENGINEER
P. O. BOX 3109
MIDLAND, TX 79701

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
1700 ONE MAIN PLACE
DALLAS, TX 75250

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. R. J. WOMACK
P. O. BOX 4067
MIDLAND, TX 79701

THE WISER OIL COMPANY
ATTN: MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

YATES PETROLEUM CORPORATION
ATTN: MR. E. M. MAHFOOD
207 SOUTH FOURTH
ARTESIA, NM 88210

John P Cossa Jr
P.O Box 250
Roswell, N Mex 88201

Yeager & Associates
Western United Bldg
Midland, Texas 79701

SHELL OIL COMPANY
PETROLEUM BUILDING
P.O. BOX 1509
MIDLAND, TEXAS 79701

August 13, 1973

Subject: North Hobbs Unit (Proposed)
Hobbs Field
Lea County, New Mexico

ALL OPERATORS
(Mailing List Attached)

Attached are the minutes of the North Hobbs Unit (Proposed) Operators Committee meeting held July 31, 1973, in Midland, Texas.

Also attached for your consideration is a ballot pertaining to fixed pre-unitization expenses as discussed in the meeting of July 31, 1973. Please indicate your approval by signing and returning one copy to Shell Oil Company, P. O. Box 1509, Midland, Texas 79701.

We would also appreciate you advising us of your representatives on the Operators and Technical Committees, by completing and returning one copy of the attached forms.

Yours very truly,

O D MacDonald

Jack L. Mahaffey
Production Manager
Mid-Continent Division

WEB:NO

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

September 26, 1974

Subject: Proposed North Hobbs Unit
Hobbs Field
Lea County, New Mexico

TO: ALL WORKING INTEREST OWNERS - PROPOSED NORTH HOBBS UNIT
(MAILING LIST ATTACHED)

As noted from the minutes of the meeting of September 11, 1974, the North Hobbs Engineering Subcommittee has submitted for the decision of the Working Interest Owners the following recommendation:

> "A cut-off date of January 1, 1975 be established for all well logging data and well test information that is to be considered by the Subcommittee in completing the charges given by the Working Interest Owners."

In order for the Engineering Subcommittee to bring certain facets of their work to a conclusion and to proceed with their charge, it is essential that a cut-off date be established. Therefore, the recommendation of the Subcommittee is hereby submitted for your consideration. Please indicate your decision in the space provided below and return one copy to Shell Oil Company, P. O. Box 991, Houston, Texas 77001, Attention Mr. W. E. Buck.

Yours very truly,

W. J. Conrad

In Absence of Jack L. Mahaffey
Division Production Manager
Mid-Continent Division

WEB:BDH

APPROVED_____

DISAPPROVED_____

COMPANY_____

REPRESENTATIVE_____

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABE PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. J. C. BLACKWOOD
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. L. J. CRANDAL
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

ATLANTIC RICHFIELD COMPANY
ATTN: MR. A. J. BROWN (2)
P. O. BOX 1610
MIDLAND, TX 79701

T. J. BERRY
RT. 4
WILLS POINT, TX 75169

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

MARY DANIEL CONRAD
4308 AVONDALE
DALLAS, TX 75219

CHEVRON OIL COMPANY
ATTN: MR. C. F. DWYER
P. O. BOX 1660
MIDLAND, TX 79701

CITIES SERVICE OIL COMPANY
ATTN: MR. SAM J. MATTHEWS
P. O. BOX 4906
MIDLAND, TX 79701

CONTINENTAL OIL COMPANY
ATTN: L. P. THOMPSON
P. O. BOX 460
HOBBS, NM 88240

HERMAN R. CRILE
BOX 864
ROSWELL, NM 88201

JOHN P. CUSACK, JR.
3815 McCART STREET
FORT WORTH, TX 76110

MICHAEL F. CUSACK
3815 McCART STREET
FORT WORTH, TX 76110

DEL-LEA, INC.
P. O. BOX 1889
HOBBS, NM 88240

J. N. DUNLAVY
P. O. BOX 837
ROSWELL, NM 88201

EXXON COMPANY - U. S. A.
ATTN: JOINT INTEREST MANAGER
P. O. BOX 1600
MIDLAND, TX 79701

FIRST ROSWELL COMPANY
P. O. BOX 1180
ROSWELL, NM 88201

GETTY OIL COMPANY
ATTN: MR. R. J. STARRAK
P. O. BOX 1231
MIDLAND, TX 79701

E. P. GOLDEN
C/O MILDRED G. TURNER
P. O. BOX 835
ROSWELL, NM 88201

GRACKLE OIL COMPANY
P. O. BOX 2038
HOBBS, NM 88240

GULF OIL COMPANY - U. S.
ATTN: MR. J. L. PIKE
P. O. DRAWER 1150
MIDLAND, TX 79701

KENNETH NOEL HEADLEY
P. O. BOX 2163
ROSWELL, NM 88201

PETER HURD
SAN PATRICIO, NM 88348

B. J. JERNIGAN
P. O. BOX 993
MIDLAND, TX 79701

RUBY WANDA CONRAD JUDSON
7 JOSEPHINE COURT
NORTHPORT, LONG ISLAND
NEW YORK, NY 11768

LYNN KINCAID
217 E. VEGA DR.
HOBBS, NM 88240

GEORGE P. LAFLIN
P. O. BOX 21386
SALT LAKE, UT 84121

M. RALPH LOWE
C/O A. W. MOURSUND
P. O. BOX 125
JOHNSON CITY, TX 78636

MARATHON OIL COMPANY
ATTN: MR. G. A. NAERT
P. O. BOX 522
MIDLAND, TX 79701

KATHRYN LOUISE CONRAD McCARTHY
4435 SAN GABRIEL
DALLAS, TX 75229

J. S. McGANNON
P. O. BOX 1651
SANTA FE, NM 87501

K. D. McPETERS
P. O. BOX 1860
HOBBS, NM 88240

MINERALS, INC.
P. O. BOX 1320
HOBBS, NM 88240

MOBIL OIL CORPORATION
ATTN: MR. JOHN D. HOWARD
P. O. BOX 633
MIDLAND, TX 79701

WAYNE MOORE
403 N. MARINEFIELD
MIDLAND, TX 79701

J. E. MORAN
FIRST NATIONAL BANK - MIDLAND
TRUSTEE FOR F. E. MORAN
TRUST #1 (NO. 323)
P. O. BOX 1599
MIDLAND, TX 79701

R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MR. J. H. MORRIS AS AGENT
1615 FIRST NATIONAL BUILDING
TULSA, OK 74103

NATHLYN IONE CONRAD MURDOCH
4132 DEEP VALLEY DRIVE
DALLAS, TX 75234

LINDA B. & BEN F. PARRISH
C/O DANA T. RICHARDSON, JR.

LINDA B. & BEN F. PARRISH
C/O DANA T. RICHARDSON, JR.
NUMBER ONE POST OAK PLACE
4615 POST OAK PLACE DRIVE
SUITE 240
HOUSTON, TX 77027

M. C. PARRISH ESTATE
C/O DANA T. RICHARDSON, JR.
NUMBER ONE POST OAK PLACE
4615 POST OAK PLACE DRIVE
SUITE 240
HOUSTON, TX 77027

PENROC OIL CORPORATION
ATTN: MR. S. J. TALLEY
P. O. BOX 831
MIDLAND, TX 79701

PENROSE PRODUCTION COMPANY
ATTN: MR. H. S. WINSTON
1605 COMMERCE BUILDING
FORT WORTH, TX 76102

POLARIS PRODUCTION CORPORATION
P. O. BOX 1703
MIDLAND, TX 79701

MR. CHARLES B. READ
READ & STEVENS, INC.
BOX 2126
ROSWELL, NM 88201

FRANCES I. CONRAD ROSE
BOX 20234
DALLAS, TX 75220

SAMEDAN OIL CORPORATION
ATTN: MR. M. G. MARTIN
2207 WILCO BUILDING
MIDLAND, TX 79701

SAMEDAN OIL CORPORATION
ATTN: MR. H. LEON VEEDER
P. O. BOX 909
ARDMORE, OK 73401

SKELLY OIL COMPANY
ATTN: MR. C. J. LOVE
P. O. BOX 1351
MIDLAND, TX 79701

SKELLY OIL COMPANY
ATTN: FRANK D. McAFEE
P. O. BOX 1351
MIDLAND, TX 79701

HOWELL SPEAR
P. O. BOX 1684
MIDLAND, TX 79701

MR. ROBERT L. SUMMERS
P. O. BOX 860
HOBBS, NM 88240

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THRONTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS &
MR. JACK ANDREWS
P. O. BOX 1861
MIDLAND, TX 79701

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO, INC.
ATTN: ASSISTANT DIVISION MANAGER
P. O. BOX 3109
MIDLAND, TX 79701

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
1700 ONE MAIN PLACE
DALLAS, TX 75250

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. R. J. WOMACK
P. O. BOX 4067
MIDLAND, TX 79701

TEXAS PACIFIC OIL COMPANY
P. O. BOX 4067
MIDLAND, TX 79701

BETTYE CONRAD TREADAWAY
5215 HAVENWOODS
HOUSTON, TX 77066

TWO STATES OIL COMPANY
1910 EMPIRE LIFE BLDG.
DALLAS, TX 75201

LOYD WHITLEY
701 W. GEORGE APT. 99
MIDLAND, TX 79701

A. T. WILLIAMSON
1630 HARVARD CT.
HOBBS, NM 88240

THE WISER OIL COMPANY
ATTN: MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

YATES PETROLEUM CORPORATION
ATTN: MR. E. M. MAHFOOD
207 SOUTH FOURTH
ARTESIA, NM 88210

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701
(PRIMARY TERM ENDS OCTOBER, 1975)

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P. O. BOX 6031
DALLAS, TX 75222

RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

March 13, 1975

Subject: Computer Analysis
Proposed North Hobbs Unit
Hobbs Field
Lea County, New Mexico

OPERATORS - NORTH HOBBS UNIT
(Mailing List Attached)

The Technical Committee of the North Hobbs Unit has recommended that a computer analysis of the San Andres Reservoir be made. The primary objective of such study is to estimate the Zone I primary reserves that would be recovered, by areas, under the conditions of continued water influx and with the current completion status kept constant. The results will serve as a base case for Zone I primary reserves. Future recoveries can then be allocated by the Technical Committee to respective tracts. In addition, the results of such analysis will provide a more complete understanding of the performance of other zones within the San Andres formation.

Shell has agreed to make such an analysis using their three-phase, three-dimensional, compressible fluid reservoir simulation program. Shell's charge for such work shall be $6,000. This flat charge is Shell's estimate of actual computer running time and the associated contract clerical assistance required to assemble data. Shell shall make no charge for technical and non-technical efforts nor for a program licensing fee. A copy of the input data, results obtained, and an explanation of the calculations will be made available to all Operators. The cost of such study ($6,000) will be shared in the manner stated on the attached ballot.

The Technical Committee feels this study is essential to the completion of the charge made by the Operators Committee. Please indicate your decision on the attached ballot and return one signed copy to Shell Oil Company, P. O. Box 991, Houston, Texas 77001, Attention Mr. W. E. Buck.

Yours very truly,

Jack L. Mahaffey
Division Production Manager
Mid-Continent Division

WEB:JFM

Attachment

BALLOT

Unitization Expense
North Hobbs Unit
Lea County, New Mexico
March 13, 1975

The undersigned hereby approves the following listed flat rate charge for a special computer analysis of the San Andres Formation, which is to be made by Shell, and agrees to pay a share of such expense; the share being determined by the method stated below:

1.	Computer Usage Charge	$ 5,000.00
2.	Associated Contract Clerical Costs	$ 1,000.00
	Total	$ 6,000.00

With the formation of the Proposed North Hobbs Unit, all above stated expense items shall be shared on the basis of Unit Participation (Phase I). If the Unit does not become effective, then the expense items which have been incurred will be apportioned on the basis of oil produced during the period January 1, 1973 to July 1, 1973.

Company_____

Representative_____

Date_____

RETURN TO:

Shell Oil Company
Attn. Mr. W. E. Buck
P. O. Box 991
Houston, Texas 77001

BALLOT

Unitization Expense
North Hobbs Unit
Lea County, New Mexico
March 13, 1975

The undersigned hereby approves the following listed flat rate charge for a special computer analysis of the San Andres Formation, which is to be made by Shell, and agrees to pay a share of such expense; the share being determined by the method stated below:

1.	Computer Usage Charge	$ 5,000.00
2.	Associated Contract Clerical Costs	$ 1,000.00
	Total	$ 6,000.00

With the formation of the Proposed North Hobbs Unit, all above stated expense items shall be shared on the basis of Unit Participation (Phase I). If the Unit does not become effective, then the expense items which have been incurred will be apportioned on the basis of oil produced during the period January 1, 1973 to July 1, 1973.

Company_____

Representative_____

Date_____

RETURN TO:

Shell Oil Company
Attn. Mr. W. E. Buck
P. O. Box 991
Houston, Texas 77001

NORTH HOBBS UNIT
OPERATORS ADDRESSEE LIST

AMERADA HESS CORPORATION
ATTN. MR. J. C. BLACKWOOD
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN. BRUCK A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

ATLANTIC RICHFIELD COMPANY
ATTN. MR. A. J. BROWN (2)
P. O. BOX 1610
MIDLAND, TX 79701

MR. W. K. BYROM
ATTN. MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

PENROSE PRODUCTION COMPANY
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1605 COMMERCE BUILDING
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MR. CHARLES B. READ
READ & STEVENS, INC.
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CHEVRON OIL COMPANY
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CITIES SERVICE OIL COMPANY
ATTN. MR. SAM J. MATTHEWS
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CONTINENTAL OIL COMPANY
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MR. JOHN P. CUSUCK
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DEL-LEA, INC.
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EXXON COMPANY, U.S.A.
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GETTY OIL COMPANY
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GULF OIL COMPANY, U.S.A.
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SUN OIL COMPANY (DELAWARE)
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MR. JACK ANDREWS
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MR. BILL L. SWEET
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C. H. SWEET OIL COMPANY
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TEXACO, INC.
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TEXACO, INC.
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TEXAS PACIFIC OIL CO., INC.
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THE WISER OIL COMPANY
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YATES PETROLEUM CORP.
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SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

April 15, 1977

Subject: Proposed North Hobbs Unit
Hobbs Field
Lea County, New Mexico

ALL WORKING INTEREST OWNERS - PROPOSED NORTH HOBBS UNIT
(Mailing List Attached).

A meeting of the Working Interest Owners of the proposed North Hobbs Unit is called for 10:00 a.m., May 26, 1977, in the Texas Electric Service Company Reddy Room, 124 North Colorado Street, Midland, Texas.

The agenda for the meeting will be as follows:

1. Formal presentation of the report titled "Waterflood Feasibility and Unitization Parameters", as prepared by the Technical Committee.

2. Consideration of the Report as completing the charge to the Technical Committee.

3. Acceptance of the Report as a basis for Unitization negotiations.

4. Develop a course of action for further unitization efforts.

5. Any other business.

Efforts to unitize and to waterflood the northern part of the Hobbs Field were initiated in July, 1973, when the Operators' Committee charged the Technical Committee to develop a feasibility and parameter study of the area considered for unitization. Due to the different reservoir characteristics evident in the various zones of the Grayburg-San Andres reservoir, it was necessary for the Technical Committe to undertake methods of evaluation not normally required for unitization efforts. Considerable time and expense has been expended in developing the study. With the submittal of the Report to the Working Interest Owners, it appears that a critical point has been reached. All Working Interest Owners are therefore urged to be represented at the called meeting. It is also urged that all representatives attend the meeting prepared to commit their company with regard to the Report and to a course of action for further unitization efforts.

Copies of the Waterflood Feasibility and Unitization Parameters Report for the North Hobbs Unit are transmitted with this call to meeting to all Operators and participants of the Technical Committee as noted on the attached mailing list. Copies will be furnished any other Working Interest Owner upon request.

Yours very truly,

W. E. Buck
Chairman, Working Interest Owners' Committee

WEB:DTW

Attachments

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
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*ABO PETROLEUM CORPORATION
YATES BUILDING
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*AMERADA HESS CORPORATION
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*AMOCO PRODUCTION COMPANY
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TRUSTEE FOR F. E. MORAN
TRUST #1 (NO. 323)
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M. C. PARRISH ESTATE
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MIDLAND, TX 79701

*THE WISER OIL COMPANY
ATTN: MR. C. P. LaRUE
P. O. BOX 192
SISTERVILLE, WV 26175

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701
(PRIMARY TERM ENDS OCTOBER, 1975)

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P. O. BOX 6031
DALLAS, TX 75222

RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

*Copy of Technical Report Enclosed

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

April 25, 1975

Subject: Computer Analysis
Proposed North Hobbs Unit
Hobbs Field
Lea County, New Mexico

OPERATORS - NORTH HOBBS UNIT
(Mailing List Attached)

The proposal for a special computer analysis of the San Andres formation of the North Hobbs Unit has received 88.5% approval of the participating operators with only one recorded dissension. With such response, Shell feels it is in order to proceed with the reservoir simulation study. Pending unitization, Shell will bear the costs to be allocated to the dissenting and non-responding parties.

Yours very truly,

Jack L. Mahaffey
Division Production Manager
Mid-Continent Division

WEB:JFM

NORTH HOBBS UNIT
OPERATORS
ADDRESSEE LIST

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ATTN. MR. C. W. BYROM
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JOHN P. CUSACK
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DEL-LEA, INC.
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ATTN. MR. C. H. SWEET
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ATTN. DISTRICT ENGR.
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YATES PETROLEUM CORP.
ATTN. MR. E. M. MAHFOOD
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YEAGER & ARMSTRONG
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SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

May 11, 1977

Subject: Unitization Parameters
Proposed North Hobbs Unit
Hobbs (Grayburg - San Andres) Field
Lea County, New Mexico

All Working Interest Owners
(Addressee List Attached)

Please be advised that the Unitization Parameter Tables (Nos. 21 to 24), which were included in the Technical Committee Report, are being corrected. Revised copies will be distributed at the Working Interest Owners meeting on May 26, 1977 and also transmitted with the minutes of that session.

The following corrections and additions are being made:

1. Working Interest Ownership

   a. Tract No. 50 - Exxon 50%, Cities Service 25%, and Continental 25%

   b. Tract No. 69 - Amoco 75.43501% and Landreth 24.56499%

   c. Tract No. 75 - Marathon 50% and Atlantic Richfield 50%

2. Oil and Gas Production - Year 1976

The prior tabulation was based on the Monthly Statistical Reports. The Annual Report is now available and reflects the following corrections: oil decreased by 207 barrels and gas increased by 7037 MCF. These changes effect the following parameters: Cumulative Oil (Tables 21 A & B), Year 1976 Oil and Gas (Tables 21 A & B) and Ultimate Oil Recovery (Tables 23 A & B). (No corrections were made to oil production during the last four months of 1976 and consequently the Primary Oil Reserves are not affected.)

3. Productive Acres (Tables 22 A & B)

The tabulation included in the Report was based on the productive acres in the Basal Grayburg Upper Zone oil column and omitted the 2174 acres which lie entirely within the gas cap in that particular zone.

4. Gas Reserves

Continental has requested the addition of a parameter for remaining gas reserves. Therefore, such numbers will be added to the revised tables. This parameter will be calculated in the following manner:

a. Grayburg and/or upper San Andres Stringers - The oil reserves listed on Table 14 will be multiplied by the corresponding average GOR for the year 1976, and

b. San Andres (Main Zones) - The "updated" gas reserves will be calculated in a similar manner as shown for the oil reserves in Table 15; that is, the computed 9/1/76 gas reserves (previously furnished to the Technical Committee) will be updated to 1/1/77 values by subtracting the ensuing actual production.

It is requested that any other discrepancies noted be called to the attention of either Mr. W. E. Buck (713-220-1331) or Mr. H. J. Swartz (713-220-1022).

Yours very truly,

W. E. Buck, Chairman
Working Interest Owners' Committee

HJS:jmn

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
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MR. GEORGE H. LONDRETH
8123 BOEDEKER CIRCLE
DALLAS, TX 75225

MR. W. A. LONDRETH
908 CONTINENTAL NATIONAL BANK BLDG
FT. WORTH, TX 76102

M. RALPH LOWE
C/O A. W. MOURSUND
P. O. BOX 125
JOHNSON CITY, TX 78636

MARATHON OIL COMPANY
ATTN: MR. G. A. NAERT
P. O. BOX 522
MIDLAND, TX 79702

KATHRYN LOUISE CONRAD McCARTHY
4435 SAN GABRIEL
DALLAS, TX 75229

J. S. McGANNON
P. O. BOX 1651
SANTA FE, NM 87501

K. D. McPETERS
P. O. BOX 1860
HOBBS, NM 88240

MOBIL OIL CORPORATION
3 GREENWAY PLAZA EAST
SUITE 800
HOUSTON, TX 77046

WAYNE MOORE
403 N. MARINEFIELD
MIDLAND, TX 79701

J. E. MORAN
FIRST NATIONAL BANK - MIDLAND
TRUSTEE FOR F. E. MORAN
TRUST #1 (NO. 323)
P. O. BOX 1599
MIDLAND, TX 79701

R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

G. D. MORRIS
2901 W. HWY 83, BOX 154
McALLEN, TX 78501

MR. J. H. MORRIS AS AGENT
1615 FIRST NATIONAL BUILDING
TULSA, OK 74103

NATHLYN IONE CONRAD MURDOCH
4132 DEEP VALLEY DRIVE
DALLAS, TX 75234

RICHARD L. NOBLE
P. O. BOX 67605
CENTURY CITY
LOS ANGELES, CA 90067

LINDA B. & BEN F. PARRISH
C/O DANA T. RICHARDSON, JR.
NUMBER ONE POST OAK PLACE
4615 POST OAK PLACE DRIVE
SUITE 240
HOUSTON, TX 77027

M. C. PARRISH ESTATE
C/O DANA T. RICHARDSON, JR.
NUMBER ONE POST OAK PLACE
4615 POST OAK PLACE DRIVE
SUITE 240
HOUSTON, TX 77027

PORTALES NATIONAL BANK
PORTALES, NM 88130

JOHN RORING
1710 WILSHIRE BOULEVARD
OKLAHOMA CITY, OK 73116

FRANCES I. CONRAD ROSE
BOX 20234
DALLAS, TX 75220

SAMEDAN OIL CORPORATION
ATTN: MR. M. G. MARTIN
2207 WILCO BUILDING
MIDLAND, TX 79702

SAMEDAN OIL CORPORATION
ATTN: MR. BOYCE BERRY
P. O. BOX 909
ARDMORE, OK 73401

HOWELL SPEAR
P. O. BOX 1684
MIDLAND, TX 79701

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THRONTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS
P. O. BOX 1861
MIDLAND, TX 79702

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

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DALLAS, TX 75230

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P. O. BOX 1861
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P. O. BOX 51
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO, INC.
ATTN: ASSISTANT DIVISION MANAGER
P. O. BOX 3109
MIDLAND, TX 79702

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
1700 ONE MAIN PLACE
DALLAS, TX 75250

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. R. J. WOMACK
P. O. BOX 4067
MIDLAND, TX 79702

BETTYE CONRAD TREADAWAY
5215 HAVENWOODS
HOUSTON, TX 77066

TWO STATES OIL COMPANY
1910 EMPIRE LIFE BLDG.
DALLAS, TX 75201

LOYD WHITLEY
701 W. GEORGE APT. 99
MIDLAND, TX 79701

HATTIE C. WILLIAMS
P. O. BOX 3187
LUBBOCK, TX 79410

A. T. WILLIAMSON
1630 HARVARD CT.
HOBBS, NM 88240

THE WISER OIL COMPANY
ATTN: MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

THE WISER OIL COMPANY
ATTN: MR. C. P. LaRUE
P. O. BOX 192
SISTERVILLE, WV 26175

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701
(PRIMARY TERM ENDS OCTOBER, 1975)

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P. O. BOX 6031
DALLAS, TX 75222

RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

SHELL OIL COMPANY
P.O BOX 991
HOUSTON, TEXAS 77001

June 3, 1977

Subject: Minutes - Working Interest Owners Meeting
Proposed North Hobbs Unit
Lea County, New Mexico

WORKING INTEREST OWNERS - (Mailing List Attached)

A meeting of the Working Interest Owners of the proposed North Hobbs Unit was held May 26, 1977, in Midland, Texas. Representatives attending the meeting are shown on the attached attendance list.

Mr. Buck (Shell) opened the meeting by advising that 90.7 percent of the Working Interest Owners (based on 1976 oil production) were represented at the meeting. He further advised that because of the importance of the meeting, every effort had been made to notify all Working Interest Owners of the meeting. All parties were asked to notify Mr. Buck of any corrections or additions that should be made to the mailing list.

Mr. Buck summarized the previous efforts of unitization in the Hobbs Field. He stated that Amoco initiated an effort in 1970 to form a field wide unit. A feasibility study was completed in March, 1972, and participation negotiations were started. However, it became apparent that agreement could not be reached and in July, 1973, it was decided to divide the Hobbs Field into two parts for unitization and water flooding purposes.

Amoco undertook unitization of the south part of the field and formed the South Hobbs Unit January 1, 1975. Shell acted as Unit Expeditor for the Northern portion of the field. A Technical committee was organized and at a meeting of the Working Interest Owners of the proposed North Hobbs Unit, held July 31, 1973, charged the Technical Committee to develop a waterflood feasibility and unitization parameter study. The Technical Committee has met repeatedly since such date and now have completed and are prepared to submit a report of their study. Mr. Buck pointed out that the attendence and participation of the parties in the Technical Committee was outstanding.

Mr. Buck then turned the meeting over to Mr. H. J. Swartz (Shell), Chairman of the Technical Committee for formal presentation of the "Waterflood Feasibility and Unitization Parameter Report" as prepared by the Technical Committee.

Mr. Swartz started by expressing his appreciation for the excellant cooperation of all parties in the work of the Technical Committee. He stated that the committee held 25 work sessions and that, on the average, 13 operators were represented at each session. He further advised that 22 of the 26 operators had been represented at at least one of the sessions. Mr. Swartz pointed out that it was the aim of the group to reach mutual agreement on all points of the study whenever possible rather than the agreement of only a majority. With only a few exceptions, the group was able to attain this aim.

Mr. Swartz then proceeded to present a summary of the committees work. Salient points of the study were presented with the assistance of projected slides. Several questions were asked and discussed during the presentation. At the end of the presentation Mr. Swartz handed out revised parameter tables which included corrections of production data and ownership. In addition the revised tables included a gas reserve parameter as requested by Continental Oil Company. Copies of revised tables are enclosed with these minutes.

Mr. Buck then asked that the second item of the agenda, completion of the charge of the Working Interest Owners, be considered. After some discussion, Sun Oil Company's representative moved that the report titled "Waterflood Feasibility and Unitization Parameters for the North Hobbs (Grayburg - San Andres) Unit" be accepted as completion of the charge of the Working Interest Owners to the Technical Committee. The motion was seconded by the representative of Amoco Production Company. The motion was passed by the affirmative vote of all present with the qualifications of Continental Oil Company and Exxon Company that their approvals did not include the Gas Reserve Parameter submitted at the meeting as they had not had sufficient time to review such parameter. Marathon Oil Company, passed on the vote at the meeting but advised the chairman of their affirmative vote following the meeting.

Mr. Buck then asked that the third item of the agenda, acceptance of the report as a basis of unitization negotiations, be considered. After discussion, during which Mr. G. R. Meyers, Texas Pacific Oil Company, Inc., expressed concern over some of the relationships, the representative of Amoco Production Company moved that the report be accepted as a basis of unitization negotiations. The motion was seconded by Mobil Oil Company's representative. The motion was approved by the affimative vote of 76.6 percent (1976 production). No negative votes were cast. The affirmative vote of Exxon Company was qualified as to the Gas Reserve Parameter the same as for the previous motion. Continental Oil Company, Russel Estes, and Texas Pacific Oil Company, Inc., passed on the vote on the motion. Mr. Buck asked, and such parties agreed, that he be advised of a decisive vote on the motion at as early a date as possible.

Although a formal vote was not taken, all parties agreed on the basis of the response to the motions to move forward with unitization efforts. After some discussion, it was agreed that a meeting would be called during the first half of July for the purpose of negotiating participation.

In the discussion that followed, some parties expressed concern as to the handling of FEA classified "Stripper" and "Upper Tier" oil after unitization. Mr. Buck advised that it was Shell's general feeling that consideration should be given to parties contributing properties with the more favorable pricing classifications. He further advised that in other unitization efforts provisions had been included in the Unit Agreement rather than in participation negotiations to afford certain considerations to the contributing parties. Upon request, Mr. Buck agreed to include with the minutes of the meeting a provision prepared by Shell for inclusion in other Unit agreements. Such provision is attached hereto. Mr. Buck pointed out that although Shell is in agreement with the general principle of the provision, the submittal of the provision at this time should not be taken as a final Shell proposal in this regard. Shell would want the opportunity to review the problem after participation has been established before making a firm proposal.

Mr. Don Hunter, of Sipes, Williamson & Aycook, Inc., submitted a written proposal on behalf of Moranco for a cooperative waterflood agreement between the North Hobbs Unit and the adjoining Moranco Rice-Hardin Waterflood Unit and the sale of source water from the Moranco water supply system. Mr. Hunter was advised that his proposal would be included in the minutes of the meeting and given consideration by the Working Interest Owners at the appropriate time. The written proposal is included as an attachment to these minutes.

With regard to the water source, Mr. Buck advised that Shell has been negotiating with the city of Hobbs for the purchase of industrial process effluent from its industrial water treatment plant. A draft agreement has been prepared and submitted to the City of Hobbs. At the appropriate time, a negotiated agreement will be submitted to the Working Interest Owners for their consideration.

There being no further business, the meeting was adjourned.

W. E. Buck
Chairman, Working Interest Owners Committee

WEB:GLW

Attachments

NORTH HOBBS UNIT
MAY 26, 1977
ATTENDANCE LIST

NAME	COMPANY	LOCATION
W. E. Buck	Shell Oil Co.	Houston, Tx
R. W. Mullins	Amerada-Hess Corp.	Tulsa, Ok
J. B. Campbell	Exxon Company	Midland, Tx
W. E. Nolan	Exxon Company	Midland, Tx
Joe Paradiso	Marathon Oil Company	Midland, Tx
L. A. Carr	Mobil Oil Corp.	Houston, Tx
H. A. Seidel, Jr.	Sun Producing Company	Dallas, Tx
J. L. Relph	Cities Service Oil Company	Midland, Tx
Don Hunter	Sipes Williamson & Aycock (Rep. Moranco)	Midland, Tx
Don Barrett	Cities Service Oil Company	Midland, Tx
S. R. Denton	Amoco Producing Company	Houston, Tx
Bill Larsen	Wiser Oil Company	Midland, Tx
Boyce Perry	Samedan Oil Company	Ardmore, Ok
Jack Cusack	--Self--	Biswell, NM
W. A. Yeager	Yeager & Armstrong	Midland, Tx
Russell G. Estes	Estes Engineering	Midland, Tx
W. A. Goudeau	Chevron USA, Inc.	Midland, Tx
D. D. Allen	Chevron USS, Inc.	Midland, Tx
J. E. Eakin	Getty Oil Co.	Midland, Tx
C. F. Bosecker	Getty Oil Co.	Midland, Tx
J. D. Mussett	Gulf Energy & Minerals Co.-U.S.A.	Midland, Tx
Don Bolt	Continental Oil Company	Hobbs, NM
C. C. Woodward	Continental Oil Company	Hobbs, NM
R. O. Walker	Gulf Energy & Minerals Co.-U.S.A.	Midland, Tx
V. T. Lyon	Continental Oil Company	Hobbs, NM
Vance M. Hendricks	Gulf	Midland, Tx
Ken McPeters	Moranco	Hobbs, NM
Bob Moran	Moranco	Hobbs, NM
Paul Thompson	Continental Oil Company	Hobbs, NM
Joe Thornton	Sun Oil Company	Dallas, Tx
G. R. Meyers	Texas Pacific Oil Co., Inc.	Dallas, Tx
J. D. Waggoner	Texas Pacific Oil Co., Inc.	Dallas, Tx
Thane Akins	Atlantic Richfield Company	Midland, Tx
George Nathman	Atlantic Richfield Company	Midland, Tx
H. J. Swartz	Shell Oil Company	Houston, Tx

It is anticipated, at the effective date of unitization, crude oil produced, saved and sold from the _____ Unit will be subject to the rules and regulations of the Federal Energy Administration. Such rules provide for the classification of crude oil for pricing purposes as (1) Stripper Well Crude Oil, (2) Old Oil and (3) Upper Tier Crude Oil.

Under the rules and regulations of the Federal Energy Administration as of October 1976, a unit certification is allowed each month to include in the Upper Tier Crude Oil portion thereof, a constant number of barrels described by FEA Regulations as Imputed Upper Tier Crude Oil. The unit certification is further allowed each month to include in the Stripper Well Crude Oil portion thereof, a constant number of barrels described by FEA Regulations as Imputed Stripper Well Crude Oil.

In view of the above, and not withstanding the provisions of Section _____, crude oil produced, saved and sold shall be allocated as follows:

1. Stripper Well Crude Oil - The first oil produced, saved and sold each month up to a quantity equal to the Unit's Imputed Stripper Well Crude Oil shall be allocated to Tracts contributing Imputed Stripper Well Crude Oil to the Unit certification in proportion to their contributions of such Imputed Stripper Well Crude Oil. Should any Tract in any month be allocated out of Unit production in accordance with its Tract Participation as set forth in this Agreement, a total number of barrels of oil that is less than the Imputed Stripper Well Crude Oil that such Tract has contributed to the Unit certification, then such Tract's allocation of

It is anticipated, at the effective date of unitization, crude oil produced, saved and sold from the _____ Unit will be subject to the rules and regulations of the Federal Energy Administration. Such rules provide for the classification of crude oil for pricing purposes as (1) Stripper Well Crude Oil, (2) Old Oil and (3) Upper Tier Crude Oil.

Under the rules and regulations of the Federal Energy Administration as of October 1976, a unit certification is allowed each month to include in the Upper Tier Crude Oil portion thereof, a constant number of barrels described by FEA Regulations as Imputed Upper Tier Crude Oil. The unit certification is further allowed each month to include in the Stripper Well Crude Oil portion thereof, a constant number of barrels described by FEA Regulations as Imputed Stripper Well Crude Oil.

In view of the above, and not withstanding the provisions of Section _____, crude oil produced, saved and sold shall be allocated as follows:

1. Stripper Well Crude Oil - The first oil produced, saved and sold each month up to a quantity equal to the Unit's Imputed Stripper Well Crude Oil shall be allocated to Tracts contributing Imputed Stripper Well Crude Oil to the Unit certification in proportion to their contributions of such Imputed Stripper Well Crude Oil. Should any Tract in any month be allocated out of Unit production in accordance with its Tract Participation as set forth in this Agreement, a total number of barrels of oil that is less than the Imputed Stripper Well Crude Oil that such Tract has contributed to the Unit certification, then such Tract's allocation of

Imputed Stripper Well Crude Oil shall be reduced by the amount that the Imputed Stripper Crude Oil exceeds the amount of oil to be allocated in accordance with its Tract Participation. The amount in excess of its Tract Participation shall be termed Excess Imputed Stripper Well Crude Oil. The total Excess Imputed Stripper Well Crude Oil of all Tracts shall be allocated to all Tracts, including Tracts which have not contributed Imputed Stripper Well Crude Oil to the Unit certification, in proportion to the quantities that the Unit production allocated a Tract by its Tract Participation exceeds the quantity Imputed Stripper Well Crude Oil allocated such tract.

2. Imputed Upper Tier Crude Oil - Oil produced, saved, and sold each month from the Unit after a quantity of oil equal to the Imputed Stripper Well Crude Oil is produced, saved and sold, up to a quantity equal to the Imputed Upper Tier Crude Oil, shall be allocated to those Tracts contributing Imputed Upper Tier Crude Oil to the Unit certification in proportion to their contributions of such Imputed Upper Tier Crude Oil. Should any Tract in any month be allocated out of Unit production in accordance with its Tract Participation, as set forth in this agreement, a total number of barrels that is less than the sum of its Imputed Stripper Well Crude Oil, its Excess Imputed Stripper Well Crude Oil as provided in Paragraph 1 of this Article, and its allocated Imputed Upper Tier Crude Oil, then such Tract's allocation of Imputed Upper Tier Crude Oil shall be reduced by the quantity

that the sum of the Tract's Imputed Stripper Well Crude Oil, its Excess Imputed Stripper Crude Oil and its allocated Imputed Upper Tier Crude Oil exceeds the total quantity of oil to be allocated in accordance with its Tract Participation. The amount in excess of its Tract Participation shall be termed Excess Imputed Upper Tier Crude Oil. The total Excess Imputed Upper Tier Crude Oil of all Tracts shall be allocated to all Tracts including Tracts which have not contributed Imputed Stripper Well Crude Oil and/or Imputed Upper Tier Crude Oil to the Unit certification, in proportion to the quantities that each Tract's allocation of Unit production by its Tract Participation exceeds the sum of the Imputed Stripper Well Crude, Excess Imputed Stripper Well Crude Oil and Imputed Upper Tier Crude Oil allocated such Tract.

3. Upper Tier Crude Oil and Old Oil shall each be allocated to each Tract in proportion to the quantities that each Tract's allocation of Unit Production, in accordance with its Participation, exceeds the sum of the allocated Imputed Stripper Well Crude Oil, Excess Imputed Stripper Well Crude Oil, Imputed Upper Tier Crude Oil and Excess Imputed Upper Tier Crude Oil.

This provision shall remain in effect only so long as necessary for the unit to comply with applicable laws, rules, and regulations of appropriate governmental authorities. Should such laws, rules, and regulations hereafter change substantially so as to alter the basis for a certification of unit production as set forth above, then in such event a method of allocating the certification among the unit ownership shall be implemented by the Unit Operator which as nearly as possible achieves the stated intention

hereof. In any event this provision will automatically terminate in its entirety _____.

This provision is deemed supplementary to the other provisions of this Agreement and the provisions of the Unit Operating Agreement so that nothing contained herein shall alter the terms of such agreements, including but not limited to the portions thereof dealing with tract participation, and allocation of unit production, and the allocation of investment and operating costs.

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

June 8, 1977

Subject: Working Interest Owners Meeting
Proposed North Hobbs Unit
Lea County, New Mexico

TO: WORKING INTEREST OWNERS (MAILING LIST ATTACHED)

A meeting of the Working Interest Owners of the proposed North Hobbs Unit is called for 10:00 A.M. July 12, 1977 in the Texas Electric Service Company Reddy Room, 124 North Colorado Street, Midland, Texas.

The agenda for the meeting will be as follows:

1. Negotiation of a participation formula.

2. Any other business.

W. E. Buck
Chairman, Working Interest Owner's Committee

WEB:MJH

Attachment

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

June 29, 1977

Subject: Proposed North Hobbs Unit
Lea County, New Mexico

TO: ALL WORKING INTEREST OWNERS (MAILING LIST ATTACHED)

By letter of June 8, 1977, a meeting of the Working Interest Owners of the proposed North Hobbs Unit was called for July 12, 1977 for the purpose of negotiating unit participation. Realizing the difficulty in evaluating a participation formula when proposed for the first time at a meeting, Shell hereby submits to all Working Interest Owners the participation formula that will be proposed by Shell at such meeting. It is hoped that this early submittal will allow all Parties, especially those basing their decisions on present worth values, the opportunity to complete an evaluation and to make a decisive response at the meeting.

PARTICIPATION FORMULA TO BE PROPOSED BY SHELL OIL COMPANY

Oil Allocation

Phase I - 100 percent oil production for year 1976. Phase I to be in effect until either the oil production from the unit totals 11,670,070 barrels from the effective date of unitization or for a period of 5 years after the effective date of unitization, whichever occurs first. Limiting production is based on Unit becoming effective January 1, 1979 and is the amount of oil estimated by Technical Committee to be produced during first five years of unitized operations. Estimated annual production is shown on attached table.

Phase II -100 percent Primary Oil Reserves (1/1/77). Phase II to be in effect from the end of Phase I to the time the Unit oil production totals the estimated remaining primary reserve of 38,071,683 barrels from January 1, 1977.

Phase III - 100 percent Secondary Oil Reserve to be in effect after the termination of Phase II.

Gas Allocation

Phase I - 100 percent gas production for year 1976. Phase I gas to be same period as Phase I oil.

Phase II- 100 percent Primary Gas Reserve (1/1/77). Phase II gas to be same period as Phase II oil.

Phase III-Allocation to be same as oil and for same period as Phase III oil.

Expense Allocation

1) Operating and Overhead Expense

All such expenses to be allocated on phase-in-effect basis and based on Oil Allocation only.

2) Capital Expenditures

a) All costs of investment nature associated with injection station, injection lines, water source, drilling and equipping injection wells, and conversion expenses be charged initially on the Phase III Oil Allocation basis. From Tables 17, 18 and 19 of Technical Committee Report, such estimated costs would be: Injection System - $7,000,000; Source, $600,000; Drill Injectors, $2,325,000; Equip converted injectors, $988,000; and, Conversion Expense, $1,002,500.

b) All other costs of a capital expenditure type, including tank battery consolidation costs, be allocated initially on the basis of Phase II oil allocation and adjusted to Phase III oil allocation at the termination of Phase II.

3) Inventory

Inventory value to be allocated initially on the basis of Phase II oil allocation and adjusted to Phase III oil allocation at the termination of Phase II.

Yours very truly,

R. L. Howard
Division Production Manager
Mid-Continent Division

WEB:mjh

Attachment

PROPOSED NORTH HOBBS UNIT
PRODUCTION FUNCTION FOR UNITIZED OPERATIONS (1)

Year	Production Bbls. Oil
1977	2553339
1978	2409459
1979	2118643 (2)
1980	2069097
1981	2268486
1982	2487088
1983	2726756
1984	2989519
1985	3277603
1986	3593449
1987	4205186
1988	4506869
1989	4435333 (3)
1990	4364932
1991	4295649
1992	4227466
1993	4160364
1994	4094329
1995	3698530
1996	3309958
1997	2962209
1998	2650996
1999	2372479
2000	2123223
2001	1900155
2002	1700522
2003	1521863
2004	1361974
2005	1218884
2006	1090826
2007	976223
2008	873659
2009	781872
2010	699727
2011	626213
2012	560422
2013	501544
2014	448852
2015	142151
2016	134073
2017	126455
2018	119270
2019	112493
2020	106101
2021	100072
2022	94385
2023	89022
2024	83963
Totals	93,271,683

Notes: (1) Includes all production from unitized area which consists of W.F. production from Gb, II, III_u and III_L zones and continued primary from Zone I.

(2) Effective date of unit 1/1/79. Water injection commences 7/1/79.

(3) Equivalent primary oil reserves volume (38,071,683 @ 1/1/77 or 33,108,885 @ 1/1/79) will be produced during 1989.

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. R. W. MULLINS
MANAGER - JOINT VENTURE OPERATIONS - U.S.
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. L. J. CRANDAL
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

W. D. ANDERSON & SONS
P. O. BOX 136
MIDLAND, TX 79702

ATLANTIC RICHFIELD COMPANY
ATTN: MR. G. THANE AKINS
P. O. BOX 1610
MIDLAND, TX 79702

T. J. BERRY
RT. 4
WILLS POINT, TX 75169

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

MARY DANIEL CONRAD
4308 AVONDALE
DALLAS, TX 75219

C&C OPERATING CORP.
P. O. BOX 1829
HOBBS, NM 88240

CHEVRON OIL COMPANY
ATTN: MR. C. F. DWYER
P. O. BOX 1660
MIDLAND, TX 79702

CITIES SERVICE OIL COMPANY
E&P DIVISION
P. O. BOX 1919
MIDLAND, TX 79702

CONTINENTAL OIL COMPANY (2)
ATTN: L. P. THOMPSON
P. O. BOX 460
HOBBS, NM 88240

HERMAN R. CRILE
BOX 864
ROSWELL, NM 88201

JOHN P. CUSACK
P. O. BOX 250
ROSWELL, NM 88201

JOHN P. CUSACK, JR.
3815 McCART STREET
FORT WORTH, TX 76110

MICHAEL F. CUSACK
3815 McCART STREET
FORT WORTH, TX 76110

DEL-LEA, INC. (ANTWEIL)
P. O. BOX 1889
HOBBS, NM 88240

J. N. DUNLAVY
P. O. BOX 837
ROSWELL, NM 88201

ESTES ENGINEERING CO.
306 PETROLEUM BUILDING
MIDLAND, TX 79702

EXXON COMPANY - U. S. A. (2)
ATTN: JOINT INTEREST MANAGER
P. O. BOX 1600
MIDLAND, TX 79702

FIRST NATIONAL BANK OF CASPER
ESTATE OF M. E. TOLE
P. O. BOX 40
CASPER, WY 82601

FIRST NATIONAL BANK OF FORT WORTH
ESTATE OF SMITH SPRALDING
P. O. BOX 2546
FORT WORTH, TX 76101

FIRST ROSWELL COMPANY
P. O. BOX 1180
ROSWELL, NM 88201

C. C. FORBES
P. O. BOX 843
TULSA, OK 74101

ILAMAE FORBES
P. O. BOX 843
TULSA, OK 74101

GETTY OIL COMPANY (2)
ATTN: MR. A. B. CARY
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MIDLAND, TX 79702

E. P. GOLDEN
C/O MILDRED G. TURNER
P. O. BOX 835
ROSWELL, NM 88201

GULF ENERGY & MINERALS CO.-U.S. (2)
ATTN: R. F. WARD, JR.
DISTRICT OPERATIONS MANAGER
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ROSWELL, NM 88201

PETER HURD
SAN PATRICIO, NM 88348

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LYNN KINCAID
217 E. VEGA DR.
HOBBS, NM 88240

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DENVER, CO 80202

MR. GEORGE H. LANDRETH
8123 BOEDEKER CIRCLE
DALLAS, TX 75225

MR. W. A. LANDRETH
908 CONTINENTAL NATIONAL BANK BL
FT. WORTH, TX 76102

M. RALPH LOWE
C/O A. W. MOURSUND
P. O. BOX 125
JOHNSON CITY, TX 78636

MARATHON OIL COMPANY
ATTN: MR. G. A. NAERT
P. O. BOX 522
MIDLAND, TX 79702

KATHRYN LOUISE CONRAD McCARTHY
4435 SAN GABRIEL
DALLAS, TX 75229

J. S. McGANNON
P. O. BOX 1651
SANTA FE, NM 87501

K. D. McPETERS
P. O. BOX 1860
HOBBS, NM 88240

MOBIL OIL CORPORATION
3 GREENWAY PLAZA EAST
SUITE 800
HOUSTON, TX 77046

WAYNE MOORE
403 N. MARINEFIELD
MIDLAND, TX 79701

J. E. MORAN
FIRST NATIONAL BANK - MIDLAND
TRUSTEE FOR F. E. MORAN
TRUST #1 (NO. 323)
P. O. BOX 1599
MIDLAND, TX 79701

R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

G. D. MORRIS
2901 W. HWY 83, BOX 154
McALLEN, TX 78501

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PORTALES, NM 88130

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1710 WILSHIRE BOULEVARD
OKLAHOMA CITY, OK 73116

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DALLAS, TX 75220

SAMEDAN OIL CORPORATION
ATTN: MR. M. G. MARTIN
2207 WILCO BUILDING
MIDLAND, TX 79702

SAMEDAN OIL CORPORATION
ATTN: MR. BOYCE BERRY
P. O. BOX 909
ARDMORE, OK 73401

HOWELL SPEAR
P. O. BOX 1684
MIDLAND, TX 79701

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THRONTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS
P. O. BOX 1861
MIDLAND, TX 79702

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

FIRST NATIONAL BANK OF LEA COUNTY
TRUSTEE FOR CECIL H. SWEET AND
IMA EMMETTA SWEET TRUST
P. O. BOX 70
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO, INC.
ATTN: ASSISTANT DIVISION MANAGER
P. O. BOX 3109
MIDLAND, TX 79702

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
1700 ONE MAIN PLACE
DALLAS, TX 75250

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. R. J. WOMACK
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MIDLAND, TX 79702

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5215 HAVENWOODS
HOUSTON, TX 77066

TWO STATES OIL COMPANY
1910 EMPIRE LIFE BLDG.
DALLAS, TX 75201

LOYD WHITLEY
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MIDLAND, TX 79701

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P. O. BOX 3187
LUBBOCK, TX 79410

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1630 HARVARD CT.
HOBBS, NM 88240

THE WISER OIL COMPANY
ATTN: MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

THE WISER OIL COMPANY
ATTN: MR. C. P. LaRUE
P. O. BOX 192
SISTERVILLE, WV 26175

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701
(PRIMARY TERM ENDS OCTOBER, 1975)

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P. O. BOX 6031
DALLAS, TX 75222

RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

July 19, 1977

Subject: Minutes - Working Interest Owners Meeting
Proposed North Hobbs Unit
Lea County, New Mexico

TO: WORKING INTEREST OWNERS (MAILING LIST ATTACHED)

A meeting of the Working Interest Owners of the proposed North Hobbs Unit was held July 12, 1977, in Midland, Texas. Representatives attending the meeting are shown on the attached attendance list.

Mr. Buck opened the meeting by asking if there were any corrections or additions to the published minutes of the May 26, 1977 meeting. No corrections were submitted and the minutes stand as written.

Mr. Buck then pointed out that at the previous meeting Exxon, Continental Texas Pacific, and Russel Estes, passed on the vote regarding acceptance of the parameter table as a basis for participation negotiations and asked if any of the parties had any change to make in their vote. Exxon changed their vote to yes. Continental sustained the pass vote, stating they were concerned with the shut-in status of some wells during the production period. Texas Pacific retained their pass vote. Estes was not present during the discussion.

Mr. Buck then stated that it was the purpose of the meeting to negotiate a participation formula for Unitization. Before any formula was submitted, Mr. Shepherd, suggested that oil and gas allocation(s) be considered separately from expense allocation(s). After some discussion it was agreed that participation formulas could be proposed with or with out expense considerations.

Mr. Buck then formally proposed the formula previously submitted in writing by Shell. A total of 12 formulas were submitted and considered by the Working Interest Owners. Details of each formula and the resulting vote are shown by attachments hereto.

Prior to submitting Formula No. 12, Mr. Shepherd, Exxon, presented a graph showing the projected performance of the project under unitized operations. He pointed out that under such conditions, an amount of oil equal to the estimated primary reserve would be recovered in less than 1/3 of the time required by non-unitized operations. He also pointed out that with certain formulas, as much as 50 percent of the secondary oil could be produced before secondary parameters become effective. He felt these points should be considered in the development of a participation formula.

As sufficient agreement was not reached on a formula to proceed with other unitization matters, it was agreed to again attempt participation negotiations after all parties had had time to review the negotiations to date.

There being no further business, the meeting was adjourned.

W.E. Buck
Chairman, Working Interest
Owners Committee

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. R. W. MULLINS
MANAGER - JOINT VENTURE OPERATIONS - U.S.
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. GEORGE GARRETT
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

W. D. ANDERSON & SONS
P. O. BOX 136
MIDLAND, TX 79702

ATLANTIC RICHFIELD COMPANY
ATTN: MR. G. THANE AKINS
P. O. BOX 1610
MIDLAND, TX 79702

T. J. BERRY
RT. 4
WILLS POINT, TX 75169

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

MARY DANIEL CONRAD
4308 AVONDALE
DALLAS, TX 75219

C&C OPERATING CORP.
P. O. BOX 1829
HOBBS, NM 88240

CHEVRON OIL COMPANY
ATTN: MR. C. F. DWYER
P. O. BOX 1660
MIDLAND, TX 79702

CITIES SERVICE OIL COMPANY
E&P DIVISION
P. O. BOX 1919
MIDLAND, TX 79702

CONTINENTAL OIL COMPANY (2)
ATTN: L. P. THOMPSON
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CASPER, WY 82601

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DALLAS, TX 75225

MR. W. A. LANDRETH
908 CONTINENTAL NATIONAL BANK BLDG.
FT. WORTH, TX 76102

M. RALPH LOWE, INC.
ATTN. JACK P. SEMON
P. O. BOX 832
MIDLAND, TX 79702

MARATHON OIL COMPANY
ATTN: MR. G. A. NAERT
P. O. BOX 522
MIDLAND, TX 79702

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4435 SAN GABRIEL
DALLAS, TX 75229

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IMA EMMETTA SWEET TRUST
P. O. BOX 70
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
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TEXACO, INC.
ATTN: ASSISTANT DIVISION MANAGER
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MIDLAND, TX 79702

TEXACO, INC.
ATTN: DISTRICT ENGINEER
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THE WISER OIL COMPANY
ATTN: MR. C. P. LaRUE
P. O. BOX 192
SISTERVILLE, WV 26175

YEAGER & ARMSTRONG
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MIDLAND, TX 79701
(PRIMARY TERM ENDS OCTOBER, 1975)

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HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P. O. BOX 6031
DALLAS, TX 75222

RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

Formula No. 1 (Shell)

Oil Allocation

Phase I - 100% Oil Production year 1976 - to be in effect until 11,670, 070 bbls of oil produced after effective date of Unit or 5 years whichever occurs first.

Phase II - 100% Primary Oil Reserve (1/1/77) - to become effective at end of Phase I and to be in effect until production for area equals 38,071,683 bbls from January 1, 1977.

Phase III - 100% Secondary Oil Reserve - to become effective at termination of Phase II.

Gas Allocation

Phase I - 100% Gas Production for year 1976 - Phase I gas to be same period as Phase I Oil.

Phase II - 100% Primary Gas Reserve - Phase II gas to be same period as Phase II Oil.

Phase III - Gas allocation to be same as Oil allocation.

Operating Expenses

Allocation to be on phase-in-effect and based on Oil Allocation only.

Capital Expenditures

(a) All costs of investment nature associated with injection injection station, injection lines, water source, drilling equiping injection wells and conversion expense be charged initially on Phase III Oil Allocation.

(b) All other costs of a capital expenditure type, including tank battery consolidation costs, be allocated initially on Phase II Oil Allocation and adjusted to Phase III Oil Allocation at termination of Phase II.

Inventory

Inventory value to be allocated initially on basis of Phase II. Oil Allocation and adjusted to Phase III Oil Allocation at termination of Phase II.

Formula No. 1 (Shell)

Voting Results (Based on Oil Allocation Only)

Company	Working Interest - %			
	Phase I	Phase II	Phase III	Vote
Amerada	6.82433	6.50263	8.60241	Yes
Amoco	1.51264	1.35806	1.87842	No
Atlantic	1.96877	3.18766	3.27302	Pass
Chevron	2.47763	3.39898	2.97321	Yes
Cities Service	3.43427	3.20244	5.54436	No
Continental	9.37738	11.71357	14.36721	No
J.P. Cusack (15, 16, 17)	1.78236	2.73271	0.18997	No
Estes (Tract 5)	0.00832	0.00211	0.01236	Yes
Exxon	5.85371	4.39610	7.63885	No
Getty	8.63387	8.74235	7.55887	No
Gulf	10.79961	9.44655	15.23438	Yes
M. Ralph Lowe, Inc.	0.04944	0.02674	0.00164	Pass
Marathon	2.30702	2.71879	4.03993	Pass
Mobil	1.31991	0.82805	0.67264	Yes
Moran (19, 22, 31, 35, 39, 40, 44, 53, 64, 66)	0.15723	0.08743	0.03431	No
Samedan (48, 49)	4.99574	6.28791	1.33490	No
Shell	25.54027	23.76832	18.87539	Yes
Sun	0.34962	0.19658	0.43429	No
Texaco	3.39231	3.09110	1.16515	No
Texas Pacific	4.59331	4.70381	2.81932	No
Wiser Oil (Tract 14 & 15, 38)	0.24987	0.28928	0.11005	No
J.A. Yates	0.22148	0.10695	0.38811	Yes
Yes	47.19155	Yes 44.05359	Yes 46.75850	
No	44.33231	No 46.80134	No 43.07570	
Pass	4.32523	Pass 5.93319	Pass 7.31459	
Total	95.84909	Total 96.78812	Total 97.14879	

Formula No. 2 (Samedan) Oil and Gas Allocation only - Expense Allocation not considered.

Phase I - To be in effect until 38,071,683 bbls of oil produced from area after January 1, 1977.

4% Grayburg Primary Oil Reserve 1/1/77
56% San Andres Zone I Primary Oil Reserve 1/1/77
20% San Andres Zone II Primary Oil Reserve 1/1/77
20% San Andres Zone III Primary Oil Reserve 1/1/77

Phase II - To be effective at termination of Phase I.

15% Remaining Primary Oil Reserve 1/1/77
85% Secondary Oil Reserve 1/1/77

Voting Results

Company	Working Interest % Phase I	Working Interest % Phase II	Vote
Amerada	6.50815	8.28744	No
Amoco	1.34769	1.80037	No
Atlantic	3.18583	3.26022	Yes
Chevron	3.40581	3.03708	Yes
Cities Service	3.19707	5.19307	No
Continental	11.64751	13.96916	No
J. P. Cusack (15, 16, 17)	2.74114	0.57138	Yes
Estes	0.00217	0.01082	No
Exxon	4.40407	7.15244	No
Getty	8.74745	7.73639	No
Gulf	9.41771	14.36621	No
M. Ralph Lowe, Inc.	0.02741	0.00540	No
Marathon	2.71070	3.84176	Pass
Mobil	0.84900	0.69595	No
Moran (19, 22, 31, 35, 39, 40, 44, 53, 64, 66)	0.08966	0.04228	No
Samedan (48, 49)	6.30597	2.07785	Yes
Shell	23.77159	19.60933	Yes
Sun	0.19889	0.39863	No
Texaco	3.09609	1.45404	No
Texas Pacific	4.71393	3.10199	Yes
Wiser (Tract 14, 15, 38)	0.29025	0.13693	Pass
Yates	0.10966	0.34594	No
Yes	44.12427	31.65785	
No	49.64253	61.45814	
Pass	3.00095	3.97869	
TOTAL	96.76775	97.09468	

Formula No. 3 (Amerada) Oil and Gas Allocation only - Expense Allocation not included.

Oil

Phase I - To be effective until 38, 071, 683 bbls of oil produced from area after January 1, 1977.
- 1/3 Cumulative Oil Production 1/1/77
- 1/3 Oil Production Year 1976
- 1/3 Remaining Primary Oil Reserve 1/1/77

Phase II - 100% Secondary Oil Reserve

Gas

Phase I - To be same term as Phase I oil
- 100% Remaining Gas Reserve 1/1/77

Phase II - Same as oil allocation.

Voting Results - Based on oil allocation only.

Company		Working Interest % Phase I		Working Interest % Phase II	Vote
Amerada		7.59346		8.60241	Yes
Amoco		1.30733		1.87842	Yes
Atlantic		3.01644		3.27302	Pass
Chevron		2.68416		2.97321	No
Cities Service		3.82167		5.54436	Yes
Continental		10.26443		14.36721	No
Cusack (15, 16, 17)		1.89037		0.18997	No
Estes		0.00441		0.01236	No
Exxon		6.22854		7.63885	Yes
Getty		9.17771		7.55887	Yes
Gulf		10.58952		15.23438	Yes
Ralph Lowe		0.03216		0.00164	Pass
Marathon		2.96131		4.03993	Pass
Mobil		1.06123		0.67264	Pass
Moran (19, 22, 31, 35, 44, 53, 64, 66)		0.10753		0.03431	No
Samedan (48, 49)		4.84186		1.33490	No
Shell		22.91260		18.87539	No
Sun		0.36203		0.43429	No
Texaco		3.05454		1.16515	No
Texas Pacific		4.04139		2.81932	No
Wiser (14, 15, 38)		0.28957		0.11005	Pass
Yates		0.19402		0.38811	Yes
	Yes	38.91225	Yes	46.84540	
	No	50.16332	No	42.20611	
	Pass	7.36071		8.09728	
TOTAL		96.43628		97.14879	

Formula No. 4 (Shell)

Same as Formula No. 1 (Shell) but for Oil and Gas.
Allocation only - Expense allocation not included.

Voting Results (Based on Oil Allocation Only)

Company	Working Interest - %			
	Phase I	Phase II	Phase III	Vote
Amerada	6.82433	6.50263	8.60241	Yes
Amoco	1.51264	1.35806	1.87842	Yes
Atlantic	1.96877	3.18766	3.27302	Pass
Chevron	2.47763	3.39898	2.97321	Yes
Cities Service	3.43427	3.20244	5.54436	No
Continental	9.37738	11.71357	14.36721	No
J.P. Cusack (15, 16, 17)	1.78236	2.73271	0.18997	Pass
Estes (Tract 5)	0.00832	0.00211	0.01236	Yes
Exxon	5.85371	4.39610	7.63885	Pass
Getty	8.63387	8.74235	7.55887	No
Gulf	10.79961	9.44655	15.23438	Yes
M. Ralph Lowe, Inc.	0.04944	0.02674	0.00164	Pass
Marathon	2.30702	2.71879	4.03993	Pass
Mobil	1.31991	0.82805	0.67264	Yes
Moran (19, 22, 31, 35, 39, 40, 44, 53, 64, 66)	0.15723	0.08743	0.03431	No
Samedan (48, 49)	4.99574	6.28791	1.33490	No
Shell	25.54027	23.76832	18.87539	Yes
Sun	0.34962	0.19658	0.43429	No
Texaco	3.39231	3.09110	1.16515	No
Texas Pacific	4.59331	4.70381	2.81932	Yes
Wiser Oil (Tract 14 & 15, 38)	0.24987	0.28928	0.11005	No
J.A. Yates	0.22148	0.10695	0.38811	Yes
Yes	53.29750	Yes 50.11546	Yes 51.45624	
No	30.59029	No 33.61066	No 30.54914	
Pass	11.96130	Pass 13.06200	Pass 15.14341	
Total	95.84909	Total 96.78812	Total 97.14879	

Formula No. 5 (Texaco) Oil and Gas Allocation only - Expense Allocation not included.

Phase I - 100% Oil Production Year 1976 - to be in effect until 11,670,070 bbls oil produced after unit becomes effective.

Phase II - 100% Primary Oil Reserve 1/1/77 - to be effective of termination at Phase I and to remain until 38,071,683 bbls of oil produced from area after January 1, 1977.

Phase III 50% Secondary Oil Reserve
50% Ultimate Primary Oil Recovery

Voting Results	Working Interest %			Vote
	Phase I	Phase II	Phase III	
Amerada	6.82433	6.50263	8.75411	Yes
Amoco	1.51264	1.35806	1.49334	No
Atlantic	1.96877	3.18766	3.51753	Pass
Chevron	2.47763	3.39898	2.68810	No
Cities Service	3.43427	3.20244	5.03546	No
Continental	9.37738	11.71357	12.22159	No
Cusack (15, 16, 17)	1.78236	2.73271	0.81938	Yes
Estes (Tract 5)	0.00832	0.00211	0.00752	No
Exxon	5.85371	4.39610	7.66244	Pass
Getty	8.63387	8.74235	8.72670	Yes
Gulf	10.79961	9.44655	13.18583	No
Ralph Lowe, Inc.	-	-	-	-
Marathon	2.30702	2.71879	3.84331	Pass
Mobil	-	-	-	-
Moran (19, 22, 31, 35, 44, 53, 64, 66)	0.15723	0.08743	0.05698	No
Samedan	4.99574	6.28791	2.57120	Pass
Shell	25.54027	23.76832	19.55534	Yes
Sun	0.34962	0.19658	0.45522	No
Texaco	3.39231	3.09110	1.96085	Yes
Texas Pacific	4.59331	4.70381	2.99744	Yes
Wiser (Tract 14, 15, 38)	0.24987	0.28928	0.21606	Pass
Yates	0.22148	0.10695	0.30726	No
Yes	50.76645	49.54092	42.81382	
No	28.33818	29.51267	35.45130	
Pass	15.37511	16.87974	17.81054	
TOTAL	94.47974	95.93333	96.07566	

Formula No. 6 (Atlantic) Oil and Gas Allocation - Expense Allocation not included.

Oil - (In effect until 38,071,683 BO prod. after 1/1/77.)

Phase I -
- 2% Grayburg Primary Oil Reserve 1/1/77
- 28% San Andres Zone I Primary Oil Reserve 1/1/77
- 10% San Andres Zone II Primary Oil Reserve 1/1/77
- 10% San Andres Zone III Primary Oil Reserve 1/1/77
- 16.66% Cumulative Oil production 1/1/77
- 16.67% Oil Production Year 1976
- 16.67% Remaining Primary Oil Reserve 1/1/77

Phase II -
- 7.5% Primary Oil Reserve 1/1/77
- 92.5% Secondary Oil Reserve

Gas

Phase I -
- 50% Primary Gas Reserve 1/1/77
- 2% Grayburg Primary Oil Reserve 1/1/77
- 28% San Andres Zone I Primary Oil Reserve 1/1/77
- 10% San Andres Zone II Primary Oil Reserve 1/1/77
- 10% San Andres Zone III Primary Oil Reserve 1/1/77

Phase II - Same as Oil Allocation

Voting Results - (Based on Oil Allocation)

Company	Working Interest % Phase I	Working Interest % Phase II	Vote
Amerada	7.050805	8.44493	Yes
Amoco	1.327510	1.83939	No
Atlantic	3.101135	3.26662	Yes
Chevron	3.044985	3.00514	Yes
Cities Service	3.509370	5.36872	No
Continental	10.955970	14.16819	No
Cusack (15, 16, 17)	2.315755	0.38068	No
Estes	0.003290	0.01159	No
Exxon	5.316305	7.39564	No
Getty	8.962580	7.64763	No
Gulf	10.003615	14.80029	No
Moran (19, 22, 31, 35, 44, 53, 64, 66)	0.098595	0.03829	No
Samedan (48, 49)	5.573915	1.70638	Pass
Shell	23.342095	19.24236	Pass
Sun	0.280460	0.41646	No
Texaco	3.075315	1.30960	No
Texas Pacific	4.377660	2.96066	No
Wiser (Tracts 14, 15, 38)	0.289910	0.12349	Pass
Yates	0.151840	0.36702	Pass
	Yes 13.196925	Yes 14.71669	
	No 50.226425	No 56.33714	
	Pass 29.357760	Pass 21.43925	
TOTAL	92.78110	92.49308	

Formula No. 7 (Texas Pacific) Oil and Gas Allocation only - Expense Allocation not included.

Oil Allocation

Phase I - To be in effect until 11,670,070 bbls oil produced from area after date of unitization.

60% - Oil Production Year 1976
40% - Primary Oil Reserve 1/1/77

Phase II - To be in effect from termination of Phase I unit 38,071,683 bbls of oil produced from area after 1/1/77.

40% - Oil Production Year 1976
60% - Primary Oil Reserve 1/1/77

Phase III - To be in effect at termination of Phase II

80% - Secondary Oil Reserve
20% - Ultimate Primary Oil Recovery

Gas Allocation

Phase I - To be same as Oil Phase I 100% Gas Production 1976

Phase II - To be same as Oil Phase II 100% Primary Gas Reserve (1/1/77).

Phase III - To be same as Oil Phase III Gas Allocation to be same as Oil Allocation.

Voting Results - (Oil Allocation only)

Company	Working Interest %			Vote
	Phase I	Phase II	Phase III	
Amerada	6.69565	6.63131	8.66309	Yes
Amoco	1.45081	1.41989	1.72439	No
Atlantic	2.45633	2.70010	3.37083	No
Chevron	2.84617	3.03044	2.85917	No
Cites Service	3.34154	3.29517	5.34080	No
Continental	10.31186	10.77909	13.50896	No
Cusack (15, 16, 17)	2.16250	2.35257	0.44173	No
Estes (Tract 5)	0.00584	0.00459	0.01042	No
Exxon	5.27067	4.97914	7.64829	No
Getty	8.67726	8.69896	8.02600	No
Gulf	10.25839	9.98777	14.41496	No
Samedan (48, 49)	5.51261	5.77104	1.82942	Pass
Shell	24.83149	24.47710	19.14737	Yes
Sun	0.28840	0.25780	0.44266	No
Texaco	3.27183	3.21158	1.48343	No
Texas Pacific	4.63751	4.65961	2.89057	Yes
Wiser (Tract 14, 15, 38)	0.26563	0.27352	0.15246	No
Yates	0.17567	0.15276	0.35577	Pass
Yes	36.16465	35.76802	30.70103	
No	50.60723	50.99062	59.42410	
Pass	5.68829	5.92380	2.18519	
TOTAL	92.46017	92.68244	92.31032	

Formula No. 8 (Chevron) - Single Phase - Expense allocation not included.

45% - Primary Oil Reserve 1/1/77
45% - Secondary Oil Reserve
10% - Primary Gas Reserve 1/1/77

Voting Results

Company	Working Interest %	Vote
Amerada	7.54901	Pass
Amoco	1.73734	Yes
Atlantic	3.22274	Yes
Chevron	3.04459	Yes
Cities Service	4.22608	No
Continental	13.75089	No
Cusack (15, 16, 17)	1.39272	Pass
Estes (Tract 5)	0.00716	No
Exxon	5.90707	No
Getty	8.20666	No
Gulf	12.62912	No
Samedan (48,49)	3.59565	Pass
Shell	21.10105	No
Sun	0.30288	No
Texaco	2.01379	No
Texas Pacific	3.61015	No
Wiser (Tract 14, 15, 38)	0.18381	No
Yates	0.24127	No
Yes	8.00467	
No	72.17993	
Pass	12.53738	
Total	92.72198	

Formula No. 9 (Getty) - Oil and Gas Allocation - Expense Allocation not included.

Phase I - to be in effect until 38,071,683 bbls of all produced from area after January 1, 1977.

Phase II - to be effective at termination of Phase I

25% Ultimate Primary Oil Recovery
75% Secondary Oil Reserve

Voting Results

Company	Working Interest % Phase I	Phase II	Vote
Amerada	7.64187	8.67826	Yes
Amoco	1.75852	1.68588	Yes
Atlantic	3.36800	3.39528	Yes
Chevron	2.52430	2.83066	No
Cities Service	3.54302	5.28991	No
Continental	13.97816	13.29440	No
Cusack (16,17,18)	1.65220	0.50467	No
Estes (Tract 5)	0.00376	0.00994	No
Exxon	5.66512	7.65065	No
Getty	9.11591	8.14278	Yes
Gulf	11.93682	14.21011	No
Samedan (48,49)	3.91637	1.95305	No
Shell	21.03893	10.21537	No
Sun	0.28754	0.44476	No
Texaco	2.27745	1.56300	No
Texas Pacific	3.37557	2.90838	No
Wiser	0.21749	0.16306	No
Yates	0.17276	0.34768	Yes
Yes	22.05706	22.24988	
Nc	70.41673	70.03796	
Pass	0	0	
Total	92.47379	92.28784	

Formula No. 10 (Continental) - Expense Allocation not included.

Oil

Phase I - To be in effect until 38,071,683 bbls oil produced from area after January 1, 1977.
- 100% Remaining Primary Oil Reserve (1/1/77).

Phase II - To be in effect at termination at Phase I.
- 100% Secondary Oil Reserve

Gas

Phase I - To be in effect for same period as Phase I Oil.
- 100% Remaining Primary Gas (1/1/77).

Voting Results - Based on oil allocation only.

Company	Working Interest %		Vote
	Phase I	Phase II	
Amerada	6.50263	8.60241	Yes
Amoco	1.35806	1.87842	Yes
Atlantic	3.18766	3.27302	Yes
Chevron	3.39898	2.97321	Yes
Cities Service	3.20244	5.54436	No
Continental	11.71357	14.36721	Yes
Cusack (15, 16, 17)	2.73271	0.18997	Yes
Estes (Tract 5)	0.00211	0.01236	Pass
Exxon	4.39610	7.63885	No
Getty	8.74235	7.55887	No
Gulf	9.44655	15.23438	Yes
Samedan (48, 49)	6.28791	1.33490	Yes
Shell	23.76832	18.87539	No
Sun	0.19658	0.43429	No
Texaco	3.09110	1.16515	No
Texas Pacific	4.70381	2.81932	Yes
Wiser	0.28928	0.11005	No
Yates	0.10695	0.38811	Pass
Yes	49.331880	50.672840	
No	43.686170	41.326960	
Pass	0.109060	0.400470	
TOTAL	93.12711	92.40027	

Formula No. 11 (Texas Pacific) - Oil and Gas Allocation Only - Expense allocation not included.

Oil

Phase I - to be in effect until 38,071,683 barrels of oil produced from area after January 1, 1977.

- 50% Oil Production year 1976
- 50% Remaining Primary Oil Reswrve 1/1/77

Phase II - to be in effect at termination of Phase I
- 100% Secondary Oil Reserve

Gas

Phase I - to be in effect during Phase I Oil
- 50% Gas Production year 1976
- 50% Gas Reserve (1/1/77)

Phase II - to be in effect during Phase II Oil
- same as Phase II oil

Voting Results - based on Oil Allocation only

Company	Working Interest % Phase I	Phase II	Vote
Amerada	6.66348	8.60241	Yes
Amoco	1.43535	1.87842	Yes
Atlantic	2.57821	3.27302	No
Chevron	2.93830	2.97321	No
Cities Service	3.31835	5.54436	No
Continental	10.54547	14.36721	No
Cusack (15,16,17)	2.25753	0.18997	No
Estes (Tract 5)	0.00521	0.01236	Yes
Exxon	5.12490	7.63885	Pass
Getty	8.68811	7.55887	No
Gulf	10.12308	15.23438	Yes
Samedan (48,46)	5.64182	1.33490	No
Shell	24.65429	18.87539	Pass
Sun	0.27310	0.43429	No
Texaco	3.24170	1.16515	No
Texas Pacific	4.64856	2.81932	Yes
Wiser	0.26957	0.11005	Pass
Yates	0.16421	0.38811	Yes
Yes	23.03989	Yes 28.93500	
No	39.48259	No 36.84098	
Pass	30.04876	Pass 26.62429	
Total	92.57124	Total 92.40027	

Formula No. 12 (Exxon) Oil and Gas Allocation only - Expense Allocation not included.

Oil

Phase I - To be in effect until 11,670,070 barrel of oil produced from area after date of unitization.
- 75% Oil Production Year 1976
- 25% Remaining Primary Oil Reserve (1/1/77)

Phase II - To be in effect at termination of Phase I and until 38,071,683 bbls of oil produced from area after January 1, 1977.

II
- 75% Remaining Primary Oil Reserve (1/1/77)
- 100% Secondary Oil Reserve

Gas

Phase I
- To be in effect during Phase I oil
- 75% Gas Production Year 1976
- 25% Remaining Gas Reserve (1/1/77)

Phase II
- To be in effect during Phase II oil.
- 75% Remaining Gas Reserve
- 25% Gas Production Year 1976

Phase III - To be in effect during Phase III oil some as Phase III oil allocation.

Voting Results - Based on oil allocation only.

Company	Working Interest % Phase I	Phase II	Phase III	Vote
Amerada	6.74390	6.58305	8.60241	Yes
Amoco	1.47399	1.39670	1.87842	Yes
Atlantic	2.27349	2.88294	3.27302	No
Chevron	2.70797	3.16864	2.97321	Yes
Cities Service	3.37631	3.26040	5.54436	No
Continental	9.96143	11.12952	14.36721	No
Cusack (15, 16, 17)	2.01995	2.49512	0.18997	No
Estes (Tract 5)	0.00677	0.00366	0.01236	Yes
Exxon	5.48931	4.76050	7.63885	Yes
Getty	8.66099	8.71523	7.55887	No
Gulf	10.46134	9.78481	15.23438	Yes
Samedan (48, 49)	5.31878	5.96487	1.33490	Pass
Shell	25.09728	24.21131	18.87539	Yes
Sun	0.31136	0.23484	0.43429	No
Texaco	3.31701	3.16640	1.16515	No
Texas Pacific	4.62093	4.67618	2.81932	Yes
Wiser	0.25972	0.27943	0.11005	Pass
Yates	0.19285	0.13558	0.38811	Yes
Yes	56.79434	54.72043	58.42245	
No	29.92054	31.88445	32.53287	
Pass	5.57850	6.24430	1.44495	
TOTAL	92.29338	92.84918	92.40027	

ATTENDANCE LIST

WORKING INTEREST OWNER'S MEETING

NORTH HOBBS UNIT

JULY 12, 1977

COMPANY	NAME	LOCATION
Amerada-Hess Corp.	Gerald Hill	Tulsa, Ok
Amerada-Hess Corp.	Kussim T. Kassim	Seminole, Tx
Amerada-Hess Corp.	R.W. Mullins	Tulsa, Ok
Amoco Producing Company	Steve Denton	Houston, Tx
Atlantic Richfield Company	Thane Akins	Midland, Tx
Atlantic Richfield Company	George Nathman	Midland, Tx
Chevron USA, Inc.	W.A. Goudeau	Midland, Tx
Chevron USS, Inc.	D.D. Allen	Midland, Tx
Cities Service Oil Company	Don Barrett	Midland, Tx
Continental Oil Company	V.T. Lyon	Hobbs, NM
Curry Engineering - J.P. Cusack	Max E. Curry	Midland, Tx
Exxon Company	W.E. Nolan	Midland, Tx
Exxon Company	J.M. Shepherd	Midland, Tx
Getty Oil Company	J.E. Eakin	Midland, Tx
Getty Oil Company	O.V. Stuckey	Midland, Tx
Gulf	Vance M. Hendricks	Midland, Tx
Gulf Energy & Minerals Co. U.S.A.	J.D. Mussett	Midland, Tx
Gulf Energy & Minerals Co. U.S.A.	R.O. Walker	Midland, Tx
John A. Yates	Eddie Matford	Anteria, NM
M. Ralph Lowe, Inc.	Jack D. Semon	Midland, Tx
Marathon Oil Company	G.H. Naert	Midland, Tx
Mobil Oil Corporation	L.A. Carr	Houston, Tx
Moranco	Ken McPeters	Hobbs, NM
Samedan Oil Company	Boyce Perry	Ardmore, OK
Jack Crusack	Jack Cusack	Biswell, NM
Shell Oil Company	W.E. Buck	Houston, Tx
Shell Oil Company	H.J. Swartz	Houston, Tx
Sipes Williamson & Aycock (Rep. Moranco)	Don Hunter	Midland, Tx
Sun Producing Company	Joe Martin	Midland, Tx
Sun Producing Company	Herb Seidel, Jr.	Dallas, Tx
Sun Producing Company	Joe Thornton	Dallas, Tx
Sun Producing Company	Wanda Vance	Dallas, Tx
Texaco, Inc.	H.E. Harper	Hobbs, NM
Texaco, Inc.	Morris Todd	Midland, Tx
Texas Pacific Oil Co., Inc.	G.R. Meyers	Dallas, Tx
Texas Pacific Oil Co., Inc.	J.D. Waggoner	Dallas, Tx
Wiser Oil Company	William R. Larsen	Midland, Tx

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

July 21, 1977

Subject: Formula No. 12 - Correction
Minutes Working Interest Owners Meeting
Proposed North Hobbs Unit
Lea County, New Mexico

To Working Interest Owners

Formula No. 12 as stated in the minutes of the Working Interest Owners Meeting of July 12, 1977 was in error. Attached is a corrected statement of such formula.

W. E. Buck
Chairman, Working Interest Owner
Committee

WEB:CLM

Attachment

Formula No. 12 (Exxon) Oil and Gas Allocation only - Expense Allocation not included.

Oil

Phase I - To be in effect until 11,670,070 barrell of oil produced from area after date of unitization.
- 75% Oil Production Year 1976
- 25% Remaining Primary Oil Reserve (1/1/77)

Phase II - To be in effect at termination of Phase I and until 38,071,683 bbls of oil produced from area after January 1, 1977.
- 75% Remaining Primary Oil Reserve (1/1/77)
- 25% Oil Production year 1976

Phase III - to be in effect at termination of Phase II
- 100% secondary oil reserve

Gas

Phase I - To be in effect during Phase I oil
- 75% Gas Production Year 1976
- 25% Remaining Gas Reserve (1/1/77)

Phase II - To be in effect during Phase II oil
- 75% Remaining Gas Reserve
- 25% Gas Production Year 1976

Phase III - To be in effect during Phase III oil and same as Phase III oil allocation.

Voting Results - Based on oil allocation only.

Company	Working Interest %			Vote
	Phase I	Phase II	Phase III	
Amerada	6.74390	6.58305	8.60241	Yes
Amoco	1.47399	1.39670	1.87842	Yes
Atlantic	2.27349	2.88294	3.27302	No
Chevron	2.70797	3.16864	2.97321	Yes
Cities Service	3.37631	3.26040	5.54436	No
Continental	9.96143	11.12952	14.36721	No
Cusack (15, 16, 17)	2.01995	2.49512	0.18997	No
Estes (Tract 5)	0.00677	0.00366	0.01236	Yes
Exxon	5.48931	4.76050	7.63885	Yes
Getty	8.66099	8.71523	7.55887	No
Gulf	10.46134	9.78481	15.23438	Yes
Samedan (48,49)	5.31878	5.96487	1.33490	Pass
Shell	25.09728	24.21131	18.87539	Yes
Sun	0.31136	0.23484	0.43429	No
Texaco	3.31701	3.16640	1.16515	No
Texas Pacific	4.62093	4.67618	2.81932	Yes
Wiser	0.25972	0.27943	0.11005	Pass
Yates	0.19285	0.13558	0.38811	Yes
Yes	56.79434	54.72043	58.42245	
No	29.92054	31.88445	32.53287	
Pass	5.57850	6.24430	1.44495	
TOTAL	92.29338	92.84918	92.40027	

Mr. Buck

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

Subject: Proposed North Hobbs Unit
Hobbs Field
Lea County, New Mexico

ALL WORKING INTEREST OWNERS - PROPOSED NORTH HOBBS UNIT
(MAILING LIST ATTACHED)

A meeting of the Working Interest Owners of the proposed North Hobbs Unit is called for 10:00 a.m., September 20, 1977 in the First National Room, First National Bank Building, Midland, Texas.

The agenda for the meeting will be as follows:

1. Negotiation of a participation formula for unitization.

2. Any other business.

W E Buck

W. E. Buck
Chairman, Working Interest Owners
Committee

WEB:CLM

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. R. W. MULLINS
MANAGER - JOINT VENTURE OPERATIONS - U.S.
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. L. J. CRANDAL
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

W. D. ANDERSON & SONS
P. O. BOX 136
MIDLAND, TX 79702

ATLANTIC RICHFIELD COMPANY
ATTN: MR. G. THANE AKINS
P. O. BOX 1610
MIDLAND, TX 79702

T. J. BERRY
RT. 4
WILLS POINT, TX 75169

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

MARY DANIEL CONRAD
4308 AVONDALE
DALLAS, TX 75219

C&C OPERATING CORP.
P. O. BOX 1829
HOBBS, NM 88240

CHEVRON OIL COMPANY
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E&P DIVISION
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CONTINENTAL OIL COMPANY (2)
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HERMAN R. CRILE
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JOHN P. CUSACK
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EXXON COMPANY - U. S. A. (2)
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FIRST NATIONAL BANK OF CASPER
ESTATE OF M. E. TOLE
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FIRST NATIONAL BANK OF FORT WORTH
ESTATE OF SMITH SPRALDING
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74

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R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
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12850 HILLCREST ROAD
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SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS
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MIDLAND, TX 79702

MR. BILL L. SWEET
P. O. BOX 51
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FIRST NATIONAL BANK OF LEA COUN
TRUSTEE FOR CECIL H. SWEET AND
IMA EMMETTA SWEET TRUST
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HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO, INC.
ATTN: ASSISTANT DIVISION MANAG
P. O. BOX 3109
MIDLAND, TX 79702

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
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1700 ONE MAIN PLACE
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ATTN: MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

THE WISER OIL COMPANY
ATTN: MR. C. P. LaRUE
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SISTERVILLE, WV 26175

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701
(PRIMARY TERM ENDS OCTOBER, 1975)

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
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RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

August 29, 1977

Subject: Proposed North Hobbs Unit
Lea County, New Mexico

TO: ALL WORKING INTEREST OWNERS - PROPOSED NORTH HOBBS UNIT
(MAILING LIST ATTACHED)

Prior to the meeting of the Working Interest Owners of the proposed North Hobbs Unit of July 12, 1977, Shell submitted a participation formula that was to be formally submitted at the called meeting. The purpose of the early submittal was to allow all Parties the opportunity to complete an evaluation of the formula and to make a decisive response at the meeting. Although the proposed formula did not receive sufficient acceptance to proceed with other unitization matters, we feel the response of the Parties justifies a repeat of the procedure. Shell will, therefore, formally submit the following stated participation formula for the consideration of the Working Interest Owners at the meeting called for September 20, 1977.

Oil Allocation

Phase I - Allocation to be based on two parameters, the proportion of each to be determined as stated below. Parameter "A" to be Oil Production for year 1976 and Parameter "B" to be Remaining Primary Oil Reserves (1/1/77). Phase I to be in effect for a period of 5 years from the effective date of unitization. During the term of Phase I, oil shall be allocated to Tracts in the following manner:

First Year - The first 6500 barrels of oil per day, averaged for a calendar month, produced, saved, and sold from the Unit shall be allocated to Tracts based on Parameter "A". All oil produced, saved, and sold in excess of 6500 barrels per day averaged for a calendar month shall be allocated on the basis of Parameter "B".

Second Year - The first 5200 barrels of oil per day, averaged for a calendar month, produced, saved, and sold from the Unit shall be allocated to Tracts based on Parameter "A". All oil produced, saved, and sold in excess of 5200 barrels per day, averaged for a calendar month, shall be allocated on the basis of Parameter "B".

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Third Year - The first 3900 barrels of oil per day, averaged for a calendar month, produced, saved, and sold from the Unit shall be allocated to Tracts based on the Parameter "A". All oil produced, saved, and sold in excess of 3900 barrels per day, averaged for a calendar month, shall be allocated on the basis of Parameter "B".

Fourth Year - The first 2600 barrels of oil per day, averaged for a calendar month, and produced, saved, and sold from the Unit shall be allocated to Tracts based on Parameter "A". All oil produced, saved, and sold in excess of 2600 barrels per day, averaged for a calendar month, shall be allocated on the basis of Parameter "B".

Fifth Year - The first 1300 barrels of oil per day, averaged for a calendar month, produced, saved, and sold from the Unit shall be allocated to Tracts based on Parameter "A". All oil produced, saved, and sold in excess of 1300 barrels per day, averaged for a calendar month, shall be allocated on the basis of Parameter "B".

Phase II - 100 percent Remaining Primary Oil Reserves (1/1/77). Phase II to be in effect from the end of Phase I to the time the oil production from the Unit Area totals the estimated Remaining Primary Oil Reserve of 38,071,683 barrels from January 1, 1977.

Phase III - 100 percent Secondary Oil Reserve. Phase III to be in effect after the termination of Phase II.

Gas Allocation

Phase I - 100 percent Gas Production for Year 1976. Phase I gas to be same period as Phase I oil.

Phase II - 100 percent Primary Gas Reserve (1/1/77). Phase II gas to be same period as Phase II oil.

Phase III - Allocation to be same as oil and for same period as Phase III oil.

The limiting average of daily production of 6500 barrels as used during the first year of Phase I is the projected daily production of the Unit Area for the year 1979. It will be noted from the attached production function forecast for unitized operations that the unit production would start to exceed the limiting production during the second year of unitized operations.

R. L. Howard

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WEB:CLM

R. L. Howard

PROPOSED NORTH HOBBS UNIT
PRODUCTION FUNCTION FOR UNITIZED OPERATIONS(1)

Year	Production Bbls. Oil
1977	2553339
1978	2409459
1979	2118643 (2)
1980	2069097
1981	2268486
1982	2487088
1983	2726756
1984	2989519
1985	3277603
1986	3593449
1987	4205186
1988	4506869
1989	4435333 (3)
1990	4364932
1991	4295649
1992	4227466
1993	4160364
1994	4094329
1995	3698530
1996	3309958
1997	2962209
1998	2650996
1999	2372479
2000	2123223
2001	1900155
2002	1700522
2003	1521863
2004	1361974
2005	1218884
2006	1090826
2007	976223
2008	873659
2009	781872
2010	699727
2011	626213
2012	560422
2013	501544
2014	448852
2015	142151
2016	134073
2017	126455
2018	119270
2019	112493
2020	106101
2021	100072
2022	94385
2023	89022
2024	83963
Totals	93,271,683

Notes: (1) Includes all production from unitized area which consists of W.F. production from Gb, II, III_u and III_L zones and continued primary from Zone I.

(2) Effective date of unit 1/1/79. Water injection commences 7/1/79.

(3) Equivalent primary oil reserves volume (38,071,683 @ 1/1/77 or 33,108,885 @ 1/1/79) will be produced during 1989.

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. R. M. MULLINS
MANAGER - JOINT VENTURE OPERATIONS - U.S.
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. L. J. CRANDAL
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

W. D. ANDERSON & SONS
P. O. BOX 136
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ATLANTIC RICHFIELD COMPANY
ATTN: MR. G. THANE AKINS
P. O. BOX 1610
MIDLAND, TX 79702

T. J. BERRY
RT. 4
WILLS POINT, TX 75169

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
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MARY DANIEL CONRAD
4308 AVONDALE
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CITIES SERVICE OIL COMPANY
E&P DIVISION
P. O. BOX 1919
MIDLAND, TX 79702

CONTINENTAL OIL COMPANY (2)
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HERMAN R. CRILE
BOX 864
ROSWELL, NM 88201

JOHN P. CUSACK
P. O. BOX 250
ROSWELL, NM 88201

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MIDLAND, TX 79702

EXXON COMPANY - U. S. A. (2)
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FIRST NATIONAL BANK OF FORT WORTH
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MR. R. M. MORAN
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DALLAS, TX 75230

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ATTN: MR. R. K. BEGGS
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MR. BILL L. SWEET
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TRUSTEE FOR CECIL H. SWEET AND
IMA EMMETTA SWEET TRUST
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TEXACO, INC.
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ATTN: MR. C. P. LaRUE
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SISTERVILLE, WV 26175

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701
(PRIMARY TERM ENDS OCTOBER, 1975)

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031

MRS. RUTH PEELER YEAGER
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3924 GLENWICK LANE
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EXXON COMPANY, U.S.A.
POST OFFICE BOX 1600 · MIDLAND, TEXAS 79701

PRODUCTION DEPARTMENT
MIDCONTINENT DIVISION

J. M. SHEPHERD
JOINT INTEREST MANAGER

September 1, 1977

RE: North Hobbs (Grayburg-San Andres)
Proposed Unit
Lea County, New Mexico

2 WEB
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Shell Oil Company
P. O. Box 991
Houston, Texas 77001

Attention: Mr. W. E. Buck

Gentlemen:

A review of the Shell minutes for the May 26 and July 12, 1977, meetings of the working interest owners in the proposed subject unit reflect that (1) the technical report titled "Waterflood Feasibility and Unitization Parameters for the North Hobbs (Grayburg-San Andres) Unit" has been basically accepted by the working interest owners, and (2) that most of these owners have appeared willing to use, along with an initial period of "current production", the "primary" and "secondary" reserves in the negotiation proceedings thus far. However, no resolution has been made as to the timing of distribution of these "primary" and "secondary" reserves in the formulas considered. The Shell formula presented for consideration in its August 29, 1977 letter likewise does not address this timing factor.

The attached graph "Performance Forecast - Proposed North Hobbs Unit" shows a consolidation for all zones of the "primary" and "secondary" reserves included in the technical report and assumes unitization will be effective January 1, 1979. This chart was shown by Exxon and discussed at the last meeting. The included table gives the technical committee data from which the graph is constructed. As indicated, the committee forecasts secondary oil will be first recovered after some 6.4 million barrels have been produced, followed then by varying ratios of primary and secondary oil production for the life of the project. Exxon believes this projection should be considered in the development of a participation formula for the proposed unit and to such end will introduce the following formula at the called September 20 working interest owner's meeting.

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A DIVISION OF EXXON CORPORATION

	Oil Reserve	
	Primary MMB	Secondary MMB
Phase 1 for 6.4 MMB after 1-1-79 100% Current Oil Production	6.4	
Phase 2 for the next 26.7 MMB (Cumulative 33.1 MMB) 44.6% Primary Reserves 55.4% Secondary Reserves	11.9	14.8
Phase 3 for remainder (Estimated 55.2 MMB) 26.8% Primary Reserves 73.2% Secondary Reserves	14.8	40.4
Total Primary and Secondary	33.1	55.2

During Phase I and Phase II gas parameters would be substituted in the above formula for allocation of gas production.

Very truly yours,

J. M. Shepherd

JMS:dp

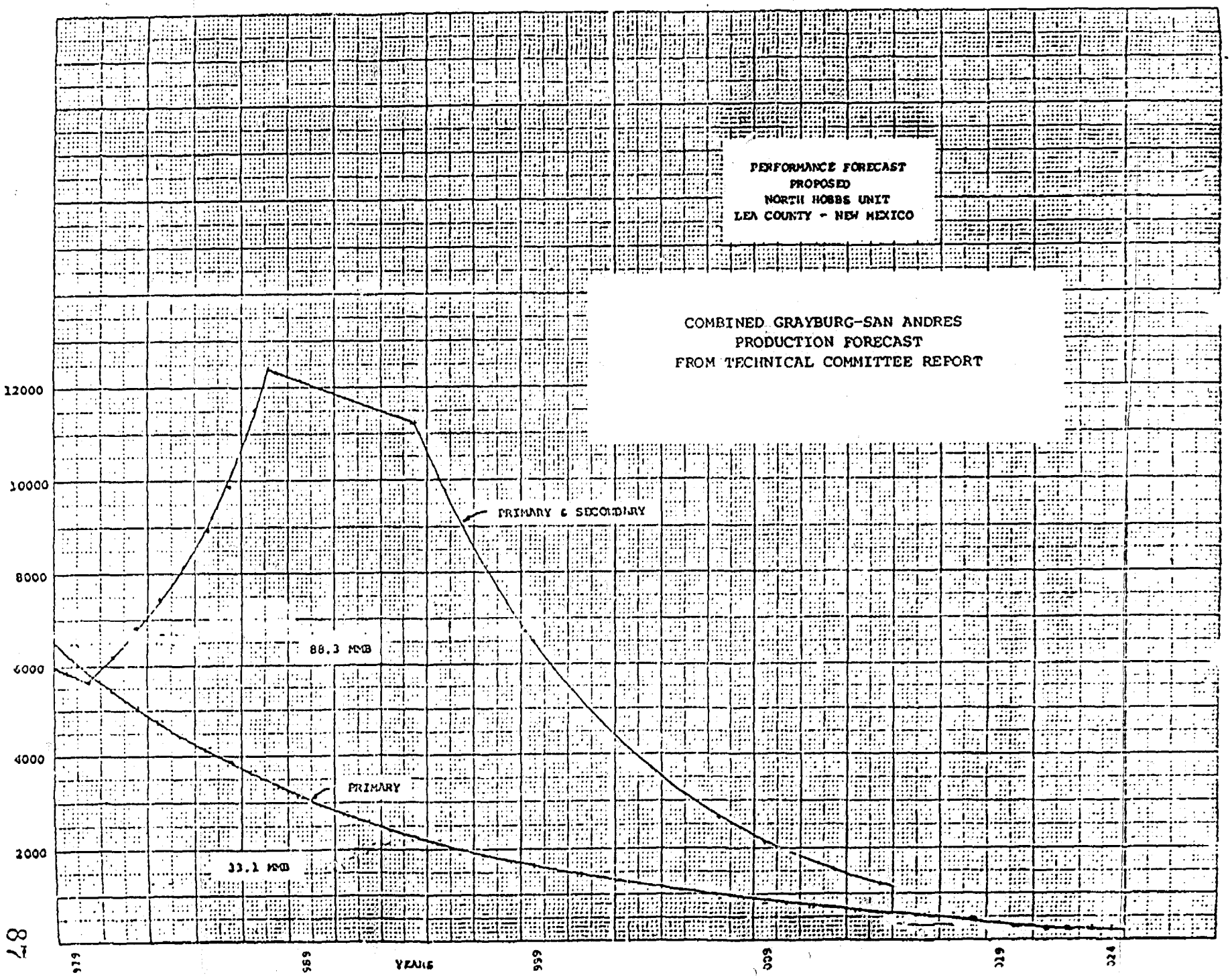
cc: Working Interest Owners

PERFORMANCE FORECAST
PROPOSED
NORTH HOBBS UNIT
COMBINED GRAYBURG-SAN ANDRES PRODUCTION FORECAST
FROM TECHNICAL COMMITTEE REPORT

YEAR PROJECT	YEAR CALENDAR	PRIMARY OIL MB ANNUAL	PRIMARY OIL MB CUMULATIVE	TOTAL OIL MB ANNUAL	TOTAL OIL MB CUMULATIVE	SECONDARY OIL MB ANNUAL	SECONDARY OIL MB CUMULATIV
1	1979	2291.200	2291.2	2118.6	2118.6	-172.6	-172.6
2	1980	2136.700	4427.9	2069.1	4187.7	-67.6	-240.2
3	1981	1993.400	6421.3	2268.5	6456.2	275.1	34.9
4	1982	1860.400	8281.7	2487.1	8943.3	626.7	661.6
5	1983	1737.000	10018.7	2726.8	11670.1	989.8	1651.4
6	1984	1622.200	11640.9	2989.5	14659.6	1367.3	3018.7
7	1985	1515.600	13156.5	3277.6	17937.2	1762.0	4780.7
8	1986	1416.300	14572.8	3593.4	21530.6	2177.1	6957.8
9	1987	1323.900	15896.7	4205.2	25735.8	2881.3	9839.1
10	1988	1237.800	17134.5	4506.9	30242.7	3269.1	13108.2
11	1989	1157.600	18292.1	4435.3	34678.0	3277.7	16385.9
12	1990	1082.800	19374.9	4364.9	39042.9	3282.1	19668.0
13	1991	1013.000	20387.9	4295.6	43338.5	3282.6	22950.6
14	1992	947.900	21335.8	4227.5	47566.0	3279.6	26230.1
15	1993	887.100	22222.9	4160.4	51726.4	3273.3	29503.4
16	1994	830.300	23053.2	4094.3	55820.7	3264.0	32767.4
17	1995	777.300	23830.5	3698.5	59519.2	2921.2	35688.6
18	1996	727.800	24558.3	3310.0	62829.2	2582.2	38270.8
19	1997	681.500	25239.8	2962.2	65791.4	2280.7	40551.5
20	1998	637.300	25877.1	2651.0	68442.4	2013.7	42565.2
21	1999	590.400	26467.5	2372.5	70814.9	1782.1	44347.3
22	2000	553.600	27021.1	2123.2	72938.1	1569.6	45916.9
23	2001	519.000	27540.1	1900.2	74838.3	1381.2	47298.1
24	2002	486.600	28026.7	1700.5	76538.8	1213.9	48512.0
25	2003	456.300	28483.0	1521.9	78060.6	1065.6	49577.6
26	2004	427.800	28910.8	1362.0	79422.6	934.2	50511.8
27	2005	401.100	29311.8	1218.9	80641.5	817.8	51329.6
28	2006	376.100	29687.9	1090.8	81732.3	714.7	52044.3
29	2007	352.700	30040.6	976.2	82708.4	623.5	52667.8
30	2008	330.700	30371.3	873.7	83582.1	543.0	53210.8
31	2009	310.000	30681.3	781.9	84364.0	471.9	53682.7
32	2010	290.700	30972.0	699.7	85063.7	409.0	54091.7
33	2011	272.600	31244.6	626.2	85689.9	353.6	54445.3
34	2012	255.600	31500.2	560.4	86250.3	304.8	54750.1
35	2013	239.600	31739.8	501.5	86751.8	261.9	55012.0
36	2014	224.700	31964.5	448.9	87200.6	224.2	55236.2
37	2015	178.500	32143.0	142.9	87343.5	-35.6	55200.
38	2016	134.100	32277.1	134.1	87477.6		
39	2017	126.500	32403.6	126.5	87604.1		
40	2018	119.300	32522.9	119.3	87723.3		
41	2019	112.500	32635.4	112.5	87835.8		
42	2020	106.100	32741.5	106.1	87941.9		
43	2021	100.100	32841.6	100.1	88041.9		
44	2022	94.400	32936.0	94.1	88136.0		
45	2023	89.000	33025.0	89.0	88225.0		
46	2024	84.000	33109.0	84.0	88309.0		

PERFORMANCE FORECAST
PROPOSED
NORTH HOBBS UNIT
LEA COUNTY - NEW MEXICO

COMBINED GRAYBURG-SAN ANDRES
PRODUCTION FORECAST
FROM TECHNICAL COMMITTEE REPORT



SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

September 23, 1977

Subject: Minutes - Working Interest Owners' Meeting
Proposed North Hobbs Unit
Lea County, New Mexico

TO: WORKING INTEREST OWNERS (MAILING LIST ATTACHED)

A meeting of the Working Interest Owners of the proposed North Hobbs Unit was held September 20, 1977 in Midland, Texas. Representatives attending the meeting are shown on the attached attendance list.

Mr. Buck opened the meeting by advising that Mr. H. J. Swartz, Shell representative on and Chairman of the Technical Committee, had been given a new assignment and would be replaced by Mr. W. R. Lancaster. Mr. Buck then stated that the purpose of the meeting was to negotiate a participation formula for unitization. It was pointed out that participation formulas had been submitted by letter by Shell and Exxon prior to the meeting, and these formulas would be considered first.

A total of 5 formulas were submitted and considered by the Working Interest Owners. Details of each formula and the resulting votes are shown by attachments hereto.

Prior to consideration of Formula No. 14 (Exxon), Mr. Buck stated that it was Shell's feeling that the Shell formula (13) and the Exxon formula (14) offered two different approaches to unitization. He pointed out that Shell's formula offered certain benefits for the remaining primary reserve; whereas, the Exxon formula did not appear to provide appreciable benefits to the primary reserve. Mr. Shepherd, Exxon, again pointed out that the projected performance of the unit indicated that a major portion of the secondary oil would be recovered prior to recovery of the estimated primary reserve and felt that the formula submitted by Exxon recognized this and took it into account.

Before considering Formula No. 16 (Texas-Pacific), Mr. Lyons (Continental) questioned whether the 1976 Oil Production parameter reflected the relationship existing among individual properties. He further advised that Continental believed such parameter, if used, should be given only minimum weight.

As shown by the voting results, Formula No. 17 (Continental) received in excess of 80 percent approval of the Working Interest Owners in attendance. It was therefore agreed to submit Formula No. 17 for a ballot vote to all Working interest Owners.

Formula No. 17, as proposed by Continental, applied only to the allocation of oil and gas production. A brief discussion then followed as to the method of allocating expenses. Although a method of allocation was not formally submitted or voted on, it was generally agreed that a ballot vote would be submitted on the following method of allocating expenses.

Operating & Overhead Expenses

All Operating, Maintenance and Overhead expenses to be borne by Working Interest Owners in proportion to their phase-in-effect Unit Oil Participation.

Capital Expenditures and Inventory

All expenditures of a capital nature and the inventoried value of personal property to be borne initially on the basis of the Phase II Oil Participation and adjusted to Phase III Oil Participation at the termination of Phase II.

Shell, as Unit Expeditor, agreed to submit for ballot vote, Participation Formula No. 17 and the above-stated method of allocating costs.

It was agreed, without vote, that Shell would proceed to develop drafts of the Unit and Unit Operating Agreements for submittal to all Working Interest Owners.

There being no further business, the meeting was adjourned.

Attached for your convenience is a tabulation of gas participation under Formula No. 17.

W. E. Buck
Chairman, Working Interest
Owners' Committee

WEB:MJH

Attachments

Formula No. 13 (Shell, Oil and Gas Allocation only - Expense Allocation not included.

Oil Allocation

Phase I - Allocation to be based on two parameters, the proportion of each to be determined as stated below. Parameter "A" to be Oil Production for year 1976 and Parameter "B" to be Remaining Primary Oil Reserves (1/1/77). Phase I to be in effect for a period of 5 years from the effective date of unitization. During the term of Phase I, oil shall be allocated to Tracts in the following manner:

First Year - The first 6500 barrels of oil per day, averaged for a calendar month, produced, saved, and sold from the Unit shall be allocated to Tracts based on Parameter "A". All oil produced, saved, and sold in excess of 6500 barrels per day averaged for a calendar month, shall be allocated on the basis of Parameter "B".

Second Year- The first 5200 barrels of oil per day, averaged for a calendar month, produced, saved, and sold from the Unit shall be allocated to Tracts based on Parameter "A". All oil produced, saved, and sold in excess of 5200 barrels per day, averaged for a calendar month, shall be allocated on the basis of Parameter "B".

Third Year- The first 3900 barrels of oil per day, averaged for a calendar month, produced, saved, and sold from the Unit shall be allocated to Tracts based on the Parameter "A". All oil produced, saved, and sold in excess of 3900 barrels per day, averaged for a calendar month, shall be allocated on the basis of Parameter "B".

Fourth Year- The first 2600 barrels of oil per day, averaged for a calendar month, and produced, saved, and sold from the Unit shall be allocated to Tracts based on Parameter "A". All oil produced, saved, and sold in excess of 2600 barrels per day, averaged for a calendar month, shall be allocated on the basis of Parameter "B"

Fifth Year- The first 1300 barrels of oil per day, averaged for a calendar month, produced, saved, and sold from the Unit shall be allocated to Tracts based on Parameter "A". All oil produced, saved, and sold in excess of 1300 barrels per day, averaged for a calendar month, shall be allocated on the basis of Parameter "B".

Oil Allocation

Phase II - 100 percent Remaining Primary Oil Reserves (1/1/77). Phase II to be in effect from the end of Phase I to the time the oil production from the Unit Area totals the estimated Remaining Primary Oil Reserve of 38,071,683 barrels from January 1, 1977.

Phase III - 100 percent Secondary Oil Reserve. Phase III to be in effect after the termination of Phase II.

Gas Allocation

Phase I - 100 percent Gas Production for Year 1976. Phase I gas to be same period as Phase I oil.

Phase II - 100 percent Primary Gas Reserve (1/1/77). Phase II gas to be same period as Phase II oil.

Phase III - Allocation to be same as oil and for same period as Phase II oil.

Voting Results - Based on oil allocation only.

Company	Working Interest %			Vote
	Phase I Weighted	Phase II	Phase III	
Amerada Hess Corp.	6.69179	6.50263	8.60241	Pass
Amoco Production Co.	1.44895	1.35806	1.87842	Pass
Atlantic Richfield Co.	2.47095	3.18766	3.27302	Yes
Chevron Oil Co.	2.85723	3.39898	2.97321	Yes
Cities Service Oil Co.	3,33876	3.20244	5.54436	No
Continental Oil Co.	10.33989	11.71357	14.36721	No
Cusack, J. P.(WIO 15, 16, 17)	2.17390	2.73271	0.18997	Yes
Estes, Russell G. (Tract 5)	0.09211	0.03382	0.19769	Yes
Exxon Company - U.S.A.	5.25317	4.39610	7.63885	No
Getty Oil Co.	8.67856	8.74235	7.55887	No
Gulf Energy & Minerals	10.24215	9.44655	15.23438	Yes
Moranco (WIO 19, 22, 31, 35, 39, 40, 44, 53, 64, 66)	0.12847	0.08743	0.03431	No
Samedan Oil Corp. (WIO 48, 49	5.52811	6.28791	1.33490	Yes
Shell Oil Co.	24.81023	23.76832	18.87539	Yes
Sun Oil Co. (Delaware)	0.28657	0.19658	0.43429	No
Texaco Inc.	3.26821	3.09110	1.16515	Yes
Texas Pacific Oil Co., Inc.	4.63884	4.70381	2.81932	Yes
Yes	56.08173	56.65086	46.06303	
No	28.02542	28.33847	35.57789	
Pass	8.14074	7.86069	10.48083	
total	92.24789	92.85002	92.12175	

'or ıla No. 14 (Exxon) Oil and Gas Allocation only - Expense Allocation not included.

Oil Allocation

Phase I - 100% 1976 Oil Production. To be in effect until 6,400,000 barrels of oil product from Unit Area after effective date of unitization (Est. 1/1/79).

Phase II- 44.6% Remaining Primary Reserves 1/1/77 plus 55.4% Secondary Reserves to be in effect at the termination of Phase I and until 26,700,000 barrels of oil have been produced from the Unit Area after termination of Phase I.

Phase III-26.8% Remaining Primary Reserves 1/1/77 plus 73.2% Secondary Reserves to be in effect from the termination of Phase II until termination of the Unit.

Gas Allocation

Phase I - 100% 1976 Gas Production. Effective period to be same as Phase I oil above.

Phase II- 44.6% Remaining Gas Reserves 1/1/77 plus 55.4% Secondary Oil Reserve. Effective period to be same as Phase II oil above.

Phase III-Same as Phase III oil allocation.

ɔting Results - Based on oil allocation only.

ɔmp ny	Working Interest %			Vote
	Phase I	Phase II	Phase III	
ıerada Hess Corp.	6.82433	7.66591	8.03967	Yes
ıoc Production Co.	1.51264	1.64634	1.73896	Yes
la tic Richfield Co.	1.96877	3.23495	3.25014	Yes
ıevron Oil Co.	2.47763	3.16310	3.08732	Yes
ties Service Oil Co.	3.42437	4.49986	4.91673	Pass
nt ıental Oil Co.	9.37738	13.18369	13.65603	No
ısack, J. P.(WIO 15, 16, 17)	1.78236	1.32403	.87142	No
xon Company-U.S.A.	5.85371	6.19258	6.76979	Yes
te Russell G. (Tract 5)	0.13296	.12460	.15377	Yes
tt Oil Company	8.63387	8.08670	7.87604	Yes
lf Energy & Minerals	10.79961	12.65301	13.68324	No
ra ɔo (WIO 19, 22, 31, 35, 39, 40, 44, 53, 64, 66)	.15723	.05800	..04855	No
medan Oil Corp. (WIO 48 & 49)	4.99574	3.54394	2.66231	No
ell Oil Co.	25.54027	21.05764	20.18669	No
n l Co. (Delaware)	.34962	.32827	.37058	No
xaco Inc.	3.39231	2.02412	1.68130	Yes
xas Pacific Oil Co., Inc.	4.59331	3.65980	3.32436	No
Yes	30.79622	32.13830	32.59699	
No	57.59552	55.80838	54.80318	
Pass	3.43427	4.49986	4.91673	
Total	91.82601	92.44654	92.31690	

Formula No. 15 (Exxon Oil and Gas Allocation only - Expense Allocation not include

Oil Allocation

Phase I - 100% 1976 Oil Production. To be in effect until 6,400,000 barrels of oil produced from Unit Area after effective date of unitization (Est. 1/1/79).

Phase II- 1/3 1976 Oil Production
1/3 Remaining Primary Oil Reserve
1/3 Secondary Reserve
To be in effect at termination of Phase I and until 26,700,000 barrels of oil have been produced from Unit Area after termination of Phase I.

Phase III- 26.8% Remaining Primary Oil Reserves 1/1/77 plus 73.2% seconda Reserves - to be in effect from termination of Phase II until termination of Unit.

Gas Allocation

Phase I - 100% 1976 Gas Production - effective period to be same as Phase I oil above.

Phase II- 1/3 1976 Gas Production
1/3 Primary Gas Reserve (1/1/77)
1/3 Secondary Oil Reserve
Effective period to be same as Phase II oil above.

Phase III- Same as Phase III oil allocation.

Voting Results - Based on oil allocation only.

Company	Working Interest %			Vote
	Phase I	Phase II	Phase III	
Amerada Hess Corp.	6.82433	7.30979	8.03967	Pass
Amoco Production Co.	1.51264	1.58304	1.73896	Yes
Atlantic Richfield Co.	1.96877	2.80982	3.25014	No
Chevron Oil Co.	2.47763	2.94994	3.08732	Yes
Cities Service Oil Co.	3.43427	4.06036	4.91673	Pass
Continental Oil Co.	9.37738	11.81939	13.65603	No
Cusack, J. P.(WIO 15, 16, 17)	1.78236	1.56835	0.87142	No
Estes, Russell G. (Tract 5)	0.13296	0.11805	0.15377	Pass
Exxon Company-U.S.A.	5.85371	5.96289	6.76979	Yes
Getty Oil Company	8.63387	8.31170	7.87604	Yes
Gulf Energy & Minerals	10.79961	11.82685	13.68324	No
Moranco (WIO 19, 22, 31, 35, 39, 40, 44, 53, 64, 66)	0.15723	0.10167	0.04855	No
Samedan Oil Corp. (WIO 48 & 49)	4.99574	4.20618	2.66231	No
Shell Oil Co.	25.54027	22.72799	20.19669	No
Sun Oil Co. (Delaware)	.34962	0.32683	0.37058	No
Texaco Inc.	3.39231	2.54952	1.68130	Yes
Texas Pacific Oil Co., Inc.	4.59331	4.03881	3.32436	No
Yes	21.87016	21.35709	21.15341	
No	59.56429	59.42589	58.05332	93
Pass	10.39156	11.48820	13.11017	
Total	91.82601	92.27118	92.31690	

Formula No. 16 (Texas-Pacific) Oil and Gas Allocation Only -
Expense Allocation not included.

Oil Allocation

Phase I - 20% 1976 Oil Production
- 80% Remaining Primary Oil Reserve (1/1/77)
To be in effect until 38,071,683 barrels of oil are produced from Unit Area after January 1, 1977.

Phase II- 100% Secondary Oil Reserve
To be in effect from termination of Phase I until termination of Unit.

Gas Allocation

Phase I - 20% 1976 Gas Production
80% Remaining Gas Reserve 1/1/77
Effective Period to be same as Phase I oil.

Phase II- Same as Phase II oil.

Voting Results - Based on oil allocation only.

Company		Working Interest % Phase I	Working Interest % Phase II	Vote
Amerada Hess Corp.		6.56697	8.60241	Yes
Amoco Production Co.		1.38898	1.87842	Yes
Atlantic Richfield Co.		2.94388	3.27302	Yes
Chevron Oil Co.		3.21471	2.97321	Yes
Cities Service Oil Co.		3.24881	5.54436	No
Continental Oil Co.		11.24633	14.36721	No
Cusack, J. P.(WIO 15, 16, 17)		2.54264	0.18997	Yes
Estes, Russell G. (Tract 5)				
Exxon Company-U.S.A.		4.68762	7.63885	No
Getty Oil Company		8.72065	7.55887	Yes
Gulf Energy & Minerals		9.71716	15.23438	Yes
Moranco (WIO 19, 22, 31, 35, 39, 40, 44, 53, 64, 66)		0.10139	0.03431	No
Samedan Oil Corp. (WIO 48 & 49)		6.02948	1.33490	Pass
Shell Oil Co.		24.12271	18.87539	Pass
Sun Oil Co. (Delaware)		0.22719	0.43429	No
Texaco Inc.		3.15134	1.16515	Yes
Texas Pacific Oil Co., Inc.		4.68171	2.81932	Yes
	Yes	42.92804	43.69475	
	No	19.51134	28.01902	
	Pass	30.15219	20.21029	
Total		92.59157	91.92406	

Formula No. 17 (Continental) Oil & Gas Allocation Only - Expense location not included.

Oil Allocation

PHASE I - 20% 1976 Oil Production plus 80% Remaining imary Oil Reserve (1/1/77) - to be in effect until t: total oil production from the Unit totals 4,000,000 t rels of oil after the effective date of unitization.

Phase II - 100% Primary Oil Reserve (1/1/77) - to bec effective at the end of Phase I and to be in effect t il production from the Unit Area equals 38,071,683 barre of oil after January 1, 1977.

Phase III- 100% Secondary Oil Reserve - to become effe tive at termination of Phase II and to remain in ef ect until termination of the Unit.

Gas Allocation

Phase I - 20% 1976 Gas Production plus 80% Remaining Primary Gas Reserves (1/1/77). Phase I gas to be the same period as Phase I oil.

Phase II- 100% Primary Gas Reserve (1/1/77) - Phase II gas to be the same period as Phase II oil.

Phase III- Gas allocation to be the same as oil allocation.

Voting Results - Based on oil allocation only.

Company	Working Interest % Phase I	Phase II	Phase III	Vote
Amerada Hess Corp.	6.56697	6.50263	8.60241	Yes
Amoco Production Co.	1.38898	1.35806	1.87842	Yes
Atlantic Richfield Co.	2.94388	3.18766	3.27302	Yes
Chevron Oil Co.	3.21471	3.39898	2.97321	Yes
Cities Service Oil Co.	3.24881	3.20244	5.54436	Yes
Continental Oil Co.	11.24633	11.71357	14.36721	Yes
Cusack, J. P.(WIO 15, 16, 17)	2.54264	2.73271	0.18997	Yes
Exxon Company-U.S.A.	4.68762	4.39610	7.63885	No
Getty Oil Company	8.72065	8.74235	7.55887	Yes
Gulf Energy & Minerals	9.71716	9.44655	15.23438	Yes
Moranco (WIO 19, 22, 31, 35, 39, 40, 44, 53, 64 66)	0.10139	0.08743	0.03431	No
Samedan Oil Corp. (WIO 48 & 49)	6.02948	6.28791	1.33490	Yes
Shell Oil Co.	24.12271	23.76832	18.87539	Yes
Sun Oil Co. (Delaware)	0.22719	0.19658	0.43429	No
Texaco Inc.	3.15134	3.09110	1.16515	Yes
Texas Pacific Oil Co., Inc.	4.68171	4.70381	2.81932	Yes
Yes	87.57537	88.13609	83.81661	
No	5.01620	4.68011	8.10745	
Pass	-	-	-	
Total	92.59157	92.81620	91.92406	

NORTH HOBBS UNIT

GAS PARTICIPATION - PHASE I AND PHASE II

FORMULA NO. 17

WIO NO.	WORKING INTEREST OWNER	PHASE I PCT	PHASE II PCT
1	AMERADA HESS CORP.	7.29779	7.51740
2	AMOCO PRODUCTION CO.	2.36758	2.30928
3	ANDERSON ADA A	.01947	.01215
4	ANDERSON EST., WARREN D	.01947	.01215
5	ANDERSON, W D AND SONS	.03895	.02431
6	ARMSTRONG, J M	.03895	.02431
7	ATLANTIC RICHFIELD CO.	3.30150	3.15439
8	BYROM W K	.05021	.04715
9	C&C OPERATING CO.	.00021	.00013
10	CHEVRON OIL COMPANY	1.54140	1.77100
11	CITIES SERVICE OIL CO.	2.53402	2.90017
12	CONRAD MARY DANIEL	.00649	.00405
13	CONTINENTAL OIL CO.	17.24810	20.14537
14	COILE, HERMAN R.	.00973	.00607
15	CUSACK, J. P.	.10632	.04006
16	CUSACK, JR., J. P.	.43374	.36754
17	CUSACK, MICHAEL F.	.43374	.36754
18	DEL-LEA, INC. (ANTWEIL)	.46849	.42617
19	DUNLAVEY, J.M.	.00113	.00099
20	ESTES, RUSSELL G	.01038	.00648
21	EXXON COMPANY - U.S.A.	5.83179	4.91338
22	FIRST ROSWELL COMPANY	.00226	.00198
23	FORBES C. C.	.01311	.01302
24	FORBES, ILAMAE	.01763	.01267
25	GETTY OIL COMPANY	8.30166	8.71113
26	GULF ENERGY & MINERALS	14.95717	15.22697
27	HEADLEY, KENNETH NOEL	.02757	.00825
28	HURD, PETER	.00649	.00405
29	JUDSON, RUBY WANDA CONPA	.00130	.00081
30	KEMNITZ, A. A.	.27397	.19695
31	LAFLIN, GEORGE P.	.00113	.00099
32	LOWE, M. RALPH	.05843	.04453
33	MARATHON OIL COMPANY	2.93490	3.07134
34	MCCARTHY, KATHRYN L. C.	.00130	.00081
35	MCPETERS, K. D.	.01151	.00932
36	MCPHERON, MARGARAT M.	.01507	.01415
37	MCPHERON, ROBERT L.	.00753	.00707
38	MOBIL OIL CORP.	1.33618	1.18726
39	MORANCO	.05142	.04373
40	MORAN, P. M.	.04610	.03932
41	MORRIS, G. D.	.01191	.00856
42	MURDOCH, NATHLYN I. CONRA	.00130	.00081
43	NOBLE, RICHARD L.	.14485	.10413
44	PARRISH, M.C. ESTATE	.01967	.01671
45	PORTALES NATIONAL BANK	.01786	.01284
46	PORING JOHN	.03574	.02569
47	ROSE, FRANCIS I. CONRAD	.00130	.00081
48	SAMEDAN OIL CORP.	1.95294	1.62664
49	SEA PROPERTIES, LTD.	.03257	.02719
50	SHELL OIL COMPANY	19.98181	19.11379
52	1ST NATL BANK/FT.WORTH	.01191	.00856
53	SPEAR HOWELL	.00056	.00049
54	SULLIVAN, E.C.	.01786	.01284
55	SUN OIL CO. (DELAWARE)	.38052	.18989
56	SWEET, BILL L.	.02649	.02283
57	SWEET, C.H. OIL CO.	1.32518	1.30227
58	1ST NATL BANK OF CASPER	.03574	.02569
59	TEXACO, INC.	1.54441	.98477
60	TEXAS PACIFIC OIL CO.IN	2.30510	2.24744
61	TREADAWAY, BETTYE CONRA	.00130	.00081
62	TWO STATES OIL CO.	.05358	.00654
63	WALLACE, COLLEEN MCPHERO	.00753	.00707
64	WHITLEY, LOYD	.00113	.00099
65	WILLIAMS, HATTIE C.	.03823	.03295
66	WILLIAMSON, A.T.	.00113	.00099
67	WISER OIL COMPANY, THE	.12329	.04111
68	YATES, JOHN A	.23618	.18492
69	YEAGER & ARMSTRONG	.03895	.02431
70	YEAGER JR, DR. HENRY	.00422	.00263
71	YEAGER RUTH ANNE	.00314	.00196
72	YEAGER RUTH HENRY	.00108	.00067
73	YEAGER RUTH PEELER	.00453	.00283

ATTENDANCE LIST

WORKING INTEREST OWNERS' MEETING

NORTH HOBBS UNIT

SEPTEMBER 20, 1977

COMPANY	NAME	LOCATION
Amerada-Hess Corp.	R. W. Mullins	Tulsa, Ok.
Amerada-Hess Corp.	Cliff Richard	Tulsa, Ok.
Amoco Production Company	S. R. Denton	Houston, Tx.
Atlantic Richfield Company	Thane Akins	Midland, Tx.
Atlantic Richfield Company	George Nathman	Midland, Tx.
Chevron USA, Inc.	W. A. Goudeau	Midland, Tx.
Chevron USA, Inc.	D. D. Allen	Midland, Tx.
Cities Service Oil Company	Mike S. Mabry	Midland, Tx.
Cities Service Company	Don Barrett	Midland, Tx.
Continental Oil Company	V. T. Lyon	Hobbs, N.M.
Cusack Inc.	John P. Cusack	Roswell, N.M.
Cusack Inc.	Max E. Curry	Midland, Tx.
Estes Engineering Co.	Russell G. Estes	Midland, Tx.
Exxon Company	J. M. Shepherd	Midland, Tx.
Exxon Company	J. K. Lytle	Midland, Tx.
Getty Oil Company	O. V. Stuckey	Midland, Tx.
Gulf Oil Company	J. D. Mussett	Midland, Tx.
Gulf Oil Company	R. D. Walker	Midland, Tx.
Moranco	Ken McPeters	Hobbs, N.M.
Samedan Oil Company	Boyce Perry	Ardmore, Ok.
Shell Oil Company	W. E. Buck	Houston, Tx.
Shell Oil Company	J. F. Miner	Midland, Tx.
Shell Oil Company	P. L. Bondor	Houston, Tx.
Shell Oil Company	Wm. R. Lancaster	Houston, Tx.
Sun Production Company	Darlynne Hayden	Hobbs, N.M.
Sun Production Company	H. A. Seidel, Jr.	Dallas, Tx.
Texaco Inc.	Morris Todd	Midland, Tx.
Texaco Inc.	Bob Anthony	Hobbs, N. M.
Texas Pacific Oil	J. D. Waggoner	Dallas, Tx.
Texas Pacific Oil	Russ Meyers	Dallas, Tx.

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

SEPTEMBER 23, 1977
Subject: Proposed Participation Formula
North Hobbs Unit
Lea County, New Mexico

TO: ALL WORKING INTEREST OWNERS (MAILING LIST ATTACHED)

At the Working Interest Owners Meeting of the proposed North Hobbs Unit of September 20, 1977, it was agreed to submit for ballot vote the Participation Formula No. 17 and a method of allocating costs. In accordance with such agreement, the ballots are hereby submitted for the two items in reference. Please indicate your decision on these matters in the spaces provided and return one copy of each to Shell Oil Company, Box 991, Houston, Texas 77001, attention W. E. Buck.

Enclosed for your convenience is a self-addressed, stamped envelope.

W E Buck

WEB:MJH

W. E. Buck
Chairman, Working Interest
Owners Committee

Attachments

PROPOSED NORTH HOBBS UNIT

PARTICIPATION FORMULA NO. 17 (CONTINENTAL)

Oil Allocation

Phase I - 20% 1976 Oil Production plus 80% Remaining Primary Oil Reserve (1/1/77) - to be in effect until the total oil production from the Unit totals 4,000,000 barrels of oil after the effective date of unitization.

Phase II- 100% Primary Oil Reserve (1/1/77) - to become effective at the end of Phase I and to be in effect until production from the Unit Area equals 38,071,683 barrels of oil after January 1, 1977.

Phase III-100% Secondary Oil Reserve - to become effective at termination of Phase II and to remain in effect until termination of the Unit.

Gas Allocation

Phase I - 20% 1976 Gas Production plus 80% Remaining Primary Gas Reserves (1/1/77). Phase I gas to be the same period as Phase I oil.

Phase II- 100% Primary Gas Reserve (1/1/77) - Phase II gas to be the same period as Phase II Oil.

Phase III-Gas allocation to be the same as oil allocation.

The undersigned votes as noted below in regard to Participation Formula No. 17 (Continental):

APPROVED_____ COMPANY_____

DISAPPROVED_____ REPRESENTATIVE_____

DATE_____

RETURN TO: SHELL OIL COMPANY
P. O. BOX 991
HOUSTON, TX 77001
ATTN: W. E. BUCK

SAMEDAN OIL CORPORATION
BOX 909
ARDMORE, OKLAHOMA 73401

October 3, 1977

Working Interest Owners
Proposed North Hobbs Unit
Lea County, New Mexico

Re: Proposed Method of Allocating
Operating Cost, Inventory Value
and Capital Expenditure

Ladies and Gentlemen:

A Letter Ballot submitted September 23, 1977, by Shell Oil Company recommended a basis by which Operating Costs, Inventory Value and Capital Expenditures should be allocated to Joint Account. Shell's proposal apportions an unfair share of the inventory value and capital expenditures to the primary oil phase (Phase II) resulting in a disproportionate financial burden on those Working Interest Owners having a low ratio of Phase III to Phase II participation. Approximately 59 percent of the Working Interest Owners (Formula No. 17) have a lesser Phase III participation than Phase II.

Assuming the proposed waterflood responds as predicted, the remaining primary recovery will be accelerated, increasing the present value of these reserves. However, the Unit is being formed primarily for the recovery of secondary oil, and considerable expenditure is required to accomplish this process.

Therefore, we wish to propose the method of allocating Unit costs outlined on the attached Letter Ballot for your consideration. This method does not overburden Phase II but apportions the expenditures to the phases in a more equitable manner.

Please indicate your approval of the attached Letter Ballot and submit it to:

Shell Oil Company
P. O. Box 991
Houston, Texas 77001
Attn: W. E. [illegible]

Very truly yours,

Royce Terry
Mgr., Secondary Recovery

RP/kg

Enclosures

100

LETTER BALLOT

PROPOSED NORTH HOUMA UNIT

METHOD OF ALLOCATING COSTS

(Samedan Oil Corporation)

I. Operating Expenses

1. Operating, Maintenance and Overhead expenses incurred in the production, handling and treating of oil and gas shall be charged on the basis of the phase-in-effect oil participation.

2. Operating, Maintenance and Overhead expenses pertaining to the supply of make-up water, injection of water and all injection facilities, including the injection wells, shall be charged on the basis of 33⅓% Phase II Oil Participation plus 67% Phase III Oil Participation during the Phase I and Phase II periods.

   All the above charges shall be made on the basis of Phase III Oil Participation during the Phase III period.

II. Inventoried Value of Personal Property - Capital Expenditures

1. The inventoried value of personal property shall be made on the basis of 33⅓% Phase II Oil Participation plus 67% Phase III Oil Participation with such value, corrected for retirements, to be adjusted on the basis of Phase III Oil Participation within a reasonable time following the effective date of the Phase III period.

2. All expenditures of a capital nature shall be made on the basis of 33⅓% Phase II Oil Participation plus 67% Phase III Oil Participation during the Phase I and Phase II periods.

   All the above expenditures, corrected for retirements, shall be adjusted on the basis of Phase III Oil Participation within a reasonable time after the effective date of the Phase III period.

3. All expenditures of a capital nature made during the Phase III period shall be charged to the joint account on the basis of Phase III Oil Participation.

APPROVED _____ COMPANY _____

DISAPPROVED _____ REPRESENTATIVE _____

DATE _____

RETURN TO:

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

November 2, 1977

Subject: Ballot Results - Participation Formula
and Cost Allocation Formula
North Hobbs (Grayburg-San Andres) Unit
Lea County, New Mexico

TO: WORKING INTEREST OWNERS (Mailing List Attached)

By letter of September 23, 1977, ballots were submitted to the Working Interest Owners of the proposed North Hobbs (Grayburg-San Andres) Unit concerning a participation formula and a cost allocation formula. Tabulated below are the results of the ballots returned as of this date. The percentages shown are the Working Interest Owners' participation based on Formula 17 (Oil Allocation).

Participation Formula (No. 17)

	Working Interest Owners' %	
	Approved	Disapproved
Phase I	92.01237	1.46358
Phase II	92.58657	1.30069
Phase III	89.76525	1.27189

Cost Allocation

	Working Interest Owners'%	
	Approved	Disapproved
Phase I	78.13850	15.05034
Phase II	78.33749	15.33648
Phase III	85.16566	5.76775

Following are the results received to date on the cost allocation formula submitted by Samedan Oil Corporation.

Cost Allocation (Samedan)

	Working Interest Owners'%	
	Approved	Disapproved
Phase I	9.07946	30.19928
Phase II	9.53079	29.52246
Phase III	1.72004	28.39264

Shell is currently preparing drafts of the Unit and Unit Operating Agreements and will submit such drafts for your consideration in the near future.

19

Attached for your consideration and use is a tabulation showing the tract interest and tract participation of each Working Interest Owner as calculated from Participation Formula No. 17. Also attached is a summary tabulation showing the unit participation of each Working Interest Owner as calculated from Participation Formula No. 17.

In the near future you will receive a letter from Shell's Land Department requesting confirmation of Working Interests and other data required for the various exhibits that will be included in the Unit and Unit Operating Agreements. Please give such request your earliest consideration so that all the data will be available when needed for preparation of the Agreements in final form.

Yours very truly,

R. L. Howard
Division Production Manager
Mid-Continent Division

WEB:MJH

Attachments

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. R. W. MULLINS
MANAGER - JOINT VENTURE OPERATIONS - U.S.
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. L. J. CRANDAL
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

W. D. ANDERSON & SONS
P. O. BOX 136
MIDLAND, TX 79702

ATLANTIC RICHFIELD COMPANY
ATTN: MR. G. THANE AKINS
P. O. BOX 1610
MIDLAND, TX 79702

T. J. BERRY
RT. 4
WILLS POINT, TX 75169

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

MARY DANIEL CONRAD
4308 AVONDALE
DALLAS, TX 75219

C&C OPERATING CORP.
P. O. BOX 1829
HOBBS, NM 88240

CHEVRON OIL COMPANY
ATTN: MR. C. F. DWYER
P. O. BOX 1660
MIDLAND, TX 79702

CITIES SERVICE OIL COMPANY
E&P DIVISION
P. O. BOX 1919
MIDLAND, TX 79702

CONTINENTAL OIL COMPANY (2)
ATTN: L. P. THOMPSON
P. O. BOX 460
HOBBS, NM 88240

HERMAN R. CRILE
BOX 864
ROSWELL, NM 88201

JOHN P. CUSACK
P. O. BOX 250
ROSWELL, NM 88201

JOHN P. CUSACK, JR.
3815 McCART STREET
FORT WORTH, TX 76110

MICHAEL F. CUSACK
3815 McCART STREET
FORT WORTH, TX 76110

DEL-LEA, INC. (ANTWEIL)
P. O. BOX 1889
HOBBS, NM 88240

J. N. DUNLAVY
P. O. BOX 837
ROSWELL, NM 88201

ESTES ENGINEERING CO.
306 PETROLEUM BUILDING
MIDLAND, TX 79702

EXXON COMPANY - U. S. A. (2)
ATTN: JOINT INTEREST MANAGER
P. O. BOX 1600
MIDLAND, TX 79702

FIRST NATIONAL BANK OF CASPER
ESTATE OF M. E. TOLE
P. O. BOX 40
CASPER, WY 82601

FIRST NATIONAL BANK OF FORT WORTH
ESTATE OF SMITH SPRALDING
P. O. BOX 2546
FORT WORTH, TX 76101

FIRST ROSWELL COMPANY
P. O. BOX 1180
ROSWELL, NM 88201

C. C. FORBES
P. O. BOX 843
TULSA, OK 74101

ILAMAE FORBES
P. O. BOX 843
TULSA, OK 74101

GETTY OIL COMPANY (2)
ATTN: MR. A. B. CARY
P. O. BOX 1231
MIDLAND, TX 79702

E. P. GOLDEN
C/O MILDRED G. TURNER
P. O. BOX 835
ROSWELL, NM 88201

GULF ENERGY & MINERALS CO.-U.S. (2)
ATTN: R. F. WARD, JR.
DISTRICT OPERATIONS MANAGER
P. O. BOX 1150
MIDLAND, TX 79702

KENNETH NOEL HEADLEY
P. O. BOX 569
TIJERAS, NM 87059

PETER HURD
SAN PATRICIO, NM 88348

B. J. JERNIGAN
P. O. BOX 993
MIDLAND, TX 79701

RUBY WANDA CONRAD JUDSON
7 JOSEPHINE COURT
NORTHPORT, LONG ISLAND
NEW YORK, NY 11768

A. A. KEMNITZ
P. O. BOX 729
HOBBS, NM 88240

LYNN KINCAID
217 E. VEGA DR.
HOBBS, NM 88240

GEORGE P. LAFLIN
815 METRO BANK BUILDING
DENVER, CO 80202

MR. GEORGE H. LANDRETH
8123 BOEDEKER CIRCLE
DALLAS, TX 75225

MR. W. A. LANDRETH
908 CONTINENTAL NATIONAL BANK BLDG.
FT. WORTH, TX 76102

M. RALPH LOWE
C/O A. W. MOURSUND
P. O. BOX 125
JOHNSON CITY, TX 78636

MARATHON OIL COMPANY
ATTN: MR. G. A. NAERT
P. O. BOX 522
MIDLAND, TX 79702

KATHRYN LOUISE CONRAD McCARTHY
4435 SAN GABRIEL
DALLAS, TX 75229

J. S. McGANNON
P. O. BOX 1651
SANTA FE, NM 87501

K. D. McPETERS
P. O. BOX 1860
HOBBS, NM 88240

MOBIL OIL CORPORATION
3 GREENWAY PLAZA EAST
SUITE 800
HOUSTON, TX 77046

WAYNE MOORE
403 N. MARINEFIELD
MIDLAND, TX 79701

J. E. MORAN
FIRST NATIONAL BANK - MIDLAND
TRUSTEE FOR F. E. MORAN
TRUST #1 (NO. 323)
P. O. BOX 1599
MIDLAND, TX 79701

R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

G. D. MORRIS
2901 W. HWY 83, BOX 154
McALLEN, TX 78501

MR. J. H. MORRIS AS AGENT
1615 FIRST NATIONAL BUILDING
TULSA, OK 74103

NATHLYN IONE CONRAD MURDOCH
4132 DEEP VALLEY DRIVE
DALLAS, TX 75234

RICHARD L. NOBLE
P. O. BOX 67605
CENTURY CITY
LOS ANGELES, CA 9006?

LINDA B. & BEN F. PARRISH
C/O DANA T. RICHARDSON, JR.
NUMBER ONE POST OAK PLACE
4615 POST OAK PLACE DRIVE
SUITE 240
HOUSTON, TX 77027

M. C. PARRISH ESTATE
C/O DANA T. RICHARDSON, JR.
NUMBER ONE POST OAK PLACE
4615 POST OAK PLACE DRIVE
SUITE 240
HOUSTON, TX 77027

PORTALES NATIONAL BANK
PORTALES, NM 88130

JOHN KORING
1710 WILSHIRE BOULEVARD
OKLAHOMA CITY, OK 73116

FRANCES I. CONRAD ROSE
BOX 20234
DALLAS, TX 75220

SAMEDAN OIL CORPORATION
ATTN: MR. M. G. MARTIN
2207 WILCO BUILDING
MIDLAND, TX 79702

SAMEDAN OIL CORPORATION
ATTN: MR. BOYCE BERRY
P. O. BOX 909
ARDMORE, OK 73401

HOWELL SPEAR
P. O. BOX 1684
MIDLAND, TX 79701

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THRONTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS
P. O. BOX 1861
MIDLAND, TX 79702

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO, INC.
ATTN: ASSISTANT DIVISION MANAGER
P. O. BOX 3109
MIDLAND, TX 79702

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
1700 ONE MAIN PLACE
DALLAS, TX 75250

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. R. J. WOMACK
P. O. BOX 4067
MIDLAND, TX 79702

BETTYE CONRAD TREADAWAY
5215 HAVENWOODS
HOUSTON, TX 77066

TWO STATES OIL COMPANY
1910 EMPIRE LIFE BLDG.
DALLAS, TX 75201

LOYD WHITLEY
701 W. GEORGE APT. 99
MIDLAND, TX 79701

HATTIE C. WILLIAMS
P. O. BOX 3187
LUBBOCK, TX 79410

A. T. WILLIAMSON
1630 HARVARD CT.
HOBBS, NM 88240

THE WISER OIL COMPANY
ATTN: MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

THE WISER OIL COMPANY
ATTN: MR. C. P. LaRUE
P. O. BOX 192
SISTERVILLE, WV 26175

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701
(PRIMARY TERM ENDS OCTOBER, 1975)

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P. O. BOX 6031
DALLAS, TX 75222

RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

SHELL OIL COMPANY

P.O. BOX 991

HOUSTON, TEXAS 77001
December 14, 1977

Subject: North Hobbs (Grayburg - San Andres) Unit
Lea County, New Mexico

TO: ALL WORKING INTEREST OWNERS
NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT
(Mailing List Attached)

A meeting of the Working Interest Owners of the proposed North Hobbs (Grayburg - San Andres) Unit is called for 10:00 A.M. February 2, 1978 in the Midland Room, Midland National Bank, Midland, Texas.

The agenda for the meeting will be as follows:

1. Review drafts of Unit and Unit Operating Agreements.

2. Develop course of action for further unitization efforts.

3. Any other business.

Attached for your review are copies of proposed Unit and Unit Operating Agreements. Exhibits pertaining to tract and unit participation have not been included as current division of interests are not yet available. Tabulations showing the interests as now available have been attached and the exhibits will be prepared as soon as the data is complete.

We would appreciate any written comments prior to the meeting and asked that all parties attend the meeting prepared to render decisions regarding the various provisions of the agreements.

Response to date on the ballots submitted September 23, 1977 is as follows:

Participation Formula (No. 17)

	Working Interest Owners' %	
	Approved	Disapproved
Phase I	92.04485	1.46358
Phase II	92.62039	1.30069
Phase III	89.76789	1.27189

Cost Allocation

	Working Interest Owners' %	
	Approved	Disapproved
Phase I	78.13850	15.08282
Phase II	78.33749	15.37030
Phase III	85.16566	5.77039

Cost Allocation (Samedon)

	Working Interest Owners' %	
	Approved	Disapproved
Phase I	9.18740	36.47405
Phase II	9.59976	35.82007
Phase III	1.73943	38.79959

Yours very truly,

W. E. Buck
Chairman, Working Interest
Owners' Committee

WEB:TS

Attachments

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. R. W. MULLINS
MANAGER - JOINT VENTURE OPERATIONS - U.S.
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. GEORGE GARRETT
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

W. D. ANDERSON & SONS
P. O. BOX 136
MIDLAND, TX 79702

ATLANTIC RICHFIELD COMPANY
ATTN: MR. G. THANE AKINS
P. O. BOX 1610
MIDLAND, TX 79702

T. J. BERRY
RT. 4
WILLS POINT, TX 75169

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

MARY DANIEL CONRAD
4308 AVONDALE
DALLAS, TX 75219

C&C OPERATING CORP.
P. O. BOX 1829
HOBBS, NM 88240

CHEVRON OIL COMPANY
ATTN: MR. C. F. DWYER
P. O. BOX 1660
MIDLAND, TX 79702

CITIES SERVICE OIL COMPANY
E&P DIVISION
P. O. BOX 1919
MIDLAND, TX 79702

CONTINENTAL OIL COMPANY (2)
ATTN: L. P. THOMPSON
P. O. BOX 460
HOBBS, NM 88240

HERMAN R. CRILE
BOX 864
ROSWELL, NM 88201

JOHN P. CUSACK
P. O. BOX 250
ROSWELL, NM 88201

JOHN P. CUSACK, JR.
3815 McCART STREET
FORT WORTH, TX 76110

MICHAEL F. CUSACK
3815 McCART STREET
FORT WORTH, TX 76110

DEL-LEA, INC. (ANTWEIL)
P. O. BOX 1889
HOBBS, NM 88240

J. N. DUNLAVY
P. O. BOX 837
ROSWELL, NM 88201

ESTES ENGINEERING CO.
306 PETROLEUM BUILDING
MIDLAND, TX 79702

EXXON COMPANY - U. S. A. (2)
ATTN: JOINT INTEREST MANAGER
P. O. BOX 1600
MIDLAND, TX 79702

FIRST NATIONAL BANK OF CASPER
FIRST NATIONAL BANK TRUSTEE M. E. TATE
P. O. BOX 40
CASPER, WY 82601

FIRST NATIONAL BANK OF FORT WORTH
ESTATE OF SMITH SPRALDING
P. O. BOX 2546
FORT WORTH, TX 76101

FIRST ROSWELL COMPANY
P. O. BOX 1180
ROSWELL, NM 88201

C. C. FORBES
P. O. BOX 843
TULSA, OK 74101

ILAMAE FORBES
P. O. BOX 843
TULSA, OK 74101

GETTY OIL COMPANY (2)
ATTN: MR. A. B. CARY
P. O. BOX 1231
MIDLAND, TX 79702

E. P. GOLDEN
C/O MILDRED G. TURNER
P. O. BOX 835
ROSWELL, NM 88201

GULF ENERGY & MINERALS CO.-U.S. (2)
ATTN: R. F. WARD, JR.
DISTRICT OPERATIONS MANAGER
P. O. BOX 1150
MIDLAND, TX 79702

KENNETH NOEL HEADLEY
P. O. BOX 2163
ROSWELL, NM 88201

PETER HURD
SAN PATRICIO, NM 88348

B. J. JERNIGAN
P. O. BOX 993
MIDLAND, TX 79701

RUBY WANDA CONRAD JUDSON
7 JOSEPHINE COURT
NORTHPORT, LONG ISLAND
NEW YORK, NY 11768

A. A. KEMNITZ
P. O. BOX 729
HOBBS, NM 88240

LYNN KINCAID
217 E. VEGA DR.
HOBBS, NM 88240

GEORGE P. LAFLIN
815 METRO BANK BUILDING
DENVER, CO 80202

MR. GEORGE H. LANDRETH
8123 BOEDEKER CIRCLE
DALLAS, TX 75225

MR. W. A. LANDRETH
908 CONTINENTAL NATIONAL BANK BLDG.
FT. WORTH, TX 76102

M. RALPH LOWE, INC.
ATTN. JACK P. SEMON
P. O. BOX 832
MIDLAND, TX 79702

MARATHON OIL COMPANY
ATTN: MR. G. A. NAERT
P. O. BOX 522
MIDLAND, TX 79702

KATHRYN LOUISE CONRAD McCARTHY
4435 SAN GABRIEL
DALLAS, TX 75229

J. S. McGANNON
P. O. BOX 1651
SANTA FE, NM 87501

K. D. McPETERS
P. O. BOX 1860
HOBBS, NM 88240

MOBIL OIL CORPORATION
3 GREENWAY PLAZA EAST
SUITE 800
HOUSTON, TX 77046

WAYNE MOORE
403 N. MARINEFIELD
MIDLAND, TX 79701

J. E. MORAN
FIRST NATIONAL BANK - MIDLAND
TRUSTEE FOR F. E. MORAN
TRUST #1 (NO. 323)
P. O. BOX 1599
MIDLAND, TX 79701

R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

G. D. MORRIS
2901 W. HWY 83, BOX 154
McALLEN, TX 78501

MR. J. H. MORRIS AS AGENT
1615 FIRST NATIONAL BUILDING
TULSA, OK 74103

NATHLYN IONE CONRAD MURDOCH
4132 DEEP VALLEY DRIVE
DALLAS, TX 75234

RICHARD L. NOBLE
P. O. BOX 67605
CENTURY CITY
LOS ANGELES, CA 90067

PORTALES NATIONAL BANK
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JOHN RORING
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TEXACO, INC.
ATTN: DISTRICT ENGINEER
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TEXAS PACIFIC OIL CO., INC.
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THE WISER OIL COMPANY
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January 16, 1978

21

Working Interest Owners
Proposed North Hobbs Unit
Lea County, New Mexico

Re: Method of Allocating
Operating Costs, Inventory
Value and Capital Expenditure

Ladies and Gentlemen:

Proceedings toward unitization of the North Hobbs Field have resulted in two proposals of methods by which to make charges to the various Tracts within the proposed Unit, such charges pertaining to Operating Costs, Inventory Adjustment and Capital Expenditures.

Shell Oil Company presented a method September 23, 1977, which recommends charging operating costs on the basis of the oil participation phase-in-effect and allocating inventory adjustment and capital expenditures on the basis of 100% Remaining Primary Oil Reserves (Phase II), with readjustment to occur at the beginning of Phase III (100% Secondary Oil Reserve Parameter).

Samedan Oil Corporation proposed a second method for allocating the above charges on October ?, 1977. Samedan contended at the time of their proposal that Shell's recommendation was disproportionately weighted on the remaining primary oil reserves. Samedan's proposal tended to make charges using a combination of Remaining Primary Oil Reserves (Phase II) and Secondary Oil Reserves (Phase III), thereby allocating costs more fairly and more commensurate with the purpose of forming the Unit.

Shell Oil Company has scheduled a Working Interest Owners Meeting on February 2, 1978, at Midland, Texas. In preparation for this meeting, Samedan has conducted an in-depth study of the different proposals for allocating costs, and by this letter we intend to show the inequitable, high development costs incurred by Shell's proposal for those Tracts having a high remaining primary oil parameter and a low secondary oil parameter.

The proposed North Hobbs Unit incorporates basically three distinct types of oil producing Tracts:

(1) Some 31 of the 83 Tracts produce only from the Grayburg zone and have no remaining primary reserves in the San Andres formation.

The current producing rate of these Tracts places them in a "stripper" status, or essentially a depleted state. Conversely, all of these Tracts have secondary reserves. Three of these leases have no current production and no remaining primary reserves, but do have secondary reserves. Tracts having only Grayburg reserves are paying a low development cost for secondary reserves during the early phases of the Unit.

(2) Tracts having San Andres II, San Andres III Upper and San Andres III Lower have a higher producing rate than those having Grayburg only, and consequently, also have a higher remaining primary reserve position. These San Andres zones also are given secondary oil reserves, which brings the Phase II (Remaining Primary Oil) and Phase III (Secondary Oil) parameters closer together. However, these zones are pressure depleting, having a solution gas drive mechanism.

(3) The third category of producing properties includes those Tracts which produce almost entirely from the San Andres I zone, which has no secondary reserves due to the active water-drive reservoir mechanism. There are 17 Tracts which have 70% or more of their remaining primary reserves in the San Andres I zone, but have little or no secondary reserves. There are 6 Tracts which receive 100% of the remaining reserves from the San Andres I zone and have relatively small secondary reserves.

This third category is paying an unfairly high development cost for its negligible secondary reserves during the initial stage of the operations.

Below is a tabulation of all Samedan operated leases showing a comparison of investment and discounted net cash flow before Federal Income Taxes. The assumption is made that a basic 1/8 Royalty Interest exists and that the bulk of the investment or development capital expenditures will be made during the first three years of operations.

Tract No.	Lease Name	Remaining Primary Oil Zone	Development Cost Per Secondary Bbl.		Discounted Primary Phase Income @ 10%	
			Shell Proposal	Samedan Proposal	Shell Proposal (M$)	Samedan Proposal (M$)
32	State 'C'	San Andres I	$ 0.92	$ 0.55	$2,746	$3,135
41	State 'B'	Grayburg	$ 0.09	$ 0.29	$ 56	$ 46
55	Moon 'A'	S.A. I, S.A. II	$ 3.90	$ 1.56	$2,253	$2,611
56	Moon 'B'	S.A. I, S.A. II	$ 9.45	$ 3.39	$2,335	$2,702
64	Turner 'B'	San Andres I	$ 8.54	$ 3.13	$ 289	$ 351
65	Turner 'B-2'	San Andres I	$ 8.93	$ 3.18	$ 343	$ 412
66	Turner 'A'	San Andres I	$ 2.41	$ 1.13	$2,285	$2,646

The above clearly shows the wide range of development costs as they apply from lease to lease, but more significantly, the figures show that Tracts having a high remaining primary position, mainly because of the San Andres I

zone, and a low secondary reserves position are paying for a large share of the development costs which are being made for secondary oil recovery. The principle is totally unacceptable to Samedan.

We believe water injection will enhance the recovery of remaining primary reserves, and consequently, the primary phase should incur a portion of the development costs. However, the Unit is being formed for the recovery of secondary reserves, and the secondary phase is obligated to share its portion of the development costs. Even though an adjustment of the costs are to be made at the beginning of Phase III, there is no assurance that the operations will reach the Phase III period. Should Phase III not become effective, development costs administered against the high percentage remaining primary-low percentage secondary participants will not be recovered. Further, the excessive early high costs charged against the Tracts with a high remaining primary position, requires those Tracts to sustain an unfavorable present value position by, in effect, loaning money to the Tracts having a low remaining primary - high secondary position for the duration of the primary phase. Such loan made today, and repaid at the beginning of Phase III, has little present worth.

Due to the extreme difference in the present worth value of the primary phase Tract income, between Shell's proposal and Samedan's proposal, as a percent of the total primary phase Tract net income, Samedan must take the strong position of refusing to become a part of the North Hobbs Unit should Shell's proposal be adopted. Further, we have an obligation to our joint interest owners to make them aware of this unfair basis of administering expenses. Should Shell's proposal be made a part of the Unit Operating Agreement, Samedan will resort to any available legal means to prevent its enactment.

We request that the agenda for the meeting scheduled for February 2, 1978, be modified to permit renegotiation of a method for allocating costs. This request is in the interest of permitting continued progress toward unitization.

Very truly yours,

SAMEDAN OIL CORPORATION

Boyce Perry
Mgr., Secondary Recovery

BP/kg

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

January 24, 1978

Subject: North Hobbs (Grayburg San Andres) Unit
Lea County, New Mexico

TO: ALL WORKING INTEREST OWNERS

By letter of January 16, 1978, Samedan Oil Corporation advised that they considered the cost allocation formula as balloted by letter of September 23, 1977, inequitable. Samedan further requested by their letter that negotiation of a cost allocation formula be included on the agenda for the Working Interest Owners meeting called for February 2, 1978. In view of Samedan's request and as it was agreed at the previous Working Interest Owners meeting that the cost allocation formula would be considered at the time the draft agreements were reviewed, the stated agenda of the meeting called for February 2, 1978, is hereby amended to include consideration of a cost allocation formula.

Shell does not agree that the comparisons set forth by Samedan are acceptable criteria for determining equity. However, Shell has reviewed the effects of both the Samedan and Shell formulas and is concerned that either of the two formulas might result in the secondary recovery project yielding a less-than-acceptable investment opportunity for certain parties. This situation results from the extreme variation in participation of tracts from the primary to secondary phase.

In an effort to evaluate the effect of the two cost formulas, Shell developed a comparison of the incremental present value profit for each tract. Incremental profit as used in the analysis, is the difference between the present value profit to be derived from unit operations (recovery of primary plus secondary oil) and the present value profit resulting from non-unit (primary oil and gas only) operations of any given tract. A discount factor of 10 percent was used in all cases and only the before tax profit was calculated. The production rates and capital and operating cost estimates as developed by the Technical Committee and presented in the "Waterflood Feasibility Study" were used in the evaluation.

The attached graph shows the results of Shell's review. The percent incremental present value profit (incremental present value profit divided by present value capital for each tract) was plotted against the ratio of each tract's primary participation percentage to its secondary participation. To facilitate computer plotting, the natural logarithm of the ratio was used. The results indicate that by using the Samedan formula, the tracts having a high ratio (high primary and relatively low secondary participation) would yield a very favorable return on the capital investment; whereas, the tracts with a low ratio (low primary and relatively high secondary) would yield a low return on investment. With the Shell formula, the reverse is true. Tracts with a high ratio would yield a low

return on investment and tracts with a relatively low ratio would enjoy a high return on investment.

It is recognized that the method of evaluation does not result in absolute values for each tract. However, it is felt that the method offers a realistic means of comparing the trends of the cost allocation formulas and that such trends should be considered in developing an acceptable formula.

Based on the above comparisons, it is Shell's feeling that further consideration should be given to negotiating a cost allocation formula which would provide for a unitized operation that would yield acceptable investment opportunities to all parties. It is, therefore, asked that all Working Interest Owners attend the meeting of February 2, 1978, prepared to render a decision regarding a method of allocating unit costs.

Yours very truly,

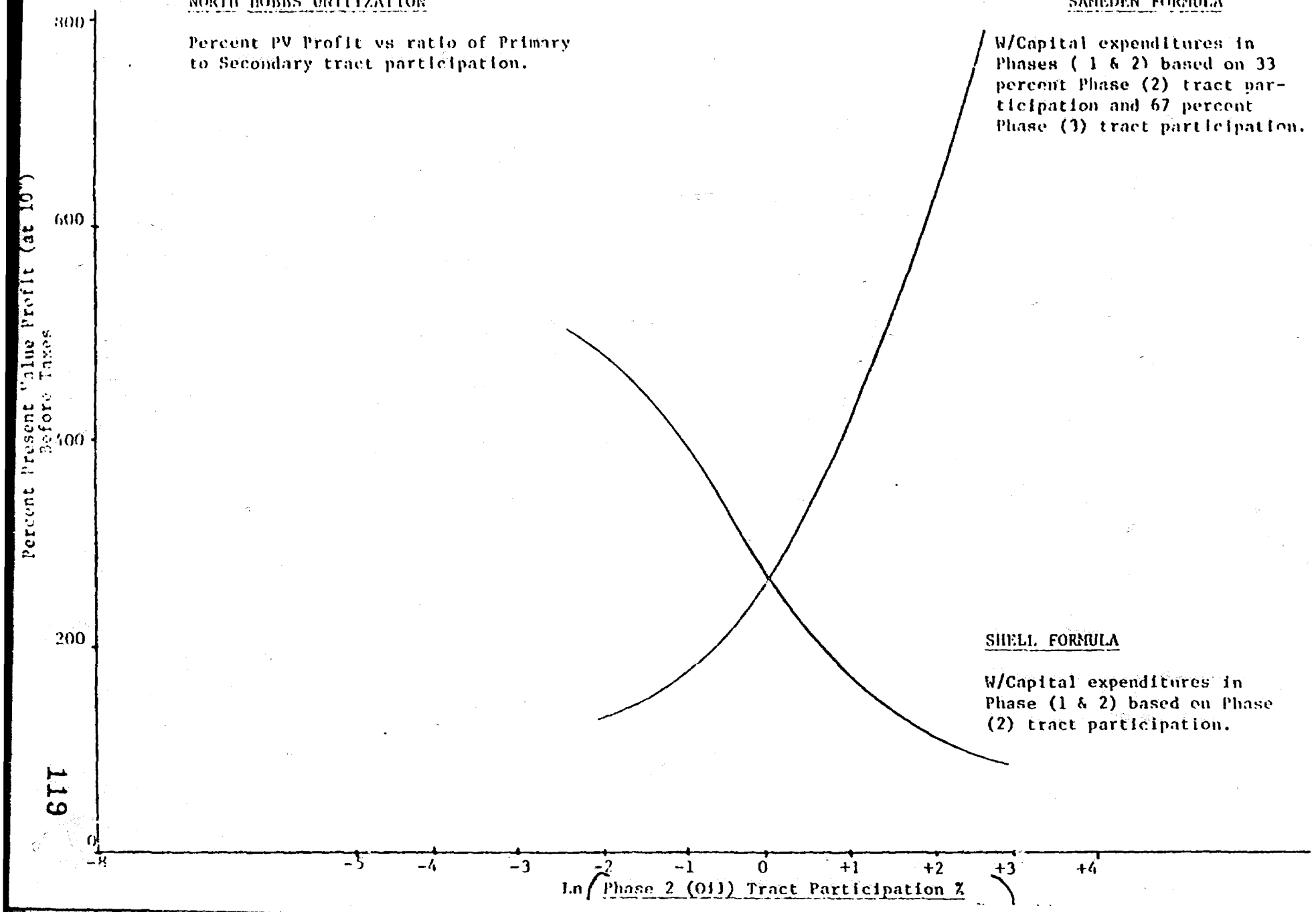
For: R. L. Howard
Division Production Manager
Mid-Continent Division

WEB:TS

Attachment

NORTH HOBBS UNITIZATION

Percent PV Profit vs ratio of Primary to Secondary tract participation.



NORTH HOBBS UNIT
WORKING INTEREST OWNERS
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SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

February 8, 1978

Subject: Minutes - Working Interest Owners' Meeting
Proposed North Hobbs (Grayburg-San Andres) Un[redacted]
Lea County, New New Mexico

TO: WORKING INTEREST OWNERS (Mailing List Attached)

A meeting of the Working Interest Owners of the proposed North Hobbs (Grayburg-San Andres) Unit was held February 2, 1978 in Midland, Texas. Representatives attending the meeting are shown on the attached attendance list.

Mr. Buck opened the meeting by stating that at the meeting of September 23, 1977, general agreement was reached on an oil and gas allocation formula. Mr. Buck stated that it was also agreed at such meeting for Shell to submit ballots on the oil and gas allocation formula and a cost allocation formula. In addition, Shell was to develop drafts of Unit and Unit Operating Agreements and to submitt such drafts to the Working Interest Owners for review. Mr. Buck advised that the draft agreements had been completed and were submitted with the call to meeting.

Mr. Buck then advised that the results of the ballots on the oil and gas allocation formula were as follows:

	Working Interest Owners' % (Oil Only)	
	Approved	Disapproved
Phase I	92.04485	1.46358
Phase II	92.62039	1.30069
Phase III	89.76789	1.27189

Response to date on the cost allocation formula is as follows:

	Working Interest Owners' % (Oil Only)	
	Approved	Disapproved
Phase I	82.82611	15.0828
Phase II	82.73358	15.37030
Phase III	92.80451	5.77039

Mr. Buck then stated that Samedan Oil Corporation submitted a cost allocation formula in writing to all Working Interest Owners and requested a ballot vote. The ballot response to such formula was as follows:

Working Interest Owners' % (Oil Only)

	Approved*	Disapproved
Phase I	13.86912	36.47405
Phase II	14.30357	35.82007
Phase III	4.55875	38.79959

*Includes Texas Pacific approval stated at meeting.

Mr. Buck went on to advise that the program of unitization and water injection has been submitted to the Commissioner of Public Land, State of New Mexico and to the United States Department of Interior, Geological Survey. Although neither agency has given any written response, Mr. Buck felt from the discussions at the presentations that the program was favorably received by both.

Mr. Buck advised that a review of the division of interests received to date indicated a diversity of working interests above and below 4500 feet in a number of leases. In view of this, it is believed that the base of the unitized formation (Section 2 (h), Unit Agreement) should be defined as the depth of 4500 feet beneath the surface. The depth of 4500 feet is approximately 200 feet below the established water level in the San Andres formation.

Mr. Buck pointed out that some parties advised in writing of their objections to the cost allocation formula and that they would object to an effort to form a unit on such basis under the New Mexico Unitization Statute. In view of this, Mr. Buck felt the Working Interest Owners should decide whether to proceed with unitization efforts based on the cost allocation formula which has an indicated acceptance by more than 75 percent of the Working Interests or to attempt to develop another formula that would receive greater acceptance. It was noted that the Working Interests approving both the participation formula and the Shell cost allocation formula, and which could, therefore, be anticipated to ratify a unit agreement, total 78 percent for each Phase I and Phase II and 85 percent for Phase III. The meeting was then opened for discussion.

Mr. Joe Thorton, Sun Production Company, advised that Sun would oppose an effort to form the unit under the New Mexico Unitization Statute. Mr. Thornton stated that such opposition was not on a matter of equity but as a matter of principle. Sun did not feel the New Mexico Oil Conservation Commission had the authority to act in this particular instance.

Mr. Boyce Perry, Samedan, stated they would oppose unitization if based on present cost allocation formula and that they felt the formula proposed by Samedan was more in keeping with the benefits to be derived from the project. Mr. John Cusack, Cusack interests, advised that he would not accept the formula as presented and favored the one submitted by Samedan. After more discussion in which some parties indicated a preference to proceed with the formula which has received in excess of 75% approval, Mr. Boyce Perry, Samedan, moved that an effort be made to negotiate a cost allocation which would be acceptable to a greater number of the Working Interest Owners. The motion was seconded by Mr. Cusack, Cusack Interests. Voting results were as follows:

	Working Interest Owners' % (Oil Only)		
	For	Against	Pass
Phase I	75.23913	21.67889	0.22719
Phase II	76.07912	21.12195	0.19658
Phase III	62.00388	34.33593	0.43429
	97.14531	97.39765	96.77410

The motion was considered passed and the meeting was opened for suggested cost allocation formulas.

Mr. Boyce Perry, Samedan, requested that the formula submitted in writing be again submitted for vote. The formula was as follows:

I. Operating Expenses

1. Operating, Maintenance and Overhead expenses incurred in the production, handling and treating of oil and gas shall be charged on the basis of the phase-in-effect oil participation.

2. Operating, Maintenance and Overhead expenses pertaining to the supply of make-up water, injection of water and all injection facilities, including the injection wells, shall be charged on the basis of 33% Phase II Oil Participation plus 67% Phase III Oil Participation during the Phase I and Phase II periods.

   All the above charges shall be made on the basis of Phase III Oil Participation during the Phase III period.

II. Inventoried Value of personal Property - Capital Expenditures

1. The inventoried value of personal property shall be made on the basis of 33% Phase II Oil Participation plus 67% Phase III Oil Participation with such value, corrected for retirements, to be adjusted on the basis of Phase III Oil Participation within a reasonable time following the effective date of the Phase III period.

2. All expenditures of a capital nature shall be made on the basis of 33% Phase II Oil Participation plus 67% Phase III Oil Participation during the Phase I and Phase II periods.

3. All the above expenditures, corrected for retirements, shall be adjusted on the basis of Phase III Oil Participation within a reasonable time after the effective date of the Phase III period.

4. All expenditures of a capital nature made during the Phase III period shall be charged to the joint account on the basis of Phase III Oil Participation.

Details of the voting are shown on Attachment No. I and the summary results were as follows:

	Working Interest Owners' % (Oil Only)		
	For	Against	Pass
Phase I	18.42891	78.48903	
Phase II	18.99331	78.17770	
Phase III	8.11158	88.18190	
.33 Phase II + .67 Phase III	11.70255	83.82857	

Mr. R. W. Mullins, Amerada-Hess Corporation, proposed that the Samedan formula be used, only that no adjustment in the investment account be made at the termination of Phase II (Oil). Details of the voting are shown on Attachment No. 2 and summary results were as follows:

	Working Interest Owners' % (Oil Only)		
	For	Against	Pass
Phase I	6.56696	79.03633	11.54184
Phase II	6.56261	78.89605	11.96893
Phase III	8.60241	73.91749	14.81957
.33 Phase II + .67 Phase III			

Mr. O. V. Stuckey, Getty Oil Company, proposed that all capital expenditures during Phase I and Phase II be allocated on 2/3 Phase II Interest (Oil) plus 1/3 Phase III Interest (Oil) and adjusted to Phase III at termination of Phase II (Oil). Operating expenses were to be based on phase-in-effect. Details of the voting are shown on Attachment No. 3, and the summary results were as follows:

	Working Interest Owners' % (Oil Only)		
	For	Against	Pass
Phase I	59.97659	36.94135	
Phase II	60.40459	36.76642	
Phase III	56.81526	39.47822	
2/3 Phase II + 1/3 Phase III	59.20220	37.66659	

Mr. Boyce Perry, proposed that all capital expenditures be allocated on 1/3 Phase II (oil) + 2/3 Phase III (oil) during Phase I and II and adjusted to Phase III interests at termination of Phase II (Oil). Operating costs to be based on phase-in-effect. Details of the vote are shown on Attachment No. 4 and the summary results were as follows:

	Working Interest Owners' % (Oil)		
	For	Against	Pass
Phase I	18.42891	78.48903	
Phase II	18.99331	78.17770	
Phase III	8.11158	88.18190	
1/3 Phase II + 2/3 Phase III	11.73764	84.83870	

Mr. Thane Aikens, Arco, proposed that all capital expenditures during Phase I (Oil) and Phase II (Oil) be allocated on .50 Phase II (Oil) plus .50 Phase III (Oil) interest and adjusted to Phase III (Oil) at termination of Phase II. All operating expenses to be allocated on phase-in-effect. Details of the vote are shown on Attachment No. 5 and summary results were as follows:

	Working Interest Owners' % (Oil)		
	For	Against	Pass
Phase I	78.27269	18.64525	
Phase II	78.88410	18.28691	
Phase III	68.56783	27.72595	
.5 Phase II + .5 Phase III	73.72588	23.00645	

Mr. Buck, Shell, proposed a compromise of two previous proposals, (Getty and Arco). Such proposal was that all capital expenditures during Phase I (Oil) and Phase II (Oil) be allocated on 58 percent Phase II (Oil) interest and 42 percent Phase III (Oil) interest and adjusted to Phase III (Oil) at termination of Phase II (Oil). Operating expenses to be allocated on basis of phase-in-effect. Details of the vote are shown on Attachment No. 6 and summary results are as follows:

	Working Interest Owners' % (Oil Only)		
	For	Against	Pass
Phase I	82.01563	10.87691	2.63643
Phase II	82.36473	10.72944	2.71879
Phase III	76.86992	13.50522	4.03993
.58 Phase II + .42 Phase III	80.05693	11.89528	2.27367

In view of the favorable response to the last cost formula submitted by Shell, it was agreed to submit the formula for ballot vote. It was understood that all votes were cast subject to management approval.

Time did not permit review of the Unit and Unit Operating Agreements and Mr. Buck advised that a meeting would be called at a later date for such purpose. Comments regarding the agreements have been received from two parties. Based on the comments, Shell proposed certain changes or additions. A list of the changes were given to the Working Interest Owners present and a copy is attached to the minutes.

Mr. Shepherd, Exxon, asked for an explanation of the limiting quantity of 23,000,000 barrels of oil stated in Article 16 (c) of the Unit Agreement. Mr. Buck advised that based on the projected primary performance of the Unit, it was estimated that, without water injection, the unit production would average 10 barrels of oil per day per well after the production of 23,000,000 barrels from January 1, 1979. As all production would qualify as stripper for FEA pricing purposes at such time and under such conditions, it was suggested that this amount be used as the limiting quantity of oil.

All parties who had not done so, were ask to submit as soon as possible the division of interests for their properties in order that the necessary exhibits for the agreements could be completed.

There being no further business, the meeting was adjourned.

Yours very truly,

W. E. Buck
Chairman, Working Interest Owners Committee

WEB:TS

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. R. W. MULLINS
MANAGER - JOINT VENTURE OPERATIONS - U.S.
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. GEORGE GARRETT
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

ADA A. ANDERSON
P. O. BOX 136
MIDLAND, TX 79702

W. D. ANDERSON & SONS
P. O. BOX 136
MIDLAND, TX 79702

WARREN ANDERSON ESTATE
P. O. BOX 136
MIDLAND, TX 79702

J. M. ARMSTRONG
BOX 990
MIDLAND, TX 79702

ATLANTIC RICHFIELD COMPANY
ATTN: MR. G. THANE AKINS
P. O. BOX 1610
MIDLAND, TX 79702

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

MARY DANIEL CONRAD
4308 AVONDALE
DALLAS, TX 75219

C&C OPERATING CORP.
P. O. BOX 1829
HOBBS, NM 88240

CHEVRON OIL COMPANY
ATTN: MR. C. F. DWYER
P. O. BOX 1660
MIDLAND, TX 79702

CITIES SERVICE OIL COMPANY
E&P DIVISION
P. O. BOX 1919
MIDLAND, TX 79702

CONTINENTAL OIL COMPANY (2)
ATTN: L. P. THOMPSON
P. O. BOX 460
HOBBS, NM 88240

HERMAN R. CRILE, SR. REVOCABLE TRUST
BOX 864
ROSWELL, NM 88201

JOHN P. CUSACK
P. O. BOX 250
ROSWELL, NM 88201

JOHN P. CUSACK, JR.
3815 McCART STREET
FORT WORTH, TX 76110

MICHAEL F. CUSACK
3815 McCART STREET
FORT WORTH, TX 76110

DEL-LEA, INC. (ANTWEIL)
P. O. BOX 1889
HOBBS, NM 88240

J. N. DUNLAVY
P. O. BOX 837
ROSWELL, NM 88201

ESTES ENGINEERING CO.
306 PETROLEUM BUILDING
MIDLAND, TX 79702

EXXON COMPANY - U. S. A. (2)
ATTN: JOINT INTEREST MANAGER
P. O. BOX 1600
MIDLAND, TX 79702

FIRST NATIONAL BANK OF CASPER
FIRST NATIONAL BANK TRUSTEE M. E. TATE
P. O. BOX 40
CASPER, WY 82601

FIRST NATIONAL BANK OF FORT WORTH
ESTATE OF SMITH SPRALDING
P. O. BOX 2546
FORT WORTH, TX 76101

FIRST ROSWELL COMPANY
P. O. BOX 1180
ROSWELL, NM 88201

C. C. FORBES
P. O. BOX 843
TULSA, OK 74101

ILAMAE FORBES
P. O. BOX 843
TULSA, OK 74101

GETTY OIL COMPANY (2)
ATTN: MR. A. B. CARY
P. O. BOX 1231
MIDLAND, TX 79702

GULF ENERGY & MINERALS CO.-U.S. (2)
ATTN: R. F. WARD, JR.
DISTRICT OPERATIONS MANAGER
P. O. BOX 1150
MIDLAND, TX 79702

KENNETH NOEL HEADLEY
P. O. BOX 2163
ROSWELL, NM 88201

PETER HURD
SAN PATRICIO, NM 88348

RUBY WANDA CONRAD JUDSON
7 JOSEPHINE COURT
NORTHPORT, LONG ISLAND
NEW YORK, NY 11768

A. A. KEMNITZ
P. O. BOX 729
HOBBS, NM 88240

GEORGE P. LAFLIN
815 METRO BANK BUILDING
DENVER, CO 80202

MR. GEORGE H. LANDRETH
8123 BOEDEKER CIRCLE
DALLAS, TX 75225

MR. W. A. LANDRETH
908 CONTINENTAL NATIONAL BANK BLDG
FT. WORTH, TX 76102

M. RALPH LOWE, INC.
ATTN: JACK P. SEMON
P. O. BOX 832
MIDLAND, TX 79702

MARATHON OIL COMPANY
ATTN: MR. G. A. NAERT
P. O. BOX 522
MIDLAND, TX 79702

KATHRYN LOUISE CONRAD McCARTHY
4435 SAN GABRIEL
DALLAS, TX 75229

ROBERT L. McPHERON
MARGARET M. McPHERON
C/O GULF ENERGY & MINERALS CO. - U
BOX 1150
MIDLAND, TX 79702

K. D. McPETERS
P. O. BOX 1860
HOBBS, NM 88240

MOBIL OIL CORPORATION
3 GREENWAY PLAZA EAST
SUITE 800
HOUSTON, TX 77046

R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

G. D. MORRIS
2901 W. HWY 83, BOX 154
McALLEN, TX 78501

MR. J. H. MORRIS AS AGENT
1615 FIRST NATIONAL BUILDING
TULSA, OK 74103

RICHARD L. NOBLE
P. O. BOX 67605
CENTURY CITY
LOS ANGELES, CA 90067

PORTALES NATIONAL BANK
PORTALES, NM 88130

JOHN RORING
1710 WILSHIRE BOULEVARD
OKLAHOMA CITY, OK 73116

FRANCES I. CONRAD ROSE
BOX 20234
DALLAS, TX 75220

SAMEDAN OIL CORPORATION
ATTN: MR. M. G. MARTIN
2207 WILCO BUILDING
MIDLAND, TX 79702

SAMEDAN OIL CORPORATION
ATTN. MR. BOYCE BERRY
P. O. BOX 909
ARDMORE, OK 73401

SEA PROPERTIES, LTD.
BOX 1486
ARDMORE, OK 73401

HOWELL SPEAR
P. O. BOX 1684
MIDLAND, TX 79701

E. C. SULIVAN
C/O SAMEDAN OIL CORPORATION
2207 WILCO BUILDING
MIDLAND, TX 79702

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THRONTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS
P. O. BOX 1861
MIDLAND, TX 79702

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

FIRST NATIONAL BANK OF LEA COUNTY
TRUSTEE FOR CECIL H. SWEET AND
IMA EMMETTA SWEET TRUST
P. O. BOX 70
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO, INC.
ATTN: ASSISTANT DIVISION MANAGER
P. O. BOX 3109
MIDLAND, TX 79702

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
1700 ONE MAIN PLACE
DALLAS, TX 75250

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. R. J. WOMACK
P. O. BOX 4067
MIDLAND, TX 79702

BETTYE CONRAD TREADAWAY
5215 HAVENWOODS
HOUSTON, TX 77066

TWO STATES OIL COMPANY
MERCANTILE COMMERCE BLDG., SUITE 1910
DALLAS, TX 75201

COLLEEN McPHERON WALLACE
C/O GULF ENERGY & MINERALS COMPANY - U.S.
BOX 1150
MIDLAND, TX 79702

LOYD WHITLEY
701 W. GEORGE APT. 99
MIDLAND, TX 79701

HATTIE C. WILLIAMS
P. O. BOX 3187
LUBBOCK, TX 79410

A. T. WILLIAMSON
630 HARVARD CT.
HOBBS, NM 88240

THE WISER OIL COMPANY
ATTN: MR. BILL LARSEN
110 METRO BUILDING
MIDLAND, TX 79701

THE WISER OIL COMPANY
ATTN: MR. C. P. LaRUE
P. O. BOX 192
SISTERVILLE, WV 26175

W. A. YEAGER
BOX 990
MIDLAND, TX 79702

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P. O. BOX 6031
DALLAS, TX 75222

RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

ATTENDANCE LIST"

WORKING INTEREST OWNERS'MEETING
NORTH HOBBS (GRAYBURG-SAN ANDRESS) UNIT
FEBRUARY 2, 1978

COMPANY	NAME	LOCATION
Amerada-Hess Corp.	R. W. Mullins	Tulsa, Ok.
Amerada-Hess Corp.	Gerald Hill	Tulsa, Ok.
Amoco Production Company	S. R. Denton	Houston, Tx.
Atlantic Richfield	Tom Furtwangler	Midland, Tx.
Atlantic Richfield	Thane Akins	Midland, Tx.
Atlantic Richfield	George Nathman	Midland, Tx.
Chevron USA, Inc.	W. A. Goudeau	Midland, Tx.
Chevron USA, Inc.	B. O. Gunn	Midland, Tx.
Chevron USA, Inc.	D. D. Allen	Midland, Tx.
Cities Service Oil Company	J. L. Relph ✓	Midland, Tx.
Cities Service Oil Company	M. S. Mabry	Midland, Tx.
Conoco Oil Company	V. T. Lyon	Hobbs, N.M.
Conoco Oil Company	J. S. Anderson	Hobbs, N. M.
Cusack Inc.	John P. Cusack	Roswell, N.M.
Cusack Inc.	Max E. Curry	Midland, Tx.
Exxon Company	J. M. Shepherd	Midland, Tx.
Exxon Company	J. B. Campbell	Midland, Tx.
Exxon Company	W. E. Nolan	Midland, Tx.
First National Bank Dallas (Trust - Yeager Interests)	Gene Thomas	Dallas, Tx.
Getty Oil Company	O. V. Stuckey	Midland, Tx.
Gulf Oil Company	J. D. Mussett	Midland, Tx.
Marathon Oil Company	G. A. Naert	Midland, Tx.
Moranco Oil Company	Ken McPeters	Hobbs, N.M.
Samedan Oil Company	Boyce Perry	Ardmore, Ok.
Shell Oil Company	W. E. Buck	Houston, Tx.
Shell Oil Company	Bill Lancaster	Houston, Tx.
Shell Oil Company	Paul L. Bondor	Houston, Tx.
Shell Oil Company	Shri B. Mathur	Houston, Tx.
Shell Oil Company	Lee Campbell	Houston, Tx.
Sun Oil Company	Joseph Martin	Midland, Tx.
Sun Oil Company	Joe Thornton	Dallas, Tx.
Texaco Inc.	Robert E. Davis	Midland, Tx.
Texaco Inc.	Morris Todd	Midland, Tx.
Texas Pacific Oil Company	G. R. Meyer	Dallas, Tx.
Wiser Oil Company	W. R. Larsen	Midland, Tx.

-14-71

PROPOSED NORTH HOBBS UNIT

Cost Allocation Formula - Samedan

WIO SO	WINAME	Phase I oil	Phase II oil	Phase III oil	.33 Phase II + .67 Phase III	Vote
1	AMERADA HESS CORP.	656696	650281	860241	7.90948	No
2	AMOCO PRODUCTION CO.	138897	135805	187841	1.70669	No
3	ANDERSON ADA A	.00629	.00396	.92317		
4	ANDERSON EST., WARREN D	.00629	.00396	.02317		
5	ANDERSON, W D AND SONS	.01257	.00793	.04633		
6	ARMSTRONG, J M	.01257	.00793	.04633		
7	ATLANTIC RICHFIELD CO.	294388	318761	317303	2.19293	No
8	BYROM W R	.06780	.06401	.07001		
9	C&C OPERATING CO.	.01133	.00688	.03147		
10	CHEVRON OIL COMPANY	321471	339898	297321	3.11371	Yes
11	CITIES SERVICE OIL CO.	324881	320246	554436	4.77153	No
12	CONRAD MARY DANIEL	.02408	.01508	.00196		
13	CONTINENTAL OIL CO.	112463	111358	143673	13.49151	No
14	CRUP, HERMAN R	.00613	.00382	.00294		
15	CUSACK, I D	.07045	.05609	.01173	.09237	Yes
16	CUSACK, JR., I D	.11864	.11631	.08712	.46835	Yes
17	CUSACK, MICHAEL F.	.11869	.11631	.08912	.46835	Yes
18	DEL-LEA, INC. (ANTWELL)	.11092	.11053	.03652		
19	DUNLAVEY, I N	.00194	.00171	.00191		
20	ESTES, RUSSELL G	.00335	.00211	.01236		
21	EXXON COMPANY - U.S.A.	488761	439609	763865	6.56874	No
22	FIRST ROSWELL COMPANY	.00388	.00240	.00203		
23	FORBES C. C.	.01667	.00656	.02645	.03638	Yes
24	FORBES, MAMIE	.00908	.00597	.02575	.03542	Yes
25	GETTY OIL COMPANY	872066	874234	755887	7.94941	No
26	GULF ENERGY & MINERALS	971717	944656	1523438	13.32439	No
27	HEADLEY, KENNETH NOEL	.00578	.00978	.00522		
28	HURD, PETER	.01408	.00858	.00186		
29	JUDSON, RUBY WANDA CONRA	.01482	.00902	.00339		
30	KENNITZ, A. A.	.09187	.05586	.04004	.55059	Yes
31	LAFLIN, GEORGE P.	.00194	.00171	.00191		
32	LOWE, M. RALPH	.03128	.02674	.00165		
33	MARATHON OIL COMPANY	283643	271879	403993	3.60395	No
34	MCCARTHY, KATHRYN L. C.	.01482	.00902	.00339		
35	MCPETERS, K. D.	.00877	.00757	.00318		
36	MCPHERON, MARGARAT M.	.02034	.01920	.02191		135
37	MCPHERON, ROBERT L.	.01017	.00960	.01050		
38	MOBIL OIL CORP.	.92642	.82295	67244		
39	MORANCO	.02320	.02248	.00537	.01300	Yes

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Ah Exhibit 1 Cont

PROPOSED NORTH HOBBS UNIT

WIO NO	WINAME					
40	MORAN, R. M.	.035111	.038019	.012710	.018511	Yes
41	MORRIS, G. D.	.039912	.037211	.017140	.023914	Yes
42	MURDOCH, NATEVLYN I.CONRA	.004812	.005012	.000039		
43	NOBLE, RICHARD L.	.485943	.452449	.241160		
44	PARRISH, M.C. ESTATE	.011113	.010013	.000612		
45	PORTALES NATIONAL BANK	.059889	.055812	.026810	.035911	Yes
46	RORING JOHN	.119715	.111613	.015221	.017182	Yes
47	ROSE, FRANCIS I. CONRAD	.004812	.005012	.000039		
48	SAMEDAN OIL CORP.	5.937216	6.191239	1.319110	2.912693	Yes
49	SEA PROPERTIES, LTD.	.009213	.009612	.001578	.004245	Yes
50	SHELL OIL COMPANY	24.012710	23.768312	8.875338	10.490015	No
51	1ST NATL BANK/FT. WORTH	.013992	.013721	.011740	.023914	Yes
53	SPEAR HOWELL	.000916	.000815	.000916		
54	SULLIVAN, E. C.	.059889	.055812	.026810	.035911	Yes
55	SUN OIL CO. (DELEWARE)	.227119	.196518	.143429		
56	SWEET, BILL L.	.026151	.019306	.017776		
57	SWEET, C. E. OIL CO.	.026443	.014146	.019399		
58	1ST NATL BANK OF CASPER	.011916	.011613	.015231	.017182	Yes
59	TEXACO, INC.	3.161134	3.091110	1.165115	1.880711	No
60	TEXAS PACIFIC OIL CO. IN	4.881172	4.703811	2.819132	3.441210	Yes
61	TREADAWAY, BETTYE CONRA	.001482	.000512	.000039		
62	TWO STATES OIL CO.	.006498	.006649	.001682		
63	WALLACE, COLLEEN MCPHERO	.010117	.009610	.010510		
64	WHITLEY, LOYD	.001914	.001711	.001911		
65	WILLIAMS, HATTIE C.	.013381	.014505	.022212	.006216	Yes
66	WILLIAMSON, A. T.	.001914	.001711	.001911		
67	WISER OIL COMPANY, THE	.028139	.028927	.011005	.016919	Yes
68	YATES, JOEN A	.012986	.011695	.013811		
69	YEAGER & ARMSTRONG	.012517	.010793	.004633		
70	YEAGER JR. DR. HENRY	.015486	.016311	.006217	.006623	No
71	YEAGER RUTH ANNE	.011616	.012114	.000995	.004665	No
72	YEAGER RUTH/HENRY	.004412	.004018	.000033	.001666	No
73	YEAGER-RUTH PEELER	.016812	.017511	.001137	.006710	No
74	LANDRETH INTERESTS	.045231	.044285	.011710		
	Yes	18.428911	18.993311	8.111558	11.702515	
	No	78.489013	78.117710	88.181910	83.828517	

SR [illegible] Printed in U.S.A.

Attachment No. 2 pg 1 of 2

PROPOSED NORTH HOBBS UNIT

Amerada-Hess - Cost Allocation Formula

.33 Phase II + .67 Phase III - No adjustment.

WIO NO	WINAME	PHASE I Oil	PHASE II Oil	PHASE III Oil	.33 Phase II + .67 Phase III	Vote
1	AMERADA HESS CORP.	656696	650261	860241	790948	Yes
2	AMOCO PRODUCTION CO.	138897	135805	118784	170609	No
3	ANDERSON ADA A	.00629	.00396	.42317		
4	ANDERSON EST., WARREN D	.00629	.00396	.02317		
5	ANDERSON, W D AND SONS	.01257	.00793	.04633		
6	ARMSTRONG, I M	.01257	.00793	.04633		
7	ATLANTIC RICHFIELD CO.	2.94388	3.18784	3.27303	2.19293	No
8	BYROM W K	.06780	.96400	.47001		
9	CSC OPERATING CO.	.01133	.00688	.03147		
0	CHEVRON OIL COMPANY	3.31471	3.39898	2.97321	3.11371	No
11	CITIES SERVICE OIL CO.	3.24881	3.30246	5.54436	4.17153	No
12	CONRAD MARY DANIEL	.02408	.02508	.00196		
13	CONTINENTAL OIL CO.	1.24634	1.11358	1.43672	1.34915	Pass
14	CRILE, HERMAN R.	.03613	.03762	.00294		
15	CUSACK, I P	.27045	.25669	.01173	.09237	No
16	CUSACK, JR., I. P.	.11369	.12383	.00912	.04635	No
17	CUSACK, MICHAEL F.	.11369	.12383	.00912	.04635	No
18	DEL-LEA, INC. (ANTWELL)	.11092	.11053	.03692		
19	DUNLAVEY, I N	.00194	.00171	.00191		
20	ESTES, RUSSELL G	.00335	.00211	.01236		
21	EXXON COMPANY - U.S.A.	4.88761	4.39609	7.63885	6.56874	No
22	FIRST ROSWELL COMPANY	.00388	.00340	.00343		
23	FORBES, C. C.	.01667	.01656	.02645	.03638	No
24	FORBES, ILAMAE	.00908	.00507	.02575	.03542	No
25	GETTY OIL COMPANY	8.72066	8.74234	7.55887	7.54941	No
26	GULF ENERGY & MINERALS	9.71717	9.44656	15.33438	13.32439	No
27	HEADLEY, KENNETH NOEL	.00778	.00978	.00542		
28	HURD, PETER	.02408	.02508	.00196		
29	JUDSON, RUBY WANDA CONRA	.01482	.00502	.00039		
30	KENNITZ, A. A.	.91817	.85586	.40024	.55059	No
31	LAFLIN, GEORGE P.	.00194	.00171	.00191		
32	LOWE, M. RALPH	.03128	.02674	.00165		
33	MARATHON OIL COMPANY	2.83643	2.71879	4.03993	3.60395	No
34	MCCARTHY, KATHRYN L. C.	.00482	.00502	.00039		
35	MCPETERS, K. D.	.00877	.00757	.00318		
36	MCPHERON, MARGARAT M.	.00234	.01910	.02191		
37	MCPHERON, ROBERT L.	.01017	.00960	.01050		
38	MOBIL OIL CORP.	.92642	.82895	.67244		
39	MORANCO	.03320	.02848	.00537	.01300	Pass

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Attachment No. 2 (Cont)

PROPOSED NORTH HOBBS UNIT

WIO NO	WINAME					
40	MORAN, R. M.	.03511	.03009	.01270	.01851	Pass
41	MORRIS, G. D.	.03992	.03721	.01740	.02394	No
42	MURDOCH, NATHYLYN I. CONRA	.00482	.00502	.00039		
43	NOBLE, RICHARD L.	.48543	.45249	.21160		
44	PARRISH, M.C. ESTATE	.01173	.01003	.00062		
45	PORTALES NATIONAL BANK	.05989	.05582	.02610	.03591	No
46	RORING JOHN	.11975	.11163	.05221	.07182	No
47	ROSE, FRANCIS I. CONRAD	.00482	.00502	.00039		
48	SAMEDAN OIL CORP.	5.93736	6.19129	1.31910	2.92693	No
49	SEA PROPERTIES, LTD.	.09213	.09682	.01578	.02415	No
50	SHELL OIL COMPANY	24.12270	23.76832	4.87538	20.49005	No
51	1ST NATL BANK/FT. WORTH	.03992	.03721	.01740	.02394	No
53	SPEAR HOWELL	.00096	.00085	.00096		
54	SULLIVAN, E. C.	.05989	.05582	.02610	.03591	No
55	SUN OIL CO. (DELEWARE)	2.27119	1.96518	.43429	1.35584	Pass
56	SWEET, BILL L.	.02651	.02306	.01776		
57	SWEET, C. H. OIL CO.	.12643	.14146	.03399		
58	1ST NATL BANK OF CASPER	.11976	.11163	.05221	.07182	No
59	TEXACO, INC.	3.16134	3.49116	1.16515	1.80071	No
60	TEXAS PACIFIC OIL CO. IN	4.48172	4.10381	2.81932	3.44120	No
61	TREADAWAY, BETTYE CONRA	.00482	.00502	.00039		
62	TWO STATES OIL CO.	.06498	.06649	.01682		
63	WALLACE, COLLEEN MCPHERO	.01017	.00960	.01050		
64	WHITLEY, LOYD	.00194	.00171	.00191		
65	WILLIAMS, HATTIE C.	.13381	.14505	.02222	.06276	No
66	WILLIAMSON, A. T.	.00194	.00171	.00191		
67	WISER OIL COMPANY, THE	.28139	.28927	.11005	.16919	No
68	YATES, JOHN A	.12986	.10695	.03811		
69	YEAGER & ARMSTRONG	.01257	.00793	.04633		
70	YEAGER JR. DR. HENRY	.01546	.01631	.00127	.00623	No
71	YEAGER RUTH ANNE	.01166	.01214	.00095	.00465	No
72	YEAGER RUTH/HENRY	.00402	.00418	.00033	.00160	No
73	YEAGER RUTH PEELER	.01682	.01751	.00137	.00670	No
74	LANDRETH INTERESTS	.45232	.44285	.41170		
	Yes	6.54696	6.50201	8.66241	7.90948	
	No	79.03633	78.89605	73.91749	74.09862	138
	Pass	11.54184	11.96893	11.48195	13.87886	

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Attachment No. 3 Pg 1 of 2

PROPOSED NORTH HOBBS UNIT

Getty Formula - 2/3 Phase II + 1/3 Phase III - Adj. to Phase III

WIO NO	WINAME	PHASE I Oil	PHASE II Oil	PHASE III Oil	2/3 Phase II + 1/3 Phase III	Vote
1	AMERADA HESS CORP.	656696	650261	860241	720182	Yes
2	AMOCO PRODUCTION CO.	138897	135805	187841	153135	No
3	ANDERSON ADA A	.00629	.00396	.02317		
4	ANDERSON EST., WARREN D	.00629	.00396	.02317		
5	ANDERSON, W D AND SONS	.01257	.00793	.04633		
6	ARMSTRONG, I M	.01257	.00793	.04633		
7	ATLANTIC RICHFIELD CO.	294388	318746	327303	321579	Yes
8	BYROM W R	.06780	.04600	.07001		
9	C&C OPERATING CO.	.01313	.00688	.03147		
10	CHEVRON OIL COMPANY	321471	339898	297321	325673	Yes
11	CITIES SERVICE OIL CO.	324881	302146	554436	398270	No
12	CONRAD MARY DANIEL	.02408	.01508	.00196		
13	CONTINENTAL OIL CO.	124634	117358	143672	1259686	Yes
14	CRILE, HERMAN R.	.03613	.03762	.00294		
15	CUSACK, I. P.	.27045	.25609	.01173	.17462	No
16	CUSACK, JR., I. P.	.11369	.11883	.00912	.08516	No
17	CUSACK, MICHAEL F.	.11369	.11383	.00912	.08516	No
18	DEL-LEA, INC. (ANTWEIL)	.01092	.01053	.00862		
19	DUNLAVEY, I N	.00194	.00171	.00191		
20	ESTES, RUSSELL G	.00335	.00211	.01236		
21	EXXON COMPANY - U.S.A.	488761	439609	763885	547646	No
22	FIRST ROSWELL COMPANY	.00388	.00340	.00303		
23	FORBES C. C.	.02667	.02656	.02645	.04652	No
24	FORBES, ILAMAE	.02908	.02507	.02575	.04529	No
25	GETTY OIL COMPANY	872066	874234	755887	834701	Yes
26	GULF ENERGY & MINERALS	971717	944656	1523438	1137470	No
27	HEADLEY, KENNETH NOEL	.05778	.05978	.00522		
28	HURD, PETER	.02408	.01508	.00196		
29	JUDSON, RUBY WANDA CONRA	.00482	.00502	.00039		
30	KENNITZ, A. A.	.91817	.85586	.40024	.70392	No
31	LAFLIN, GEORGE P.	.00194	.00171	.00191		
32	LOWE, M. RALPH	.03128	.02674	.00165		
33	MARATHON OIL COMPANY	283643	271879	403993	315886	No
34	MCCARTHY, KATHRYN L. C.	.00482	.00502	.00039		
35	MCPETERS, K. D.	.00877	.00757	.00318		
36	MCPHERON, MARGARAT M.	.00234	.00190	.00201		
37	MCPHERON, ROBERT I.	.01017	.00960	.01050		139
38	MOBIL OIL CORP.	.92642	.88295	.87264		
39	MORANCO	.03330	.02848	.00537	.02077	No

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Attachment No. 3 (Cont.)

PROPOSED NORTH HOBBS UNIT

WIO NO	WINAME					
40	MORAN, R. M.	.03511	.08029	.01270	.02442	No
41	MORRIS, G. D.	.03992	.03721	.01740	.03060	No
42	MURDOCH, NATHYLYN I-CONRA	.00482	.00502	.00039		
43	NOBLE, RICHARD L.	.48543	.05249	.21160		
44	PARRISH, M.C. ESTATE	.01173	.01003	.00062		
45	PORTALES NATIONAL BANK	.05989	.05582	.02610	.04591	No
46	RORING JOHN	.11975	.11163	.05221	.09181	No
47	ROSE, FRANCIS I. CONRAD	.00482	.00502	.00039		
48	SAMEDAN OIL CORP.	5.93726	6.19129	1.31910	4.56617	No
49	SEA PROPERTIES, LTD.	.09213	.09662	.01578	.06967	No
50	SHELL OIL COMPANY	24.12270	23.76832	18.87538	22.13512	Yes
51	1ST NATL BANK/FT. WORTH	.03992	.03721	.01740	.03060	No
53	SPEAR BOWELL	.00096	.00085	.00096		
54	SULLIVAN, E. C.	.05989	.05582	.02610	.04591	No
55	SUN OIL CO. (DELEWARE)	2.27119	1.96518	1.43429		
56	SWEET, BILL L.	.02651	.02300	.01776		
57	SWEET, C. H. OIL CO.	1.26443	1.24146	1.79399		
58	1ST NATL BANK OF CASPER	.11976	.11163	.05221	.09181	No
59	TEXACO, INC.	31.61734	33.49116	11.16515	22.44887	Yes
60	TEXAS PACIFIC OIL CO. IN	4.88172	4.70381	2.81932	4.07524	No
61	TREADAWAY, BETTYE CONRA	.00482	.00502	.00039		
62	TWO STATES OIL CO.	.06498	.06649	.00682		
63	WALLACE, COLLEEN MCBEE	.01017	.00960	.00850		
64	WHITLEY, LOYD	.00194	.00171	.00191		
65	WILLIAMS, HATTIE C.	.13381	.14505	.02222	.10416	No
66	WILLIAMSON, A. T.	.00194	.00171	.00191		
67	WISER OIL COMPANY, THE	.28139	.28927	.11005	.22951	No
68	YATES, JOEN A	.12986	.10695	.03811		
69	YEAGER & ARMSTRONG	.01257	.00793	.04633		
70	YEAGER JR. DR. HENRY	.01586	.01631	.00127	.01129	No
71	YEAGER RUTH ANNE	.01186	.01214	.00095	.00841	No
72	YEAGER RUTH/HENRY	.00402	.00418	.00033	.00290	No
73	YEAGER RUTH PEELER	.01682	.01751	.00137	.01213	No
74	LANDRETH INTERESTS	.45232	.44245	.61170		
	Yes	59.97659	60.40459	56.81526	59.20	
	No	36.94135	36.76642	39.47822	37.66	
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PROPOSED NORTH HOBBS UNIT

Same Sen Compromise Cost Formula: 1/3 Phase II + 2/3 Phase III
(As) after Phase II - Expense - Phase-in-effect

WIO NO	WINAME	PHASE I Oil	PHASE II Oil	PHASE III Oil	1/3 Phase II + 2/3 Phase III	Vote
1	AMERADA HESS CORP.	656696	650261	860241	7.90169	No.
2	AMOCO PRODUCTION CO	138897	135805	187841	1.70479	No
3	ANDERSON ADA A	.00629	.00396	.02317		
4	ANDERSON EST., WARREY D	.00629	.00396	.02317		
5	ANDERSON, W D AND SONS	.01257	.00793	.04633		
6	ARMSTRONG, I W	.01257	.00793	.04633		
7	ATLANTIC RICHFIELD CO	294388	318761	317303	3.24425	No
8	BYROM W E	.06780	.06401	.04701		
9	C&C OPERATING CO	.01133	.00688	.03147		
10	CHEVRON OIL COMPANY	331471	339898	297321	3.11482	Yes
11	CITIES SERVICE OIL CO	324881	300246	554436	4.76325	No
12	CONRAD MARY DANIEL	.02408	.02508	.00196		
13	CONTINENTAL OIL CO	1124634	1117358	1436721	13.48132	No
14	CRITZ, HERMAN P	.03613	.03762	.02294		
15	CUSACK, J P	.27045	.25669	.01173	.09317	Yes
16	CUSACK, JR., J P	.11369	.12883	.08912	.47214	Yes
17	CUSACK, MICHAEL F.	.11369	.12383	.08912	.47214	Yes
18	DEL-LEA, INC. (ANTWEIL)	.11092	.11005	.06592		
19	DUNLAVEY, I N	.00194	.00171	.00191		
20	ESTES, RUSSELL G	.00335	.00211	.01236		
21	EXXON COMPANY - U.S.A.	488761	439609	763885	6.56728	No
22	FIRST ROSWELL COMPANY	.00388	.00340	.00203		
23	FORBES C. C.	.01667	.01656	.02645	.03648	Yes
24	FORBES, TAMAE	.01908	.01507	.02575	.01351	Yes
25	GETTY OIL COMPANY	872066	874234	755887	7.95256	No
26	GULF ENERGY & MINERALS	971717	944656	1523438	13.30378	No
27	HEADLEY, KENNETH NOEL	.05778	.05978	.05012		
28	HURD, PETER	.02408	.02508	.00196		
29	HUDSON, RUBY WANDA CONRA	.00482	.00502	.00039		
30	KENNITZ, A. A.	.91817	.85586	.40024	.55206	Yes
31	LAFLIN, GEORGE P.	.00194	.00171	.00191		
32	LOWE, M. RALPH	.03128	.02674	.00165		
33	MARATHON OIL COMPANY	2.83643	2.71879	4.03993	3.59919	No
34	MCCARTHY, KATHRYN L. C.	.00482	.00502	.00039		
35	MCPETERS, K. D.	.00877	.00757	.00318		
36	MCPHERON, MARGARAT M.	.02034	.01926	.02101		
37	MCPHERON, ROBERT L.	.01017	.00960	.01050		
38	MOBIL OIL CORP.	.92642	.82805	.47294		
39	MORANCO	.03320	.02848	.00537	.01367	Yes

(Rev. 5-52) Printed in U.S.A.

Attachment No. 4 (Cont)

PROPOSED NORTH HOBBS UNIT

WIO NO	WINAME					
40	MORAN, R. M.	.03511	.03029	.01270	.01857	Yes
41	MORRIS, G. D.	.03992	.03721	.01740	.02400	Yes
42	MURDOCH, NATHYLYN I. CONRA	.00482	.00502	.00039		
43	NOBLE, RICHARD L.	.48543	.45249	.21160		
44	PARRISH, M.C. ESTATE	.01173	.01003	.00062		
45	PORTALES NATIONAL BANK	.05989	.05582	.02610	.03600	Yes
46	RORING JOHN	.11975	.11163	.05221	.07201	Yes
47	ROSE, FRANCIS I. CONRAD	.00482	.00502	.00039		
48	SAMEDAN OIL CORP.	593726	619129	1.31910	294287	Yes
49	SEA PROPERTIES, LTD.	.09213	.09662	.01578	.04272	Yes
50	SHELL OIL COMPANY	2412270	2376832	1887538	2050431	No
51	1ST NATL BANK/FT. WORTH	.03992	.03721	.01740	.02400	Yes
53	SPEAR HOWELL	.00096	.00085	.00096		
54	SULLIVAN, E. C.	.05989	.05582	.02610	.03600	Yes
55	SUN OIL CO. (DELEWARE)	.22719	.19658	.43429		
56	SWEET, BILL L.	.02651	.02300	.17776		
57	SWEET, C. H. OIL CO.	.26443	.24146	.79399		
58	1ST NATL BANK OF CASPER	.11976	.11163	.05221	.07201	Yes
59	TEXACO, INC.	316134	309110	1.16515	1.80695	No
60	TEXAS PACIFIC OIL CO. IN	468172	470381	281932	344714	Yes
61	TREADAWAY, BETTYE CONRA	.00482	.00502	.00039		
62	TWO STATES OIL CO.	.06498	.06649	.00682		
63	WALLACE, COLLEEN MCPHERO	.01017	.00960	.01050		
64	WHITLEY, LOYD	.00194	.00171	.00191		
65	WILLIAMS, HATTIE C.	.13361	.14505	.02222	.06316	Yes
66	WILLIAMSON, A. T.	.00194	.00171	.00191		
67	WISER OIL COMPANY, THE	.28139	.28927	.11005	.16977	Yes
68	YATES, JOHN A	.12986	.10695	.38811		
69	YEAGER & ARMSTRONG	.01257	.00793	.04633		
70	YEAGER JR. DR. HENRY	.01566	.01631	.00127	.00629	No
71	YEAGER RUTH ANNE	.01166	.01214	.00095	.00468	No
72	YEAGER RUTH/HENRY	.00402	.00418	.00033	.00161	No
73	YEAGER RUTH PEELER	.01682	.01751	.00137	.00675	No.
74	LANDRETH INTERESTS	.45232	.44225	.61170		
		Yes 15.42891	18.99331	8.11158	11.72764	
		No 78.48903	78.17770	88.18190	34.83870	

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Attachment No. 5

PROPOSED NORTH HOBBS UNIT

Atlantic Richfield - Cost Allocation Formula

.5 Phase II + .5 Phase III during Phase I & II, Adjust to Phase III Operating - Phase-in-effect

WIO NO	WINAME	PHASE I Oil	PHASE II Oil	PHASE III Oil	.5 Phase II + .5 Phase III	Vote
1	AMERADA HESS CORP.	656696	650261	860241	7.55251	No
2	AMOCO PRODUCTION CO.	138897	135805	187841	1.61823	No
3	ANDERSON ADA A	.00629	.00396	.02317		
4	ANDERSON EST., WARREN D	.00629	.00396	.02317		
5	ANDERSON, W D AND SONS	.01257	.00793	.04633		
6	ARMSTRONG, J M	.01257	.00793	.04633		
7	ATLANTIC RICHFIELD CO.	294388	318766	327303	3.23035	Yes
8	BYROM W K	.06780	.06400	.07001		
9	C&C OPERATING CO.	.01133	.00688	.03147		
0	CHEVRON OIL COMPANY	321471	339898	297321	3.18610	Yes
11	CITIES SERVICE OIL CO.	324881	320246	554436	4.37341	No
12	CONRAD MARY DANIEL	.02408	.02508	.00196		
13	CONTINENTAL OIL CO.	1124634	1171358	1436721	13.04040	Yes
14	CRILE, HERMAN R.	.03613	.03762	.00294		
15	CUSACK, J. P.	.27045	.25609	.01173	.13391	Yes
16	CUSACK, JR., J. P.	1.13609	1.23831	.08912	.66372	Yes
17	CUSACK, MICHAEL F.	1.13609	1.23831	.08912	.66372	Yes
18.	DEL-LEA, INC. (ANTWEIL)	.11092	.10053	.03652		
19	DUNLAVEY, J.N.	.00194	.00171	.00191		
20	ESTES, RUSSELL G	.00335	.00211	.01236		
21	EXXON COMPANY - U.S.A.	4.68761	4.39609	7.63885	6.01747	No
22	FIRST ROSWELL COMPANY	.00388	.00340	.00323		
23	FORBES C. C.	.06067	.05656	.02645	.04151	Yes
24	FORBES, ILAMAE	.05908	.05507	.02575	.04041	Yes
25	GETTY OIL COMPANY	8.72066	8.74234	7.55887	8.15061	Yes
26	GULF ENERGY & MINERALS	9.71717	9.44656	15.23438	12.34047	Yes
27	HEADLEY, KENNETH NOEL	.05778	.05978	.00522		
28	HURD, PETER	.02408	.02508	.00196		
29	JUDSON, RUBY WANDA CONRA	.00482	.00502	.00039		
30	KEMNITZ, A. A.	.91817	.85526	.40024	.62805	Yes
31	LAFLIN, GEORGE P.	.00194	.00171	.00191		
32	LOWE, M. RALPH	.03128	.02674	.00165		
33	MARATHON OIL COMPANY	2.63643	2.71879	4.03993	3.37936	No
34	MCCARTHY, KATHRYN L. C.	.00482	.00502	.00039		
35	MCPETERS, K. D.	.00877	.00757	.00318		
36	MCPHERON, MARGARAT M.	.02034	.01920	.02101		
37	MCPHERON, ROBERT L.	.01017	.00960	.01050		
38	MOBIL OIL CORP.	.92642	.82205	.67264		
39	MORANCO	.03320	.02848	.00537	.01693	No

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PROPOSED NORTH HOBBS UNIT Attachment No. 5 (Cont.)

WIO NO	WINAME					
40	MORAN, E. M.	.03511	.03019	.01270	.02150	No
41	MORRIS, G. D.	.03992	.03721	.01740	.02731	Yes
42	MURDOCH, NATHYLYN I.CONRA	.00482	.00502	.00039		
43	NOBLE, RICHARD L.	.48543	.45249	.21160		
44	PARRISH, M.C. ESTATE	.01173	.01003	.00162		
45	PORTALES NATIONAL BANK	.05989	.05582	.02610	.04096	Yes
46	RORING JOHN	.11975	.11163	.05221	.08192	Yes
47	ROSE, FRANCIS I. CONRAD	.00482	.00502	.00039		
48	SAMEDAN OIL CORP.	5.93726	6.19139	1.31910	3.75520	Yes
49	SEA PROPERTIES, LTD.	.09213	.09662	.01578	.05626	Yes
50	SHELL OIL COMPANY	24.12270	23.76832	18.87538	21.32185	Yes
51	1ST NATL BANK/FT. WORTH	.03992	.03721	.01740	.02731	Yes
53	SPEAR HOWELL	.00096	.00085	.00096		
54	SULLIVAN, E. C.	.05989	.05582	.02610	.04096	Yes
55	SUN OIL CO. (DELEWARE)	2.27119	1.96558	1.43429		
56	SWEET, BILL L.	.02651	.02306	.01776		
57	SWEET, C. E. OIL CO.	1.26443	1.14146	1.79399		
58	1ST NATL BANK OF CASPER	.11976	.11163	.05221	.08192	Yes
59	TEXACO, INC.	3.16134	3.49116	1.16515	2.12813	Yes
60	TEXAS PACIFIC OIL CO. IN	4.48172	4.16381	2.91932	3.76157	Yes
61	TREADAWAY, BETTYE CONRA	.00482	.00502	.00039		
62	TWO STATES OIL CO.	.06498	.06649	.01682		
63	WALLACE, COLLEEN MCPHERO	.01017	.00960	.01050		
64	WHITLEY, LOYD	.00194	.00171	.00191		
65	WILLIAMS, HATTIE C.	.11381	.11505	.02232	.08384	Yes
66	WILLIAMSON, A. T.	.00194	.00171	.00191		
67	WISER OIL COMPANY, THE	.28139	.28927	.11005	.19916	Yes
68	YATES, JOEN A.	.12986	.11695	.03811		
69	YEAGER & ARMSTRONG	.01257	.01073	.00463		
70	YEAGER JR. DR. HENRY	.01586	.01631	.00127	.00879	No
71	YEAGER RUTH ANNE	.01166	.01214	.00095	.00655	No
72	YEAGER RUTH/HENRY	.00402	.00418	.00033	.00226	No
73	YEAGER RUTH PEELER	.01682	.01751	.00137	.00944	No
74	LANDRETH INTERESTS	.45232	.44225	.21170		
	Yes	78.27269	78.84410	68.56753	73.72588	
	No	18.64525	18.18691	27.70595	23.00645	144

PROPOSED NORTH HOBBS UNIT

Shell Formula - .58 Phase II + .42 Phase III

Adj to Phase III - Expense - Phase-in - at last

NO TO	WINAME	PHASE I Oil	PHASE II Oil	PHASE III Oil	.58 Phase II .42 Phase III	Vote
1	AMERADA HESS CORP.	656696	650281	86624 1	738452	Yes
2	AMOCO PRODUCTION CO.	138897	135805	18784 1		
3	ANDERSON ADA A	.00629	.00396	.02317		
4	ANDERSON EST., WARREN D	.00629	.00396	.02317		
5	ANDERSON, W D AND SONS	.01257	.00793	.04633		
6	ARMSTRONG, I M	.01257	.00793	.04633		
7	ATLANTIC RICHFIELD CO	294388	318761	347303	322351	Yes
8	BYROM W R	.06780	.06401o	.07001		
9	C&C OPERATING CO	.01133	.00688	.03147		
0	CHEVRON OIL COMPANY	321471	319898	297321	322016	Yes
11	CITIES SERVICE OIL CO	324881	320046	5514436	418606	No
12	CONRAD MARY DANIEL	.02408	.02508	.00196		
13	CONTINENTAL OIL CO	1124634	1171358	1436721	1282811	Yes
14	CRILE, HERMAN R	.03613	.03762	.00294		
15	CUSACK, I P	.27045	.25669	.01173	.15346	No
16	CUSACK, JR., I P	.11864	.12383 1	.08912	.75585	No
17	CUSACK, MICHAEL F.	.11864	.12383 1	.08912	.75565	No
18	DEL-LEA, INC. (ANTWEIL)	.11092	.11005 3	.08652		
19	DUNLAVEY, I N	.00194	.00171	.00191		
20	ESTES, RUSSELL G	.03315	.02211	.01236		
21	EXXON COMPANY - U.S.A.	4.88761	4.39609	7.63885	5.75805	No
22	FIRST ROSWELL COMPANY	.00388	.00340	.00303		
23	FORBES C C	.01617	.05656	.02645	.04391	Yes
24	FORBES, ELAMAR	.05908	.05507	.02575	.04276	Yes
25	GETTY OIL COMPANY	8.72066	8.74234	7.55887	8.14529	Yes
26	GULF ENERGY & MINERALS	9.71717	9.44656	15.23438	11.87744	Yes
27	HEADLEY, KENNETH NOEL	.05778	.05978	.00522		
28	HURD, PETER	.02408	.02508	.00196		
29	HUDSON, RUBY WANDA CONRA	.01482	.01502	.00039		
30	KEMNITZ, A. A.	.91817	.85586	.40024	.66450	Yes
31	LAFLIN, GEORGE P.	.00194	.00171	.00191		
32	LOWE, M. RALPH	.03128	.02674	.00165		
33	MARATHON OIL COMPANY	2.83643	2.71879	4.03993	3.27367	Pass
34	MCCARTHY, KATHRYN L. C.	.01482	.01502	.00039		
35	MCPETERS, K. D.	.00877	.00757	.00318		
36	MCPHERON, MARGARAT M.	.02034	.01920	.02191		145
37	MCPHERON, ROBERT L.	.01017	.00960	.01050		
		.92642	.82805	.67264		

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Attachment No. 6 (Cont)

PROPOSED NORTH HOBBS UNIT

WIO NO	WINAME					
40	MORAN, R. M.	.03511	.03029	.01270	.02290	No.
41	MORRIS, G. D.	.03992	.03721	.01740	.02889	Yes
42	MURDOCH, NATHYLYN I. CONRA	.00482	.00502	.00039		
43	NOBLE, RICHARD L.	.48543	.45249	.21160		
44	PARRISH, M.C. ESTATE	.01173	.01003	.00062		
45	PORTALES NATIONAL BANK	.05989	.05582	.02610	.04334	Yes
46	RORING JOHN	.11975	.11163	.05221	.08668	Yes
47	ROSE, FRANCIS I. CONRAD	.00482	.00502	.00039		
48	SAMEDAN OIL CORP.	5.93726	6.19129	1.31910	4.14497	Yes
49	SEA PROPERTIES, LTD.	.09213	.09662	.01578	.06267	Yes
50	SHELL OIL COMPANY	24.12270	23.76832	18.87538	21.71329	Yes
51	1ST NATL BANK/FT. WORTH	.03992	.03721	.01740	.02889	Yes
53	SPEAR HOWELL	.00096	.00085	.00096		
54	SULLIVAN, E. C.	.05989	.05582	.02610	.04334	Yes
55	SUN OIL CO. (DELEWARE)	.22719	.19658	.43429		
56	SWEET, BILL L.	.02651	.02300	.17776		
57	SWEET, C. H. OIL CO.	.26443	.24146	.79399		
58	1ST NATL BANK OF CASPER	.11976	.11163	.05221	.08668	Yes
59	TEXACO, INC.	3.16134	3.09110	1.16515	2.28220	Yes
60	TEXAS PACIFIC OIL CO. IN	4.68172	4.70381	2.81932	3.91232	Yes
61	TREADAWAY, BETTYE CONRA	.00482	.00502	.00039		
62	TWO STATES OIL CO.	.06498	.06649	.00682		
63	WALLACE, COLLEEN MCPHERO	.01017	.00960	.01050		
64	WHITLEY, LOYD	.00194	.00171	.00191		
65	WILLIAMS, HATTIE C.	.13361	.14505	.02222	.09346	Yes
66	WILLIAMSON, A. T.	.00194	.00171	.00191		
67	WISER OIL COMPANY, THE	.28139	.28927	.11005	.21400	No
68	YATES, JOHN A	.12986	.10695	.38811		
69	YEAGER & ARMSTRONG	.01257	.00793	.04633		
70	YEAGER JR. DR. HENRY	.01566	.01631	.00127	.00999	No
71	YEAGER RUTH ANNE	.01166	.01214	.00095	.00744	No
72	YEAGER RUTH/HENRY	.00402	.00418	.00033	.00256	No
73	YEAGER RUTH PEELER	.01682	.01751	.00137	.01074	No
74	LANDRETH INTERESTS	.45232	.44225	.61170		
	Yes	82.01563	82.36473	76.86992	80.05693	146
	No	10.87691	10.72944	13.50522	11.89528	
	Pass	2.63643	2.71879	4.03993	3.27367	

PROPOSED CHANGES IN UNIT AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT

Page 3: In subsection (h), delete "and 5347 feet" and add at the end "and the depth of 4500 feet beneath the surface".

Page 9: In the third paragraph of Section 12, delete "owner" and insert "party or parties entitled thereto".

Page 10: At the end of the next to last paragraph in Section 13 add:

"Unit Operator shall notify the Supervisor and the Land Commissioner as to the date each phase change occurs".

Page 19: At the end of the first paragraph in Section 24 add:

"Unit Operator shall not file this Agreement or notice thereof for record, and hence this Agreement shall not become effective, unless such filing is approved by Working Interest Owners owning a combined Phase III Unit Participation of at least eighty percent (80%) as to all Tracts then committed to this Agreement".

Page 24: In the fifth line of the first paragraph of Section 39 after "become parties to this Agreement" insert "or have approved this Agreement in writing".

Page 25: At the end of the first paragraph in the revised Section 24 add:

"Unit Operator shall not file this Agreement or notice thereof for record, and hence this Agreement shall not become effective, unless within ninety (90) days after the date all other prerequisites for effectiveness of this Agreement have been satisfied, such filing is approved by Working Interest Owners owning a combined Phase III Unit Participation of at least sixty-five percent (65%) as to all Tracts within the Unit Area.

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001
February 9, 1978

Subject: Proposed Cost Allocation Formula
North Hobbs (Grayburg - San Andres) Unit
Lea County, New Mexico

TO: ALL WORKING INTEREST OWNERS

At the Working Interest Owners Meeting of the proposed North Hobbs (Grayburg - San Andres) Unit of February 2, 1978, it was agreed to submit for ballot vote a method of allocating unit costs as proposed by Shell Oil Company. Accordingly, a ballot is hereby submitted for such method of allocating unit costs. Please indicate your decision on this matter in the space provided and return one copy to Shell Oil Company, Box 991, Houston, Texas 77001, Attention W. E. Buck.

Enclosed for your convenience is a self-addressed, stamped envelope.

Yours very truly,

W E Buck

W. E. Buck
Chairman, Working Interest Owners Comm

WEB:TS

Attachments

NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT
COST ALLOCATION FORMULA - PROPOSED BY SHELL AT
MEETING OF FEBRUARY 2, 1978

I. Operating Expenses

Operating, maintenance, and overhead expenses to be allocated on phase-in-effect unit participation (oil).

II. Capital Expenditures and Inventoried Value of Personal Property

1. The inventoried value of personal property and all expenditures of a capital nature (including injection well conversion costs) made during Phase I (oil) and Phase II (oil) will be allocated on the basis of .58 Phase II (oil) participation plus .42 Phase III (oil) participation.

2. At the termination of Phase II (oil), the inventoried value of personal property and the capital investment account (both adjusted for retirements and including conversion costs) shall be adjusted to Phase III (oil) participation.

3. All expenditures of a capital nature made during Phase III will be allocated on the basis of Phase III (oil) participation.

The undersigned votes as noted below in regard to the above stated cost allocation formula.

Approved _____ Company _____

Disapproved _____ Representative _____

Date _____

Return to: Shell Oil Company
P. O. Box 991
Houston, Texas 77001
Attention: W. E. Buck

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

May 3, 1978

Subject: North Hobbs (Grayburg - San Andres) Unit
Lea County, New Mexico

TO: Working Interest Owners
(Mailing List Attached)

A meeting of the working interest owners of the proposed North Hobbs (Grayburg-San Andres) Unit is called for 10:00 A.M., May 18, 1978, in the Reddy Room, Texas Electric Service Company, Midland, Texas.

The agenda for the meeting will be as follows:

1. Review drafts of Unit and Unit Operating Agreements with view to preparing agreements in final form and submitting to working and royalty interests for ratification.

2. Develop further course of action for unitization matters.

3. Any other business

The indicated response to date on the ballot submitted February 9, 1978, is as follows:

Investment Participation

	Working Interest Owners' Participation %	
	Approved	Disapproved
Phase I Oil (Unit Participation)	85.33638	10.18781
Phase II Oil (Unit Participation)	85.79607	9.70702
Phase III Oil (Unit Participation)	83.62214	14.55282
Investment Participation	84.88304	11.74226

(Detailed response is shown on attached tabulation)

The response shown includes, as approved, the indicated acceptance of Samedan Oil Corporation. Samedan has advised that they will accept the formula with the added provision that the investment account be re-adjusted to Phase III Oil Unit Participation at the termination of Phase II (production of 38,071,683 bbls oil after 1/1/77) or at January 1, 1991, which ever occurs first. The date,

January 1, 1991, is the first day of the year following the approximate date that oil production from the unit area after January 1, 1977, totals 38,071,683 barrels as determined from the unit production performance estimated by the Technical Committee. As this is in keeping with the intent and purpose of the proposed formula for investment expenditures, the draft of the Unit Operating Agreement has been revised to include such stipulation.

All working interests owners, who have now indicated acceptance of the cost allocation formula, have previously indicated acceptance also of the gas and oil participation formulas. Shell considers this response sufficient to proceed with finalization of the Unit and Unit Operating Agreements and to submit such agreements for ratification at the earliest possible date.

Drafts of the Unit and Unit Operating agreements were submitted with the call to meeting of December 14, 1977. Due to further negotiation of the cost allocation formula, the drafts were not reviewed at the meeting of February 2, 1978. In the interim, written comments have been received from a number of the working interest owners. The comments have been reviewed and the revisions suggested by Shell are attached. All comments will be discussed at the meeting and representatives are asked to attend the meeting prepared to render decisions concerning the agreements.

A current listing of all working interest owners has been made and, as there have been changes in ownership, a new tabulation showing unit participation (oil and gas) and investment participation (based on .58 -.42 formula) is being prepared. Such tabulation will be mailed to you as soon as completed.

Yours very truly,

W E Buck

W. E. Buck
Chairman, Working Interest Owners
Committee

WEB:TS

Attachments

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PROPOSED NORTH HOBBS UNIT

COST ALLOCATION FORMULA (Investment Participation)

.58 Phase II (Oil) + .42 Phase III (Oil)

WIO N°	WINAME	PHASE I Oil %	PHASE II Oil %	PHASE III Oil %	INVESTMENT PARTICIPATION (.58 Phase II + .42 Phase III) %	Acceptance Y-Yes N-No	
1	AMERADA HESS CORP.	656696	650261	860241	7.38453	Y	
2	AMOCO PRODUCTION CO.	138897	135805	187841	1.57660	Y	
3	ANDERSON ADA A	.00629	.00396	.02317	.01203		N
4	ANDERSON EST., WARREN D	.00629	.00396	.02317	.01203		N
5	ANDERSON, W D AND SONS	.01257	.00793	.04633	.02406		N
6	ARMSTRONG, J M	.01257	.00793	.04633	.02406		N
7	ATLANTIC RICHFIELD CO.	294388	318761	317303	3.22351	Y	
8	BYROM W K	.06780	.06410	.07001			
9	C&C OPERATING CO.	.01133	.00688	.03147			
10	CHEVRON OIL COMPANY	321471	339898	297321	3.22016	Y	
11	CITIES SERVICE OIL CO.	324881	320246	554436	4.18606		N
12	CONRAD MARY DANIEL	.02408	.02508	.00196			
13	CONTINENTAL OIL CO.	1124634	1171358	1436721	12.80810	Y	
14	CRILE, HERMAN R.	.03613	.03762	.00294	.02305		N
15	CUSACK, I. P.	.27045	.25609	.11173			
16	CUSACK, JR., I. P.	.11369	.12383	.08912			
17	CUSACK, MICHAEL F.	.11369	.12383	.08912			
18	DEL-LEA, INC. (ANTWEIL)	.01092	.01053	.00652			
19	DUNLAVEY, J.N.	.00194	.00171	.00191			
20	ESTES, RUSSELL G.	.00335	.00211	.01236	.00642		N
21	EXXON COMPANY - U.S.A.	4.88701	4.39609	7.63885	5.75805		N
22	FIRST ROSWELL COMPANY	.00388	.00340	.00363	.00358		N
23	FORBES C. C.	.26067	.25656	.02645			
24	FORBES, ILAMAE	.05908	.05507	.02575			
25	GETTY OIL COMPANY	8.72066	8.74234	7.55887	8.24519	Y	
26	GULF ENERGY & MINERALS	9.71717	9.44656	15.23438	11.87744	Y	
27	HEADLEY, KENNETH NOEL	.05778	.05978	.00522			
28	HURD, PETER	.02408	.02508	.00196			
29	JUDSON, RUBY WANDA CONRA	.01482	.01502	.00039			
30	KEMNITZ, A. A.	.91817	.85586	.40024	.66450		N
31	LAFLIN, GEORGE P.	.00194	.00171	.00191			
32	LOWE, M. RALPH	.03128	.02674	.00165			
33	MARATHON OIL COMPANY	2.83643	2.71879	4.03993	3.17367	Y	
34	MCCARTHY, KATHRYN L. C.	.01482	.01502	.00039			
35	MCPETERS, K. D.	.00877	.00757	.00318			
36	MCPHERON, MARGARAT M.	.02034	.01920	.02101			
37	MCPHERON, ROBERT L.	.01017	.00960	.01050			
38	MOBIL OIL CORP.	.92642	.82805	.67264			
39	MORANCO	.03346	.02848	.00537	.01877		N

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PROPOSED NORTH HOBBS UNIT

WIO	WINAME							
40	MORAN, R. M.	.03511	.03029	.01270	.02290			N
41	MORRIS, G. D.	.03992	.03721	.01740				
42	MURDOCH, NATHYLYN I.CONRA	.00482	.00502	.00039				
43	NOBLE, RICHARD L.	.48593	.45249	.21160	.35132			N
44	PARRISH, M.C. ESTATE	.01173	.01003	.00062				
45	PORTALES NATIONAL BANK	.05989	.05582	.02610				
46	RORING JOHN	.11975	.11163	.05221				
47	ROSE, FRANCIS I. CONRAD	.00482	.00502	.00039				
48	SAMEDAN OIL CORP.	5.93736	6.19129	1.31910	4.14497	Y		
49	SEA PROPERTIES, LTD.	.09213	.09682	.01518	.06207			N
50	SHELL OIL COMPANY	24.12270	23.76832	18.87538	21.73129	Y		
51	1ST NATL BANK/FT. WORTH	.03992	.03721	.01740				
53	SPEAR HOWELL	.00096	.00085	.00096				
54	SULLIVAN, E. C.	.05989	.05582	.02610				
55	SUN OIL CO. (DELEWARE)	.22719	.19658	.14329	.29643			N
56	SWEET, BILL L.	.02651	.02300	.01776				
57	SWEET, C. H. OIL CO.	.26443	.24146	.19399	.47352	Y		
58	1ST NATL BANK OF CASPER	.11976	.11163	.05221	.08647			N
59	TEXACO, INC.	3.16134	3.09110	1.16515	2.18226	Y		
60	TEXAS PACIFIC OIL CO. IN	4.68172	4.70381	2.81732	3.91234	Y		
61	TREADAWAY, BETTYE CONRA	.00482	.00502	.00039				
62	TWO STATES OIL CO.	.06498	.06649	.00682	.04143			N
63	WALLACE, COLLEEN MCPHERO	.01017	.00960	.01050				
64	WHITLEY, LOYD	.00194	.00171	.00191				
65	WILLIAMS, HATTIE C.	.13381	.14505	.02222	.09344			N
66	WILLIAMSON, A. T.	.00194	.00171	.00191				
67	WISER OIL COMPANY, THE	.28139	.28927	.11005	.21400	Y		
68	YATES, JOHN A	.12986	.10695	.03811				
69	YEAGER & ARMSTRONG	.01257	.00793	.04633	.02406			N
70	YEAGER JR. DR. HENRY	.01586	.01631	.00127	.00999			N
71	YEAGER RUTH ANNE	.01166	.01214	.00095	.00744			N
72	YEAGER RUTH/HENRY	.00402	.00418	.00033	.00256			N
73	YEAGER RUTH PEELER	.01682	.01751	.00137	.01073			N
74	LANDRETH INTERESTS	.45232	.44225	.01770	.51342	Y		
	Totals							
	Yes	85.33638	85.79607	83.62214	84.88304			
	No	10.48781	9.70702	14.55282	11.74226			

PROPOSED CHANGES IN UNIT AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT

Page 3: In subsection (h), delete "and 5347 feet" and add at the end "and the depth of 4500 feet beneath the surface".

Page 9: In the 5th line of the 1st paragraph in Section 12, after "water" insert "injection plants", and in the next line after "injection" insert "plants".

Page 9: In the 3rd paragraph in Section 12, delete "owner" and insert "party or parties entitled thereto".

Page 10: At the end of the next to last paragraph in Section 13 add:

"Unit Operator shall notify the Supervisor and the Land Commissioner as to the date each phase change occurs".

Page 15: At the end of the 3rd sentence in the last paragraph in Section 16, change the period to a semicolon and add "thereafter all oil produced, saved and sold from the unit shall, as to each and every category into which such production may then or thereafter be classified for pricing or other purposes, be allocated to all qualified Tracts in proportion to Tract Participation in accordance with the provisions of Section 15".

Page 16: At the beginning of Section 18, delete "The State of New Mexico and United States of America and" and insert "Any and".

Page 19: In the 10th and 14th lines in Section 23, change "instrument or transfer" to "instrument of transfer" and delete the comma in the 14th line.

Page 19: At the end of the 1st paragraph in Section 24 add:

"Unit Operator shall not file this Agreement or notice thereof for record, and hence this Agreement shall not become effective, unless such filing is approved by Working Interest Owners owning a combined Phase III Unit Participation of at least eighty percent (80%) as to all Tracts then qualified under the provisions of Section 14".

Page 21: At the beginning of Section 27 insert "Unless a different representative is designated by Working Interest Owners,".

Page 22: In the 8th line in Section 32 change "interested subject thereto" to "interest subject hereto".

PROPOSED CHANGES IN UNIT AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT

Page 24: In the 5th line of the 1st paragraph in Section 39 after "become parties to this Agreement" insert "or have approved this Agreement in writing".

Page 25: At the end of the 1st paragraph in the revised Section 24 add:

"Unit Operator shall not file this Agreement or notice thereof for record, and hence this Agreement shall not become effective, unless within ninety (90) days after the date all other prerequisites for effectiveness of this Agreement have been satisfied, such filing is approved by Working Interest Owners owning a combined Phase III Unit Participation of at least sixty-five percent (65%) as to all Tracts within the Unit Area.

PROPOSED CHANGES IN UNIT OPERATING AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT

Page 1: Add a section in Article 1 as follows:

"1.2 Additional Definitions. For the purposes of this agreement, the following terms and expressions as used herein shall mean:

(a) "Investment Participation" shall mean the sum of .58 Phase II Unit Participation and .42 Phase III Unit Participation.

(b) "Investment Readjustment Date" shall mean the date of termination of Phase II or January 1, 1991, whichever is the earlier date."

Page 1: Change the first sentence in Section 2.1.2 to read "Exhibit E, attached hereto, is a schedule showing the Tract Participation, the Unit Participation, and the Investment Participation of each Working Interest Owner."

Page 6: After the 1st sentence in Section 7.9 insert "Unit Operator shall furnish to a Working Interest Owner, upon written request, a copy of each authority for expenditure prepared by Unit Operator for its own use."

Page 8: In the 7th line of Section 10.3.1 change "Phase II Unit Participation" to "Investment Participation".

Page 9: Make the following changes in Section 10.3.2:

Beginning in the 1st line in the 1st paragraph, change "as of the end of Phase II" to "as of the Investment Adjustment Date".

Beginning in the 8th line in the 1st paragraph change "during Phase I and Phase II Unit Operations" to "prior to the Investment Readjustment Date".

Beginning in the 2nd line in paragraph (b) change "during Phase I and Phase II Unit Operations" to "prior to the Investment Readjustment Date".

Beginning in the 2nd line in paragraph (c) change "prior to the effective date of Phase III Unit Operations" to "prior to the Investment Readjustment Date".

Page 9: Delete the last sentence in Section 10.4.

PROPOSED CHANGES IN UNIT OPERATING AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES UNIT)

Page 10: Make the following changes in Section 10.5:

In the 5th line change "Phase II Unit Participation" to "Investment Participation."

Beginning in the 5th line change "as and while Phase I and Phase II may be effective" to "during the time prior to the Investment Readjustment Date".

In the 7th line change "from and after the time Phase III may hereafter become effective" to "from and after the Investment Readjustment Date."

Page 10: Change Section 11.1.2 to read as follows:

"11.1.2. Investment Cost. The cost of investment items (as described in Section 10.3.2 (b) above) incurred prior to the Investment Readjustment Date shall be shared and borne by Working Interest Owners in proportion to Investment Participation. The cost of such investment items incurred after the Investment Readjustment Date shall be shared and borne by Working Interest Owners in proportion to Phase III Unit Participation."

Page 12: In the 4th line from the top of the page after "collected from" insert "or otherwise received for the account of".

Page 16: In the 10th line of Section 18.1, after "Working Interest Owners" insert "without regard to plugging and abandonment costs".

Page 17: In the 4th line of Section 20.1.2, after "Working Interest Owners" insert "without regard to plugging and abandonment costs".

ROBERT G. McPHERSON
216 BROADWAY
HOBBS, NEW MEXICO 88240

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P.O. BOX 1860
HOBBS, NM 88240

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PORTALES NATIONAL BANK
PORTALES, NM 88130

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OKLAHOMA CITY, OK 73116

SAMEDAN OIL CORPORATION
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MIDLAND, TX 79701

SANUEL ROBERTS NOBLE FOUNDATION, INC.
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ARDMORE, OK 73401

SEA PROPERTIES LTD.
BOX 1486
ARDMORE, OK 73401

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P.O. BOX 4246
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C/O SAMEDAN OIL CORPORATION
ATTENTION MR. G. MARTIN
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MOBIL OIL CORPORATION
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ATTENTION MR. R. M. MORAN
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RICHARDSON, CO-TRUSTEES UNDER THE WILL
OF M. C. PARRISH, JR.
C/O DANA T. RICHARDSON, JR
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WILLIS, TX 77378

FRANCES I. CONRAD ROSE
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DALLAS, TX 75220

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TOM SCHNEIDER
RT. 2, BOX 562
EAGLE PASS, TX 78852

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SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

May 8, 1978

Subject: Participation and Cost Allocation Tabulations
North Hobbs (Grayburg-San Andres) Unit
Lea County, New Mexico

To: Working Interest Owners - North Hobbs (Grayburg - San Andres) Unit
(Mailing List Attached)

The call to meeting of May 3, 1978, advised that up-dated tabulations of all working interest owners and their respective unit and investment participation would be furnished as soon as completed. Attached are the following listed tabulations:

1. Tract participation and Investment Participation.

2. Tract Participation and Investment Participation - by tract and working interest in each tract.

3. Unit Participation and Investment Participation - by working interest owner and by tract.

4. Summary of Unit and Investment Participation.

The data shown will be used in preparing the exhibits to the unit and unit operating agreements. It is, therefore, requested that if any errors are noted, Shell be so advised as soon as possible.

Since the call to meeting was issued, Cities Service has indicated acceptance of the cost allocation formula. The current response concerning the investment allocation, including the acceptance of Cities Service, is as follows:

Investment Participation

	Working Interest Owners' Participation %	
	Approved	Disapproved
Phase I Oil (Unit Participation)	88.58519	6.93900
Phase II Oil (Unit Participation)	88.99853	6.50456

Investment Participation	Working Interest Owners' Participation % Approved	 Disapproved
Phase III Oil (Unit Participation)	89.16650	9.00846
Investment Participation	89.06910	7.5562

Yours very truly,

W. E. Buck
Chairman, Working Interest Owners Committee

WEB:TS

Attachments

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001
JUN - 2 1978

Subject: Minutes - Working Interest Owners' Meeting
of May 18, 1978
Proposed North Hobbs (Grayburg - San Andres)Unit
Lea County, New Mexico

TO: WORKING INTEREST OWNERS
(Mailing List Attached)

A meeting of the Working interest Owners of the proposed North Hobbs (Grayburg-San Andres) Unit was held May 18, 1978 in Midland, Texas. The representatives attending the meeting are shown on the attached attendance list.

Mr. Buck, chairman, opened the meeting by stating that the cost allocation formula submitted for ballot consideration by letter of February 9, 1978, had been accepted by Working Interest Owners totaling approximately 89 percent based on the oil unit participation. He further advised that all parties indicating acceptance of the cost allocation formula had also previously indicated acceptance of the unit participation (oil & gas) formula. He stated that Shell, as Unit Expeditor, believed the affirmative response was sufficient to proceed with the development and the submittal for execution of the unit and unit operating agreements.

Mr. Buck pointed out that drafts of the unit and unit operating agreements had been submitted to the Working Interest Owners with the notice of the meeting of February 2, 1978. Comments from a number of Working Interest Owners have been received and reviewed by Shell. Revisions, suggested by Shell and resulting from the comments received, were attached to the notice of this meeting.

As the first agenda item, the unit and unit operating agreements were reviewed. The unit agreement was reviewed first, page at a time. Comments of the Working Interest Owners were discussed and agreement reached on various revisions or deletions.

The unit operating agreement was then reviewed in the same manner. The major items of discussion were as follows:

Article 4.2	Agreement was reached to revise the provision to include the requirement that any request for monetary approval at a meeting must appear as an agenda item.
Article 7.9	Agreement was reached to include a provision requiring the unit operator to furnish informational AFE's to Working Interest Owners for any single capital expenditures in excess of $5000.

Article 10.2 Agreement was reached to provide for the inventory and pricing of items considered non-controllable as determined by the Working Interest Owners.

Article 10.3.2 In answer to questions, Mr. Buck explained that it was Shell's understanding that if any items of personal property and facilities were replaced by new items, the Investment Account would be reduced by the inventory value or actual installation cost of the item replaced and increased by the actual cost, including installation, of the new item. When given a specific example, Mr. Buck replied that if a treating or separation vessel, included in the original inventory, was replaced by a new vessel, the Investment Account would be reduced by the original inventory value of the replaced vessel and increased by the actual cost, including installation, of the new vessel. When asked about costs to deepen wells, Mr. Buck replied that it was Shell's understanding that such costs, being a part of the development program, would be charged on the basis of the investment participation and included in the adjustment of the Investment Account.

Article 18.1
Article 20.1.2 It was agreed that wells no longer needed for unit operations could be taken over by the Working Interest Owner by payment of net salvage value as estimated by Working Interest Owners.

Exhibit F (Accounting Procedure)

Because of the comments concerning the deletion of the word "direct" (Section I (1)) and the addition of the phrase "and related expenses"(Section II 2, A(1)), Mr. Buck offered the following explanation prior to review.

The revisions do not represent a change in Shell's accounting procedures or in the method of handling joint venture properties. The changes in the form are brought about by the use of the 1974-COPAS form.

Shell refers to their field operating Unit as a Production Unit. The employees and/or contract labor engaged in operating and maintaining the properties included in a Production Unit are supervised by a Production Foreman who is assisted by one or more Maintenance Foremen. The Production Unit is the First Level of Supervision. The salaries and related expenses of Production Unit Supervisors are considered as direct charges, since they were excluded from the calculation of overhead rates. All expenses of supervisory employees assigned to offices above a Production Unit, starting with the Division Production Superintendent, are included in Shell's overhead charges.

The COPAS-1974 Accounting Procedure defines First Level Supervisors as employees whose primary function is the direct supervision of other employees and/or contract labor. Previous COPAS Accounting Procedures did not include such a definition. Bulletin No. 8, associated with COPAS-1968 Accounting Procedure, defines First Level Supervisors as employees and their assistants who supervise other employees and/or contract labor. The COPAS-1968 form was acceptable to Shell. As supervision of Production Unit operating employees and/or contract labor by the Production Foreman may not always be direct, it was felt that the definition of the 1974-COPAS form could not be applied to Shell's organization. To avoid an interpretation that the Maintenance Foreman rather than the Production Unit is the First Level of Supervision, Shell felt it essential to delete the word "direct" when using the COPAS-1974 Accounting Procedure.

Related expenses are the expenses necessary for proper performance of the foreman's function. This would include such expenses as office rent, utilities, communication, answering service, and other miscellaneous expenses directly related to the Production Unit.

Although no formal vote was taken, it appeared that the unit and unit operating agreements, revised as discussed, were generally acceptable to the Working Interest Owners present and that it would not be necessary to submit revised drafts of the agreements. Mr. Buck advised that the agreements would be prepared in final form and submitted to the United States Department of Interior, Geological Survey and to the New Mexico State Land Office for review. If no revisions of substance are required by the governmental agencies, the agreements will be submitted to the working and royalty interests for ratification without further review. Depending on the time required for review by the governmental agencies, Mr. Buck estimated that the agreements would be submitted for ratification at some time between July 15, and August 1, 1978.

It was pointed out that ownership and lease data had been furnished to all Working Interest Owners by Shell's Land Department with the request that Shell be notified of any errors. As there are approximately 1500 royalty interests and 74 working interests, considerable time and effort would be required to correct data after the first printing of the agreements. Therefore, all parties are urged to review the data submitted as soon as possible and to advise Shell of any changes or corrections.

Mr. Buck noted that a unit of this size would require considerable preliminary planning and design work in order that injection operations could be commenced as early as possible after the effective date of unitization. As part of this preliminary work, Shell is proceeding to negotiate a water purchase agreement with the City of Hobbs, to purchase key rights-of-way and plant sites, and to design long delivery equipment and facilities. Shell will advise the Working Interest Owners from time to time of the progress of this work and the status of sign-up of working and royalty interests.

There being no further business, the meeting was adjourned.

Yours very truly

W. E. Buck
Chairman, Working Interests Owners' Committee

WEB:TS

Attachment

NORTH HOBBS UNIT

MAY 18, 1978

COMPANY	NAME	LOCATION
Amerada-Hess	R. W. Mullins	Tulsa, Ok.
Amoco	S. R. Denton	Houston, Tx.
Atlantic Richfield	Thane Akins	Midland, Tx.
Chevron USA	W. A. Masters	Denver, Co.
Chevron USA	W. A. Goudeau	Midland, Tx.
Chevron USA	D. D. Allen	Midland, Tx.
Citco	M. S. Mabry	Midland, Tx.
Conoco Oil Company	E. L. Oshlo	Hobbs, N. M.
Exxon Oil Company	J. B. Campbell	Midland, Tx.
Exxon Oil Company	W. E. Nolan	Midland, Tx.
First National Bank - Dallas	Gene Thomas	Dallas, Tx.
Getty Oil Company	O. V. Stuckey	Midland, Tx.
Gulf Oil Company	J. D. Mussett	Midland, Tx.
Morancc Oil Company	Ken McPeters	Hobbs, N. M.
Samedan Oil Company	Boyce Ferry	Ardmore, Ok.
Shell Oil Company	W. E. Buck	Houston, Tx.
Shell Oil Company	W. L. Campbell	Houston, Tx.
Shell Oil Company	L. A. Kirkpatrick	Houston, Tx.
Shell Oil Company	W. R. Lancaster	Houston, Tx.
Texaco Inc.	Morris Todd	Midland, Tx.
Texas Pacific	Russ Meyers	Dallas, Tx.

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

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MINUTES OF ENGINEERING SUBCOMMITTEE MEETING
NORTH HOBBS UNIT PROPOSED
AUGUST 29, 1973

A meeting of the Engineering Subcommittee of the proposed North Hobbs Unit was held in Midland, Texas, on August 29, 1973. The attendance list is attached.

The meeting was called to order at 8:15 a.m. by Mr. Martin A. Thieme, representing Shell Oil Company. Mr. Thieme noted that the meeting would be of an organizational and planning nature. It was the unanimous opinion of those present that secondary oil potential exists in the proposed North Hobbs Unit and that the subcommittee would proceed to fulfill the charges given by the Working Interest Owners in their July 31, 1973, meeting.

Mr. Thieme noted that AMOCO has sent the subcommittee most of the data pertaining to the North Area. The individual well logs will be forthcoming.

Mr. S. B. Pontious, discussed differences in log Øh between his findings and those presented in the March 1972 field-wide study. With no objections, the subcommittee directed Shell as expediter to review all the geological x-sections received from AMOCO and report the results at the next meeting. Shell was further directed to re-evaluate the existing logs with special emphasis on recent logs and report their findings.

The subcommittee will meet in approximately six weeks to determine if more log data are required and, if necessary, recommend a key logging program to the Working Interest Owners.

Mr. W. R. Greene discussed the results of several workovers involving Zone I of the San Andres. He demonstrated that higher water cuts were found in Zone I than depicted in the field-wide study and that the Shell State B-1 (Section 33) tested 100% water.

All companies were requested to send the following information to the chairman of the Engineering Subcommittee at their earliest convenience:

1. Logs run since January 1, 1971, and not previously sent to AMOCO

2. Information on current perforated intervals not previously sent to AMOCO

There being no further business, the meeting was adjourned at 11:30 a.m.

MAT:NM

Attachments

ATTENDANCE LIST
ENGINEERING SUBCOMMITTEE MEETING
NORTH HOBBS UNIT
AUGUST 29, 1973

Name	Company
R. R. Denham	Amoco
Nelson Robertson	Arco
C. F. Dwyer	Chevron
E. C. Warren	Chevron
E. H. Lowrey	Cities Service
C. C. Woodward	Continental
W. E. Nolan	Exxon
J. M. Clayton	Exxon
Bert Marier	Getty
J. E. Eakin	Getty
C. L. Robertson	Gulf
D. E. Zlomke	Marathon
Leon Veeder	Samedan
M. A. Thieme	Shell
S. B. Pontious	Shell
W. R. Greene	Shell
F. E. Coupal	Shell
Frank McAtee	Skelly
Ken Barnett	Sun
Chuck Price	Sun
J. M. Roberts	Texaco
Gerald Bell	TPOC
Russ Meyers	TPOC

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#2

MINUTES OF ENGINEERING SUBCOMMITTEE MEETING
NORTH HOBBS UNIT PROPOSEL
NOVEMBER 26, 1973

A meeting of the Engineering Subcommittee of the proposed North Hobbs Unit was held in Midland, Texas on November 26, 1973. The attendance list is attached.

The meeting was called to order at 10:00 A.M. by Mr. Martin A. Thieme, representing Shell Oil Company. Mr. Thieme noted that the purpose of the meeting was to discuss the method and results of the petrophysical study and the geological study as completed to date, to determine if more log data were required and, if necessary, recommend a key logging program to the Working Interest Owners.

Mr. S. B. Pontious presented a summary of the petrophysical study as detailed in the attachment to the November 15, 1973 letter to the engineering subcommittee. Mr. Pontious discussed the plats of each zone which showed both the geographical areas where better quality logs gave good petrophysical control and the hashered areas where the existing poorer quality logs might require additional log data. It was moved by Shell and seconded by Skelly that the subcommittee accept the petrophysical study and preliminary results as presented. The motion was passed with the voting recorded as follows:

Vote	Companies
Yes	Chevron, Cities Service, Continental, Getty, Samedan, Shell, Skelly, Sun and Texaco
Pass	Amerada, Exxon and TPOC

Mr. F. E. Coupal presented a summary of the geological study as completed to date. East-West cross-sections have been constructed through every well to show the structural and stratigraphic distribution of the major porous beds. Mr. Coupal reported that it is evident from detailed correlation that each zone in the San Andres has one or more relatively high porosity beds that may behave as "thief" zones to water injection. Zone III seems to have the lowest range in permeability and also has a more effective upper seal (sandy break) from the more permeable upper zones. It may be difficult to isolate Zone II from the highly permeable interval at the base of Zone I. In addition, Zone I appears to have other individual porous beds that overlie and are poorly connected with the water drive interval. It appears in Section 31, at least, that the low water-cut production from Zone I in some of these wells may be from one of these "isolated" beds. Mr. Coupal further reported that nine Grayburg sand units can be correlated over most of the field with not more than three or four of the sands appearing to have sufficiently continuous permeability to be floodable. However, adequate data is lacking to quantitatively determine lateral continuity, or even satisfactory net pay values. A review of the Grayburg core analyses from seventeen wells in the North area indicated with reasonable certainty that for a minimum permeability of 0.2 md., a cut-off porosity of not less

than 11 percent should be used for the sands. This would require a reduction of approximately one half of the Grayburg "net pay" values as reported by the previous engineering subcommittee for the field wide study.

After much discussion, the subcommittee determined that there were three alternatives for establishing ϕh in the hashered areas of poor petrophysical control.

Alternative No. 1: Recommend a key logging program to the Working Interest Owners which would involve approximately twelve to fifteen wells.

Alternative No. 2: By utilizing the existing logs establish "net h" values in the areas of poor petrophysical control and extrapolate average porosity from offsetting areas of good petrophysical control to determine ϕh in areas of poor control.

Alternative No. 3: Determine the ratios of the ϕh values in the areas of good control to the ϕh values reported by the previous engineering subcommittee for the field wide study in the same areas. Apply these ratios to the ϕh values in the areas of poor control reported by the previous engineering subcommittee.

It was moved by Shell and seconded by Samedan that the subcommittee attempt to determine the ϕh values in the hashered areas of poor log control by a method other than a key logging program at this time. The motion passed with all companies present voting YES.

The subcommittee instructed Shell to determine the ϕh values under Alternatives Nos. 2 and 3 and report the results at the next subcommittee meeting to be held in February. There being no further business, the meeting was adjourned at 2:00 P.M.

MAT:BB

Attachment

ATTENDANCE LIST
ENGINEERING SUBCOMMITTEE MEETING
NORTH HOBBS UNIT
NOVEMBER 26, 1973

NAME	COMPANY
M. A. Thieme	Shell
S. B. Pontious	Shell
F. E. Coupal	Shell
R. W. Harchler	Texaco
J. E. Eakin	Getty
Peter Michelson	Getty
J. L. Hutchison	Gulf
Dale Nichols	Skelly
Clay Warren	Chevron
W. S. McCuen	Samedan
W. E. Nolan	Exxon
N. K. Reynolds	Exxon
Ken Barnett	Sun
Nelson Robertson	ARCO
C. C. Woodward	Continental
Vincent Foster	Texas Pacific Oil Co.
Reginald C. Keyes	Texas Pacific Oil Co.
A. M. Omar	Amerada Hess
F. A. Bowling	Amerada Hess
E. H. Lowrey	Cities Service
R. E. Dejmal	Mobil

MINUTES OF ENGINEERING SUBCOMMITTEE MEETING
NORTH HOBBS UNIT PROPOSED
APRIL 10-11, 197-

A meeting of the Engineering Subcommittee of the proposed North Hobbs Unit was held in Midland, Texas on April 10-11, 1974. The attendance list is attached.

The meeting was called to order at 9:30 a.m. by Mr. Martin A. Thieme, representing Shell Oil Company. Mr. Thieme noted that the purpose of the meeting was to discuss in detail the results of the geological and petrophysical re-evaluations, to construct Øh maps by zone, to construct water-cut maps by zone, and to construct a zonal completion status map.

Mr. F. E. Coupal discussed the completed geological study in detail; a summary of which was mailed to each member of the subcommittee on March 7, 1974.

The meeting was then turned over to Mr. S. B. Pontious for a discussion of the log analyses. A poll was taken which showed that only 5 of the 13 companies present were prepared to discuss and validate the log analyses on their leases. The chairman reminded the subcommittee that they were requested to be prepared to discuss in detail those items enclosed in the letter dated March 7, 1974 calling this meeting. The chairman then asked the subcommittee what more he or Shell could do to assist them in being prepared for future subcommittee meetings. The consensus of opinion was that Shell could not have done more to assist the members and that the problem was with individual company manpower allocations, etc. It was noted that the 5 companies that had reviewed the log analysis were in agreement with the resulting Øh calculations on their wells. Each company present was given a copy of the log analysis detail on their wells. The subcommittee decided unanimously that each company would check and validate their Øh values by zone by Friday, April 19, 1974, using the method approved by the subcommittee.

A discussion arose concerning the method of contouring the Øh maps. Three companies favored computerized contouring (Getty, TPOC and Skelly) while the other companies favored hand contouring. Skelly volunteered their services for computer contouring. The subcommittee then directed Skelly and/or Shell to contour the Øh maps by computer with payment of any expenses having to be authorized by the Working Interest Owners and that Shell should proceed to refine the existing preliminary Øh maps by hand using the work done by the subcommittee in the meeting. The results will be presented and finalized by the subcommittee at the next meeting which could then be changed only by new log data. Several companies indicated that new logs were forthcoming.

The well-zone completion status map as of January, 1974 was constructed using the available data. Water cuts calculated from the October, November, and December 1973 State Reports were used to initiate the construction of zonal water cut maps. Several anomalous areas developed in water cut trend. The subcommittee decided that each company should be requested to provide two

representative well tests (oil, water, and gas) on each of their wells. The first test being the most recent test just prior to January 1, 1974 and the second test being the most recent test after January 1, 1974. Shell was directed by the subcommittee to refine the water-cut maps by zone using the new well test data and present the results at the next meeting where the subcommittee will finalize the maps. Shell was further directed to construct preliminary GOR maps by zone to be finalized by the subcommittee at the next meeting.

There being no further business the meeting was adjourned at 3:30 p.m.

MAT:BJT

Attachment

ATTENDANCE LIST
ENGINEERING SUBCOMMITTEE MEETING
NORTH HOBBS UNIT
APRIL 10-11, 1974

Name	Company
M. A. Thieme	Shell
R. W. Phillips	Shell
S. B. Pontious	Shell
F. E. Coupal	Shell
H. Leon Veeder	Samedan
Nelson Robertson	Atlantic Richfield
Peter Michelson	Getty
Joe R. Paradiso	Getty
Frank D. McAtee	Skelly
Dale Nichols	Skelly
Fred Hensley	Skelly
Ralph R. Denham	Amoco
Gerald Bell	TPOC
Clay Warren	Chevron
C. D. Stenberg	Gulf
E. R. Green	Amerada Hess
E. D. Wallace	Texaco
N. K. Reynolds	Exxon
W. E. Nolan	Exxon
C. C. Woodward	Continental

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MINUTES OF ENGINEERING SUBCOMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
SEPTEMBER 11-12, 1974

A meeting of the Engineering Subcommittee of the proposed North Hobbs Unit was held in Houston, Texas on September 11-12, 1974. The attendance list is attached.

The meeting was called to order at 9:30 a.m. by Mr. Martin A. Thieme, representing Shell Oil Company. Mr. Thieme noted that the purpose of the meeting was to construct and finalize the Øh maps by zone, the water-cut maps by zone, the GOR maps by zone and to discuss various methods of determining remaining oil production by 40-acre tracts in Zone I San Andres.

While discussing the construction of the Øh maps, several companies stated that they would be logging wells in the near future and that these logs would be available for inclusion in the Øh map construction. The following tabulation shows the location of the wells these companies will log and the approximate time that the logs will be available to the subcommittee.

Company	Well Location	Timing
Continental	State A-29 #1 (J)	1 week
Skelly	Section 17 (M)	2 weeks
Amerada	Section 30	4 weeks
Amerada	Section 18	4 weeks
Getty	Section 19	by year end
Getty	Section 29	by year end
TPOC	Section 24 (P) State G-1	3 weeks
Cities Service	Section 31 (B) Fowler #2	by year end

After discussing the relative merits of hand contoured Øh maps and computer contoured Øh maps, the subcommittee decided to combine the hand and computer contoured maps as the finalized Øh maps for each zone. It was moved by AMOCO, seconded by Continental and unanimously approved by all companies present that the engineering subcommittee recommend to the Working Interest Owners that a cut-off date of January 1, 1975 be established for all well logging data and well test information that is to be considered by the engineering subcommmittee in completing the charges given by the Working Interest Owners and that the subcommittee proceed with its work using the best available data. It was resolved that the engineering subcommittee would proceed with its work observing the January 1, 1975 cut-off date unless directed otherwise by the Working Interest Owners.

It was further moved by AMOCO, seconded by Continental and approved that the subcommittee would in constructing the finalized Øh maps use the hand contoured Øh maps as a base and make appropriate revisions as judged necessary from the computer contoured Øh maps. The voting is recorded as follows:

YES Skelly, AMOCO, Amerada, Continental, Exxon, Cities Service, Samedan, TPOC, and Shell
NO Chevron and Getty

It was moved by Skelly and seconded by Cities Service to delete the 0.7 Øh data point in Section 31 (B) on the San Andres Zone II Øh map. The motion failed with the voting recorded as follows:

YES	Skelly, Amerada, Continental, Getty, and Cities Service
NO	Chevron, Exxon, Samedan, TPOC, and Shell
PASS	AMOCO

It was moved by Shell and seconded by Chevron to retain the 0.7 Øh data point in Section 31 (B) on the San Andres Zone II Øh map and that the subcommittee effectively tighten the contour interval on this 40 acre tract and minimize its affect on the surrounding acreage. The motion passed with the voting recorded as follows:

YES	Chevron, Skelly, Continental, Getty, Exxon, Samedan, TPOC, and Shell
NO	Amerada
PASS	AMOCO and Cities Service

(It was noted that Cities Service intends to re-log this well by year end.)

The subcommittee constructed the San Andres Øh maps by zone and approved each map as finalized subject to change only by new log data secured by the subcommittee by the cut-off date of January 1, 1975. The subcommittee approval of the finalized San Andres Øh maps by zone is recorded as follows:

	San Andres Øh Map			
Company	Zone I	Zone II	Zone III$_U$	Zone III$_L$
Chevron	Yes	Yes	Yes	Yes
Skelly	Yes	Yes	Yes	Yes
AMOCO	Pass	Yes	Yes	Yes
Amerada	Yes	Yes	Yes	Yes
Continental	Yes	Yes	Yes	Yes
Getty	Yes	Yes	Yes	Yes
Exxon	Yes	Yes	Yes	Yes
Cities Service	Yes	Pass	Yes	Yes
Samedan	Yes	Yes	Yes	Yes
TPOC	Yes	Pass	Yes	Yes
Shell	Yes	Yes	Yes	Yes

As directed by the subcommittee in its April 10-11, 1974 meeting, Shell had refined the San Andres water-cut maps by zone and presented these maps for finalization by the subcommittee along with a discussion of how they were constructed. Shell noted that the preliminary San Andres GOR maps by zone had also been constructed as directed by the subcommittee in its April, 1974 meeting. Due to the late hour, the subcommittee decided to defer finalization of the water-cut and GOR maps until its next meeting to be held the first week in November, 1974.

Further subcommittee work was then discussed in detail. The general consensus of opinion was that current company work loads did not permit individual subcommittee members sufficient time to do significant subcommittee work outside of subcommittee meetings and that the work would best be done in future meetings. In view of these comments, it was moved by AMOCO and seconded by Cities Service that further subcommittee work on the water-cut and GOR maps be done in

subcommittee meetings and that no additional data tabulations or maps be mailed out to subcommittee members. The motion passed with the voting recorded as follows:

YES	Chevron, Skelly, AMOCO, Amerada, Getty, Cities Service, TPOC and Shell
NO	Continental, Exxon and Samedan

Shell led a brief discussion concerning techniques for determining remaining oil production by 40-acre tracts in San Andres Zone I. Various suggestions were made by subcommittee members with no decisions being made. Due to the late hour, further discussion on Zone I was defered to the next meeting.

There being no further business the meeting was adjourned at 4:00 p.m.

MAT:PEE

Attachments

ATTENDANCE LIST
ENGINEERING SUBCOMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
SEPTEMBER 11-12, 1974

Name	Company
M. A. Thieme	Shell
F. E. Coupal	Shell
Steve Pontious	Shell
Hank Swartz	Shell
J. C. Solari	Chevron
Frank McAtee	Skelly
Freddie J. Hensley	Skelly
Ralph R. Denham	AMOCO
Ralph Green	Amerada
C. C. Woodward	Continental
J. E. Eakin	Getty
A. H. Pokky	Getty
John M. Clayton	Exxon
W. E. Nolan	Exxon
Ed Lowrey	Cities Service
H. Leon Veeder	Samedan
Allen Wicke	TPOC
Russ Meyers	TPOC

NORTH HOBBS UNIT
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READ & STEVENS, INC.
P. O. BOX 2126
ROSWELL, NM 88201

CHEVRON OIL COMPANY
ATTN: MR. J. C. SOLARI
P. O. BOX 1660
MIDLAND, TX 79701

CITIES SERVICE OIL COMPANY
E & P DIVISION
P. O. BOX 1919
MIDLAND, TX 79701

CONTINENTAL OIL COMPANY
ATTN: MR. R. E. McWILLIAMS
P. O. BOX 460
HOBBS, NM 88240

DEL-LEA, INC.
P. O. BOX 1889
HOBBS, NM 88240

GRACKLE OIL COMPANY
P. O. BOX 2038
HOBBS, NM 88240

GETTY OIL COMPANY
ATTN: MR. W. J. NEWMAN
P. O. BOX 1231
MIDLAND, TX 79701

GULF OIL COMPANY - U. S.
ATTN: MR. F. W. MORAN, JR.
P. O. DRAWER 1150
MIDLAND, TX 79701

EXXON COMPANY - U. S. A. (2)
ATTN: JOINT INTEREST ENGINEERING
SUPERVISOR
P. O. BOX 1600
MIDLAND, TX 79701

MARATHON OIL COMPANY
ATTN: DISTRICT ENGINEER
P. O. BOX 522
MIDLAND, TX 79701

MINERALS, INC.
P. O. BOX 1320
HOBBS, NM 88240

MOBIL OIL CORPORATION
ATTN: MR. TED GRIFFITH
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MIDLAND, TX 79701

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
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HOBBS, NM 88240

MR. J. H. MORRIS AS AGENT
1615 FIRST NATIONAL BUILDING
TULSA, OK 74103

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SAMEDAN OIL CORPORATION
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ARDMORE, OK 73401

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HOBBS, NM 88240

TEXACO INC.
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HOBBS, NM 88240

TEXACO INC.
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P. O. BOX 3109
MIDLAND, TX 79701

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. T. J. WALLER
P. O. BOX 4067
MIDLAND, TX 79701

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. G. R. MEYER
1700 ONE MAIN PLACE
DALLAS, TX 75250

THE WISER OIL COMPANY
ATTN: MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 70701

YATES PETROLEUM CORPORATION
ATTN: MR. E. M. MAHFOOD
207 SOUTH FOURTH
ARTESIA, NM 88210

SAMEDAN OIL CORPORATION
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HOBBS, NM 88240

SHELL OIL COMPANY
P. O. BOX 991
HOUSTON, TEXAS 77001

September 20, 1974

Subject: Minutes of Engineering Subcommittee #24
Proposed North Hobbs Unit
Lea County, New Mexico

The Engineering Subcommittee
North Hobbs Unit
(Addressee List Attached)

Gentlemen:

Attached are the minutes of the North Hobbs Engineering Subcommittee meeting held in Houston, Texas on September 11-12, 1974. Although we did not accomplish all of the items that were set forth on our agenda, we did have a productive and successful meeting. The next subcommittee meeting will be scheduled during the first week of November, 1974.

As a result of reassignments Mr. H. J. Swartz has become the chairman of the Engineering Subcommittee. Please change your mailing lists accordingly.

Yours very truly,

H. J. Swartz
for M. A. Thieme
Chairman Engineering Subcommittee
Proposed North Hobbs Unit

MAT:PEE

Attachments

Minutes of Engineering Subcommittee Meeting
Proposed North Hobbs Unit
November 6-7, 1974

A meeting of the Engineering Subcommittee of the proposed North Hobbs Unit was held in Houston, Texas on November 6-7, 1974. The attendance list is attached.

The meeting was called to order at 8:45 a.m. by Mr. H. J. Swartz, representing Shell Oil Company. It was noted that the main purpose of the meeting was to construct water cut and GOR maps for each San Andres zone. Production and completion statistics have been updated and recorded by Shell as follows: 1) Individual well data sheets (zonal completion history and Øh, BHP surveys, monthly production history, well tests and overall assessment of current well status), 2) Updated cross sections, 3) Well status map (current completion zone and whether or not suspicion of behind pipe communication) and 4) State-witnessed "GOR" test sheets (water and gas data posted on appropriate zonal map). While preparing and collecting this data the special problem of frequent behind pipe communication became evident. Most of these wells were initially completed, during the 1930's, as open hole Grayburg - San Andres Zone I producers. Approximately fifteen years later the wells were frequently deepened to Zone III, a liner set and perforated completions made in the lower zones. In many cases the perforated completion interval has been changed several times and been subjected to several stimulation attempts with acid treatments.

Mr. R. W. Phillips presented some examples of Shell's experience with behind pipe communication problems on the McKinley A, McKinley B, Rice and State A leases. Based on the results of production tests, temperature surveys and radioactive tracer logs, Mr. Phillips believes that the water production problems experienced in these wells resulted because of the inability to isolate the production from high permeability in the Zone I San Andres reservoir. Instances of both successful and unsuccessful attempts to eliminate high water producing rates from Zone I were reported. It was concluded that behind pipe communication with Zone I is quite common throughout the field and is generally characterized by high water producing rates.

Those present decided to use the production data from the State-witnessed Annual "GOR" tests, taken during the third quarter of 1974, as the main control points. The completion status and production data posted on the zonal maps were verified and the necessary changes made. If a completion interval included a portion of a dense zone, only the productive zone was posted on the maps. The subcommittee then attempted to construct water cut contour lines for each of the four San Andres zones. The Zone I production performance appears to be indicative of edge water encroachment and a reasonable water cut map was constructed. However, the water cuts from the other zonal completions were erratic and difficult to fit to an edge water concept. It was pointed out that the subsea depth of 614 feet, that is often erroneously

referred to as an original oil-water contact, is actually the depth at which the first water production was obtained in the discovery well. This depth is an arbitrary one which has been used to define productive limits but is not intended to infer an original or current water level. Overlays of the water cut maps that had been prepared for Zones II, III_U and III_L were superimposed on the Zone I water cut map to demonstrate that the control points matched and therefore appeared to be indicative of communication problems. The consensus was that the water source was most likely the lower portion of Zone I. However, there still was disagreement over what degree of water invasion, if any, has occurred in the other zones.

A motion was made by Amerada and seconded by Skelly that all of the current water production be considered to be coming from Zone I and that a water cut map should be prepared for only this reservoir with the lower zones assumed to have no quantifiable water influx. The voting is recorded as follows:

YES: Amerada, Arco, Cities Service, Getty, Samedan, Skelly, TPOC, and Shell

NO: Continental and Exxon

A motion was made by Amerada and seconded by Continental to approve the water cut map for Zone I, as drawn, with the condition that revisions would be made as necessary to correct for new data resulting from future remedial efforts completed prior to the cutoff date of January 1, 1975. The motion was approved unanimously. A copy of this approved water cut map is attached. It is requested that each representative carefully review the completion status depicted on this map and advise Mr. H. J. Swartz, Shell (713-220-1022), of any errors.

The Committee members were advised that Shell, on the behalf of all operators, has requested the Field Permanent Bottom Hole Pressure Committee to confine the selection of key wells to twenty-four flowing producers that are completed in only one zone. Hopefully two or three surveys in each zone can be obtained. It was also requested that the shut in time be increased from 24 to 48 hours. It is believed that these changes will greatly improve the quality of the data that will be obtained during the next annual survey in April, 1975.

Construction of GOR maps for San Andres Zones II, III_U and III_L were commenced but not completed due to lack of time. These maps should be finalized at the next engineering committee meeting which will be held in Midland on December 5, 1974.

Mr. P. J. Gratkowski, Shell, presented a review of the method used by the previous engineering committee to determine primary and secondary reserves by tracts. These calculations are based on the water cut, GOR and pore volume maps in conjunction with a material balance prediction of solution gas drive efficiency and a prediction of waterflood recoveries. Secondary reserves were based on a Stiles approach applied to an 80-acre five-spot

flood pattern. A decision on what changes and adjustments should be made on these techniques will be decided on at the December meeting. Also at this meeting it will be necessary to decide on a method for predicting the remaining primary reserves by tract for Zone 1. Mr. H. J. Swartz, Shell, presented an example calculation which incorporated three arithmetically-weighted factors: distance from the 100 per cent water cut line, water cut and oil production rate. The engineering representatives were asked to consider what weighting should be assigned to a Zone I well that is also completed in other zones. It was requested that everyone prepare a recommended procedure for the apportionment of remaining Zone I reserves and submit it to Shell prior to December 5th if unable to attend the meeting.

Messrs. F. E. Coupal and S. B. Pontious reviewed the results of a study of the basal Grayburg net pay development. (Most of this data was sent to each member of the Engineering Subcommittee on March 7, 1974). The new data presented by Messrs. Coupal and Pontious are: 1) A tabulation of the total net pay determinations by well and 2) a total net pay isopach of this basal Grayburg sand reservoir. A copy of each of these items is attached. The separation between gas cap and oil column thicknesses will be done at a later date. It was their considered opinion that it will not be possible to sufficiently quantify the porosity variations to justify the construction of porosity - feet maps. Therefore the recommendation is to apply an average porosity to the net pay maps.

The meeting was adjourned at 3:30 p.m. on Thursday, November 7, 1974.

Attachments

Attendance List
Engineering Subcommittee Meeting
Proposed North Hobbs Unit
November 6-7, 1974

Name	Company	Location
Ralph Green	Amerada	Seminole
Nelson Robertson	Arco	Midland
Don Barrett	Cities Service	Midland
C. C. Woodward	Continental	Hobbs
J. M. Clayton	Exxon	Midland
W. E. Nolan	Exxon	Midland
Jim Eakin	Getty	Midland
Arne H. Pokky	Getty	Midland
H. Leon Veeder	Samedan	Ardmore
Fred Hensley	Skelly	Midland
Frank McAtee	Skelly	Midland
Allen Wicke	TPOC	Midland
Frank Coupal	Shell	Houston
R. W. Phillips	Shell	Houston
Steve Pontious	Shell	Houston
Paul Szatkowski	Shell	Houston
Hank Swartz	Shell	Houston

NORTH HOBBS UNIT
ENGINEERING SUBCOMMITTEE
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
ATTN: MR. JOHN A. YATES
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207 SOUTH FOURTH STREET
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AMOCO PRODUCTION COMPANY
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MR. R. M. MORAN
ATTN: MR. R. M. MORAN
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'ELLY OIL COMPANY
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ATTN: MR. JOE W. THORNTON
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DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
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HOBBS, NM 88240

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MIDLAND, TX 79701

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DALLAS, TX 75250

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HOBBS, NM 88240

YEAGER & ARMSTRONG
'ESTERN UNITED LIFE BUILDING
.DLAND, TX 79701

NORTH HOBBS BASAL GRAYBURG
NET FEET OF PAY TABLE

T18S, R37E

SECTION	WELL	NET h		ANALYSIS
13	Shell Rice #3	40'	x	SNP
	Shell Rice #4	24'		Core
14	TPOC V #1	36'	x	Core
	TPOC V #2	40'		GRN
	Getty B #2	26'	x	GRN
23	TPOC V #3	25'		GRN
	TPOC V #4	20'	x	Core
	TPOC V #5	49'		GRN
	TPOC V #6	22'		GRN
	Shell F #2	48'		GRN
	Shell F #3	39'	x	GRN
	Gato Shipp #1	29'	x	GRN
	Yates Shell #1	38'		Core
24	Gulf Graham #2	28'	x	GRN
	Gulf Graham #4	32'	x	Acoustic
	Gulf Graham #5	25'		Acoustic
	Gulf Graham #6	16'		Acoustic
	Samedan C #2	23'		GRN
	TPOC G #4	21'		SNP
25	Exxon A #2	42'		GRN
	Exxon A #6	34'		Core
	Exxon A #7	43'	x	Core
26	Cactus Pan Am St. #1	12'		Core
	Skelly E #1	27'		GRN
36	Gulf Holt #1	31'	x	Core

T18S, R38E

17	Moran St. 17 #1	18'	x	Core-Acoustic
18	Amerada Hardin B #5	21'		GRN
	Moran Hardin B #1	10'		Core
	Gulf Hardin #3	15'		Core
19	Shell McKinley A #4	31'	x	GRN
	Shell McKinley A #6	30'	x	GRN
	Shell McKinley A #10	16'		Acoustic
	Shell McKinley A #11	29'		SNP
	Cities Service Hardin #3	45'	x	GRN
	Getty Hardin #4	41'		GRN

SECTION	WELL	NET h		ANALYSIS
20	Shell McKinley B #2	25'		Acoustic
	Shell McKinley B #4	23'		SNP
	Skelly McKinley #1	32'		CNL
	Moran St. 20 #1	8'	x	Core-Acoustic
27	Shell Sanger #6	10'	x	SNP
28	Arco Grimes #2A	13'		GRN
	Arco Grimes #3	21'		GRN
	Arco Grimes #4	16'		GRN
	Shell Grimes #9	29'		SNP
	Shell Grimes #10	21'		SNP
	Shell Grimes #11	10'		SNP
29	Amerada B #2	16'	x	SNP
	Chevron I #5	43'		SNP
	Chevron I #6	40'		SNP
	Continental A-29 #1	41'	x	SNP
	Continental A-29 #7	25'		Core
	Continental A-29 #8	16'		SNP
	Exxon Bowers #7	21'		Core
	Exxon Bowers #28	26'		Acoustic
	Exxon Bowers #33	18'		SNP
	Exxon Bowers #35	24'		Acoustic
	Getty Grimes #6	20'		Acoustic
30	Exxon Bowers #8	31'		GRN
	Getty McKinley #8	23'		Acoustic
	Getty McKinley #10	23'		SNP
	Getty McKinley #11	22'		Acoustic
	Marathon St. 30 #1	24'	x	GRN
31	Cities Service Fowler #2	38'		FDC
	Cities Service Fowler #9	36'		FDC
	Shell Berry #2	29'		SNP
	Shell Berry #3	25'	x	GRN
32	Amerada A #5	38'		SNP
	Gulf Grimes #9	43'	x	Acoustic
	Gulf Grimes #16	35'		Acoustic
	Marathon St. 32 #9	30'		Acoustic
	Shell St. A # 6	35'		Acoustic
	Shell St. A #7	34'		Acoustic
33	Amoco St. G #6	21'		Acoustic
	Continental A-33 #12	42'		SNP
	Gulf Grimes #7	28'		SNP
	Shell St. B #5	36'		Acoustic
	Shell St. B #6	15'		Acoustic
34	Skelly Turner #1	29'		CNL
	Moran Hobbs #1	8'		Core

x Net h extrapolated

R38E

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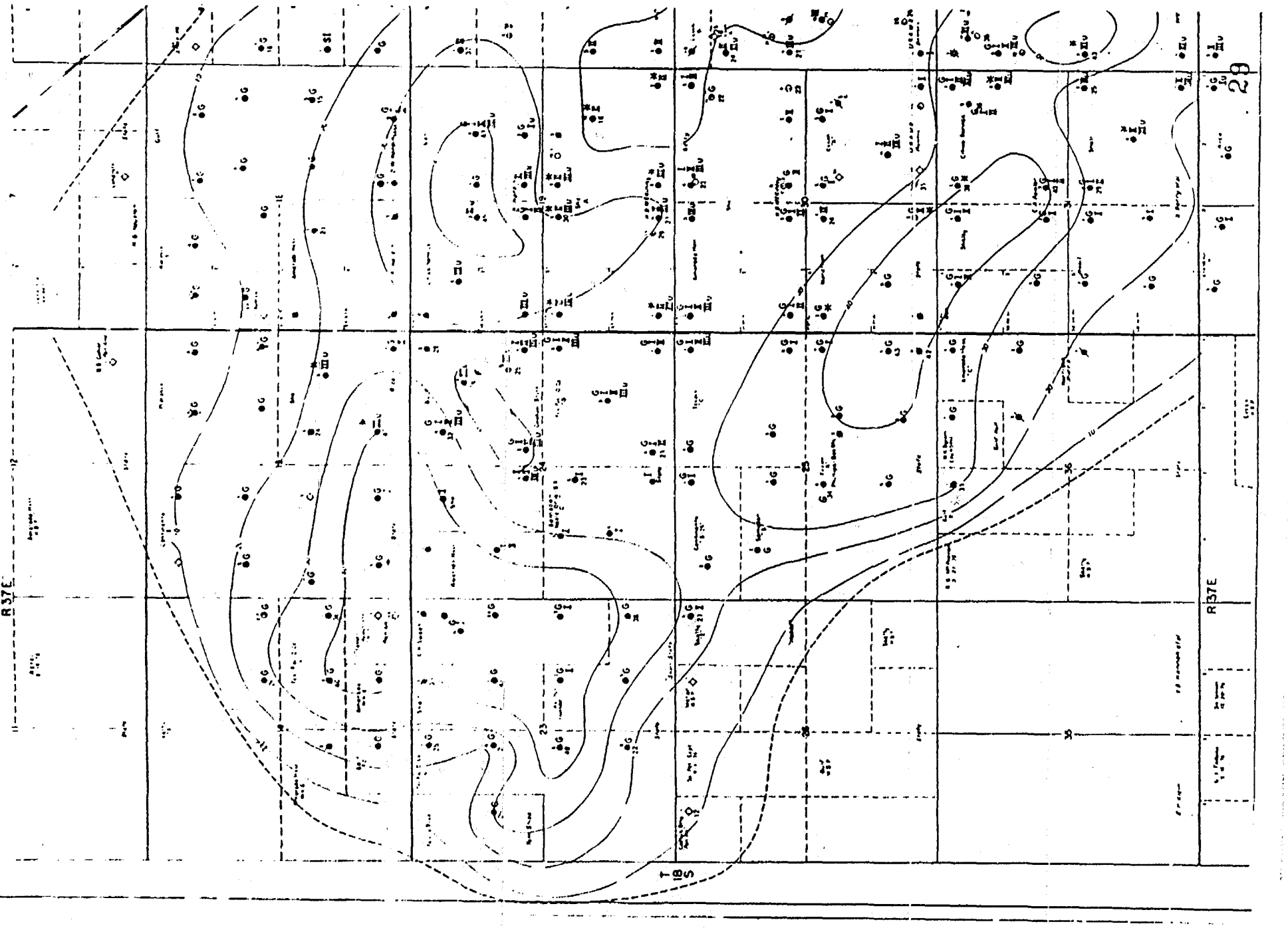
R38E

SHELL OIL COMPANY | WESTERN E & P REGION | PRODUCTION DEPARTMENT
WESTERN DIVISION

HOBBS FIELD
BASAL GRAYBURG

TOTAL NET - ABOVE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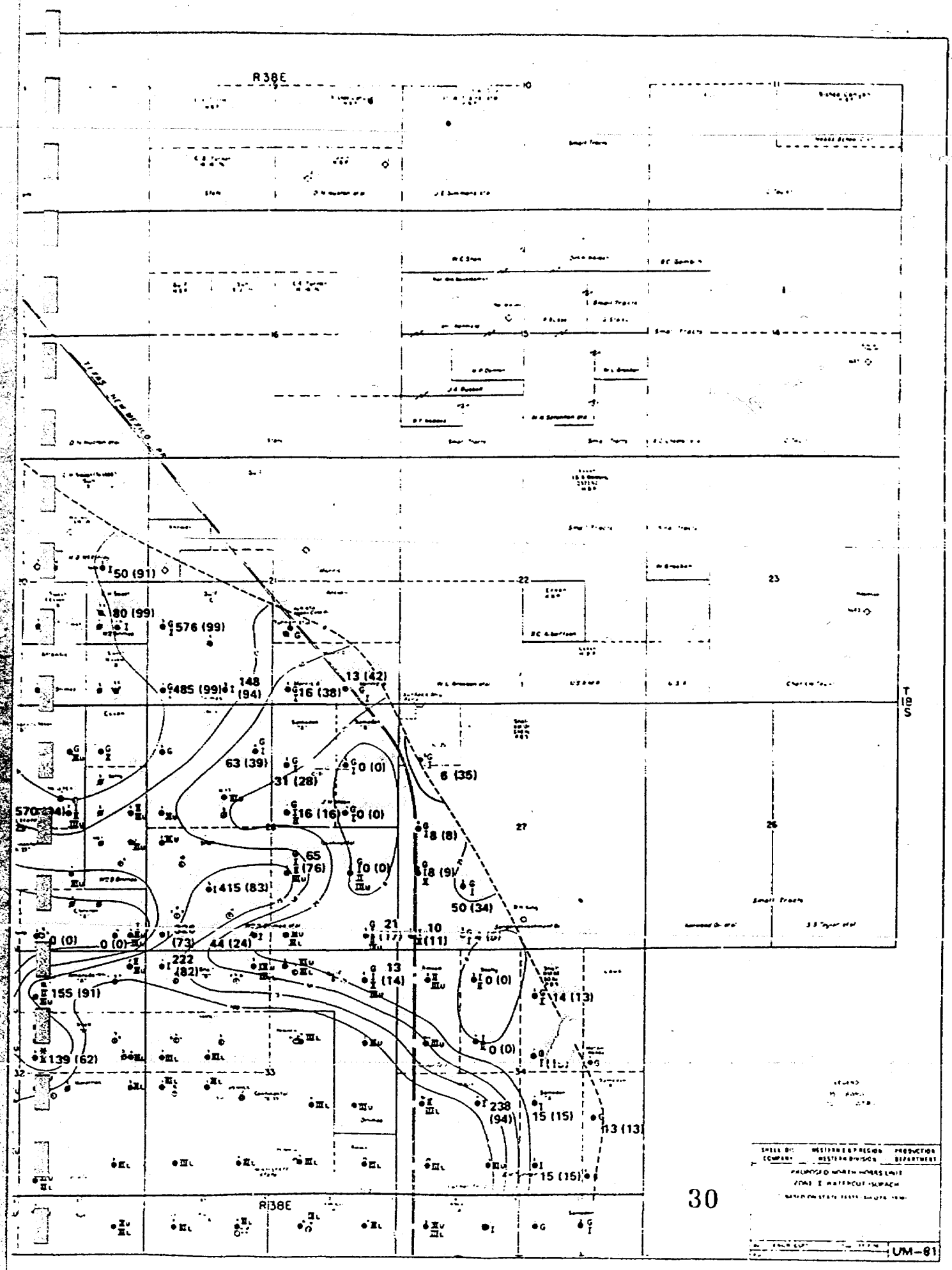
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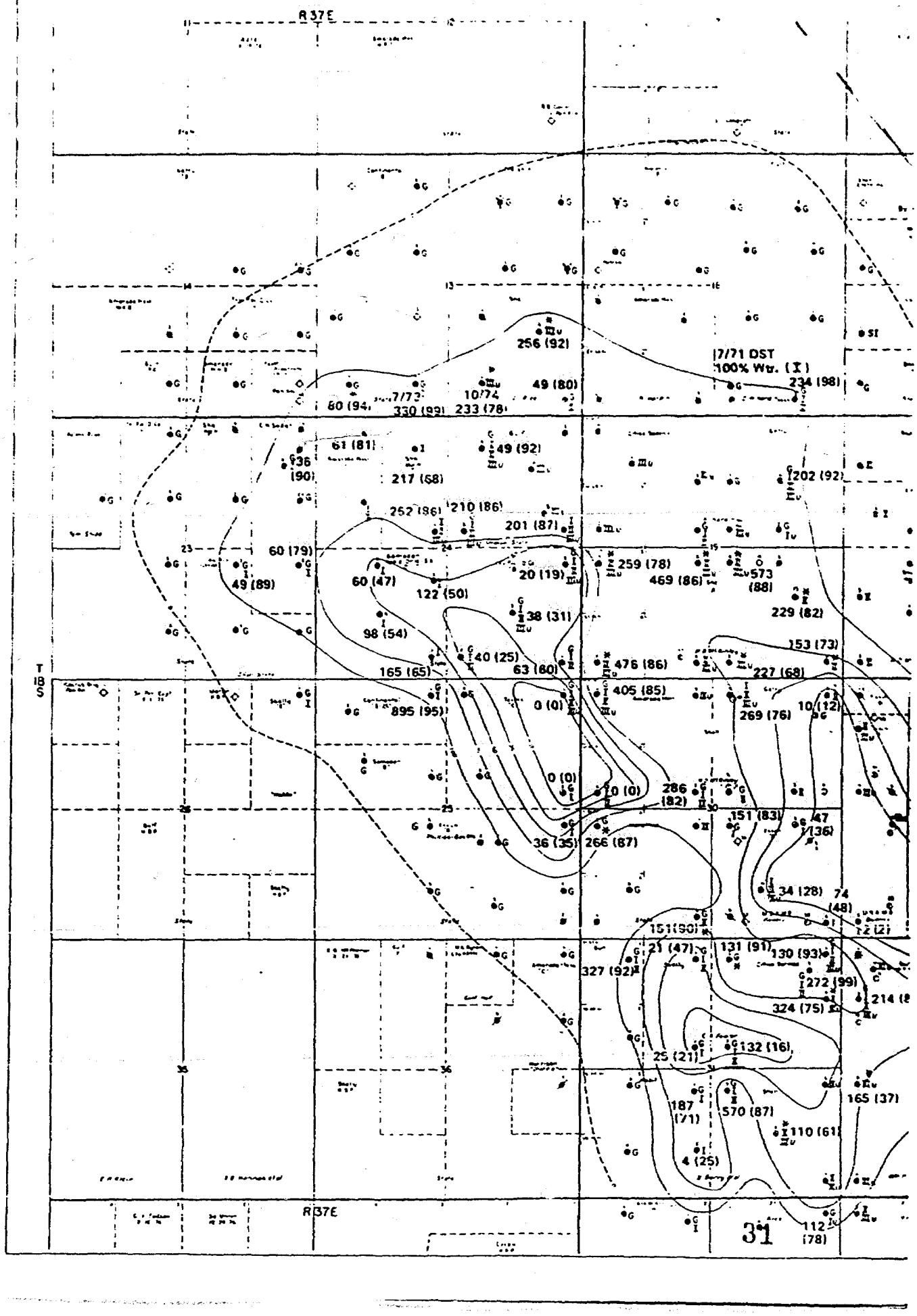
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324 (75)
214 (8
132 (16)
25 (21)
165 (37)
187 (71)
570 (87)
110 (61)
4 (25)
112 (78)
31
R37E

Minutes of Engineering Subcommittee Meeting
Proposed North Hobbs Unit
December 5, 1974

The meeting was called to order at 8:45 a. m. by Mr. H. J. Swartz. It was noted that the main purpose of the session was to construct and approve GOR maps for each San Andres zone. There was a discussion of the method of approach (using the State-witnessed GOR tests taken during the third quarter of this year as the main control points) and of the use of these maps for reserve determinations. It was unanimously agreed that a GOR map was not needed for Zone I inasmuch as it is anticipated that the remaining reserves from that reservoir can be recovered by continued water influx. A uniform current gas saturation will be assumed. All known corrections to well completion status were made. Unanimous approval was obtained for the GOR maps that were constructed for San Andres Zones II, III_U and III_L. These maps will be updated and finalized at the next Engineering Committee meeting.

A discussion followed on the technique to be used for calculating remaining primary and secondary San Andres reserves by tracts. It was agreed that a similar method to that used by the previous engineering committee would be preferable and that Shell should prepare the required predictive performance curves (based on material balance and waterflood recovery calculations). The results of these studies will be presented at a future meeting in order to obtain final committee approval before calculating tract reserves.

The need for obtaining BHP buildup surveys on selected wells were discussed. These wells are those which are flowing and which are effectively completed in only one zone. Very few wells meet these prerequisite and it was recommended that surveys be taken as near to year-end as possible in the following wells: Amerada Hess McKinley 3, III_U in Section 30(C); Continental State A-33 No. 1, III_L in Section 33 (M); Exxon Bowers A Federal No. 10, III_U in Section 29 (L); Getty McKinley No. 2, II in Section 30 (H); Gulf Grimes B-1, III_U in Section 33 (I); and Gulf Grimes A-5, III_U in Section 32 (M). It was also agreed that the Engineering Subcommittee would recommend to the Working Interest Owners that an adjustment be made to any production parameter that incurred a production loss because of these BHP surveys. In addition it is requested that each operator furnish Shell with a copy of all BHP build up data with sufficient information to make a Horner-type interpretation.

The subject of ~~procedure for apportioning by 40-acre tracts the Zone I reserves were then discussed in detail.~~ Potential factors considered were: ~~distance from the 100 percent water cut line, oil production rate,~~ water cut, ~~current recoverable oil in place~~ and ~~areal sweep efficiencies.~~ In addition, Mr. Leon Veeder, Samedan Oil Corporation, presented hypothetical calculations that predicted recoveries based on assigning different areal sweep efficiencies (between 65 and 95 percent), depending on the water cut. ~~It was unanimously agreed that a "correct" solution to this complex problem of~~ future oil migration ~~must consider the effects of different oil rates, porosity-feet,~~

well spacing and strength of the aquifer. Simplifying assumptions could include the simultaneous opening of the entire Zone 1 productive interval in each well bore and uniform permeability, swept zone residual oil and current formation volume factor. It appeared to those present that this "correct" solution would best be done by the use of a reservoir simulation model. Shell volunteered to investigate this possibility and prepare an estimated cost for this type of study.

The question of completion intervals in Zone I affecting the production performance was discussed. Some of the representatives felt that additional work should be done to determine if various correlatable members in Zone I appeared to contain the bulk of the water. Shell volunteered to make a cursory review of the data and present the findings at the next engineering committee meeting. At that time the Engineering Committee will determine the feasibility of further study to better define the Zone I water influx.

The meeting was adjourned at 4:30 p. m.

ATTENDANCE LIST

Engineering Subcommittee Meeting
Proposed North Hobbs Unit
December 5, 1974

Name	Company	Location
E. R. Green	Amerada Hess	Seminole
Grant B. Miller	Amerada Hess	Seminole
A. M. Omar	Amerada Hess	Seminole
Nelson Robertson	Atlantic Richfield	Midland
J. C. Solari	Chevron	Midland
Don Barrett	Cities Service	Midland
C. C. Woodward	Continental	Hobbs
J. E. Eakin	Getty	Midland
Joe R. Paradiso	Getty	Midland
Fernando Cardeñosa	Gulf	Midland
W. E. Nolan	Exxon	Midland
Leon Veeder	Samedan	Ardmore
Fred Hensley	Skelly	Midland
Frank D. McAtee	Skelly	Midland
Allen Wicke	TPOC	Midland
W. R. Larsen	Wiser	Midland
F. E. Coupal	Shell	Houston
H. J. Swartz	Shell	Houston

MINUTES OF THE ENGINEERING SUBCOMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
JANUARY 22-23, 1975

The meeting was called to order at 8:45 a.m. by Mr. H. J. Swartz. Eleven companies, which operate 70 percent of the current producers, were represented (attendance list attached). The main purpose of this meeting was to finalize the porosity-feet, water cut and GOR maps for each of the four San Andres zones and to develop an approach for apportioning the San Andres Zone I reserves.

The first order of business was the finalization of the porosity-feet maps. Since the construction of the maps at the engineering subcommittee meeting of September 11-12, 1974, Shell has received 13 usable new logs. In addition, top of zone correlation changes in three wells required adjustments to the individual zonal values and a core analysis was obtained on Sweet McKinley B 1-A-G, Section 20 (I). Also, it is necessary to differentiate the Zone I porosity-feet between original gas and oil columns. All of the San Andres zonal porosity-feet maps were finalized and approved unanimously. Attached are copies of these maps and a tabulation summarizing all of the petrophysical interpretatons by wells. The original oil and gas in place in the San Andres for each lease will be determined by using the grid technique (ten-acre blocks) at the next engineering subcommittee meeting.

Grayburg net oil, net gas pay and total net pay isopach maps have been prepared by Shell. Copies of these are attached and we request that each representative review these in detail and be prepared to finalize these at the next meeting. Individual well porosity determinations cannot be made because of the lack of petrophysical data.

At the December 5 subcommittee meeting, Shell had volunteered to make a cursory review of the occurrence of net pay development with respect to completion intervals in order to determine if further study was warranted to better define San Andres Zone I water influx. The results of such a geological review were presented by Mr. F. E. Coupal. He has constructed a map with a schematic representation for each well of the vertical location of the net pay, streaks of higher than average porosity development (and presumably higher permeability), dense streaks separating pay zones, and the thickness of the argillaceous zone which separates Zone I and Zone II net pay. The location of the completion intervals was then superimposed on the pay development and attempts were made to explain anomalous water cut performance between offsetting wells. ~~It was concluded that this reservoir could not be subdivided into correlatable and extensive subzones.~~ Also presented was an isopachous map of the thickness of the argillaceous zone separating Zone I and Zone II net pay. It was the consensus of the subcommittee that there is more areal separation existing between the zones than previously believed to be present.

The subcommittee then directed their attention to the finalization of the water cut maps. These maps will be used to determine the volumes of each reservoir that have been swept by natural water influx in order to ascertain tract and total reserves. The current completion status has been reviewed and many changes made. Each company representative should carefully examine the zones shown to be open to production for his wells and advise me (713-220-1022) of any disagreements. Some of these changes in completion status helped explain two anomalous areas on the Zone I water cut map drawn by the subcommittee on November 7. Firstly, the zero contour

ne in Sections 25 and 30 could be eliminated because two of the clean wells, exaco State C 1 and 2, were determined to be completed in the Grayburg only and therefore did not constitute control points. In addition, although Amerada Hess McKinley 4 is currently a clean producer from upper Zone I, production prior to ebruary 1973, was at a high water cut when all of Zone I was produced. This portion of the map was adjusted accordingly. Similarily, Mobil Berry 2, is also a Grayburg only producer and not a control point. Significant changes were also made round the Chevron lease located in Section 29. A southern offset to the Chevron ease, Amerada State A-1, was worked over in December 1974 to open the entire Zone I section to production with three other zones and is now producing at 76 percent ater cut. Based on this additional point and a study of Mr. Coupal's geologic eview, the contours in this area were adjusted accordingly. A copy of the finalized map is attached and was approved by everyone present except for a negative ote by the Amoco representative.

The question of whether or not water cut maps should be constructed for the other San Andres zones was re-examined. At the November subcommittee meeting water cut maps were drawn for each zone but because the control was sparse and questionable (behind pipe communication with Zone I?), it was decided to assume that all water production was from Zone I and that the other zones would be considered to be at the initial water saturation. The voting on this motion was eight in favor and two (Continental and Exxon) opposed. This is the only significant disagreement in the subcommittee to date and consequently considerable time was devoted at this meeting to discussing the "best" method of determining whether any significant water influx has curred in these other San Andres zones. It was concluded that whereas water has tered these reservoirs either by direct communication naturally (between I and II where no argillaceous separation exists) or because of mechanical failure (behind pipe communication), it is not possible to quantify the degree of influx on a lease basis. A statement was formulated at this meeting as follows: "It is apparent from the study of San Andres zonal production performance that Zone I is the major source of water production and encroachment and that only Zone I water saturation can be reasonably estimated on the areal basis, by the construction of water cut maps. Consequently, current water saturations for Zones II, IIU and IIIb will be estimated on a reservoir basis." This approach was approved by everyone present except for Amoco. These values for current water saturations will be approved at the next engineering subcommittee meeting.

The next order of business was the apportionment of Zone I primary reserves by tracts, assuming continued water influx. To date two methods for approximating these reserves have been presented but neither has been accepted. At the last meeting Shell volunteered to investigate the feasibility of using a reservoir simulation model to resolve the problem. Mr H. J. Swartz reported the results of consultation with Shell's computer experts. In summary, it appears that a "proven" Shell program could be used and a study completed within a reasonable period of time. However, because of the anomalous behavior of some wells (clean wells offset by high water cut producers), it is strongly recommended that a history match be attempted in order to match the general influx pattern and approximate the aquifer strength. It is recommended that this history match be attempted on a very coarse grid (10 by 15) and include the entire field. An arbitrary and quick allocation of production between ne I and other reservoirs would be necessary. It was therefore recommended by Shell hat the coarse grid approach be tried immediately and the results reported to the subcommittee in order to better ascertain the feasibility and costs of such an endeavor. The prediction mode would require a much more detailed grid and would require a ballot for approval by each working interest owner to share in the associated expenses. Each company representative present expressed the belief that the reservoir

simulation approach appeared to offer the only acceptable method of apportionment that is recognized at this time but that they would like to have the insight to future costs and complexity of resolution that can be obtained by a quick coarse grid run to be performed by Shell. Following a review of the preliminary results, a specific recommendation will be made to the Working Interest Owners Committee.

During the discussions on the feasibility of reservoir simulation, the question was raised concerning the variations in reservoir pressure between zones and areally within zones. Unfortunately, none of the requested historical BHP buildup data had been received before the meeting but based on the key well BHP statics and the analyses of four special buildup surveys, it can be tentatively concluded that the BHP in the proposed northern unit area is highest in Zone I, about 100 psi lower in Zone II, and another 150 psi lower in Zone III. It is again requested that each operator submit all BHP buildup data on all Grayburg-San Andres completions. The additional data should enable the construction of zonal pressure history with time and areal kh variances in conjunction with core analyses. The year 1974 BHP data received to date is summarized on an attachment.

Mr. P. J. Szatkowski then presented a detailed review of the planned method for calculating reserves. Key assumptions will include: current GOR, initial and current water saturations, relative permeability relationships, current pressure and abandonment pressure. Water cut (I) and GOR (II, IIIU, and IIIL) values will be determined by 40-acre tracts by "gridding" these maps at the next engineering sub-committee meeting. It was agreed at the December meeting to accept the relative permeability curves, initial water saturation and the abandonment pressure (100 psi) used in the Amoco report.

The GOR maps that were constructed at the December meeting were then finalized with unanimous approval. The only new data resulted from two Arco wells, Grimes 1 and 2, which are located in Section 28 and were both recently perforated in Zone II so that they are now producing from II and IIIU. This work resulted in overall lower GOR's which were consistent with the previously depicted GOR's for these zones. Copies of the finalized maps are attached. A reservoir-wide average GOR will be assigned to Zone I at a later date.

The meeting was adjourned at 3:00 p.m., Thursday, January 23, 1975.

HJS:VMS

ATTENDANCE LIST

ENGINEERING SUBCOMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
January 22-23, 1975

A. M. Omar	Amerada Hess	Seminole, Texas
Grant B. Miller	Amerada Hess	Seminole, Texas
Ralph Denham	Amoco	Houston, Texas
Nelson Robertson	Atlantic Richfield	Midland, Texas
Don Barrett	Cities Service	Midland, Texas
C. C. Woodward	Continental	Hobbs, New Mexico
John Clayton	Exxon	Midland, Texas
W. E. Nolan	Exxon	Midland, Texas
J. E. Eakin	Getty	Midland, Texas
A. H. Pokky	Getty	Midland, Texas
Leon Veeder	Samedan	Ardmore, Oklahoma
Fred Hensley	Skelly	Midland, Texas
Frank Mc Atee	Skelly	Midland, Texas
Allen Wicke	Texas Pacific	Midland, Texas
F. E. Coupal	Shell	Houston, Texas
Steve Pontious	Shell	Houston, Texas
Paul Szatkowski	Shell	Houston, Texas
Hank Swartz	Shell	Houston, Texas

#3

MINUTES OF THE TECHNICAL COMMITTEE MEETING
PROPOSED NORTH ROBERTS UNIT
MARCH 5&6, 1975

The meeting was called to order at 9:15 a.m. by Mr. R. J. Swartz. Fifteen companies, which operate 87 percent of the current producers were represented during at least a portion of the two-day session. (Attendance list attached.) The main purposes of this meeting were to formulate a recommendation for determining Zone I reserves and to establish a procedure for determining San Andres zonal tract values for original oil and gas in place, average producing GOR (II, IIIU & IIIL) and average water cut (I..

At the January meetings it had been decided that Shell should make preliminary computer runs with their three-dimensional, three-phase, compressible fluid program in order to better evaluate the feasibility and costs for making an anlysis of future Zone I production by the use of reservoir simulation. The results of the preliminary efforts were discussed with the committee and are summarized as follows. The reservoir model used for these preliminary runs consisted of three non-communicating San Andres layers (I, II and III) covering the entire field with the structural location and porosity-feet values as determined by the Technical Committee. Fluid properties and relative permeability relationships were the same as those in the previous Technical Committee report. A five by ten grid was superimposed on the structure in a manner which resulted in all of the producers being located in 27 grid blocks. The wells in each grid block were summarized by completion interval and represented by one composite well, in the center of the block, containing the total zonal millidarcy-feet open to production in that grid block. An infinite and radial aquifer was placed in communication with only Zone I and input at three westerly-located points. The cumulative field production was represented as being produced at a constant rate over life. Several initial or Phase 1 runs have been made, based on the aforementioned conditions. Adjustments to the data are now being made, but in the opinion of the Shell computer experts the proposed application is feasible and Shell is willing to make the complete analysis for one set of predictive premises for a flat rate charge of $6000. This amount was determined by estimating the actual computer time needed to complete all phases of the study ($5000) and includes a $1000 estimate for contract clerical help, needed to prepare data and assemble annual production statistics for about 350 wells over a 40-year period. No charges will be made for professional or non-professional overhead nor would a charge be made for a program licensing fee. Continuation of this study, for the purposes of predicting Zone I reserves for a given set of conditions, would consist of inputting actual well production with time, and adjusting the permeabilities and various constraints until a satisfactory history match is obtained. Following this a similar history match would be obtained using a finer grid system. An analysis would then be made of future production performance for a given set of conditions. Shell would then present the Technical Committee with a report of the assumptions made and results with an interpretation of their meaning. Shell made a motion, which was seconded by Samedan, that the Technical Committee recommend to the Working Interest Owners that a computer analysis of Zone I reserves be made, for a given set of predictive conditions, on the Shell reservoir simulation program for a flat rate of $6000. The voting on this proposal was:

FOR: Amerada, Amoco, Arco, Cities Service, Continental, Getty Exxon, Samedan, Skelly, Texaco, Texas Pacific and Shell

PASS: Gulf

A ballot for sharing these costs will be mailed, under separate cover, to the operators. It was also recommended by the Technical Committee that the prediction mode of this study should be based on the premises that the current completion intervals are maintained status quo. This would serve as a base case and it is recognized that apportionments will then have to be made to the results in order to credit leases which have Zone I reserves but no current drainage points. Attached is a map which depicts the current completion status of each well in the proposed North Unit Areas as described in our records. It is imperative that each operator verify this description and notify me (713 220-1022) of any discrepancies.

The next order of business was a presentation of average zonal porosity and permeability values. Average porosity values have been obtained from both log and core analyses and are considered to be reliable inasmuch as they are generally accurately measured and represent excellent areal coverage of the proposed unit area. The average permeability values are more questionable because of the wide range in values and the limited data. Permeability values were averaged from three sources: cores, buildup pressure analyses and those used by the previous Technical Committee. The core-derived values exhibited large differences and the data were averaged both arithmetically and geometrically for all available core analyses from wells within one mile of the proposed unit area. Arbitrarily the average of these two summations (arithmetic and geometric) was used as representative of the cored values. Stratification analyses, using the Dykstra-Parsons variance approach have been made and will be used as a guide for the reservoir simulation study. Shell has measured 83 BHP buildup surveys in 24 different wells. Only 29 of these, taken in 10 wells, are representative of single zone performance. In addition three of the four buildup surveys that were requested by the Technical Committee, at year-end, were usable for permeability determinations. Since no other company has ever taken buildup surveys in the proposed unit area, the resulting averages from this source are representative of only limited portions of the reservoirs. The previous Technical Committee used zonal permeability values which were derived from cores and adjusted to fit performance. A comparison was also made, by Shell, of the initial potential tests of all wells completed by 1931. This data was recorded on a map and iso-potential lines drawn. These date can only be used in a qualatative manner but strongly indicate that the lowest productivities are in the south unit area whereas a fairway which generally follows the structural highs is located in the northern unit area and average to good productivities occur in the remainder of the wells. The resulting average permeabilities, which are summarized in the attachment, are therefore considered to be tentative. Additional insight into actual values should result from the reservoir simulation study and will be incorporated with these aforementioned values.

At the last meeting it was decided to assign reservoir average current water saturation values to the Grayburg and San Andres (II, IIIU & IIIL) and reservoir average current gas saturations to the Grayburg and Zone I.

These values were in lieu of tract determinations and would be used in calculating reserves in conjunction with relative permeability relationships. Producing data from "key wells" are being assembled but it is believed that valuable insight as to the degree of water influx into the lower San Andres will be gained from the computer analysis. In addition, similar relative permeability relationships should be used for estimating current gas and water saturations from producing gas-oil ratios and water cuts. It is therefore recommended that the determination of these average values be made at a later date.

Approval of the Grayburg net oil, net gas and total net pay isopaches maps was deferred at the request of one of the representatives in order to permit a more detailed check of the values used.

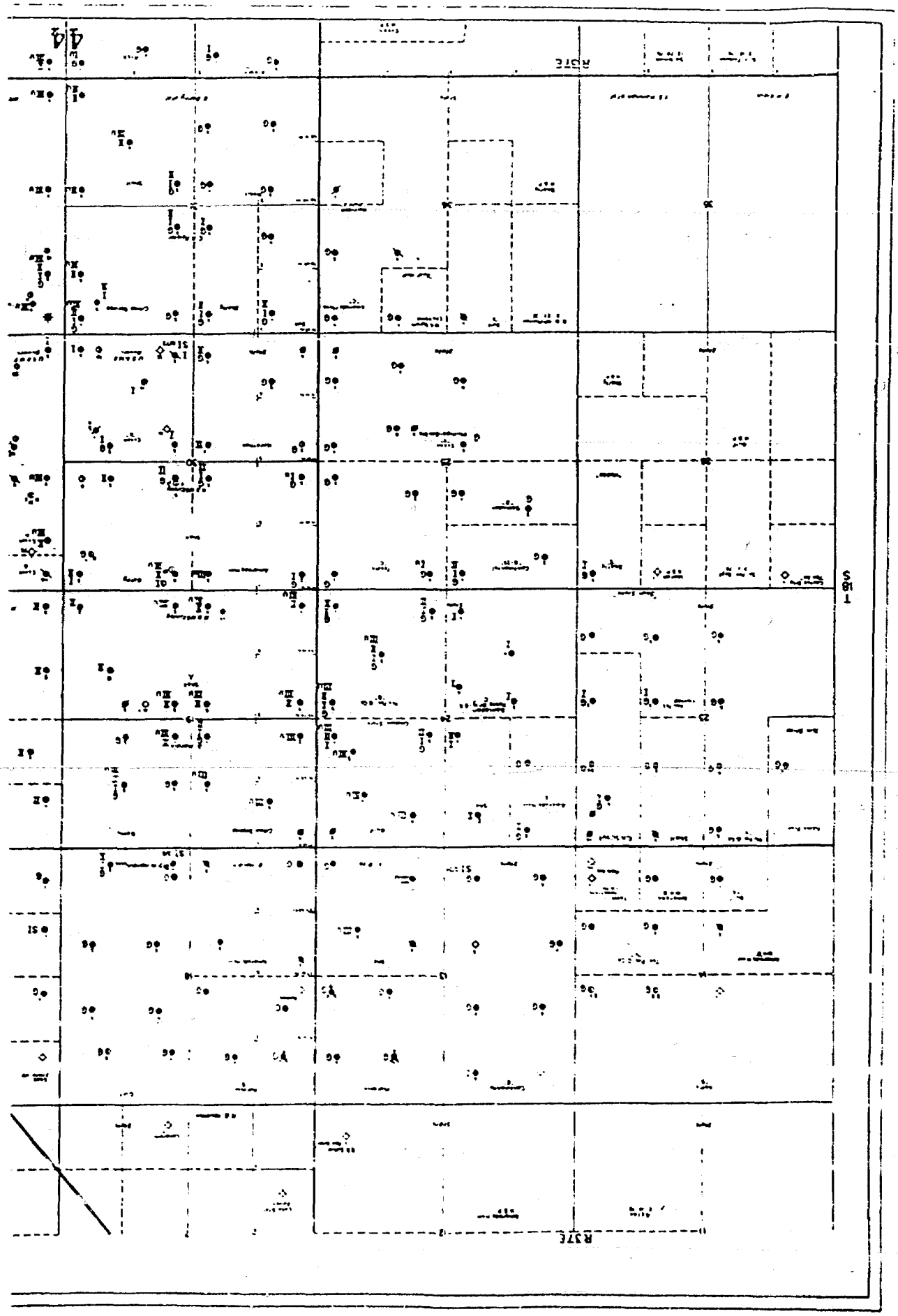
The Technical Committee then decided to determine tract values from the approved San Andres porosity-feet and Zone I water cut contour maps by using a ten-acre grid system whereas the GOR values would be based on a 40-acre grid. Values were selected for each grid block and were based on mechanical interpolation between contour lines. The determinations of tract value for original oil and gas in place, current saturations and remaining primary and secondary reserves will necessarily be made at a later date and then presented for review.

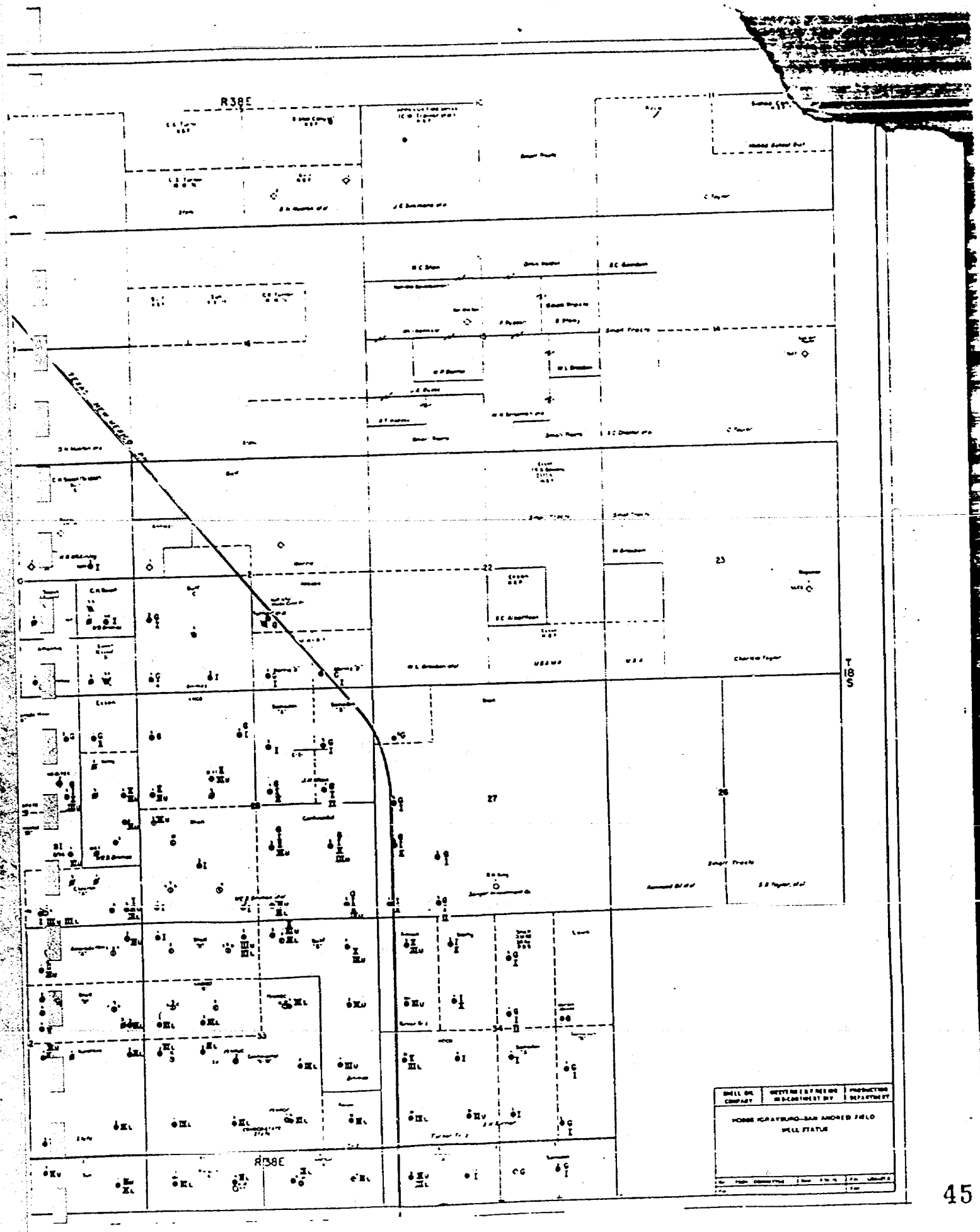
ATTENDANCE LIST
TECHNICAL COMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
MARCH 5 & 6, 1973
MIDLAND, TEXAS

NAME	COMPANY	LOCATION
Grant B. Miller	Amerada Hess	Seminole
A. M. Omar	Amerada Hess	Seminole
Paul D. Kossmann	Amoco	Houston
Bob Leggott	Atlantic Richfield	Midland
Donald D. Barrett	Cities Service	Midland
C. C. Woodward	Continental	Hobbs
J. M. Clayton	Exxon	Midland
W. E. Nolan	Exxon	Midland
J. E. Eakin	Getty	Midland
Arne H. Pokky	Getty	Midland
F. Cardeñosa	Gulf	Midland
H. Leon Veeder	Samedan	Ardmore
Chris Bosecker	Skelly	Midland
Frank McAtee	Skelly	Midland
Ben Barnett	Sun	Midland
Paul H. Davis	Texaco	Midland
Allen Wicke	Texas Pacific	Midland
John A. Yates	Yates Pet.	Artesia
F. E. Coupal	Shell	Houston
P. J. Szatkowski	Shell	Houston
H. J. Swartz	Shell	Houston

DETERMINATIONS OF AVERAGE POROSITY AND PERMEABILITY

	Gb	I	II	III
I. AVERAGE ϕ:				
A. Logs				
No. wells	-	11[illegible]	9[illegible]	8[illegible]
h - ft.	-	4097	3741	4970
ϕh	-	607.5	530.[illegible]	675.5
ϕ - %	-	14.8	14.[illegible]	13.6
B. Cores (North Area)				
No. Wells	19	10	5	5
h	295.5	21[illegible]	16[illegible]	10[illegible]
ϕh	41.3	31.7	20.[illegible]	12.7
ϕ	14.0	14.9	12.5	12.3
Avg. ϕ - %	14.0	14.8	14.[illegible]	13.6
II. AVERAGE k:				
A. Cores (North Area)				
Arithmetic ka h	750.8	30263	7333	6529
k	2.5	143	45	63
Geometric kg h	270.6	3375	1032	807
kg	0.9	16	6.4	7.8
Avg Ka & kg	1.7	79	26	35
B. Buildups				
No. wells (Surveys)	1 (2)	[illegible] (6)	2 (6)	7 (18)
k	2	137	12	19
C. Previous Engr. Rept.	3.5	40	50	25
Avg. k - mds.	2.4	85	29	26

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SHELL OIL COMPANY
HOBBS (GRAYBURG-SAN ANDRES) FIELD
WELL STATUS

Minutes of the Technical Committee Meeting
Proposed North Hobbs Unit
June 4, 1975

The meeting was called to order at 8:45 a.m. by Mr. H. J. Swartz. Thirteen companies, which operate 85 percent of the current producers were represented. (Attendance list is attached.) The main purposes of this meeting were to:

1) describe the reservoir simulation models and techniques that are currently being used by Shell for this unitization effort and

2) determine a method for constructing acceptable Grayburg net pay isopach maps.

Mr. W. C. Miller, supervisor of the reservoir simulation group at Shell Development Company, presented a detailed description of the reservoir simulation model being used by Shell to analyze the San Andres reservoir performance and in particular to determine Zone I reserves. The model can be briefly described as a three-phase, three-dimensional, compressible fluid reservoir simulation program. A relatively coarse grid of 150 blocks (ten by five areally with three zones vertically) is being used in the initial phase of this study. Each block contains about 500 acres and the anticlinal structure is included by digitized data on the top of Zone I porosity and the gross thicknesses for each San Andres Zone (I, II and III) for each block. Similarily, each block's zonal net pay was determined from porosity-feet isopach maps (constructed by the current Technical Committee for the North Unit area and by the previous Technical Committee for the South Unit wells) and the average porosity attributed to each zone. The initial gas-oil-contacts and water-oil contacts are 360 feet subsea and 614 feet subsea respectively. This mathematical representation contains an original oil-in-place for the San Andres of 835 million STB, which compares favorably to the 819 million STB calculated by the previous Technical Committee.

Input gas-oil relative permeabilities are the same as the rock curves previously used, but the oil-water relative permeabilities have been adjusted to reflect the Dykstra-Parsons stratification calculated from cores in the North Unit area. The aquifer is strategically located at three locations and communicated only with Zone I.

Oil production and zonal completion history have been input by well in five-year increments up to 1970, then the next three-year period and finally 1974 production. The latter is actually based on the rates reported in the State-witnessed annual gas-oil ratio tests taken in mid-1974. These tests have been judged, by the Technical Committee, to be the most reliable indicators of current conditions. Each well's oil rate is automatically allocated by the simulation program to the zones open to production during its entire history. The pertinent factors such as each zone's pressure, permeability, fluid saturation are accounted for in the calculations for each well. Zonal production rates are computed and a history match, for each well, is based on a comparison of cumulative oil, cumulative water, BHP history and current rates; with emphasis on current conditions.

Once a satisfactory history match is obtained, the predict mode will be run with the current completion intervals open. Each well's primary reserves will be computed by the simulator. A similar simulation, history match and comparable predict mode will then be made using a finer grid system in order to check the sensitivity of the results to this parameter. These results will then be presented to the Technical Committee at which time it will be determined what additional work is required to assign Zone I reserves by tract.

Following Mr. Miller's presentation, Shell requested an expression of opinion from those present as to whether or not there were any objections to the assumptions made or techniques being used or any suggestions. Mr. Joseph C. Solari, Chevron, suggested that the computed current tract saturations by zone, be compared to the water cut and GOR maps, prepared by the Technical Committee. It was also brought out that the computed ultimate recoveries should furnish additional insight into both primary and secondary recovery efficiencies and the crossflow volumes with time into the various San Andres layers. It may also be desirable to use this reservoir model as a basis for waterflood predictions.

Concurrent with this major reservoir simulation effort Shell plans to investigate waterflood recoveries with the use of reservoir model work on both the Grayburg and the Zone III lower San Andres reservoirs. The Grayburg analysis will be based on a five-spot 40-acre symmetry element which is representative of the Grayburg reservoir considered to be floodable (northern and western flanks). The history match will be made by comparing current average well producing characteristics. It is intended to simulate the performance of the San Andres III Lower reservoir by modeling the entire reservoir, as described by the current Technical Committee work, and comparing the results of water injection under at least two different injection patterns. The benefits of infill drilling will also be examined with this model.

An error in the productive limits of the Zone I oil column porosity-feet map was shown to the Committee. The problem was caused by a miscorrelation of the top of the San Andres in that area and results in only a slight adjustment to the original oil-in-place values for the Gulf Hardin (Section 18 A, B and H) and Moranco State (Section 17E) leases. To date only twelve of the twenty-five operators have returned the forms for verification of tract original hydrocarbon-in-place values. A revised tabulation will be distributed as soon as all of the necessary corrections have been received. Three minor adjustments are also required to contours on the Zone I water cut map. These concern the 25 percent water cut line in the SE/4 of Section 34 (should curve north of Samedan Turner B-2) and the 50 and 75 percent water cut lines in the NE/4 of Section 30 (75% should be west of Getty McKinley 1 and the 50% bowed accordingly). It was also pointed out that Mobil Berry No. 4 (Section 31M) is currently completed in both the basal Grayburg and an upper Zone I (four net feet of pay) stringer. During the 1974 annual GOR State Test the well produced 30 BOPD plus 18BW but it is mapped, by the Technical Committee, to be completely

watered out in Zone I. Following a discussion and further review of the situation it was unanimously decided that the map is correct as drawn. If anyone knows of any descrepancies on any of the maps distributed to date, please advise me as soon as possible inasmuch as we intend to soon have these maps drafted for the Technical Committee report.

Mr. F. E. Coupal presented net pay continuity maps for each of the four San Andres reservoirs. These representations are based on determining how much of the net pay in each well zone is correlatable with the net pay development in each of the direct offsets. The net pay continuity appears to be very good and the reservoir averages are: Zone I, 94 percent; Zone II, 93 percent, Zone III_u, 90 percent; and Zone III_l 93 percent.

The current well status tabulation, furnished to each operator with our letter of May 14, 1975, should be checked carefully and returned to me as soon as possible. Particular attention should be paid to the completion interval and that the elevation shown is compatible with these measurements. Logs run in these wells have used every imaginable elevation datum and some are unique. If you have any questions about this tabulation please call either Frank Coupal (220-1333) or Hank Swartz (220-1022). Your cooperation in carefully verifying this tabulation and that of the original hydrocarbon-in-place is greatly appreciated.

Exxon Company, U.S.A. had previously expressed concern that the Grayburg net pay values selected from logged wells might include some siltstone or nonproductive rock. (See their letter dated May 2, 1975.) Mr. John M. Clayton, Exxon, summarized his work on the problem and pointed out that the production statistics on the western flanks of the proposed unit area seem to indicate that the southern wells have performed much better than the northern producers in contrast with Shell's net pay depiction which shown both areas to have similar net pay development. In summary, Exxon feels that these net pay representations should be modified. Mr. F. E. Coupal then reviewed the geologic premises used and pointed out that the nine zones at the top of the basal Grayburg are correlative across the entire field whereas the underlying wedge of net pay is more erratic in occurrence. He then distributed statistics which geographically summarized the distribution of net pay based on data from 18 cored wells. The tabulation included comparisons of cored well net pay with log-interpreted net pay and a break-out of non-permeable (less than 0.2 md) rock over 11% porosity. A tentatively revised Grayburg net pay map was presented based only on core data and a few logged wells with net pay estimates compatible with nearby cored wells. The revised map did not reflect the differences in productivity along the west flank as interpreted by Exxon. Inasmuch as no other suggestions were made, Shell volunteered to:

1) prepare Grayburg net pay isopach maps of both only the nine correlatable zones and only the underlying wedge and

2) recompile the Grayburg production statistics, in a similar fashion as that presented by Exxon, but adjusted to remove the volumes which are believed to have been produced from the San Andres reservoirs.

It was requested that Shell furnish the other operators estimates of the timing of unitization and the amounts of capital investment that will be required for secondary recovery operations. In response to this we tentatively predict the following schedule:

December 1, 1975, publish the Technical Committee report;
October 1, 1976, effective date of unitization;
and May 1, 1977, initiate water injection.

Preliminary estimates of the capital investment requirements are $12,000,000 initially and another $3,000,000 within the following two years.

HJS:BJT

ATTENDANCE LIST 6/4/75

Name	Company	Location
K. Y. Kassim	Amerada Hess	Seminole
Tom Porter	Atlantic Richfield	Midland
L. C. Soileau IV	Atlantic Richfield	Midland
Joseph C. Solari	Chevron	Midland
Clay Warren	Chevron	Midland
Don Barrett	Cities Service	Midland
C. C. Woodward	Continental Oil	Hobbs
John M. Clayton	Exxon	Midland
R. K. Gourley	Exxon	Midland
J. E. Eakin	Getty Oil Co.	Midland
A. H. Pokky	Getty Oil Co.	Midland
Fernando Cardeñosa	Gulf	Midland
C. D. Stenberg	Gulf	Midland
Leon Veeder	Samedan	Ardmore
C. F. Bosecker	Skelly Oil	Midland
Frank D. McAtee	Skelly Oil	Midland
Paul H. Davis	Texaco	Midland
Allen Wicke	TPOC	Midland
Wm. C. Miller	Shell Dev. Co.	Houston
F. E. Coupal	Shell Oil Co.	Houston
H. J. Swartz	Shell Oil Co.	Houston

NORTH HOBBS UNIT
TECHNICAL COMMITTEE
ADDRESS LIST

ABO PETROLEUM CORPORATION
ATTN: MR. JOHN A. YATES
YATES BUILDING
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: TECHNICAL SERVICES MANAGER
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. E. E. MORRIS
P. O. BOX 3092
HOUSTON, TX 77002

ATLANTIC RICHFIELD COMPANY
ATTN: J. L. TWEED
P. O. BOX 1610
MIDLAND, TX 79701

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

CHEVRON OIL COMPANY
ATTN: MR. J. C. SOLARI
P. O. BOX 1660
MIDLAND, TX 79701

CITIES SERVICE OIL COMPANY
E & P DIVISION
P. O. BOX 1919
MIDLAND, TX 79701

CONTINENTAL OIL COMPANY
ATTN: MR. R. E. McWILLIAMS
P. O. BOX 460
HOBBS, NM 88240

MR. JOHN P. CUSACK
P. O. BOX 250
ROSWELL, NM 88201

DEL LEA (ANTWEIL)
P. O. BOX 1889
HOBBS, NEW MEXICO 88240

EXXON COMPANY - U.S.A. (2)
ATTN: JOINT INTEREST ENGINEERING
SUPERVISOR
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GETTY OIL COMPANY
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GETTY OIL COMPANY
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GULF OIL COMPANY - U. S.
ATTN: MR. F. W. MORAN, JR.
P. O. DRAWER 1150
MIDLAND, TX 79701

MARATHON OIL COMPANY
ATTN: DISTRICT ENGINEER
P. O. BOX 522
MIDLAND, TX 79701

MOBIL OIL CORPORATION
ATTN: MR. TED GRIFFITH
P. O. BOX 633
MIDLAND, TX 79701

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

PETRO-LEWIS CORPORATION
ATTN: MR. JOHN B. SOMERS
1600 BROADWAY, SUITE 1400
DENVER, CO 80202

POLARIS PRODUCTION CORPORATION
ATTENTION DAVIS PAYNE
P. O. BOX 1749
MIDLAND, TX 79701

SAMEDAN OIL CORPORATION
ATTN: MR. H. LEON VEEDER
P. O. BOX 909
ARDMORE, OK 73401

SAMEDAN OIL CORPORATION
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SKELLY OIL COMPANY
ATTN: MR. FRANK D. McATEE
EXP. AND PROD. DEPT.
P. O. BOX 1351
MIDLAND, TX 79701

SKELLY OIL COMPANY
ATTN: MR. CHRIS BOSECKER
P. O. BOX 1315
MIDLAND, TX 79701

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THORNTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS &
MR. JACK ANDREWS
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MIDLAND, TX 79701

MR. BILL L. SWEET
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C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO INC.
ATTN: DISTRICT SUPERINTENDENT
P. O. BOX 728
HOBBS, NM 88240

TEXACO INC.
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ATTN: MR. T. J. WALLER
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TEXAS PACIFIC OIL CO., INC.
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DALLAS, TX 75250

THE WISER OIL COMPANY
110 GIHLS TOWER EAST
MIDLAND, TX 79701

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701

#12

MINUTES OF THE TECHNICAL COMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
OCTOBER 14 and 15, 1975

A meeting of the Technical Committee was held on October 14 and 15 in Midland, Texas. The major objectives of these sessions were to review net pay isopach maps of the Grayburg formation and to determine primary reserves of the Grayburg and upper stringer San Andres producers by the extrapolation of production performance. Fourteen companies, which operate 79 percent of the current producers were represented on Tuesday and eleven companies (76 percent of the wells) were represented on Wednesday. Attendance lists for both sessions are attached.

A brief review of previous Grayburg studies prepared by Shell for the Technical Committee was presented for reference. These include a report distributed on March 7, 1974 and an update which was presented at the Technical Committee meeting held on November 6, 1974. Net pay isopach maps, based on log and core data, were prepared by Shell and distributed to Committee members on February 10, 1975. Discussion of these maps are included in the minutes of the Technical Committee meetings held on March 6, 1975 and June 4, 1975. At the June meeting it was recommended that Shell prepare revised net pay isopach maps that would be based only on core and selected log data. It was also requested that the basal Grayburg horizon be subdivided into an upper interval (comprised of nine correlatable sands) and the lower ("wedge") interval. In addition it was recommended that Shell evaluate the amount of cumulative oil production attributable to the Grayburg, by wells, particularly along the northern and western flanks.

Mr. E. W. Kitchen who has replaced Mr. F. E. Coupal as Shell's Geological Engineering representative on the Technical Committee then presented the four revised net pay isopach maps (oil and gas pay maps for both basal Grayburg zones. These maps were based only on the data from cored well and selected logs (good quality logs which indicated similar net pay/gross interval thickness ratio to those calculated from "nearby" core control points). The enclosed type logs on Shell Rice 4 and Amoco State G5 show the stratigraphic intervals that were mapped. He then presented structure maps on the top of the Grayburg and the four San Andres subzones. Maps were also presented which reflected the cumulative oil production believed to be definitely from the Grayburg and an arbitrary allocation between zones where the Grayburg and San Andres production had been commingled. These determinations indicate that whereas the differences in production performance between areas is not as great as indicated by Exxon at the last meeting, it does appear that the wells along the southwestern flank, particularly those located in Sections 25, 31 and 36 have been the most prolific Grayburg producers.

Considerable discussion followed and revolved primarily about the problem of interpolating or contouring net pay values in areas of limited control. It was concluded that an attempt should be made to first construct percent net pay to gross thickness ratio contour lines for each map which could then be used in conjunction with the gross thickness of each well (determined from logs and/or structure maps) in order to develop the isopach of net pay maps. These percent net to gross ratio maps were constructed and reviewed and considerable discussion followed on the techniques used and whether or not these ratio maps should be segregated on the basis of fluid content or drawn irrespective of contacts. The Technical Committee members finally decided that the percent net to gross ratio maps are a reflection of rock quality and should be independent of fluid content. Therefore, it was recommended that Shell should construct these maps, using only the core and selected log control points applicable to each stratigraphic interval, for each of the two basal Grayburg zones. It was also agreed that Shell should submit these two percent net pay to gross thickness ratio maps to each Committee member in order to obtain approval prior to constructing the net pay oil and gas maps for each zone.

The techniques to be used for determining the remaining primary reserves were then discussed. The enclosed map shows the location of eight groups of wells that are within the proposed unit area and have remaining primary reserves. The majority of the wells are currently producing from one or more of the San Andres zones and the primary reserves for this group will be determined with the use of the reservoir simulation study which is now in progress. The remaining wells are producing from the Grayburg formation and/or the upper San Andres stringer zones. It is recommended that the primary reserves for these wells be determined by extrapolating production performance or by a similar type approximation. Individual decline curves have been prepared for 62 of these wells and each well has been categorized into one of six groups based on similar geographic location and producing characteristics. A composite production curve has also been prepared for each of the six groups and all lease production curves have been updated.

Each Committee representative present analyzed the production performance of these 62 wells, six composite group and eleven lease curves. The annual decline rate and corresponding initial rate was estimated for each of these curves. The reserves determined from these estimates will then be averaged for each curve and the results distributed to all of the Technical Committee members.

The "Well Status" tabulation has once again been revised and a corrected copy will be distributed. One of these elevation changes, to Continental State A-33 No. 4 (33 J), resulted in a redistribution of the amount of porosity-feet in the Zone I gas and oil columns and consequently contour changes to the porosity-feet maps in Zone I. These changes result in a net increase of 201 MMCF for the OGIP and a net decrease of 395,658 BO for the OOIP. Corrected sheets will be sent out to reflect these changes. These and all previous changes to the porosity-feet maps were shown to the Committee.

The need for determining current GIP, by tracts, was discussed. This parameter will be based on tract values of GOR (determined from previously constructed GOR contour maps for II, IIIU and IIIL zones and an average reservoir value for Grayburg and I) and water cut values (determined from contour map on I and estimated average reservoir values for the other zones). In addition to possible use as a parameter, these values will be used as the basis for apportioning secondary reserves to each tract.

HJW:ELP
10/24/75

ATTENDANCE LIST
TUESDAY, OCTOBER 14, 1975

NAME	COMPANY	LOCATION
Kassim Y. Kassim	Amerada Hess	Seminole, Texas
Tom Porter	Atlantic Richfield	Midland, Texas
Cris G. Rhodes	Atlantic Richfield	Midland, Texas
Don Barrett	Cities Service	Midland, Texas
Dana Burnsides	Cities Service	Midland, Texas
C. C. Woodward	Continental Oil	Hobbs, New Mexico
N. K. Reynolds	Exxon	Midland, Texas
A. H. Pokky	Getty Oil	Midland, Texas
S. D. Sutaria	Getty Oil	Midland, Texas
Fernando Cardeñosa	Gulf Energy & Min.	Midland, Texas
C. D. Stenberg	Gulf Energy & Min.	Midland, Texas
Ken McPeters	Moranco	Hobbs, New Mexico
Bill Spires	Polaris Prod.	Midland, Texas
C. F. Bosecker	Skelly Oil	Midland, Texas
Frank D. McAtee	Skelly Oil	Midland, Texas
Ken Barnett	Sun Oil	Midland, Texas
Craig Hinrichs	Texaco	Hobbs, New Mexico
Oran L. Hall	Texas Pacific	Midland, Texas
Allen Wicke	Texas Pacific	Midland, Texas
E. W. Kitchen	Shell Oil	Houston, Texas
H. J. Swartz	Shell Oil	Houston, Texas

ATTENDANCE LIST
WEDNESDAY, OCTOBER 15, 1975

NAME	COMPANY	LOCATION
Kassim Y. Kassim	Amerada Hess	Seminole, Texas
Lou Soileau IV	Atlantic Richfield	Midland, Texas
Don Barrett	Cities Service	Midland, Texas
Dana Burnsides	Cities Service	Midland, Texas
C. C. Woodward	Continental Oil	Hobbs, New Mexico
Russell G. Estes	Estes Engr. Co.	Midland, Texas
N. K. Reynolds	Exxon	Midland, Texas
W. E. Nolan	Exxon	Midland, Texas
A. H. Pokky	Getty Oil	Midland, Texas
S. D. Sutaria	Getty Oil	Midland, Texas
Fernando Cardeñosa	Gulf Energy & Minerals	Midland, Texas
Frank D. McAtee	Skelly Oil	Midland, Texas
Allen Wicke	TPOC	Midland, Texas
H. J. Swartz	Shell Oil	Houston, Texas

Minutes of the Technical Committee Meeting
Proposed North Hobbs Unit
January 13-14, 1976

The meeting was called to order at 9:30 AM. Fifteen companies, which operate 86 percent of the current producers, were represented (Attendance List is attached). The sole purpose of this meeting was to redetermine tract primary reserves for those wells producing from the Grayburg and/or upper San Andres stringers.

Mr. Swartz initiated the meeting with a review of work done to date for determining primary reserves. In summary, the primary reserves for the proposed North Hobbs Unit is being determined by two methods: (1) by analysis of production performance for all wells which are currently considered to be producing from the Grayburg and/or upper San Andres stringers and (2) by a reservoir simulation study (currently in progress) for all wells currently producing predominantly from the San Andres reservoir(s). There will be no overlap as each well has been placed in only one of the above categories.

A plan of attack was then developed by the Committee members. It was decided to first assign reserves to all of the applicable lease and composite groupings. Then wherever the lease production performance curve could not be used (i.e. when most of the current production on a lease is from wells completed in the San Andres reservoir); the reserves were estimated from the individual well decline curves. These curves have all been updated to include at least the production between January, 1972 and October, 1975. In many cases the November and December, 1975 production figures were also available as well as the production prior to January, 1972 for all of the one-well leases. The sum of all the wells within a group (groupings are described in prior correspondence) were then compared to the extrapolation of the applicable Composite Group curve as a check of the reserves so estimated.

All of these production performance curves were projected with a view graph and an annual decline rate (dy) and an initial 1/1/76 rate (q) was determined by those present. Complete agreement was obtained for each curve and the 1/1/76 reserves were calculated using an economic limit of one BOPD/well. These determinations are summarized on the attached tabulation and are considered to be final.

HJS:ELP

Attachments

ATTENDANCE LIST OF JANUARY 13-14, 1976
MEETING OF PROPOSED NORTH HOBBS UNIT
TECHNICAL COMMITTEE

NAME	COMPANY	LOCATION
K. Y. Kassim	Amerada Hess	Seminole
Grant Miller	Amerada Hess	Seminole
Bob Malaise	Atlantic Richfield	Midland
Tom Porter	Atlantic Richfield	Midland
Don Barrett	Cities Service	Midland
C. C. Woodward	Continental	Hobbs, NM
W. E. Nolan	Exxon	Midland
Jim Eakin	Getty	Midland
Fernando Cardeñosa	Gulf	Midland
R. E. Dejmal	Mobil	Midland
Ken McPeters	Moranco	Hobbs, NM
Boyce Perry	Samedan	Ardmore, OK
Chris Bosecker	Skelly	Midland
Ken Barnett	Sun	Midland
Oran Hall	Texas Pacific	Midland
William Larsen	Wiser	Midland
H. J. Swartz	Shell	Houston

NORTH HOBBS UNIT
TECHNICAL COMMITTEE
ADDRESS LIST

ABO PETROLEUM CORPORATION
ATTN: MR. JOHN A. YATES
YATES BUILDING
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: TECHNICAL SERVICES MANAGER
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. E. E. MORRIS
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ATLANTIC RICHFIELD COMPANY
ATTN: J. L. TWEED
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ATTN: MR. C. W. BYROM
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C&C OPERATING CORP.
P. O. BOX 1829
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CHEVRON OIL COMPANY
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CITIES SERVICE OIL COMPANY
E & P DIVISION
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MIDLAND, TX 79701

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EXXON COMPANY - U.S.A. (2)
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MARATHON OIL COMPANY
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SUN OIL COMPANY (DELAWARE)
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YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701

ESTES ENGINEERING CO.
306 PETROLEUM BLDG.
MIDLAND, TX 79701

W. D. ANDERSON & SONS
P. O. BOX 136
MIDLAND, TX 79701

PROPOSED NORTH HOBBS UNIT

COMPANY	LEASE	WELL(S)	LOCATION	9 1/1/76 qo (BOPD)	dy (%)	RESERVES* (BBL)
Amerada Hess	Hardin	1,2,3,5	18K,L,M,N	0	0	0
" "	State B	3,4	29B,C	5	12	148,475
" "	State C	1,2	36A,H	25	14	55,66[illegible]
" "	State C	3	36G	0	0	0
" "	State E	1	36E	7	20	9,814
" "	State WNB	1	1[illegible]	[illegible]	1[illegible]	[illegible]
			Subtotal	9[illegible]		226,05[illegible]
Amtwell	Hobbs CT	1	21J	8	12	19,98[illegible]
Atlantic Richfield	Grimes	1	20C	7.5	14	15,75[illegible]
" "	Grimes SOC	3	28D	4.[illegible]	18	6,90[illegible]
			Subtotal	[illegible]		[illegible]
Byron	Holt State	1	36E	10	10	31,175
C&C Oper.	Shipp A	1	23E	1.5	13	1,310
Chevron	State 17	1	17L	0	0	0
Continental	State B-13	2,5,7	13M,E,L	6	17	9,79[illegible]
"	"	1,4,6	13N,F,C	0	0	0
"	" A-25	2	25C	0	0	0
Estes	State	1	14P	**	**	14,665
Exxon	New Mex. State	1,5,6,7, 8,9	25I,O,K,P,J,N	120	15	256,03[illegible]
Getty	Hardin	2	19H	7	10	20,786
"	"	3	19B	17	14	35,[illegible]
"	State B	1,2	14H,G	4	8	8,75[illegible]
			Subtotal	28		68,[illegible]
Gulf	Hardin	3,4,5,6	18I,G,[illegible]			
"	"	7,8,9	H,B,A,O	23	11	50,11[illegible]
"	LeaFO State	1	14N	4	9	11,61[illegible]
			Subtotal	27		61,72[illegible]
Marathon	State 30	9	30M	3.4	18	4,614
Mobil	Berry	2,3,4	31N,L,M	55	11	162,871
Morenco	Hobbs	1	34H	14	11	40,716
"	State T 17	1	17E	4.5	12	9,99[illegible]
			Subtotal	18.5		50,711
Samedan	State B	1,2	25F,E	9	11	21,925
Shell	Rice	4	13J	11	14	24,201
"	Sanger	6	27D	11	19	17,321
"	State F	2	23G	3.5	20	4,089
"	State F	3	23B	6.4	16	11,305
			Subtotal	31.9		56,916
Skelly	Hobbs B	1	26A	5.3	17	8,423
"	State A	1	17M	3.3	10	7,968
			Subtotal	8.6		16,391
Sun	Fowler	4	31E	12.5	10	39,839
Bill Sweat	Bowers B	2	20J	3.5	10	8,661
C.W. Sweat	Grimes	1A	20I	0	0	0
"	McKinley B	2	20H	3.5	10	8,661
"	State F	2,3,4	23H,I,A	25	10	76,215
			Subtotal	28.5		84,876
Texas Pacific	State V Ac 1	1,2	14I,J	13	11	34,454
"	State V Ac 2	3,4,5,6	23C,F,K,N	14	10	34,643
			Subtotal	27		69,097
Wiser	State	1	26B	-	-	***
Yates	Shell State	1,2,3	23P,J,O	17	16	29,308
TOTALS		62	Producers	521.6		1,256,348
		1	Completing			***
		11	TA			0

Notes: * Economic Limit assumed to be one BOPD/well.

** New well with erratic production. Reserves are arithmetic average of 4 offset wells (TOPC ST. V AC-1, 2 wells; Amer. St. WNB 1, and Shell State F-3)

*** New well now being completed, will assign reserves at a later date.

II

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

January 20, 1976

Subject: Technical Committee Meeting
Proposed North Hobbs Unit
Lea County, New Mexico

Technical Committee
(Addressee List Attached)

Gentlemen:

Attached are the minutes of the Technical Committee meeting which was held in Midland, Texas on January 13 and 14, 19[illegible].

At this meeting the primary reserves were finalized for all wells which are currently producing from the Grayburg and/or upper San Andres stringers. This totals about 1.3 million barrels for 63 producers. Primary reserves for the remaining wells, which produce predominantly from the San Andres reservoir(s), are being determined with the use of a reservoir simulation computer program.

It would be greatly appreciated if each Company would return the ballots on the revised percent net pay to gross thickness ratio maps for the upper and lower Basal Grayburg Zones. (These were sent with letter dated December 31, 1975.) Once the volumetrics on the Grayburg are completed we will finalize a waterflood plan for this reservoir.

Yours very truly,

H. J. Swartz

H. J. Swartz, Chairman
Technical Committee

HJS:ELP

Attachment

63

MINUTES OF THE TECHNICAL COMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
MARCH 25, 1975

The meeting was called to order at 9:15 AM. Fourteen companies, which operate 79 percent of the current producers, were represented. (Attendance list is attached). The main purposes of this meeting were to: (1) finalize net pay isopachs of the Grayburg formation, (2) present the results of a Grayburg waterflood evaluation on a 40-acre symmetry element and (3) decide on a waterflood plan for the Grayburg reservoir.

Mr. E. W. Kitchen presented a brief review of the method and decisions involved in the construction of the four Grayburg net pay isopach maps. Copies of these maps were mailed to each representative with the letter calling the meeting. After a brief discussion the maps were unanimously approved as drawn. It was requested that committee members review all maps submitted to them today for accuracy of information and data since these maps will be sent for drafting in final form shortly. The tract values of original hydrocarbons-in-place will be determined from these maps by use of the "gridding" technique with a ten-acre grid. Tabulations of the tract values and copies of the gridded maps will be sent to each operator for verification.

Mr. R. J. Swartz presented the results of a reservoir simulation study of the Grayburg formation. This analysis was done with the use of a three-phase, three dimensional, compressible fluid reservoir simulation program using a 40-acre symmetry element and a 9 by 17 grid system. The reservoir volume represented was 1028 NAF with an average porosity of 14 percent, water saturation of 30 percent and average permeability of 5 millidarcies. The value of permeability was determined by trial and error by comparing recent production history and water injectivities using the Moranco waterflood experience as a guide. Pseudo relative permeability curves were constructed using a Dykstra-Parsons variance factor of 0.7 (determined from 256 core samples) and a five layer stratification.

Based on the production history of 69 wells which were producing predominantly from the Grayburg, the average producing characteristics at January 1, 1975 were estimated to be 15 BOPD per well with a GOR of 5035 cubic feet per barrel. Fractional flow equations were used in conjunction with the pseudo relative permeability curves to relate this GOR to an average gas saturation of 19 percent and an average oil saturation of 51 percent. These values represent a cumulative oil recovery of 16.23 percent of the OOIP or about 10.2 million barrels, which fits prior estimates of cumulative oil production allocated to the Grayburg. The average reservoir pressure at January 1, 1975 was estimated to be 400 psig at 400 feet subsea.

Using these initial conditions, a base case was run to establish the results to be expected for continued primary depletion as a function of time. This analysis indicates that ultimate primary recovery (to an economic limit of one BOPD per well) would be 1098 STB per NAF or 18.7 percent of the OOIP. The January 1, 1975 reserves are 14.9 STB per NAF. Assuming that water injection would be initiated in mid-1978, this base case indicated that the average oil saturation at that time would be 48.6% and the reservoir pressure would be 220 psig.

A waterflood program using a five-spot pattern resulted in an ultimate recovery efficiency of 33.1 percent. This reflects an additional 84 STB/NAF (14.4%) of secondary oil per five-spot pattern. Economic analyses were made for this case and infill drilling. The effects of pattern skewness and shutting in producers to conserve reservoir energy were also evaluated with the computer program.

The conclusions reached from this study and discussions with the Technical Committee are summarized as follows:

(1) Because of the low permeability of the Grayburg reservoir it will be necessary to use a pressurized injection system (about 1500 psig surface) and a ratio of one injector per producer (five-spot or line drive pattern).

(2) An 80-acre five-spot waterflood is economically attractive. However, a complete infill program (40-acre five spot) cannot be economically justified at this time. The flood performance is improved if high GOR-low oil rate producers are shut-in while injecting water during the 5-year fillup period.

(3) Final pattern selection and well utilization should be made after the San Andres water injection program is finalized.

At the Technical Committee meeting of December 5, 1974, special BHP buildup surveys were requested in four selected wells. It was agreed that the Technical Committee would recommend to the Working Interest Owners that an adjustment be made to any production parameter that incurred a production loss because of these BHP surveys. Several methods were discussed at this meeting and it was then decided to adjust any parameter affected by averaging each well's production for two months prior to the survey and two months afterwards and subtracting the actual production obtained during the survey month(s). The well involved and the adjustment are:

Well	Location	Date Shut-In	Hours SI	Adjustment (Bbls.)
Amerada McKinley 3	30C	1/06/75	67	240
Exxon Fed. Bow. 10	29L	12/30/74	70	200
Getty McKinley 2	30H	12/11/74	72	0
Marathon State 30-1	30K	12/02/74	67	589

It was requested that all Technical Committee representatives carefully review the "Well Status Summary" (last revised 10/15/75) mailed with our letter dated October 31, 1975, and advise H. J. Swartz (713-220-1022) whether or not the data are correct as shown.

HJW:ELP
3/29/76

ATTENDANCE LIST
THURSDAY, MARCH 25, 1976

NAME	COMPANY	LOCATION
Kassim Y. Kassim	Amerada Hess	Seminole
Paul Kossmann	Amoco	Houston
Bob Malaise	Arco	Midland
Don Barrett	Cities Service	Midland
C. C. Woodward	Continental	Hobbs
J. E. Eakin	Getty	Midland
A. H. Pokky	Getty	Midland
C. D. Stenberg	Gulf	Midland
W. E. Nolan	Exxon	Midland
N. K. Reynolds	Exxon	Midland
Loren Stiles	Exxon	Midland
Joe Janice	Morance	Hobbs
Frank D. McAtee	Skelly	Midland
Ken Barnett	Sun	Midland
Ed Wallace	Texaco	Midland
Russ Meyers	Texas Pacific	Dallas
Earl Kitchen	Shell	Houston
Hank Swartz	Shell	Houston

NORTH HOBBS UNIT
TECHNICAL COMMITTEE
ADDRESS LIST

ABO PETROLEUM CORPORATION
ATTN: MR. JOHN A. YATES
YATES BUILDING
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: TECHNICAL SERVICES MANAGER
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. T. DON STACY
P. O. BOX 3092
HOUSTON, TX 77001

ATLANTIC RICHFIELD COMPANY
ATTN: J. L. TWEED
P. O. BOX 1610
MIDLAND, TX 79701

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

C&C OPERATING CORP.
P. O. BOX 1829
HOBBS, NM 88240

CHEVRON OIL COMPANY
ATTN: MR. J. C. SOLARI
P. O. BOX 1660
MIDLAND, TX 79701

CITIES SERVICE OIL COMPANY
E & P DIVISION
P. O. BOX 1919
MIDLAND, TX 79701

CONTINENTAL OIL COMPANY
ATTN: MR. R. E. McWILLIAMS
P. O. BOX 460
HOBBS, NM 88240

MR. JOHN P. CUSACK
P. O. BOX 250
ROSWELL, NM 88201

DEL LEA (ANTWEIL)
P. O. BOX 1889
HOBBS, NEW MEXICO 88240

EXXON COMPANY - U.S.A. (2)
ATTN: JOINT INTEREST ENGINEERING
SUPERVISOR
P. O. BOX 1600
MIDLAND, TX 79701

GETTY OIL COMPANY
ATTN: MR. W. J. NEWMAN
P. O. BOX 1231
MIDLAND, TX 79701

GETTY OIL COMPANY
ATTN: MR. E. J. MILLER
P. O. BOX 249
HOBBS, NM 88240

GULF ENERGY & MINERALS CO. - U.S.
ATTN: V. M. HENDRICKS
DISTRICT RESERVOIR ENGINEER
P. O. BOX 1150
MIDLAND, TX 79701

MARATHON OIL COMPANY
ATTN: DISTRICT ENGINEER
P. O. BOX 522
MIDLAND, TX 79701

MOBIL OIL CORPORATION
ATTN: MR. TED GRIFFITH
P. O. BOX 633
MIDLAND, TX 79701

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

PETRO-LEWIS CORPORATION
ATTN: MR. JOHN B. SOMERS
1600 BROADWAY, SUITE 1400
DENVER, CO 80202

SAMEDAN OIL CORPORATION
ATTN: MR. BOYCE PERRY
P. O. BOX 909
ARDMORE, OK 73401

SAMEDAN OIL CORPORATION
ATTN: MR. W. S. McCUEN
2207 WILCO BUILDING
MIDLAND, TX 79701

SKELLY OIL COMPANY
ATTN: MR. FRANK D. McATEE
EXP. AND PROD. DEPT.
P. O. BOX 1351
MIDLAND, TX 79702

SKELLY OIL COMPANY
ATTN: MR. CHRIS BOSECKER
P. O. BOX 1315
MIDLAND, TX 79702

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THORNTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS &
MR. JACK ANDREWS
P. O. BOX 1861
MIDLAND, TX 79701

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXACO INC.
ATTN: DIVISION ENGINEER
P. O. BOX 3109
MIDLAND, TX 79701

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. T. J. WALLER
P. O. BOX 4067
MIDLAND, TX 79701

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. G. R. MEYER
1700 ONE MAIN PLACE
DALLAS, TX 75250

THE WISER OIL COMPANY
110 GIRLS TOWER EAST
MIDLAND, TX 79701

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701

ESTES ENGINEERING CO.
306 PETROLEUM BLDG.
MIDLAND, TX 79701

W. D. ANDERSON & SONS
P. O. BOX 13[illegible]
MIDLAND, TX 79702

#13

Minutes of the Technical Committee Meeting
Proposed North Hobbs Unit
October 13, 1976

The meeting was called to order at 9:00 a.m. Seventeen companies, which operate 90 percent of the current producers, were represented. (Attendance list attached). The main purpose of this meeting was to present the results of Shell's reservoir simulation study of primary recovery performance from the San Andres.

Mr. Swartz presented a brief review of the history of Technical Committee progress and emphasized the following points:

1. Attempts to form a fieldwide unit were aborted during 1973, primarily because of disagreement over the determination of remaining primary reserves.

2. Resolution of the problem of determining tract reserves (both primary and secondary) for the proposed North Unit should eliminate the last major hurdle for the Technical Committee.

3. The main complication for determining tract primary reserves is the existence of strong water influx into the upper San Andres (Zone I). This water drive is primarily from west to east and has caused an unusually large amount of oil migration and maintained the reservoir pressure and consequently the productivity of Zone I at higher levels than in the other productive intervals. This is particularly evident along the eastern flank of the proposed North Unit area.

4. Two prior methods for allocating tract primary reserves for the San Andres have been presented to the committee at meetings held on October 5, 1974 and November 7, 1974. Both were rejected and subsequent discussions led to the conclusion that the problem would best be resolved with the use of a reservoir simulation study.

5. A letter ballot, dated March 13, 1975, for a Shell computer study at a flat rate of $6000 (estimate based on computer time and outside clerical help only) was approved by 88.52 percent of the operators with only one dissenting vote.

6. Consequently Shell made a feasibility study and at a Technical Committee meeting held on June 4, 1975, Mr. W. C. Miller, section leader of the reservoir simulation group in Shell's research organization, presented a description of the mathematical model and techniques that would be used.

7. Primary reserves have already been determined by the use of production decline analysis for 62 wells which produce from the Grayburg and/or upper San Andres stringers. Please refer to the enclosed map (Figure 1) which shows those wells included in the reservoir simulation study.

8. Prior to completing the reservoir simulation study it was thought that it would be necessary for the Technical Committee to reallocate reserves to wells located in a common grid block. However, because of differences in completion zones and well model characteristics, it is believed by Shell that representative and equitable primary reserve determinations have been simulated on an individual well basis.

Mr. W. C. Miller then reviewed the premises, model description and the results of the history match. Discussion centered about the following points:

1. A 10 by 20 grid system, depicted in Figure 2 was superimposed on all completions in the field using a three-layer representation for the San Andres reservoirs (I, II and III_U/III_L).

2. All of the Technical Committee data developed to date were input for reservoir description. These include: Structure maps (fitted with curvilinear coordinates for a smooth surface as shown in Figure 3), individual well zonal porosity determinations, zonal original hydrocarbons-in-place (using the previous Engineering Committee work for the South Hobbs Unit area) and rock relative permeability curves modified to pseudo curves by stratification effects.

3. Oil production history, from initial completion to January 1, 1976, was input for every completion in the field after factoring out a minor amount attributed to the Grayburg formation on the basis of relative permeabilities and well storage differences in the completed intervals.

4. The actual well completion history (zone changes) were input in five-year intervals and the "current" (January 1, 1976) completion zones are shown in Figure 1. As previously decided by the Technical Committee, all wells producing in excess of 100 BWPD but not completed in Zone I were assumed to have behind pipe communication with that zone.

5. As previously discussed at previous sessions there are many indications of preferential flow channels. One obvious example is between two wells (29P and 28M) which although they are located about 700 feet apart and are both apparently completed in equivalent Zone I sections, one is a clean oil producer and the other makes in excess of 70 percent water cut. In view of this and other anomalous production performances it was necessary to establish flow channels (in Zone I only) in order to obtain a satisfactory history match. The transmissibilities of these flow channels were varied but it was found necessary to use a value of zero. The flow channels or barrier locations are depicted in Figure 4.

6. The quality of the history match was evaluated primarily by comparing the calculated zonal water production rates for each well to those reported to the New Mexico Conservation Commission during the year 1975. Attention was also focused on current zonal and areal reservoir pressure variations and comparisons with measured data reported at prior meetings. Figures 5 thru 10 represent both qualitative and quantitative comparisons of these data.

7. Shell believes that a good history match has been obtained, especially considering the interzonal interactions resulting from multicompletions, variations in reservoir pressure and selective completions intervals.

Following these discussions, Mr. W. C. Miller then presented the results of the prediction phase and emphasized the following points:

1. As decided by the Technical Commettee, the predict was run with each well retaining the current completion interval for the remaining life.

2. A top allowable well was assigned a January 1, 1976 bottom hole flowing pressure of 300 psi whereas the remaining wells were assumed to have 100 psi flowing bottom hole pressures. These top allowable wells are designated on Figure 11.

3. The permeability - thickness product of each well in each zone had been automatically varied throughout the history match to simulate actual performance. The last adjusted zonal kh for each well was kept constant during the predict mode.

4. The economic limit was arbitrarily selected to be 5 BOPD and/or 95 percent water cut and the prediction terminated at the end of year 2024.

5. It was assumed that those wells which contain a Grayburg completion with the main San Andres would not obtain any future primary reserves from the Grayburg because of the significant differences in permeability - thickness products and static reservoir pressures.

6. The predicted performance of each well was then summed into field, lease and operator totals which are summarized in Figures 12 thru 15 The estimated future rates were plotted on the enclosed lease production graphs. The previously estimated (by decline curve analysis) production for Grayburg and/or Upper San Andres producers has been added to the simulated predictions for the main San Andres wells where a lease contains wells in both categories.

Shell believes that the resulting predictions are reasonable and equitable projections of future performance. The economic limit was subsequently recalculated at the decontrolled stripper oil price and is 3 BOPD or 99 percent water cut, whichever is reached first. The results using the higher economic limit is labelled "Set A" whereas the recommended runs with the lower economic limit are designated as Set B. Figures 16 thru 19 are summary tables of actual and estimated primary oil performance from the San Andres reservoir for both the field and the proposed North Unit by zones and in total. Figure 20 is a summary of recent production statistics for the North Unit.

The Technical Committee members were asked to suggest variations to the simulation runs presented. None were suggested at the meeting but it was left open so that any Technical Committee representative wishing a variation in the assumptions should call the Chairman of this committee. It was requested that every one come to the next meeting on November 4, 1976, be prepared to vote on acceptance of this simulation study as the basis for tract primary reserves for those wells in the study area. Shell recommends using the San Andres primary reserves which are summarized in Set B. We feel that these represent equitable estimates and are much more representative than those obtained by methods previously suggested to the Technical Committee.

ATTENDANCE LIST
(10/13/76)

Name	Company	Location
Kassim Y. Kassim	Amerada Hess	Seminole
Paul Kossmann	Amoco	Houston
Bob Malaise	Arco	Midland
Don D. Allen	Chevron	Midland
Donald D. Barrett	Cities Service	Midland
Ken Harpole	Cities Service	Tulsa
C. L. Hearn	Cities Service	Tulsa
Arthur J. Henry	Conoco	Houston
C. C. Woodward	Conoco	Hobbs
R. G. Estes	Estes Engr.	Midland
W. E. Nolan	Exxon	Midland
Loren Stiles	Exxon	Midland
J. F. Ellebracht	Getty	Midland
Harold G. O'Dell	Getty	Houston
G. G. Bingham	GEM-U.S.	Midland
Fernando Cardeñosa	GEM-U.S.	Midland
John J. Justen	Mobil	Houston
Ken McPeters	Moranco	Hobbs
Boyce Perry	Samedan	Ardmore
Chris Bosecker	Skelly	Midland
David Williams	Skelly	Midland
Jess B. Nunnelee	Skelly	Midland
Ken Haggart	Sun	Midland
Chuck Price	Sun	Midland
G. R. Meyers	Texas Pacific	Dallas
W. E. Buck	Shell	Houston
W. C. Miller	Shell	Houston
H. J. Swartz	Shell	Houston

DATE : 03 NOV 76

FILE (NORTH HOBBS)

TENTATIVE

OPER	NO. OF WELLS USBL 7/76	NO. OF WELLS ACTV 7/76	CUM OIL PROD 1-1-76	7MOS,76 PRODUCTION OILPRO BBLS	7MOS,76 PRODUCTION GASPRO MCF	ORIG OIL IN PLACE GB BBLS	ORIG OIL IN PLACE SA BBLS	ORIG OIL IN PLACE TOTLE BBLS	1/1/76 PRIMARY RES, * GRYBRG BBLS	1/1/76 PRIMARY RES, * SAN AN BBLS
AMERADA HESS	21.0	15.0	16108886	115999	305109	6700308	44165089	50865877	226050	2415897
AMOCO	2.0	2.0	2272648	32417	37089	0	10226595	10226595	0	754786
ANTHRL	1.0	1.0	39761	1595	26900	182819	69903	252222	19987	0
ATLANTIC	5.0	5.0	4015471	25038	192994	1427813	9252067	10679880	22535	946097
BYRON	1.0	1.0	199814	2122	4850	619012	42126	661138	31179	0
CHEVRON	5.0	4.0	3566150	40191	29137	859979	14880977	15740976	0	1397560
CITIES SER.	10.0	8.0	7578942	53754	37271	1204430	29625192	30829622	0	1135582
CONOCO	22.0	18.0	15657790	164160	475500	4495249	69785272	74280521	9794	4712941
C&L	1.0	1.0	17233	458	23	163046	0	163046	1310	0
ESTES	1.0	1.0	71473	2465	19061	701800	806352	1508152	10465	0
EXXON	16.0	15.0	14507450	101501	491722	4876291	40211087	45087338	256032	1782097
GETTY	13.0	13.0	11726411	76250	282910	2814318	29850640	32268958	68262	1870921
GULF	34.0	31.0	16935550	173799	645231	3485942	77972882	81457924	131388	3512265
KANATHON	8.0	8.0	8812011	46168	164552	1723499	29696551	31420052	8414	1290807
KERR-MCGEE	4.0	4.0	1693660	20831	88895	2766778	2399457	5166235	300685	0
MARATHON	2.0	2.0	200317	4202	14904	243777	53623	297400	50711	0
MERICAN	14.0	14.0	9827705	153707	298273	5291903	15843962	21135865	21925	4580147
SHELL	80.0	63.0	31749807	410445	1016711	7327212	99628921	106956133	56916	9991897
SKELLY	7.0	7.0	4975199	58392	136780	3512693	10285943	13798636	16391	1500345
SUNOIL	2.0	2.0	892087	5712	39710	1657647	1677823	3335470	39839	30578
SACHTA	1.0	1.0	821869	627	1861	565359	2558743	3124102	8681	0
SUNTIC	7.0	5.0	1023568	5727	81218	2958733	4020489	6979222	84876	0
TEXACO	0.0	0.0	4383365	53844	167862	1232596	8749629	9982225	0	1238733
TEXAS PAC.	10.0	10.0	4595765	73369	113900	4052829	14021282	18074111	69097	1827551
WISER	3.0	3.0	1077122	8129	41296	698409	732619	1431028	2855	206337
YATES	3.0	3.0	417531	3268	16924	2004752	550523	2555275	29308	0
	241.0	221.0	164267765	1634254	4730679	61566390	516711613	578278003	1066880	39214501

* BASED ON DECLINE CURVE ANALYSIS
Will be updated revised as 11/17/76

** BASED ON FIG. 15 w/ minutes of 10/13/76 meeting. Will be updated & revised

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DATE : 03 NOV 76

FILE (NORTH DOMES)

	NO. OF WELLS		CUM OIL THRU 76 PRODUCTION			ORIG OIL IN PLACE			1/1/76 PRIMARY RES	
OPER	USBL 7/76	ACTV 7/76	PROD 1-1-76	OILPRO BBLS	GASPRO MCF	GB BBLS	SA BBLS	TOTLE BBLS	GRYBRG BBLS	SANAN BBLS
AMERADA HESS	8,71369	6,78733	9,80648	7,09798	6,44958	10,88319	8,54702	8,79609	15,41236	6,16072
ARCO	,82988	,90498	1,38350	1,98360	,78401	,00000	1,97917	1,76846	,00000	1,92876
ARK.OIL	,41494	,45249	,02820	,09760	,56863	,29695	,01343	,04362	1,36274	,00000
ATLANTIC	2,07469	2,26244	2,44047	1,53208	4,07963	2,31914	1,79057	1,84684	1,53686	2,41364
BYRON	,41494	,45249	,12164	,12985	,10252	1,00548	,00815	,11433	2,12582	,00000
CHEVRON	2,07469	1,80995	2,17098	2,45929	,61592	1,39686	2,87994	2,72204	,00000	3,56388
CITIES SER.	4,14938	3,61991	4,61377	3,28921	,78786	1,95631	5,73341	5,33128	,00000	2,89582
CONOCO	9,12863	8,14480	9,53187	10,04495	10,05141	7,30147	13,50565	12,64512	,66777	12,01835
C&C	,41494	,45249	,01080	,02986	,00049	,26483	,00000	,02820	,08932	,00000
ESTES	,41494	,45249	,04351	,15083	,40292	1,11991	,15605	,26080	,98624	,00000
EXXON	6,63900	6,78733	8,83159	6,21085	10,39432	7,92038	7,78211	7,79683	17,45657	4,54448
GETTY	5,39819	5,88235	6,83821	4,66598	5,98033	4,57119	5,70040	5,58018	4,65418	4,82199
GULF	14,10788	14,02715	11,52725	10,63476	13,63929	5,66062	15,09021	14,08629	8,95819	8,95658
MARATHON	3,31950	3,61991	5,36442	2,82502	3,47840	2,79982	5,70722	5,43338	,30095	3,29063
MOBIL	1,65975	1,80995	1,03104	1,27865	1,87912	8,99397	,46837	,89338	20,50106	,00000
MONSANTO	,82988	,90498	,12195	,25712	,31497	,39596	,01038	,05143	3,45754	,00000
SAMEDAN	5,80913	6,33484	5,73928	9,40533	6,30508	8,59544	3,06631	3,65497	1,49487	11,67972
SHELL	18,25726	19,45701	19,32408	25,11513	21,49186	11,90132	19,28134	18,49563	3,88060	25,48008
SKELLY	2,90456	3,16742	3,02871	3,57301	2,89134	5,70554	1,99065	2,38616	1,11756	3,82599
SUNOIL	,82988	,90498	,54307	,34952	,83941	2,69245	,32471	,57679	2,71627	,07798
SHELTON	,41494	,45249	,50008	,04183	,03934	,91629	,49520	,54024	,59052	,00000
SUPETC	2,90456	2,26244	,62311	,35044	1,71684	4,80576	,77809	1,20690	5,78695	,00000
TEXACO	1,65975	1,80995	2,66843	3,29471	3,50837	2,00206	1,69333	1,72620	,00000	3,15886
TEXAS PAC.	4,14938	4,52489	2,79773	4,48945	2,40769	6,58286	2,71356	3,12551	4,71112	4,66039
WISER	1,24481	1,35747	,65571	,49741	,87294	1,13440	,14178	,20706	,19466	,52617
YATES	1,24481	1,35747	,25418	,19997	,35775	3,25624	,10654	,44188	1,99825	,00000
	99,99999	99,99999	99,99999	99,99999	99,99999	99,99999	99,99999	99,99999	99,99999	********

DATE : 03 NOV 76

FILE (NORTH HOBBS)

		NO. OF WELLS		CUM OIL 7803.76 PRODUCTION			ORIG OIL IN PLACE			* 1/1/76 PRIMARY RES.	**
TR NO	TRACTS	USBL 7/76	ACTV 7/76	PROD 1-1-76	OIL BBLS	GAS MCF	GR BBLS	SA BBLS	TOTLE BBLS	GRYBRG BBLS	SAHAN BBLS
1	GETTY - STATE B	2.0	2.0	57421	1151	820	724124	11916	736040	8755	0
2	AMERADA HESS-STATE A&B	2.0	1.0	128605	1186	7302	1068176	143368	1211544	12100	0
3	GULF - LEA E U STATE	1.0	1.0	68537	829	2652	933169	0	933169	11611	0
4	TEXAS PACIF.-STATE V AC1	2.0	2.0	192596	2655	22747	1480992	391981	1872973	30458	0
5	ESTES EAGR. STATE	1.0	1.0	71473	2465	19061	701800	806352	1508152	18465	0
6	CONTINENTAL - STATE B 13	6.0	0.0	841291	976	2009	2559420	6709383	9268803	9798	0
7	SHELL - RICE	4.0	4.0	1688640	9815	63670	240571	12079112	12319683	24201	138810
8	AMERADA HESS - B HARDIN	4.0	.0	1819582	0	0	249531	10968245	11217776	0	0
9	GULF - DAN HARDIN	8.0	8.0	1761393	8355	77894	1633476	8078778	9712254	50114	23835
10	MONARCH - STATE T 17	1.0	1.0	70210	876	1177	209704	52506	262210	9993	0
11	CHEVRON - STATE I 17	1.0	.0	61888	0	0	326630	326254	652884	0	0
12	SHELLY - STATE A	1.0	1.0	290076	648	1167	402190	889086	1291676	7968	0
13	C&C OPER. - SHIPP A	1.0	1.0	17733	488	23	163046	0	163046	1310	0
14	TEXAS PACIF.-STATE V AC2	4.0	4.0	295240	2848	8893	1777925	60558	1838483	34643	0
15	SHELL - STATE E	2.0	2.0	125705	1119	7755	1186335	357954	1544289	15394	0
16	C H SWEET - STATE F	4.0	3.0	638840	4980	63719	2138211	2074317	4212528	76215	0
17	JOHN A YATES-SHELL STATE	3.0	3.0	417531	3268	16924	2004752	550523	2555275	29308	0
18	AMERADA HESS-STATE E	2.0	2.0	1015321	5539	19277	850138	3089937	4340075	9814	71821
19	SHELL - STATE D	2.0	2.0	1048745	18941	56271	343625	5739370	6082995	0	281776
20	GULF - GRAHAM STATE A	6.0	5.0	2930543	33853	61935	148541	15523758	15672299	0	548937
21	SAMEDAN - STATE C	4.0	4.0	3371748	64582	101468	2658946	7830550	10489496	0	1257541
22	TEXAS PACIF.-STATE G	4.0	4.0	4107929	67866	82260	793912	13568743	14362655	0	1827551
23	CITIES SERVICE - HARDIN	5.0	4.0	3414545	17290	18781	152267	15417627	15569894	0	227438
24	GETTY - BOONE HARDIN	4.0	4.0	3193992	8742	38909	1297980	8690699	9988679	59507	54573
25	SHELL - MCKINLEY A	9.0	9.0	9186071	93458	167240	1470816	22110859	23581675	0	1902681
26	SHELLY - H D MCKINLEY	1.0	1.0	604954	752	4085	480850	2243427	2724277	0	0
27	CHEVRON - H D MCKINLEY	2.0	2.0	1393169	9152	16746	533369	3966988	9000357	0	219404
28	C H SWEET - MCKINLEY B	1.0	1.0	95606	682	17499	595770	1103653	1699423	8661	0
29	SHELL - MCKINLEY B	5.0	4.0	3852726	31930	75114	1387273	6975125	8362398	0	957755
30	BILL SWEET-BOWERS B FED.	1.0	1.0	371927	677	1861	262941	1109993	1372924	8661	0
31	C H SWEET - GRIMES	2.0	1.0	293122	65	0	224752	842519	1067271	0	0
32	ATLANTIC RICH.-GRIMES	1.0	1.0	862360	1740	12774	330782	1510948	1841730	15730	0
33	BILL SWEET-BOWERS B FED.	.0	.0	449542	0	0	302418	1408760	1751178	0	0
34	GULF - R.D.GRIMES NCT C	3.0	3.0	1470827	4703	15693	796085	2410302	3206787	69663	0
35	ANTWEIL-HOBBS COMM TOWNS	1.0	1.0	39761	1595	26900	182819	69403	252222	19987	0
36	WISER-MORRIS A	1.0	1.0	564431	5581	11688	162350	586505	748855	0	127186
37	WISER-MORRIS B	1.0	1.0	502714	2362	29608	94217	143787	238004	0	79151
38	SHELLY - HOBBS E	1.0	1.0	86196	1051	2817	892135	103430	995565	8423	0
39	CONTINENTAL - STATE B 25	2.0	1.0	972907	1049	0	1449803	2169815	3619218	0	80647
40	SAMEDAN - STATE B	2.0	2.0	390127	1839	8946	1211565	810075	2021640	21925	0
41	TEXACO - N.M. OO B C ST	4.0	4.0	8383365	53844	167862	1232596	8749629	9982225	0	1238733
42	EXXON - N.M. STATE A	6.0	6.0	3359302	24747	201525	3753837	4622588	8376425	256032	0
43	AMERADA - H D MCKINLEY	4.0	4.0	5137031	53641	99293	327688	11037323	11365011	0	1382060
44	GETTY - H D MCKINLEY	5.0	5.0	5293575	51798	160416	523397	14668577	15191974	0	1494213
45	MARATHON-ST.-LAND-SEC.30	4.0	4.0	3907538	27492	71356	1723099	11091318	12814817	4414	699350

TR NO	TRACTS	NO. OF WELLS USHL 7/76	NO. OF WELLS ACTV 7/76	CUM OIL THRU 1-1-76 PROD	7MO9.76 PRODUCTION OIL BBLS	7MO9.76 PRODUCTION GAS MCF	ORIG OIL IN PLACE GO BBLS	ORIG OIL IN PLACE SA BBLS	ORIG OIL IN PLACE TOTLE BBLS	1/1/76 PRIMARY RES. GHYBRG BBLS	1/1/76 PRIMARY RES. SANAN BBLS
46	EXXON-ROWERS A FED.SEC30	5.0	4.0	5201565	38424	94917	162761	17589511	17752272	0	741308
47	EXXON-BOWERS A FED.COM	1.0	1.0	920202	9058	10977	443421	2379161	2822582	0	278573
48	EXXON-BOWERS A FED.SEC29	3.0	3.0	3868103	26302	126748	135194	13857479	13992673	0	744551
49	AMERADA - STATE B	4.0	4.0	8877919	25669	118794	1138788	8823266	9962054	148475	385064
50	EXXON - A D GRIMES	1.0	1.0	1158278	2570	17555	381078	1762308	2143386	0	17665
51	CONTINENTAL-STATE A 29	3.0	2.0	3738504	31067	95778	22300	14463859	14486159	0	851250
52	GETTY - A D GRIMES	2.0	2.0	2681423	14563	82770	268813	6083452	6352265	0	342135
53	CHEVRON - STATE 1-29	2.0	2.0	2111093	31039	12391	0	11087735	11087735	0	1183156
54	ATLANTIC - A D GRIMES SUC	4.0	4.0	3153111	23298	180220	1097031	7741119	8838150	6805	946497
55	SANEDAN - MOHN A	2.0	2.0	1503776	25400	52851	430064	3017707	3447771	0	900388
56	SANEDAN - MOHN B	2.0	2.0	1415990	22078	61010	295868	2014643	2310511	0	1121090
57	SHELL - GRIMES	5.0	5.0	3841866	46805	76686	129108	15217380	15346488	0	1273556
58	CONTINENTAL - A D GRIMES	4.0	4.0	2992071	44663	216937	463726	11331459	11795185	0	1914266
59	SHELL - SANGEN	6.0	6.0	3637243	87195	228517	689548	3816238	4505786	17321	2725168
60	GULF - J R HOLT ACT D	2.0	.0	22926	0	0	246408	0	246408	0	0
61	SYNON - J R HOLT STATE	1.0	1.0	199818	2122	4850	619012	42126	661138	31179	0
62	AMERADA HESS - STATE C	3.0	2.0	688156	3725	14116	3066067	486845	3552912	55661	0
63	SUN - CLARA FOWLER	2.0	2.0	892087	5712	39710	1657647	1677823	3335470	39839	30578
64	SHELLY - CLARA FOWLER	2.0	2.0	2125891	22241	34757	1309010	3950625	5243635	0	589169
65	CITIES SERVICE - FOWLER	5.0	4.0	4164397	36464	18490	1052163	14207565	15259728	0	908148
66	MOBIL - MRS BERRY	4.0	4.0	1693660	20831	88895	2766778	2399457	5166235	300685	0
67	SHELL - BERRY	4.0	4.0	3154628	46487	190456	1581215	11157369	12738584	0	924261
68	GULF - D GRIMES ACT A/2	10.0	10.0	9385389	87715	352006	193451	36454346	36647797	0	2046819
69	AMERADA HESS - STATE A	2.0	2.0	2442272	26219	46327	0	9216505	9216505	0	577348
70	SHELL - STATE A	3.0	3.0	2176145	19416	42548	0	11367022	11367022	0	337754
71	MARATHON-STATE SEC 32-18	4.0	4.0	886873	18676	91196	0	18605235	18605235	0	591057
72	SHELL - STATE B	2.0	2.0	1565120	21261	70909	0	9920034	9920034	0	398383
73	APCO - STATE G	2.0	2.0	2272648	12417	37089	0	10226595	10226595	0	754786
74	GULF - A D GRIMES-ACT-B	4.0	4.0	3297935	18740	135071	33412	15505698	15539110	0	873076
75	CONTINENTAL - STATE A 33	7.0	7.0	7113027	86405	160776	0	35111156	35111156	0	1866778
76	SHELLY-B H TURNER 182	2.0	2.0	1867882	33700	93954	428508	3090975	3523483	0	911176
77	SHELL - TURNER	2.0	2.0	1474918	34018	37505	298721	884458	1183179	0	1051753
78	HOWARD - HOBBS	1.0	1.0	130107	3326	13723	34073	1117	35190	40718	0
79	SANEDAN - TURNER A	2.0	2.0	1629616	25443	24464	535532	2431575	2967107	0	932016
80	SANEDAN - TURNER B	2.0	2.0	1125532	14287	89534	155928	139412	295340	0	325112
81	WISER - STATE L	1.0	1.0	9977	186	0	441842	2327	444169	2855	0
		241.0	221.0	164267765	1634254	4730679	61586390	516711613	578278003	1464680	39219541

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FILE (NORTH HOBBS)

IR NO	TRACTS	NO. OF WELLS USBL 7/76	NO. OF WELLS ACTV 7/76	CUM OIL 7805,76 PRODUCTION PRIOR 1/1/76	ORIG OIL IN PLACE OILPRO BBLS	ORIG OIL IN PLACE GASPRO MCF	1/1/76 PRIMARY RES GB OBLS	1/1/76 PRIMARY RES SA OBLS	1/1/76 PRIMARY RES TOTLE OBLS	GRYBRG RBLS	SANAN BBLS
1	GETTY - STATE B	.82988	.90498	.03496	.07043	.01733	1.17617	.00231	.12728	.59693	.00000
2	AMERADA HESS-STATE HHN	.82988	.45249	.07829	.07257	.15435	1.73500	.02775	.20951	.82499	.00000
3	GULF - LEA-F-8-STATE	.41494	.45249	.04172	.05073	.05564	.70358	.00000	.07491	.79165	.00000
4	TEXAS PACIF.-STATE V AC1	.82988	.90498	.11725	.16246	.48084	2.40552	.07586	.32389	2.34911	.00000
5	ESTES ENGR. STATE	.41494	.45249	.04351	.15083	.40292	1.13991	.15605	.26080	.98624	.00000
6	CONTINENTAL - STATE B 13	2.48963	1.80995	.61214	.05972	.04247	4.15717	1.29848	1.60283	.66777	.00000
7	SHELL - RICE	1.65975	1.80995	1.02798	.60058	1.34590	.39075	2.33769	2.13041	1.65005	.35398
8	AMERADA HESS - A HARDIN	1.65975	.00000	1.10769	.00000	.00000	.40530	2.12270	1.93986	.00000	.00000
9	GULF - DAN HARDIN	3.31950	3.61991	1.07221	.51124	1.64657	2.65319	1.56350	1.67951	3.41683	.05976
10	MORANCO - STATE T 17	.41494	.45249	.04274	.05360	.02488	.34061	.01014	.04534	.68133	.00000
11	CHEVRON - STATE I 17	.41494	.00000	.03768	.00000	.00000	.53053	.06314	.11290	.00000	.00000
12	SKELLY - STATE A	.41494	.45249	.17659	.03965	.02467	.65326	.17214	.22337	.54327	.00000
13	C&C OPER. - SHIPP A	.41494	.45249	.01080	.02986	.00049	.26483	.00000	.02820	.08932	.00000
14	TEXAS PACIF.-STATE V AC2	1.65975	1.80995	.17973	.17427	.18799	2.88782	.01172	.31792	2.36200	.00000
15	SHELL - STATE E	.82988	.90498	.07652	.06847	.16393	1.92692	.06928	.26705	1.04958	.00000
16	C H SWEET - STATE F	1.65975	1.35747	.38647	.30473	1.34693	3.47302	.40145	.72846	5.19643	.00000
17	JOHN A YATES-SHELL STATE	1.24481	1.35747	.25418	.19997	.35775	3.25624	.10654	.40188	1.99825	.00000
18	AMERADA HESS-STATE E	.82988	.90498	.61809	.33893	.40749	1.38085	.67501	.75052	.66913	.18213
19	SHELL - STATE D	.82988	.90498	.63888	1.15900	1.18949	.55818	1.11075	1.05192	.00000	.71855
20	GULF - GRAHAM STATE A	2.48963	2.26248	1.78400	2.04699	1.30922	.20143	3.00434	2.71018	.00000	1.39983
21	SAMEDAN - STATE C	1.65975	1.80995	2.05259	3.95177	2.14089	4.31683	1.43805	1.74475	.00000	3.20682
22	TEXAS PACIF.-STATE G	1.65975	1.80995	2.50075	4.15272	1.73886	1.28952	2.62598	2.48369	.00000	4.66039
23	CITIES SERVICE - HARDIN	2.07469	1.80995	2.07865	1.05798	.39700	.20732	2.98380	2.69246	.00000	.57998
24	GETTY - BOONE HARDIN	1.65975	1.80995	1.94438	.53492	.82238	2.10826	1.68192	1.72731	4.05726	.13917
25	SHELL - MCKINLEY A	3.73444	4.07240	5.59091	5.71869	3.53522	2.38899	4.27915	4.07791	.00000	4.85198
26	SKELLY - H D MCKINLEY	.41494	.45249	.36827	.04601	.08635	.78103	.43417	.47110	.00000	.00000
27	CHEVRON - H D MCKINLEY	.82988	.90498	.84811	.56001	.35399	.86633	.67097	.69177	.00000	.58675
28	C H SWEET - MCKINLEY B	.41494	.45249	.05820	.04173	.36990	.96769	.21359	.29388	.59052	.00000
29	SHELL - MCKINLEY B	2.07469	1.80995	2.34539	1.95380	1.58781	2.25330	1.34991	1.44609	.00000	2.44235
30	BILL SWEET-ROGERS B FED.	.41494	.45249	.22642	.04183	.03934	.42709	.21482	.23742	.59052	.00000
31	C H SWEET - GRIMES	.82988	.45249	.17844	.00398	.00000	.36506	.16305	.18456	.00000	.00000
32	ATLANTIC RICH.-GRIMES	.41494	.45249	.52497	.10647	.27002	.53728	.29242	.31849	1.07249	.00000
33	BILL SWEET-ROGERS B FED.	.00000	.00000	.27366	.00000	.00000	.49121	.28038	.30283	.00000	.00000
34	GULF - W.D.GRIMES NCT C	1.24481	1.35747	.89538	.28778	.33173	1.29370	.46647	.55454	8.74971	.00000
35	ANTWEIL-HOBBS COMM TANKS	.41494	.45249	.02420	.09760	.56863	.29695	.01343	.04362	1.36274	.00000
36	WISER-MORRIS A	.41494	.45249	.39360	.34150	.20707	.26370	.11351	.12950	.00000	.32433
37	WISER-MORRIS B	.41494	.45249	.39603	.14453	.62587	.15303	.02783	.04116	.00000	.20188
38	SKELLY - HOBBS E	.41494	.45249	.05259	.06431	.05955	1.04906	.02002	.17216	.57429	.00000
39	CONTINENTAL - STATE B 25	.82988	.45249	.59227	.06419	.00000	2.35486	.41985	.62586	.00000	.20566
40	SAMEDAN - STATE B	.82988	.90498	.23749	.11253	.18911	1.96790	.15678	.34960	1.49487	.00000
41	TEXACO - W.M. DD A C ST	1.65975	1.80995	2.66843	3.29471	3.54837	2.00206	1.69333	1.72620	.00000	3.15886
42	EXXON - W.M. STATE A	2.48963	2.71493	2.04502	1.51427	5.10550	6.09722	.69462	1.40851	17.45657	.00000
43	AMERADA - H D MCKINLEY	1.65975	1.80995	3.12723	3.28229	2.09892	.53225	2.13607	1.96532	.00000	3.52437
44	GETTY - H D MCKINLEY	2.07469	2.26244	3.22253	3.16952	3.39097	.85013	2.83883	2.62711	.00000	3.81035
45	MARATHON-ST. LAND SEC. 30	1.65975	1.80995	2.40311	1.68220	1.55060	2.79942	2.19652	2.21603	.30095	1.78339

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TR NO	TRACTS	NO. OF WELLS USBL 7/76	NO. OF WELLS ACTV 7/76	CUM OIL THRU 7/76 PRODUCTION PROD 1-1-76	ORIG OIL IN PLACE OIL PRO BBLS	ORIG OIL IN PLACE GAS PRO MCF	1/1/76 PRIMARY RES GR BBLS	1/1/76 PRIMARY RES SA BBLS	1/1/76 PRIMARY RES TOTLE BBLS	1/1/76 PRIMARY RES GRYBRG BBLS	1/1/76 PRIMARY RES SANAN BBLS
46	EXXON-BOWERS A FED.SEC30	2.07869	1.80995	3.16652	2.35116	2.00641	.26437	3.40413	3.06985	.00000	1.89039
47	EXXON-BOWERS A FED.COM	.41494	.45249	.56018	.57873	.23204	.72023	.06044	.48810	.00000	.71038
48	EXXON-BOWERS A FED.SEC29	1.24481	1.35747	2.35475	1.60942	2.67928	.21959	2.68186	2.41971	.00000	1.89866
49	AMERADA - STATE B	1.65975	1.80995	2.96449	1.57191	2.51114	1.80969	1.70758	1.72271	10.12320	.98194
50	EXXON - A D GRIMES	.41494	.45249	.70512	.15726	.37109	.61697	.30106	.37065	.00000	.04505
51	CONTINENTAL-STATE A 29	1.24481	.90498	2.27586	1.90099	2.02461	.03622	2.79921	2.50505	.00000	2.17075
52	GETTY - A D GRIMES	.82988	.90498	1.63235	.69111	1.78964	.83662	1.17734	1.09848	.00000	.87247
53	CHEVRON - STATE I 29	.82988	.90498	1.28515	1.89928	.26193	.00000	2.19583	1.91737	.00000	3.01719
54	ATLANTIC- A D GRIMES SOC	1.65975	1.80995	1.91949	1.42560	3.80960	1.78187	1.49815	1.52836	.86397	2.41368
55	SAMEDAN - HOGIN A	.82988	.90498	.91544	1.55912	1.11720	.70503	.58402	.59691	.00000	2.40826
56	SAMEDAN - HOGIN B	.82988	.90498	.86200	1.35083	1.28961	.88057	.38990	.39955	.00000	2.85886
57	SHELL - GRIMES	2.07869	2.26244	2.33878	2.86400	1.62104	.20971	2.94504	2.65383	.00000	3.24766
58	CONTINENTAL - A D GRIMES	1.65975	1.80995	1.82146	2.73293	4.58575	.75321	2.19299	2.03971	.00000	4.88152
59	SHELL - SANGER	2.48963	2.71493	2.21422	5.33506	4.83053	1.12001	.73856	.77917	1.18097	6.94938
60	GULF - J R HOLT NCT D	.82988	.00000	.01396	.00000	.00000	.40023	.00000	.04261	.00000	.00000
61	HYNOM - J R HOLT STATE	.41494	.45249	.12164	.12985	.10252	1.00544	.00815	.11433	2.12582	.00000
62	AMERADA HESS - STATE C	1.24481	.90498	.41892	.22793	.29037	4.98010	.09422	.61940	3.79503	.00000
63	SUN - CLARA FOWLER	.82988	.90498	.54307	.34952	.83941	2.69245	.32471	.57679	2.71627	.07798
64	SKELLY - CLARA FOWLER	.82988	.90498	1.29416	1.36093	.73471	2.12618	.76534	.91023	.00000	1.50242
65	CITIES SERVICE - FOWLER	2.07869	1.80995	2.53513	2.23123	.39085	1.70899	2.74961	2.63882	.00000	2.31584
66	MOBIL - NORA BERRY	1.65975	1.80995	1.03104	1.27465	1.87912	4.89397	.46437	.89338	20.50106	.00000
67	SHELL - BERRY	1.65975	1.80995	1.92042	2.84458	4.02598	2.56831	2.15930	2.20285	.00000	2.35693
68	GULF - A D GRIMES NCT A-2	4.14938	4.52489	5.21225	5.36728	7.44092	.31422	7.05507	6.33780	.00000	5.21954
69	AMERADA HESS - STATE A	.82988	.90498	1.48676	1.60434	.97929	.00000	1.78368	1.59378	.00000	1.47228
70	SHELL - STATE A	1.24481	1.35747	1.32475	1.18806	.89941	.00000	2.19988	1.96567	.00000	.86130
71	NARATHON-STATE SEC 32-18	1.65975	1.80995	2.96131	1.14278	1.92776	.00000	3.60070	3.21735	.00000	1.50724
72	SHELL - STATE H	.82988	.90498	.95279	1.30096	1.49892	.00000	1.92061	1.71614	.00000	1.01591
73	AMOCO - STATE G	.82988	.90498	1.38350	1.98360	.78401	.00000	1.97917	1.76846	.00000	1.92476
74	GULF - A D GRIMES NCT B	1.65975	1.80995	2.80766	2.37075	2.85521	.05427	3.00089	2.68713	.00000	2.27741
75	CONTINENTAL - STATE A 33	2.90456	3.16742	4.33014	5.28712	3.39858	.00000	6.79512	6.07167	.00000	4.76042
76	SKELLY-H H TURNER 182	.82988	.90498	1.11710	2.06210	1.98606	.69601	.59898	.60931	.00000	2.32357
77	SHELL - TURNER	.82988	.90498	.89787	2.08156	.79365	.48520	.17117	.20460	.00000	2.68205
78	MONARCO - HOBBS	.41494	.45249	.07920	.20352	.29009	.05534	.00022	.00609	2.77620	.00000
79	SAMEDAN - TURNER A	.82988	.90498	.98657	1.55686	.51714	.86984	.47059	.51309	.00000	2.37671
80	SAMEDAN - TURNER B	.82988	.90498	.68518	.87422	1.04708	.25327	.02698	.05107	.00000	.82906
81	WISER - STATE L	.41494	.45249	.00607	.01138	.00000	.71767	.00045	.07681	.19466	.00000
		99.99998	99.99998	99.99998	99.99998	99.99998	99.99997	99.99998	99.99998	99.99999	********

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MINUTES OF THE TECHNICAL COMMITTEE
PROPOSED NORTH HOBBS UNIT
NOVEMBER 4, 1976

The meeting was called to order at 8:15 a.m. Thirteen companies, which operate 82 percent of the number of current producers, were represented. (Attendance list attached). The main purpose of this meeting was to vote on the acceptance of Shell's reservoir simulation study as the basis for the determination of primary reserves from the main San Andres reservoirs.

After considerable discussion and vote taking it was decided to take the following course of action:

1. Accept Shell's reservoir simulation approach as the best method for determining primary reserves from the main San Andres reservoirs.

2. Approve the techniques and mathematical descriptions used by Shell and as presented to the Technical Committee at the October 13, 1976 meeting by Mr. W. C. Miller of Shell Development. (Skelly registered the only no vote based on the results obtained for their Turner lease relative to offsetting tracts.)

3. Approve the approach that the primary reserves parameter for those wells included in the reservoir simulation study would be based on the assumption that the current completion status (shown in Figure 1 attached to minutes of October 13, 1976 meeting) would be constant over the remaining life.

4. Update the reservoir simulation history match to include the first eight months of 1976 oil production. The determination of each well's permeability thickness (kh) should be based on the last twelve months of history. (Wells that have been shut in during July and August 1976 due to overproduction of gas would use the prior ten months (9/75 to 6/76) as the base for determining kh. These wells are: Arco Grimes SOC 1 and 2 (28E&F), Conoco Grimes 1, 2 and 4 (28O, P and I) and Conoco State A-29-3 (29K).)

5. Rectify an apparent discrepancy between actual production and computed production for the Getty Hardin Lease in Section 19.

6. Move the two Skelly Turner wells (34C and F) from grid block 12, 2 to grid block 12,1 in order to obtain a better match and representation.

7. Use an economic limit of 3 BOPD or 99 percent water cut and all production stopped on December 31, 2024.

Shell agreed to make the preceding changes and distribute the results of this analysis to all Technical Committee members (in approximately one week). Shell pointed out to the Committee representatives that this would be the final simulation run under the agreement set forth in the letter dated March 13, 1975 about the computer analysis for this field.

It was decided to reconvene in two weeks (November 17 and 18) to cover the agenda scheduled for this meeting.

In response to several requests for information on other participation parameters determined to date, a tabulation of ten parameters was distributed and a copy is enclosed with these minutes. Also a summary of a conservative economic analysis of a unitized waterflood was shown; a copy of that summary is also attached.

HJS:ELP

Attachments

ATTENDANCE LIST *
(11/4/76)

Name	Company	Location
K. Y. Kassim	Amerada Hess	Seminole
Paul D. Kossmann	Amoco	Houston
Donald D. Barrett	Cities Services	Midland
Arthur J. Henry	Conoco	Houston
W. E. Nolan	Exxon	Midland
N. K. Reynolds	Exxon	Midland
J. E. Eakin	Getty	Midland
Harold O'Dell	Getty	Houston
G. G. Bingham	GEM-US	Midland
R. E. Dejmal	Mobil	Houston
Boyce Perry	Samedan	Ardmore
Chris F. Bosecker	Skelly	Midland
Jess B. Nunnelee	Skelly	Midland
C. R. Price	Sun	Midland
G. R. Meyers	Texas Pacific	Dallas
W. C. Miller	Shell	Houston
H. J. Swartz	Shell	Houston

* Chevron not in attendance but sent telegram approving reservoir simulation study.

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PRELIMINARY ECONOMIC ANALYSIS
PROPOSED NORTH HOBBS UNIT

ASSUMPTIONS:

1. ADDITIONAL OIL BY WATERFLOODING IS 30 MMB OR ABOUT 7% OF THE OOIP IN GB, II, III_U, III_L ZONES. (THE SECONDARY OIL RECOVERY OF 30 MMB IS EQUIVALENT TO A SECONDARY TO PRIMARY ULTIMATE RATIO OF 0.28 FOR THESE ZONES.) THE WATERFLOOD LIFE IS 35 YEARS.

2. CAPITAL INVESTMENT IS $16,000,000 INITIALLY AND $4,000,000 TWO YEARS LATER.

3. A CRUDE OIL PRICE OF $5.911 PER BARREL IS USED THROUGHOUT. THERE IS NO ESCALATION FOR OPERATING COSTS. THE OPERATING COSTS USED FOR THE WATERFLOOD ARE 44% HIGHER THAN THE EQUIVALENT FOR PRIMARY OPERATIONS TO PROVIDE FOR AN INCREASED AMOUNT OF WORKOVERS AND WATER COSTS (PURCHASING AND HANDLING).

RESULTS:

1. THE ADDITIONAL OCI (UNDISCOUNTED AND BEFORE FIT) IS $3.80 PER BARREL OF OIL. THE ADDITIONAL OCI (DISCOUNTED AT 10% AND BEFORE FIT) IS $1.75 PER BARREL OF OIL. THE AVERAGE ANNUAL EARNING POWER (BEFORE FIT) IS 33% AND THE PAYOUT OF THE CAPITAL INVESTMENT IS 4.1 YEARS. THE UNDISCOUNTED PROFIT IS $94 MILLION OR 470% OF THE REQUIRED CAPITAL INVESTMENT.

NOTE: THIS IS AN INTENTIONALLY CONSERVATIVE PROFITABILITY TO DEMONSTRATE AN ECONOMICALLY ATTRACTIVE PROSPECT EVEN WITH LOW OIL RECOVERIES AND HIGH COSTS.

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

November 8, 1976

Subject: Technical Committee Meeting
Proposed North Hobbs Unit
Lea County, New Mexico

Technical Committee
Proposed North Hobbs Unit
(Addressee List Attached)

A two-day meeting of the Technical Committee is called for Wednesday and Thursday, November 17 and 18, 1976, at 8:00 a.m. in Conference Room 19109, Entex Building, 1200 Milam Street, Houston, Texas.

The agenda for this meeting is:

1. Vote on approval of Shell's reservoir simulation study for determining San Andres primary reserves by tracts. (See attached minutes).

2. Review primary reserve determinations made from decline curve analyses of wells producing from the Grayburg and/or upper San Andres stringers. (See Minutes of January 13 and 14, 1976, Technical Committee meeting). The production performance curves have been updated and there are some wells that have not yet been analyzed.

3. Discuss the procedure to be adopted for allocating secondary reserves to tracts.

4. Other business.

This agenda is the same as scheduled for the Technical Committee meeting held on November 4, 1976. Attached are the minutes of that session which show that only the first agenda item was discussed in detail. Whereas there is agreement with the assumptions and techniques used by Shell in their reservoir simulation study, sufficient modifications to the October 18, 1976 analysis (summarized in Figures 14 and 15 of the enclosures sent with the minutes of the October 13, 1976 meeting) were approved by the Technical Committee to justify an additional run. The results of this final run will be distributed to all Technical Committee representatives as soon as available (in approximately one week). We request that each Company representative attending the November 17 and 18, 1976 meeting be prepared to vote on the acceptance of the forthcoming computer analysis as the basis for the primary reserves unitization parameter.

Shell Oil Company now feels that they have fulfilled the intent and requirements set forth in our letter dated March 13, 1975 discussing the computer analysis for this field.

Yours very truly,

H. J. Swartz

HJS:ELP

H. J. Swartz, Chairman

#15

MINUTES OF TECHNICAL COMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
NOVEMBER 17 AND 18, 1976

The meeting was initiated with a brief review of the agenda and in particular the modifications that had been made to the Shell reservoir simulation study of the San Andres reservoirs primary performance. These changes had been requested by the Technical Committee at the November 4, 1976, meeting, are outlined in the minutes, and were at the time intended as the final computer run. The results of this analysis were transmitted to all members with letter dated November 10, 1976.

Shell moved that the results of the reservoir simulation study, summary of equity transmitted to all Operators on November 10, 1976, be used for the San Andres (main zones) tract primary reserve parameter. This motion was seconded by Amoco and the results of the vote were:

FOR (11) : Amerada, Amoco, Chevron (by telegram), Exxon, Getty, Gulf, Mobil, Samedan, Sun, Texas Pacific and Shell.

OPPOSED (3): Cities Service, Conoco and Skelly

The reasons for these objections were discussed and the respective positions are appended as follows: Cities Service (Attachment No. 1), Continental (Attachment No. 2) and Skelly (Attachment No. 3). Shell's response to each of the exceptions is noted at the end of each attachment.

A motion was made by Skelly that their two Turner wells (located in Section 34C and F) be assigned a Zone I primary reserve value of 540,000 barrels each (rather than the 319,000 and 321,000 barrel determination made by the last Shell computer run). All other wells would retain the assigned values shown in this final analysis. Samedan seconded the motion and the resulting vote was as follows:

FOR (2) : Getty and Skelly.

OPPOSED (11): Amerada, Amoco, Cities Service, Continental, Exxon, Gulf Mobil, Samedan, Sun, Texas Pacific and Shell.

A motion was then made by Shell that the Zone I primary oil reserves determined for the two Skelly Turner wells and three directly offsetting wells: Shell Sanger 2(27N), 514,000 barrels; Shell Turner 2(34B), 352,000 barrels; and Shell Turner 1(34G) 576,000 barrels; be arithmetically averaged and the resulting value (approximately 416,400 barrels) be assigned to each of these five wells. No other reserve values would be changed from those determined in the final run. Amoco seconded this motion and the results of the vote were:

FOR (7) : Amerada, Amoco, Gulf, Mobil, Sun, Texas Pacific and Shell

Opposed (4): Cities Service, Conoco, Exxon and Skelly

PASS (2) : Getty and Samedan

Getty requested the inclusion of their comments in the minutes. (See Attachment 4). Mr. W. E. Nolan stated Exxon's preference that no arbitrary adjustments affecting the tract reserve determinations be made.

After additional discussions about alternative proposals to resolve the disagreements (none were finalized as motions), it was decided by the Chairman of the Technical Committee that the results of the "final" Shell reservoir simulation study (first motion) would be submitted to the Working Interest Owners as the San Andres (main zones) primary reserve parameter. This decision was based on the observation that no constructive alternatives had been recommended and whereas it was a controversial determination it had received the most support from the representatives. Furthermore, based on current and prior discussions it appeared that all of the objections were directly related to equity and the disagreements could therefore best be resolved by the Working Interest Owners. The Technical Committee should now continue with their assigned task to determine the economic feasibility of unitized Supplemental Recovery operations and the development of additional parameters. Meanwhile Shell will continue to search for an alternative solution to the primary reserves parameter that would be acceptable to everyone.

The next agenda item was to review primary reserve determinations made from decline curve analyses of those wells producing from the Grayburg and/or upper San Andres stringers. (See minutes of January 13 and 14, 1976, Technical Committee meeting.) The production performance of these wells had been updated to include an additional ten months of history and there were several wells that had not previously been analyzed. Viewgraphs of each updated production performance graph marked with the previously determined initial oil rate (at 1/1/76) and the annual decline rate assigned were shown and reviewed for any necessary adjustments. The results of these evaluations are tabulated in Attachment No. 5. As noted in this summary, twelve revisions were made. Also, seven graphs were classified as erratic performance requiring further analysis and one new lease was added. This tabulation of course represents the current analysis and replaces the summary previously transmitted with the minutes of the January 13 and 14, 1976 Technical Committee meeting.

A description of the problems involved with determining the tract secondary reserve potential for the Grayburg reservoir were presented. The meeting was then adjourned for the day. The Thursday meeting began with a quick review of the results of Shell's reservoir simulation study of the Grayburg waterflood potential. These results had been presented and accepted at the

Technical Committee meeting held on March 25, 1976. That presentation included only the results expected from a five-spot waterflood pattern of the Grayburg formation using the average reservoir characteristics found along the northern and western flanks of the field. Those areas are currently developed by 67 Grayburg wells which can conveniently be converted to an 80-acre five-spot waterflood pattern. Because of the low permeability of the Grayburg net pay it will be necessary to use a pressurized water injection system with an expected surface injection pressure of about 1500 psig. Because of this fact and the small casing sizes it appears impractical to either simultaneously or dually inject water into both the Grayburg and San Andres in the same wellbore. Herein lies the problem. The availability of "Grayburg only" wells will permit the secondary recovery development of about one-half of the original-oil-in-place. The remaining potential is underlain and developed by more prolific San Andres producers. In light of past history it is doubtful that high pressure water injection could be mechanically confined to the Grayburg in most of these wells.

It was decided by the Technical Committee that Shell should make the following determinations:

(1) Quantify the volume of Grayburg reservoir that can be affected by an 80-acre five-spot waterflood pattern with currently available wells. This volume should include the expected encroachment of water beyond the normal well pattern in accordance with a 1955 report by Caudle et al. (See Page 57 of the AIME Monograph Volume 3 by Forrest F. Craig, Jr.)

(2) Evaluate the economic feasibility of drilling Grayburg water injectors but utilizing existing producers for drainage points in the reservoir volume not encompassed in Item 1. This evaluation would also be based on an 80-acre five-spot pattern, upper tier oil price, constant revenue and costs, before federal income taxes, and values discounted at 10 percent and undiscounted. It will be assumed that water injection would be initiated in mid-1979 and the reservoir pressure at that time in this area would be 400 psig.

These determinations should establish what volumes of the Grayburg reservoir can economically be exploited with a waterflood.

Considerable discussion then ensued on the best method to be used in determining the San Andres waterflood potential. Shell had planned to make a reservoir simulation study by modelling the Zone III_L reservoir in its entirety in the northern unit area. Average oil saturations at the start of water injection were to be determined for each floodable zone (II, III_U and III_L) from the recently completed San Andres primary performance simulation study by Shell.

Waterflood recovery would then be evaluated for several cases with different location and number of injectors and producers. However, in view of the previously described controversies about that primary performance simulation study (see Attachments 1, 2, 3 and 4) it was decided that it would be preferable to evaluate the secondary recovery potential of the San Andres by analogy with existing waterfloods in similar reservoirs the West Texas - New Mexico area. Consequently, each representative was requested to supply the Chairman with data on this type of project. However, in order to avoid duplication of effort and incomplete data, Shell will send out a letter requesting specific data from the operator of specific selected projects. Shell will then summarize and average these data and the Technical Committee will then determine the San Andres secondary reserves volumes to be used for the North Hobbs Unit by applying a recovery factor to the OOIP (Zones II, III_L and III_U) for each tract.

It was requested by the Committee that Shell review the computed saturations and reservoir pressures in the latest simulation run to ascertain that significant differences do not exist between grid blocks during mid-1979. Subsequent to the meeting, it was established by Shell that the pressure gradient existing between grid blocks in the North Unit Area averaged 21 psi in Zone II and 16 psi in Zone III and that the saturation differences were not significant for these floodable San Andres zones. The average reservoir pressure in both zones is 580 psig at mid-1979. Shell will continue to design a waterflood plan and present a recommendation to the Technical Committee.

It was estimated that the next meeting would be held in mid-January and be relative to the aforementioned waterflood analyses.

HJS:ELP
11/30/76

ATTENDANCE LIST*

(November 17 & 18, 1976)

Name	Company	Location
K. Y. Kassim	Amerada Hess	Seminole
Paul D. Kossman	Amoco	Houston
Don Barrett	Cities Service	Midland
Arthur J. Henry	Conoco	Houston
C. C. Woodward	Continental	Hobbs
W. E. Nolan	Exxon	Midland
N. K. Reynolds	Exxon	Midland
J. F. Eakin	Getty	Midland
Harold O'Dell	Getty	Houston
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R. E. Dejmal	Mobil	Houston
Boyce Perry	Samedan	Ardmore
Chris Bosecker	Skelly	Midland
Jess Nunnelee	Skelly	Midland
Chuck Price	Sun	Midland
Oran L. Hall	Texas Pacific	Midland
G. R. Meyers	Texas Pacific	Dallas
Wm. C. Miller**	Shell	Houston
W. E. Buck**	Shell	Houston
P. L. Bondor**	Shell	Houston
H. J. Swartz	Shell	Houston

* Chevron not in attendance but sent telegram approving reservoir simulation study.

** In attendance 11/17/76 only.

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ATTACHMENT NO. 1

OBJECTION BY CITIES SERVICE OIL COMPANY

Cities Service Oil Company believes that the computed San Andres primary reserves for their B. Hardin lease (NW/4 Section 19) are too low and do not properly reflect the remaining value of this lease. This contention is based on the observation that this tract has higher equity values (percent in the proposed North Hobs Unit) in the following parameters: useable wells 2.075%, active wells 1.810%, cumulative oil production (to 1/1/76) 2.079%, current oil production (1st 7 mos. 1976) 1.058%, San Andres OOIP 2.984% whereas the computed primary reserves are equivalent to only 0.693% of the unit total.

SHEL OIL COMPANY RESPONSE TO CITIES SERVICE OIL COMPANY'S OBJECTION

It is recognized that there is a considerable range in the many parameters -- that is the very reason for developing them. The history match for the 4 wells on this lease is quite adequate. One well is now at the economic limit applied to all wells in the simulation (3 BOPD) and is not credited with any reserves. The remaining wells average only 26 B/D oil production by solution gas drive in Zone 3. The predicted reserve of 86,000 barrels per well gives a reserve to production ratio of a reasonable 9.1 years.

ATTACHMENT NO. 2

OBJECTION BY CONTINENTAL OIL COMPANY

Continental Oil Company objects to the use of an arbitrary time cutoff in the reservoir simulation study for determining San Andres primary reserves, which in effect produces some wells to the economic limit while many others are producing at rates above the economic limit at the cutoff date. Continental believes each well should be carried to the economic limit and thereby credited with reserves in a manner consistent with every other well.

SHELL OIL COMPANY'S RESPONSE TO CONTINENTAL OIL COMPANY OBJECTION

Continental Oil Company raises a valid point when they suggest that all wells should be treated alike and be allowed to produce until they reach an economic limit of 3 BOPD or 99 percent water cut. However if this is done for this study some of the well lives would probably be extended an additional 50 years or a total future life of about 100 years. Shell feels that it is not realistic to expect this type of well service. The cutoff time chosen (2025.0) is arbitrary and was based on several factors such as: now is mid-point in life, recovery efficiencies are already high, discounted values after 50 years are extremely low, and reservoir pressure at 2025.0 in the depletion drive reservoirs are very low (251 psi in Zone II and 170 psi in Zone III).

ATTACHMENT NO. 5

OBJECTION BY SKELLY OIL COMPANY

Skelly Oil Company does not approve the techniques and mathematical descriptions used for the determination of the San Andres Zone 1 primary reserve parameter. Skelly believes that its B.H. Turner Lease, which has two flowing 80 BOPD and 0 BWPD wells, is not being treated justly. The following is an illustration of this stated inequity using only the comparison of second row San Andres Zone 1 producers:

Operator	Lease & Well No.	Cur. Prod. Rate*	% Wtr. Cut	Zone 1 Rem. Prim. Resr.*
Samedan	Moon "A" #2	64 BOPD & 19 BWPD	23%	475,000 Bbls.
Samedan	Moon "B" #1	67 BOPD & 0 BWPD	0%	656.000 Bbls.
Shell	Sanger #3	80 BOPD & 7 BWPD	8%	638.000 Bbls.
Shell	Sanger #1	80 BOPD & 10 BWPD	11%	513,000 Bbls.
Skelly	Turner #2	80 BOPD & 0 BWPD	0%	319.000 Bbls.
Skelly	Turner #1	80 BOPD & 0 BWPD	0%	320,000 Bbls.
Samedan	Turner"A"#1	50 BOPD & 19 BWPD	28%	460,000 Bbls.
Samedan	Turner"A"#2	57 BOPD & 19 BWPD	25%	495,000 Bbls.
Other Operator's Average Well		66 BOPD & 12 BWPD	15%	540,000 Bbls.
Skelly's Average Well		80 BOPD & 0 BWPD	0%	320,000 Bbls.

Note: The two Sekly wells are the only 80 BOPD, zero water cut, flowing, Zone 1 wells in this portion of the field,
*Based on Aug. Prod. Figures & Shell's Run "C" on the simulator.

A previous indication of this inequity for the Skelly Turner wells was noted in the committee after review of stimulator run "B" which allocated only 403,000 BBLS. per well for Zone 1 remaining primary reserves. At that time the committee agreed to move the two Skelly Turner wells to another grid block in order to obtain better representation of the Skelly Wells. (See Item No. 6 in the minutes of the November 4, 1976 Technical Committee Meeting which was prepared by Shell).

SHELL OIL COMPANY'S RESPONSE TO SKELLY OIL COMPANY OBJECTION

The migration of oil in Zone I has been clearly established as being controlled by edge water encroachment which is from the southwest in the vicinity of the Skelly Turner lease. This natural water influx negates structural advantages and places a premimum on distance from the watered out area, placing the Skelly lease at an unfavorable geographical location. Also the Skelly wells should not be compared to the two Samedan Moon wells which are located 6000 and 4500 feet from the nearest Skelly producer and are affected by different migration characteristics.

It should be noted that Skelly Turner 1 is no longer a top allowable producer. During the first eight months of 1976 this well has produced 88,295 MCF of gas or an overproduction of 19,973 MCF. The well will have to be shut in for 71 days to makeup for the excessive gas and Skelly has advised us that this well also overproduced the gas allowable during September. Clearly a top allowable oil producer, even if it is pumped because it makes some water production, is more desirable than a clean flowing oil well that is GOR penalized. Furthermore, if an adjacent lease is producing water it is indicative that the clean wells will soon produce water if they are opened to production in correlatable zones.

ATTACHMENT NO. 4

COMMENTS BY GETTY OIL COMPANY

Getty Oil Company requests the following comments be included in the minutes of the Technical Committee Meeting of the proposed North Hobbs, Lea County, New Mexico for consideration by the working interest owners' management representatives:

Getty Oil Company believes that numerical reservoir simulation is one of the most valuable tools available in the petroleum industry today for prediction of reservoir behavior. We use this tool often. We recognize both advantages and disadvantages of the tool. We believe that overall Shell Oil has done a good job in the numerical reservoir simulation of the proposed unit. However, some local discrepancies, such as in the area of the Skelly Turner lease, do exist and are not to be unexpected in this particular simulation for the following reasons:

(1) Although a three-dimensional model was used, there are only three layers in the vertical dimension; each representing a completely separate lithologic zone. This is offset to a degree by the use of pseudo relative permeabilities to represent stratification in each of the zones.

(2) A large areal grid size was used. In the majority of the cases, not only are there no grid blocks between wells, there is more than one well in most grids.

(3) Actual data shows that in some cases there are high water producers adjacent to low water or clean producers. Many no-flow boundaries were used during the history match to account for these occurrences.

(4) History matching does not present a unique solution. Even though the simulator accurately performs the calculations of the applicable physical phenomena, the simulator user inputs his own judgement decisions as to modifications of the original input so that computed and actual past performance are as close as practicable.

In summary, Getty Oil Company believes that overall the Shell Oil numerical reservoir simulation provides the best estimates of remaining primary recovery by tracts or wells and fluid saturations for determination of distributions to waterflood recovery. However, for the above stated reasons, the subject simulation results should be tempered by other available data in order to avoid obvious errors such as, but not necessarily restricted to, the area of the Skelly Turner lease.

SHELL OIL COMPANY'S RESPONSE TO GETTY OIL COMPANY COMMENTS

Shell appreciates Getty's concurrence that overall, the simulation provides the best estimates of remaining primary recovery by tracts or wells. As we have emphasized in Committee Meetings, for determination of primary reserves under the conditions which prevail at Hobbs, adequate detail is provided by the model, described by Getty under their points 1 to 4. The key features of Hobbs' performance are represented by the use of three distinct zones, 127-acre grid blocks, and flow channels in Zone I (whose boundaries are represented mathematically as no-flow interfaces between certain grid blocks). As Shell stated in these meetings, for other objectives, e.g., to evaluate supplemental recovery by pattern waterflooding, smaller grid blocks would be required. Finally, it is not apparent that there are errors in the area of the Skelly Turner lease. Certainly, the history match obtained on the two Skelly wells and on the offset wells is quite adequate.

Well	Operator		Production Rates Oil B/D	Gas MCF/D	Water B/D	Completion Zones
34C	Skelly	Calc.	79	73	21	1,2
		Actual*	79	85	0	
34F	Skelly	Calc.	80	74	21	1,2
		Actual*	80	310!	0	
34B	Shell	Calc.	80	47	21	1
		Actual*	80	93	13	
34G	Shell	Calc.	80	236	29	1,2
		Actual*	80	87	16	
27N	Shell	Calc.	80	56	21	1,2
		Actual*	80	215	7	

* Arithmetic average of last 12 months of production available (Sept. 1975 thru Aug. 1976).

One possible exception is in the comparison of some calculated and reported gas rates. The simulation does not reflect either the gas rate in Shell's 27N or even higher gas rate in Skelly's 34F (which subjects the latter well to shut-down in the latter part of 1976). Although the net effect upon predicted reserves is somewhat favorable to the Skelly well, we believe that such very localized regions of higher than average gas saturations have only a second order.

Finally, with regard to water rates, on the basis of an examination of the well records of all the wells producing from the several zones in the field, there is little significant distinction between wells making 20 B/D water or less (in this case, between 0 B/D water and 16 B/D).

RESERVES OF WELLS PRODUCING FROM GRAYBURG &/OR UPPER SAN ANDRES STRINGERS

PROPOSED NORTH HOBBS UNIT

(REVISED 11/17/76)

COMPANY	LEASE	WELL(S)	LOCATION	9 1/1/77 qo (BOPD)	9 1/1/77 qg (%)	RESERVES* (BBLS)	
Amerada Hess	Hardin	1,2,3,5	19K,L,M,N	0	0	0	
" "	State B	3,4	29B,C	54	12	148,475	
" "	State C	1,2	36A,B	20	14	43,561	R
" "	State C	3	36G	0	0	0	
" "	State E	1	24E	7	20	9,814	U
" "	State WNB	1	14O	6	14	12,100	U
			Subtotal	87		213,950	
Amwell	Hobbs CT	1	21J	8	12	19,987	
Atlantic Richfield	Grimes	1	20C	8.2	14	17,424	R
" "	Grimes SOC	3	28D	4.7	19	6,801	
			Subtotal	12.9		24,225	
Byron	Holt State	1	36E	11.5	10	36,375	R
C&C Oper.	Shipp A	1	23E	2.3	13	3,407	R
Chevron	State 17	1	17L	0	0	0	
Continental	State B-13	2,5,7	13M,E,L	8	17	5,794	
"	"	1,4,6	13N,F,C	***	***	***	
"	" B-25	2	25I	***	***	***	
Estes	State	1	14P	**	**	12,162	R
Exxon	New Mex. State	1,5,6,7, 8,9	25I,O,K,P,J,N	120	15	256,032	
Getty	Hardin	2	19E	7	10	20,786	
"	"	3	19F	17	14	38,721	
"	State B	1,2	14H,G	5	8	13,132	R
			Subtotal	29		72,639	
Gulf	Grimes C	1,2,3	21,L,M,N	23	8	87,549	RD
"	Hardin	3,4,5,6	18I,G,J				
"	"	7,8,9	H,B,A,O	29	11	68,507	R
"	LeaFD State	1	14N	4	9	11,611	
			Subtotal	56		168,067	
Marathon	State 30	9	30M	3.4	18	4,414	U
Mobil	Berry	2,3,4,1	31N,L,M,K	105	10	349,894	R
Moranco	Hobbs	1	34E	15	11	43,850	R
"	State T 17	1	17E	4.5	12	9,993	
			Subtotal	19.5		53,843	
Samedan	State B	1,2	25F,E	9	11	21,925	
Shell	Rice	4	13J	11	14	24,201	U
"	Sanger	6	27D	11	19	17,321	
"	State F	2	23G	2.9	16	3,978	R
"	State F	3	23B	2.0	16	2,093	R
			Subtotal	26.9		47,593	
Skelly	Hobbs Z	1	26A	5.3	17	8,423	
"	State A	1	17M	3.3	10	7,968	
			Subtotal	8.6		16,391	
Sun	Fowler	4	31E	12.5	10	39,839	
Bill Sweet	Bowers B	2	20J	3.5	10	8,661	
C.E. Sweet	Grimes	1A	20I	0	0	0	
"	McKinley B	2	20H	3.5	10	8,661	
"	State F	2,3,4	23H,I,A	25	10	76,215	U
			Subtotal	28.5		84,876	
Texas Pacific	State V Ac 1	1,2	14I,J	13	11	34,454	
"	State V Ac 2	3,4,5,6	23C,F,K,N	14	10	34,643	
			Subtotal	27		69,097	
Viser	State	1	26B	1	-	204	U
Texas	Shell State	1,2,3	23P,J,O	17	16	29,308	
TOTALS		62	Producers	596.6		1,542,687	
		4	Recompleting			...	
		7	TA			0	

Notes: * Economic limit assumed to be one BOPD/well.

** New well with erratic production. Reserves are arithmetic average of 4 offset wells (TOPC ST. V AC-1, 2 wells; Amer. St. WNB 1, and Shell State F-3)

*** Add wells recently recompleted; will assign reserves at a later date.

R Revision to prior estimate.
U May change. Update later and review.

#1.

Minutes of the Technical Committee Meeting
Proposed North Hobbs Unit
January 13, 197[illegible]

Thirteen companies, which operate 81 percent of the current producers, were represented. (Attendance list is attached). The main purpose of this meeting was to finalize the tract-secondary reserves for the unit.

Discussion was initiated with a brief review of the reservoir simulation study by Shell of the Grayburg waterflood potential. These results had been previously presented to the Technical Committee at a meeting held on March 25, 1976. The main conclusions are:

(1) Because of the low permeability it is necessary to use a pressurized water injection system (1500 psig surface) and a five-spot waterflood pattern.

(2) Primary ultimate recovery efficiency is 18.7 percent and secondary recovery efficiency is 14.4 percent for a symmetrical closed five-spot pattern.

(3) An 80-acre five-spot pattern waterflood, using existing wells, is economically attractive but will have a long life (43 years) and a relatively low response. A complete infill drilling program to obtain 40-acre five-spot patterns cannot be economically justified. The questions that needed to be resolved at this meeting are:

(1) What reserves should be assigned to the unit to discount the recovery efficiency of 14.4 percent for idealized conditions by the factors of well availability, non-symmetrical five-spots and incomplete patterns? and (2) On what basis should the unit secondary reserves be assigned to each tract?

A study was presented by Shell to show the expected encroachment of injected fluids beyond the normal well pattern (based on studies by Caudle et al, Petroleum Transactions, AIME (1955) 204, 79-85) and reduced sweep efficiencies due to incomplete patterns (based on results published by Craig, AIME Monograph, Volume 3, Chapter 5). The application of these techniques was approved by the Committee and resulted in unit secondary oil reserves of 6,560,000 barrels for a recovery efficiency of 10.6 percent of the OOIP. This is equivalent to a secondary reserve to primary ultimate ratio of 0.57 and requires the drilling of one injector at location 29D. It was decided by the Committee that this volume of secondary reserves should be apportioned to each tract on the basis of the tract OOIP.

It was pointed out that apparently the 320-acre Noranco Rice (Section 13) and Hardin (Sec. 18) leases were experiencing favorable response to Grayburg water injection. The October 1976 oil production from the Hardin tract is 1211 barrels (3 producers) which is the highest production level since 1963. In addition, the GOR has significantly decreased to 2695 cubic feet per barrel oil. Waterflood response from the Rice lease is not as pronounced but still encouraging. Water injection was started in August 1971, but has not been continuous.

At the last Technical Committee meeting it had been decided that San Andres secondary reserves should be determined by analogy with existing San Andres waterfloods in the vicinity that exhibited similar reservoir characteristics. Performance data on 8 such projects were reviewed and averaged a total recovery efficiency of 35 percent with a secondary to primary ratio of 0.85. It was noted that the volumetrically weighted permeability for these projects was 11 millidarcies whereas only two of the projects had average permeabilities as high as the North Hobbs Unit average for Zones II, III_L and III_U (28 millidarcies) and the ultimate recovery efficiency for those two floods are predicted to be 39.4 and 46.4 percent. Their secondary to primary ultimate recovery ratios are 0.43 and 0.68.

A Shell reservoir simulation study of the Zone III_L resulted in a primary recovery efficiency of 24 percent and a secondary recovery efficiency of 20 percent. The ultimate recovery efficiency is 44 percent and a secondary to primary ratio of 0.82. This study assumed a residual oil saturation of 35 percent in the swept zone and the final average saturation of 39 percent is equivalent to a sweep efficiency of 89 percent. It was pointed out that the San Andres Zone III_L is probably the most amenable to waterflooding because of the localized area and shape of the reservoir development.

Based on the foregoing, the Technical Committee determined that the ultimate oil recovery efficiency for the San Andres Zones II, III_U and III_L will be 40 percent. This should result in a secondary reserve for these zones of 48,640,000 barrels of oil. These recoveries are equivalent to an average residual oil saturation of 41.4 percent with a sweep efficiency of 85.1 percent. The ultimate recoveries for each zone in the proposed unit area are summarized in the attached tabulation. The Technical Committee also decided that the secondary reserves for the San Andres should be allocated to each tract on the basis original oil in place for each of the three zones.

Discussion then revolved about the scheduling of future work required for the Technical Committee to complete the charges by the Working Interest Owners. The following tentative schedule was developed: (1) determine the economics of waterflooding of both the Grayburg and San Andres reservoirs, (2) finalize the Grayburg primary reserves, by decline curve analysis, as soon as the production statistics are available through December 1976, and (3) prepare the Technical Committee report (tentatively scheduled for April 1977).

Attachments

ATTENDANCE LIST
Proposed North Hobbs Unit Technical Committee Meeting
Houston, Texas, January 13, 1977

NAME	COMPANY	LOCATION
Kassim Y. Kassim	Amerada Hess	Seminole
Ralph R. Denham	Amoco	Houston
Don Barrett	Cities Service	Midland
Arthur J. Henry	Conoco	Houston
W. E. Nolan	Exxon	Midland
J. E. Eakin	Getty	Midland
Royce Walker	Gulf	Midland
R. E. Dejmal	Mobil	Houston
Boyce Perry	Samedan	Ardmore
Chris Bosecker	Skelly	Midland
Chuck Price	Sun	Midland
Oran L. Hall	Texas Pacific	Midland
Hank Swartz	Shell	Houston

PROPOSED NORTH HOBBS UNIT
OOIP AND EXPECTED RECOVERIES (STB)
(Estimate of 1/13/77)

ZONE	OOIP	PRIMARY RECOVERY Cumulative Oil @ 9/1/76	PRIMARY RECOVERY Primary Res. 9/1/76	PRIMARY RECOVERY Ultimate Oil Recovery	SECONDARY RECOVERY RESERVES	SECONDARY RECOVERY Second Primar
Grayburg	61,566,390	10,100,000 (16.4%)	1,400,000 (2.3%)	11,500,000 (18.7%)	6,560,000 (10.7%)	0.
S.A. I	171,623,081	82,480,292 (48.1%)	21,672,007 (12.6%)	104,152,299 (60.7%)	0	0
S.A. II	149,974,258	34,124,188 (22.8%)	7,807,152 (5.2%)	41,931,340 (28.0%)	18,000,000 (12.0%)	0.43
S.A. III_U	155,394,214	31,397,380 (20.2%)	6,307,708 (4.1%)	37,705,088 (24.3%)	24,400,000 (15.7%)	0.65
S.A. III_L	39,720,060	8,025,433 (20.2%)	1,612,303 (4.1%)	9,637,736 (24.3%)	6,240,000 (15.7%)	0.65
Subtotal S.A. II, III_U, III_L	345,088,532	73,547,001 (21.3%)	15,727,163 (4.6%)	89,274,164 (25.9%)	48,640,000 (14.1%)	0.56
UNIT TOTALS	578,278,003	166,127,293 (28.7%)	38,799,170 (6.7%)	204,926,463 (35.4%)	55,200,000 (9.6%)	0.27

PROPOSED NORTH HOBBS UNIT
OOIP AND EXPECTED RECOVERIES (STB)
(Estimate of 1/13/77)

ZONE	OOIP	PRIMARY RECOVERY			SECONDARY RECOVERY	
		Cumulative Oil @ 9/1/76	Primary Res. 9/1/76	Ultimate Oil Recovery	RESERVES	Second Primar
Grayburg	61,566,390	10,100,000 (16.4%)	1,400,000 (2.3%)	11,500,000 (18.7%)	6,560,000 (10.7%)	0.5
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Minutes of the Technical Committee Meeting
Proposed North Hobbs Unit
March 2, 1977

Twelve companies, which operate 83 percent of the current producers, were represented. (Attendance list is attached.) The main objectives of this meeting were to finalize the primary reserve determinations and to review the capital investment requirements and economics of waterflood operations.

The first agenda item was to finalize tract primary reserves for wells producing from the upper San Andres stringers and/or the Grayburg reservoirs. The last estimates had been made on November 11, 1976 and were based on production through August 31, 1976. The production performance graphs have now been updated to include the results through December 31, 1976. The oil reserves for the proposed North Unit area (as of January 1, 1977) were determined to be 1,485,275 barrels and are summarized by tracts on an attachment.

The next agenda item was to determine the method to be used to allocate the oil production from the last four months of 1976 in order to update tract primary reserves computed for wells producing from the main San Andres reservoirs. These reserves have been determined (as of September 1, 1976) with the use of a reservoir simulation program. (Please refer to the minutes of the Technical Committee meeting held on November 17 and 18, 1976.) Two alternatives were considered: 1) Use of computer program predict mode to estimate the zonal allocation of actual production for the last four months of 1976 on a unit basis and determine the tract zonal reserves by applying the same tract percentages previously determined or 2) use the computer program predict mode to estimate the zonal allocation of actual production for the last four months of 1976 on a tract basis and determine the tract zonal reserves by subtracting those values from the previously determined tract reserves (as of September 1, 1976). The latter method was selected; this may result in a slight change in the ratio of tract reserves to unit reserves that were previously furnished to you. Copies of the revised tract values will be mailed to you as soon as available.

A discussion was then initiated about an alternative solution to the computed reserves for the Getty (Skelly) Turner lease located in Section 34. The problem is described in the minutes of the Technical Committee meetings held on November 4, 1976, and November 17 and 18, 1976. The following motion was made by Samedan and seconded by Shell: The Technical Committee accepts the remaining primary oil reserves for the main San Andres zones as determined by the reservoir simulation run of November 8, 1976 (summary of equities transmitted to all Operators with letter dated November 10, 1976) except for a manual adjustment to the zone I primary oil reserves for five direct offset wells (Getty-Skelly Turner 1 (34F) and 2 (34C), Shell Turner 1 (34G) and 2 (34B) and Shell Sanger 2 (27N)) to correct an anomaly in misalingment of the simulator grid in that zone. The remaining zone I primary oil reserves (as of September 1, 1976) for each of those five wells is 416,437 barrels. The results of the vote were:

FOR (10): Amerada, Amoco, Exxon, Getty, Gulf, Mobil, Samedan, Sun, Texas Pacific and Shell
OPPOSED (1): Continental
PASS (1): Cities Service

The primary reserve parameter will therefore reflect this adjustment.

The next agenda item was a review of the economics of secondary recovery operations for this unit. A total capital investment of $24,600,000 will be required to waterflood the Grayburg and San Andres Zones II_L, III_L, and III_U reservoirs. This amount includes $11,000,000 for centralized production facilities with fourteen satellite stations, $7,000,000 for the injection system and $600,000 for the source water gathering system. The Grayburg flood design is based on an 80 - acre five - spot pattern consisting of 40 injectors and 44 producers. One injector will be drilled. The expected waterflood recovery of 7.6 million barrels (6.6 secondary and 1.0 primary) should be produced in 36 years with a peak production rate of 1298 barrels of oil per day reached after 10 years of water injection. The San Andres flood design is based on a modified nine - spot injection pattern with an approximate spacing of 160 acres and consisting of 27-1/2 injectors (60 well zones) and 116 producers (192 well zones). Five unit producers and 14-1/2 unit injectors will be drilled which includes five (2-1/2 unit) injectors drilled along the common boundary with the Amoco-operated South Hobbs Unit. The expected waterflood recovery of 61.9 million barrels (48.6 secondary and 13.3 primary) should be obtained in 35 years with the peak oil production rate of 9280 barrels of oil per day occurring 8 years after the start of water injection and remaining flat for seven years. The oil and water production rates and volumes and water injection requirements are based on reservoir simulation studies on both the Grayburg and San Andres Zone III_L which have been previously reported. Copies of detailed cost estimates (captial and operating costs) and production functions were handed out to all in attendance and are available on request to those not attending.

The differential profitability analysis for the combined Grayburg - San Andres secondary oil additions of 55.2 million barrels yeild an undeferred before tax profit of $334 million (1359 percent) and a before tax profit, discounted at 10 percent, of $80 million (350 percent) based on constant dollars. Payout occurs in 6 years and the before tax earning power is 28 percent.

Attendance List
Technical Committee Meeting of March 2, 1977

Name	Company	Location
K. Y. Kassim	Amerada Hess	Seminole
Paul Rossman	Amoco	Houston
Don Barrett	Cities Service	Midland
C. C. Woodward	Continental	Hobbs
W. E. Nolan	Exxon	Midland
J. E. Eakin	Getty	Midland
C. F. Bosecker	Getty	Midland
R. D. Walker	Gulf	Midland
R. E. Dejmal	Mobil	Houston
Boyce Perry	Sameden	Ardmore
Chuck Price	Sun	Midland
Oran L. Hall	Texas Pacific	Midland
Hank Swartz	Shell	Houston

#17

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

March 8, 1977

Subject: Technical Committe Meeting
Proposed North Hobbs Unit
Lea County, New Mexico

Technical Committee
(Addressee List Attached)

Attached are the minutes of the Technical Committee meeting held in Houston on March 2, 1977.

At this session the Technical Committee updated the primary oil reserve determinations to include production through December 31, 1976. In addition it was agreed to make a manual adjustment to the reserves calculated with the reservoir simulation program for five offsetting wells in Section 27 and 34. The Technical Committee also reviewed the estimates of capital investments requirements and the economics of waterflood operations.

This will probably be the final meeting of the Technical Committee prior to the publication of the Report in April. Attached is copy of the Well Status tabulation which has been updated to reflect the conditions as of January 1, 1977. It would be appreciated if each operator would again review this summary and advise me of any errors.

Yours very truly,

H. J. Swartz

H. J. Swartz, Chairman

HJS:SA

Attachments

TESTIMONY AND EXHIBITS OF

W.E. BUCK

TESTIMONY OF W.E. BUCK

Q. Would you please state your name and where you reside?

A. W.E. Buck, I reside in Houston, Texas.

Q. Where are you employed and in what capacity?

A. I am employed by Shell Oil Company in Houston, Texas as a staff engineer in the business coordination group.

Q. Have you previously testified before this Commission and had your qualifications accepted as a matter of record?

A. No, I have not.

Q. Would you briefly describe your educational background and employment experience.

A. I graduated from the University of Oklahoma, February 1941, with a B.S. Degree in Petroleum Engineering. I performed military service from March 1941 to February of 1946 and was employed by Shell Oil Company as an exploitation engineer in February of 1946; my assignment with Shell Oil Company has included various engineering and supervisory positions directly associated with the development and production of oil and gas reserves. During the past nine years I have directed and have been responsible for Shell's efforts to unitize properties for supplemental recovery purposes. During this period I have also represented Shell in other operators' efforts to unitize properties for supplemental recovery purposes. I have been registered as a professional engineer in the State of Texas, since July 29, 1958.

Q. Are you familiar with the applications of Shell Oil Company in Case Nos. 6652 and 6653?

A. Yes, I am as I have represented Shell and acted as Chairman of the Working Interest Owners Committee during its negotiations in connection with the unitization of the proposed North Hobbs Grayburg-San Andres Unit.

Q. Mr. Chairman, are the witnesses qualifications acceptable?

A. [Await answer, assume that they are.]

Q. Mr. Buck, did the Working Interest Owners Committee hold meetings during your chairmanship?

A. Yes, they did.

Q. Were minutes taken at those meetings?

A. Yes.

Q. Let me refer you to what has been marked as Shell's Exhibit No. 20 and ask you to identify it.

A. Exhibit No. 20 is a bound series of copies of the minutes of the Working Interest Owners Committee meetings and related correspondence. These minutes and this correspondence were prepared by me in my role as chairman of the committee.

Q. Have you reviewed these minutes?

A. Yes, I have.

Q. Do they accurately report the actions of the Working Interest Owners Committee in those respective meetings?

A. Yes, they do.

Q. How were efforts to form the North Hobbs Unit initiated and how was the program for unitization and water injection developed?

A. As Mr. Lancaster previously has stated, Amoco Production Company initiated an effort in 1970 to form a pool wide unit of the Hobbs Grayburg-San Andres Pool for the purpose of supplemental recovery operations. It became apparent that agreement could not be reached on a pool wide basis because the working interest owners could not reach agreement on a method for allocating the Unit production based on the values assigned the parameters.

At a meeting held by Amoco on July 12, 1973, all of the working interest owners in the Hobbs Pool decided to abandon efforts to form a pool wide unit and to divide the Pool into two parts for future unitization efforts. Amoco undertook a program of unitization of the south portion of the Pool and was successful in forming the South Hobbs Unit on January 1, 1975.

Shell called a meeting of all Operators on July 31, 1973, to determine what interest, if any, all of them had in undertaking a program for the unitization and water injection for the northern part of the Pool. The Operators attending this meeting actually represented a major portion of the working interests in the northern portion of the Pool. They agreed to proceed with the program of unitization and water injection and to participate in an effort to form the North Hobbs Grayburg-San Andres Unit

with Shell Oil Company acting as Unit Expeditor and Unit Operator if the efforts toward unitization were successful.

As Mr. Lancaster discussed, the Operators in attendance at this meeting charged a Technical Committee with the task of developing a technical study for the proposed North Hobbs Grayburg-San Andres Unit. The Operators instructed the Technical Committee to obtain general agreement on all items considered. The Technical Committee was instructed to bring any matter upon which general agreement could not be reached to the Working Interest Owners Committee for direction or decision. This Technical Committee consisted of representatives of all working interest owners who wished to participate and Shell's representative acted as Chairman of the committee.

Q. What actions were taken by the Working Interest Owners Committee during the time the study was being developed by the Technical Committee?

A. No further meetings of the Working Interest Owners Committee were held until May 26, 1977. However, in the meantime, the Technical Committee asked our committee to act on two of its recommendations.

Our first action was to approve the recommendation of the Technical Committee to adopt a cut-off date of January 1, 1975 for all well logging data and well test information which they were going to consider in completing their charge. The need to adopt a cut-off date is fairly self-evident. As was stated in

the ballot submitted to the working interest owners, a cut-off date was necessary in order to bring certain facets of the Technical Committee's work to a conclusion so that they could proceed with answering their charge. Our approval of this recommendation was arrived at by a written ballot vote on September 26, 1974. The second action our committee took was to adopt the Technical Committee's recommendation to approve a computer analysis of certain study zones using Shell's three-dimensional, compressible fluid reservoir simulation program. This recommendation was approved by 88.5 percent of the working interest owners involved in the northern portion of the Hobbs Pool, again by written ballot on March 15, 1975. This percentage approval was based on each working interest owner's respective percentage of oil production from the northern portion of the Hobbs Pool during the year ~~1976.~~ 1973

Q. When did the Technical Committee complete their charge and what action was then taken by the Working Interest Owners Committee?

A. The Technical Report which has been previously introduced as Shell's Exhibit No. 16 was formally submitted to the Working Interest Owners Committee at a meeting on May 26, 1977. This Technical Report was accepted by the Working Interest Owners Committee as the completion of their charge.

76.6 percent of the working interest owners, again based on 1976 oil production, accepted the study as a basis for unitiza-

tion negotiations. Exxon's acceptance was qualified because Exxon was not yet ready to accept the gas reserve parameters. Exxon later accepted without qualification the Technical Report as the basis for unit negotiations. Ultimately, not one working interest owner objected to the use of the Technical Report as the basis for unit negotiations.

Q. Was a method developed for allocating all of the oil and gas to be produced from the Unit Area, and if so, in what manner was it developed?

A. At a meeting of the Working Interest Owners Committee on July 12, 1977, efforts were initiated to develop a participation formula or method of allocating the oil and gas to the various tracts within the Unit Area. The meeting was attended by working interest owners representing more than 92 percent of the unit participation based on the lowest participation of any of the formulas considered at the meeting.

At this meeting a total of twelve different participation formulas were proposed by ten different working interest owners. Each proposal was considered and a roll-call vote was taken of the working interest owners in attendance. None of the 12 formulas received more than 58 percent approval of the working interest owners in attendance.

In the absence of agreement, the meeting of the Working Interest Owners Committee was adjourned with the intent of renewing efforts at a later date after all parties had had time to review the efforts to date.

The Working Interest Owners Committee again met on September 20, 1977 in its continuing effort to develop an acceptable participation formula. Five additional formulas or methods of allocation were proposed at this meeting. Each new formula was considered by the committee and a roll call vote of the working interest owners present was taken on each formula.

Continental Oil Company presented the fifth formula considered at this meeting, and the seventeenth proposed in all. Continental's formula received in excess of 83 percent approval of the working interest owners on a roll-call vote. At the request of the working interest owners a written ballot on this formula was submitted and returned by mail. This formula provided for participation by the working interest owners during three specified phases of the life of the project and, based on each working interest owner's respective oil participation in each phase, the results of the ballot were: Phase I, 92.01 percent working interest owners' approval with only 1.46 percent disapproval; Phase II, 92.58 percent approval with only 1.30 percent disapproval; and Phase III, 89.76 percent approval with only 1.27 percent disapproval.

Q. Would you state what is the participation formula which received the percentage approval you just described and also tell the Commission how it works and in this connection I refer you to what has been marked as Shell's Exhibit No. 21.

A. Actually, participation was made up of two formulas - one for oil and one for gas - each divided into three parts or phases.

As shown on this Exhibit the formula for oil allocation in Phase I participation was based on 20 percent of the ratio of the quantity of 1976 oil production from each tract to the total quantity of 1976 oil production from all tracts within the Unit Area, plus 80 percent of the ratio of the quantity of remaining primary oil reserves of each tract within the Unit Area as of January 1, 1977, as set forth in the Technical Report to the total quantity of remaining primary oil reserves of all tracts within the Unit Area as of the same date.

In Phase II, participation was based on 100 percent of the ratio of the quantity of remaining primary oil reserves for each tract within the Unit Area again as of January 1, 1977, to the total quantity of remaining primary oil reserves of all tracts within the Unit Area as of the same date.

In Phase III, participation was based on 100 percent of the ratio of the quantity of secondary oil reserves for each tract within the Unit Area as set forth in the Technical Report, to the total quantity of secondary oil reserves of all tracts within the Unit Area.

The gas participation formula is the same in principle as the formula for oil participation.

In Phase I, participation was based on 20 percent of the ratio of the volume of 1976 gas production from each tract within the Unit Area to the total volume of 1976 gas production from all tracts within the Unit Area, plus 80 percent of the ratio of the volume of remaining primary gas reserves of each tract within the Unit Area as of January 1, 1977 as set forth in the Technical Report to the total volume of remaining primary gas reserves of all the tracts within the Unit Area as of the same date.

In Phase II, participation was based on 100 percent of the ratio of the volume of remaining primary gas reserves for each tract within the Unit Area again as of January 1, 1977, to the total volume of remaining primary gas reserves of all the tracts within the Unit Area as of the same date.

In Phase III, participation was based on 100 percent of the ratio of each tract's quantity of secondary oil reserves within the Unit Area as set forth in the Technical Report to the total quantity of secondary oil reserves of all tracts within the Unit Area.

Q. Mr. Buck, now that you have described how unit oil and gas production will be allocated to each tract during three phases, would you explain the duration of each phase?

A. With respect to the duration of each phase, Phase I is to start on the effective date of unitization and continue until the first day of the month following the month in which the total number of barrels of oil produced from all tracts within the Unit

Area after the effective date of unitization equals four million barrels.

Phase II starts at the termination of Phase I and continues until the first day of the month following the month in which the total number of barrels of oil produced after January 1, 1977, from all tracts within the Unit Area equals 38,071,683 barrels which is the quantity of remaining primary oil reserves of the Unit Area as of January 1, 1977 as set forth in the Technical Report.

Phase III begins with the termination of Phase II and continues for the remainder of the term of unitization or life of the project.

Q. Is then the oil and gas that is produced from the Unit Area less that used in the conduct of Unit operations or unavoidly lost, to be allocated to the separately owned tracts within the Unit Area on the basis of the participation formulas just stated?

A. Yes. This method of allocation is set forth in Section 13, page 9, of the Unit Agreement for the North Hobbs Grayburg-San Andres Unit, which has been introduced as Shell's Exhibit No. 3.

Q. Why is there a split formula with respect to Phase I of the unit operations?

A. The relationship of a tract's production to the production of other tracts or to the total of all tracts at a given

time or for a relatively short period is not necessarily the same as the relationship of the remaining primary reserves of such tract to the total of all tracts. Therefore, a rate of production for a fixed period was used as a parameter in Phase I to provide some adjustment. Phase I is for only a short period of time, the time it takes to produce four million barrels of oil. By the time four million barrels of oil are produced, it is anticipated that the rate of production of the unit will begin to increase, so that soon thereafter all tracts will be allocated oil at a rate greater than that they enjoyed prior to unit operations.

Q. Do you have an opinion as to whether or not the participation formula contained in the Unit Agreement allocating the produced and saved unitized hydrocarbons to the separately owned tracts in the Unit Area does so on a fair, reasonable and equitable basis?

A. Yes, I believe it does. As may be noted, the first two phases are based fundamentally on the remaining primary reserves of each tract as determined by the Technical Committee .... a committee on which all Working Interest Owners were invited to be represented. By using this factor as the basis for the allocation of oil and gas produced, under the proposed Unit Agreement, each tract would receive first from the Unit's operations an amount of oil and an amount of gas equal to the amounts each tract would have received if primary operations had continued

without unitization. Phase III, being based entirely on a given tract's secondary recovery potential, allows each tract to recover its contributed share of the added reserves. This condition is very desirable, in that it places any risk of recovery upon the supplemental oil - or that additional oil that is made possible by a unit operation. With the amount of oil involved in the North Hobbs Unit, royalty interest owners, working interest owners, and the State of New Mexico can all feel quite certain that they will receive at least as much oil and gas from unit operations as they would have received from continued operations without unitization, ... and know they all stand to benefit from the additional oil recovered by water injection.

Placing the risk of recovery on the anticipated secondary potential is quite reasonable and fair when one considers the fact that the tracts differ in their share of primary and secondary reserves contributed to the unit. Some tracts have a smaller share of the remaining primary recovery than their share of the secondary or supplemental oil, and by the same token, some tracts have a higher share of the remaining primary than their share of the secondary reserves.

For example, two tracts might be allocated the same total amount of oil from unit operations. Assume one of these tracts receives most of its oil by reason of its primary contribution and very little from its secondary contribution, and that the other tract receives its oil allocation based upon the opposite

mix of its primary and secondary contribution. It is therefore reasonable that the first tract, with possibly less incentive for unitization and water injection, should bear only that risk of recovery which is in proportion to its incentive or secondary potential. Conversely, the second tract, which has a greater incentive for unitization and water injection by virtue of the greater secondary recovery potential should bear the risk related to that potential benefit. The participation formula achieves this desirable and necessary result.

Q. How were procedures developed for allocating unit expenses to the various separately owned tracts?

A. The procedures for allocating unit expenses were developed in a manner similar to that involved in developing the participation formula, that is, by the working interest owners. Unit expenses were considered as two separate items - Operating Expense which is comprised of the costs associated with actual unit operations and Investment Cost which is comprised of the cost of the facilities, including the construction costs required for the water injection program.

At a meeting of the Working Interest Owners Committee on February 2, 1978, consideration was given to the methods to be used for allocating unit expenses. Six methods were proposed and considered at the meeting. A roll call vote was taken on each method proposed. The sixth proposal considered received in excess of 76 percent approval of the working interest owners on a

roll call vote. The working interest owners then agreed to submit by mail the sixth proposal for ballot vote.

The results of the written ballot, again based on each working interest owner's respective oil participation in each phase, were: Phase I, 85.3 percent approval with only 10.2 percent disapproval; Phase II, 85.8 percent approval with only 9.7 percent disapproval; Phase III, 83.6 percent approval with only 14.6 percent disapproval. In addition, based on their initial share of the investment cost, this formula received 84.9 percent approval with only 11.7 percent disapproval.

Q. What was the method developed for the sharing of unit expenses and in this connection I refer you to Shell's Exhibit No. 22.

A. The method of allocating unit expenses finally agreed upon is shown on this Exhibit. The unit operating expenses which are referred to in Article 11 of the Unit Operating Agreement are to be shared by the working interest owners in proportion to their Phase I, Phase II, or Phase III unit participation based on oil, depending on which phase is in effect at the time a particular expense is incurred.

The cost of investment items incurred prior to the Investment Readjustment Date, which is defined in Article 1.2 of the Unit Operating Agreement as the termination of Phase II or January 1, 1991, whichever occurs first, is to be shared by working interest owners in proportion to their Investment

Participation which again is defined in the Unit Operating Agreement as .58 of Phase II unit participation, plus .42 of Phase III unit participation. The cost of investment items incurred after the Investment Readjustment Date will be shared by working interest owners in proportion to their Phase III unit participation.

At the time of the Investment Readjustment Date, all investment costs incurred prior to such time are to be adjusted among all the working interest owners in accordance with their respective Phase III Unit Participation.

Q. Is this the method stated in the Unit Operating Agreement for allocating unit expenses to the working interest owners?

A. Yes. Article 11 of the Unit Operating Agreement which is Shell's Exhibit 4 sets forth the method of allocating the costs of unit operations, including capital investments, in the manner I have just described.

Q. Do you consider these methods of allocating unit expenses to be fair, reasonable and equitable?

A. Yes. The proposed water injection program in conjunction with the participation formula results in the accelerated recovery of an amount of oil equivalent to each tract's remaining primary reserve as well as allowing for the recovery of the supplemental reserve. In view of the fact that benefits will result from the accelerated recovery, it is fair and reasonable that this accelerated recovery should be considered in the allocation of unit expense. Therefore, the allocation of operating costs on

the basis of the phase in effect at the time the costs are incurred, and the weighting between primary and secondary reserves in the initial allocation of investment costs, as well as the provisions for the readjustment to Phase III Unit participation, allocates the expense burdens in proportion to the benefits to be derived from the project.

Q. How are credits or charges to be made for such items as wells, tanks, pumps, machinery, and equipment contributed to unit operations?

A. Consideration was given to such items by the Working Interest Owners Committee at the same time and in association with the development of methods for allocating unit expense. As noted in Article 10 of the Unit Operating Agreement, all items contributed to unit operations by the working interest owners are to be inventoried and a value assigned immediately after the effective date of unitization. The value of the inventoried items will be adjusted initially among the working interest owners in proportion to their Investment Participation - just as for investment costs. At the Investment Readjustment Date - the value of the inventoried items, less the value of any items retired, is to be readjusted among all working interest owners in accordance with their respective Phase III Unit Participation.

Q. Does the Unit Operating Agreement provide for the situation where a working interest owner does not pay his share of unit expense?

A. Yes. Article 11.5 of the Agreement provides that in this case the Unit Operator shall have a lien on the Unit oil and gas owned by that working interest owner and the Unit Operator shall have the right to collect the proceeds from the sale of that oil and gas until the reimbursable amount owed plus interest has been paid.

Q. Does the Unit Agreement and the Unit Operating Agreement provide for the designation and removal of the Unit Operator?

A. Section 6 of the Unit Agreement and Article 6.1 of the Unit Operating Agreement designate Shell as the Unit Operator. Also Article 6.2 of the Unit Operating Agreement and Sections 7 and 8 of the Unit Agreement provide a procedure for the removal of the Unit Operator and the selection of a successor.

Q. Does the Unit Operating Agreement provide a method for voting on Unit matters?

A. Yes. Article 4 of the Unit Operating Agreement sets forth the voting procedures for voting on matters to be decided by the working interest owners.

Q. Does the Unit Agreement provide for putting the Unit into effect and terminating it?

A. Yes, the Unit is to become effective as provided by Section 39 of the Unit Agreement. The Unit Agreement may be terminated as provided in Section 24 of the Unit Agreement. I might further add that this Section of the Unit Agreement to

which I just referred provides by its own terms for its own ipso facto expiration on January 1, 1980, if the Unit does not become effective by that date.

Q. Is it your opinion that the granting of these applications is in the interest of prevention of waste and protection of correlative rights?

A. Absolutely.

Q. And is it also your opinion that the granting of these applications is reasonably necessary to carry on supplemental recovery operations so as to substantially increase the ultimate recovery of oil and gas from the Hobbs Grayburg-San Andres Pool?

A. Yes, that is my opinion.

Q. Mr. Buck, one final question, based on your very intense and extensive involvement in the unitization effort you have just described, do you have an opinion as to whether unitization would be undertaken again in the forseeable future if the application for unitization is not approved as presented?

A. Naturally, I hope this question will be moot - but I might comment that our efforts to date have all been to form the North Hobbs Unit - and in view of the overwhelming response we have had from the 80 working interest owners and the 905 royalty interest owners - it just hasn't seemed appropriate or necessary - nor was time available - to develop a "what-if" program.

Nevertheless, I think that when one considers:

1) that Amoco was unable to reach agreement and form a unit in spite of the tremendous time and effort they expended in their attempts to include the northern portion of the Pool in the unit;

2) the complexity and history of the reservoir;

3) the methods, the time, and the expense required to evaluate the reservoir - remembering that the Technical Committee spent nearly four years in gathering data, developing a method of evaluation and obtaining acceptance of their report by the Working Interest Owners Committee;

4) that a Unit Expeditor is not compensated for its time - engineers, lawyers, accountants, clerks, landmen, etc. - when a unit is not formed - but only by his share of added oil when a unit is formed;

5) when I think of the number of interested parties involved - 80 working interest owners, and 905 royalty interest owners - and think about what it takes to get all or most to agree on anything, much less a method of sharing over 85 million barrels of oil, of which over 55 million barrels constitute oil that would not otherwise be recovered;

6) that the incentive for a water injection program decreases with time - both from a reservoir recovery stand point and from an actual construction and operational standpoint; for example, part of the Unit Area is within the city limits of Hobbs and the growth of the city's residential areas makes it increas-

ingly difficult to do the necessary construction and drilling work; and,

7) the fact that this effort has had an excellent response - ratification or acceptance by more than 92 percent of the working interest owners and 97 percent of the royalty interest owners - and in my judgment there is little or no assurance of improving upon this level of acceptance .... if unitization is not brought about by such an effort and response, then the risk of another attempt to unitize would be extremely high - too high maybe.

Considering all of these things - Shell or any other operator, would have to think long and hard before again undertaking such a monumental task when there is no reason to believe that the commitment of additional time, money and professional talent would produce a better result than we have achieved to date.

Q. Were Exhibits 20 through 22 prepared by you or under your supervision?

A. Yes, they were.

TENDER EXHIBITS

EXHIBIT 20

SUBMITTED SEPARATELY AS

Minutes of Working Interest Owners Committee

EXHIBIT 21

NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT
OIL & GAS ALLOCATION FORMULA

/

OIL ALLOCATION

PHASE I

- 20 PERCENT OF THE RATIO OF OIL PRODUCTION FOR YEAR 1976 FROM EACH TRACT TO THE TOTAL 1976 OIL PRODUCTION FROM ALL TRACTS

PLUS

- 80 PERCENT OF THE RATIO OF REMAINING PRIMARY OIL RESERVES AS OF JANUARY 1, 1977, OF EACH TRACT TO THE TOTAL REMAINING PRIMARY OIL RESERVES AS OF JANUARY 1, 1977 OF ALL TRACTS.

PHASE II

- 100 PERCENT OF THE RATIO OF THE REMAINING PRIMARY OIL RESERVE AS OF JANUARY 1, 1977 OF EACH TRACT TO THE TOTAL REMAINING PRIMARY OIL RESERVES OF ALL TRACTS.

PHASE III

- 100 PERCENT OF THE RATIO OF THE SECONDARY OIL RESERVES OF EACH TRACT TO THE SECONDARY OIL RESERVES OF ALL TRACTS.

GAS ALLOCATION

PHASE I

- 20 PERCENT OF GAS PRODUCTION FOR YEAR 1976 FROM EACH TRACT TO THE TOTAL 1976 GAS PRODUCTION FROM ALL TRACTS.

PLUS

- 80 PERCENT OF THE RATIO OF REMAINING GAS RESERVES AS OF JANUARY 1, 1979 OF EACH TRACT TO THE TOTAL REMAINING GAS RESERVES AS OF JANUARY 1, 1977 OF ALL TRACTS.

PHASE II

- 100 PERCENT OF THE RATIO OF REMAINING GAS RESERVES AS OF JANUARY 1, 1979 OF EACH TRACT TO THE TOTAL REMAINING GAS RESERVES AS OF JANUARY 1, 1977 OF ALL TRACTS.

PHASE III

- 100 PERCENT OF THE RATIO OF SECONDARY OIL RESERVES OF EACH TRACT TO THE TOTAL OIL RESERVE OF ALL TRACTS.

DURATION OF PHASES

PHASE I

TO START AT DATE OF UNITIZATION AND CONTINUE UNTIL THE TOTAL OIL PRODUCTION FROM ALL TRACTS EQUALS 4,000,000 BARRELS.

PHASE II

TO START AT TERMINATION OF PHASE I AND TO CONTINUE UNTIL THE TOTAL OIL PRODUCTION FROM ALL TRACTS AFTER JANUARY 1, 1977 EQUALS 38,071,683 BARRELS.

PHASE III

TO START AT TERMINATION OF PHASE II AND TO CONTINUE FOR THE REMAINDER OF THE TERM OF UNITIZATION.

EXHIBIT 22

NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT
EXPENSE ALLOCATION

OPERATING EXPENSES

PHASE I - EXPENSES INCURRED DURING PHASE I TO BE SHARED IN PROPORTION TO PHASE I UNIT PARTICIPATION.

PHASE II - EXPENSES INCURRED DURING PHASE II TO BE SHARED IN PROPORTION TO PHASE II UNIT PARTICIPATION.

PHASE III - EXPENSES INCURRED DURING PHASE III TO BE SHARED IN PROPORTION TO PHASE III UNIT PARTICIPATION.

INVESTMENT EXPENSES

PHASE I AND PHASE II OR PRIOR TO INVESTMENT READJUSTMENT DATE

INVESTMENT EXPENSES INCURRED DURING PHASE I AND PHASE II AND PRIOR TO INVESTMENT READJUSTMENT DATE WILL BE SHARED ON INVESTMENT PARTICIPATION WHICH IS

.58 PHASE II UNIT PARTICIPATION
.42 PHASE III UNIT PARTICIPATION

PHASE III OR AFTER INVESTMENT READJUSTMENT DATE

INVESTMENT EXPENSES INCURRED DURING PHASE III OR AFTER INVESTMENT READJUSTMENT DATE WILL BE SHARED IN PROPORTION TO PHASE III UNIT PARTICIPATION.

INVENTORY VALUE

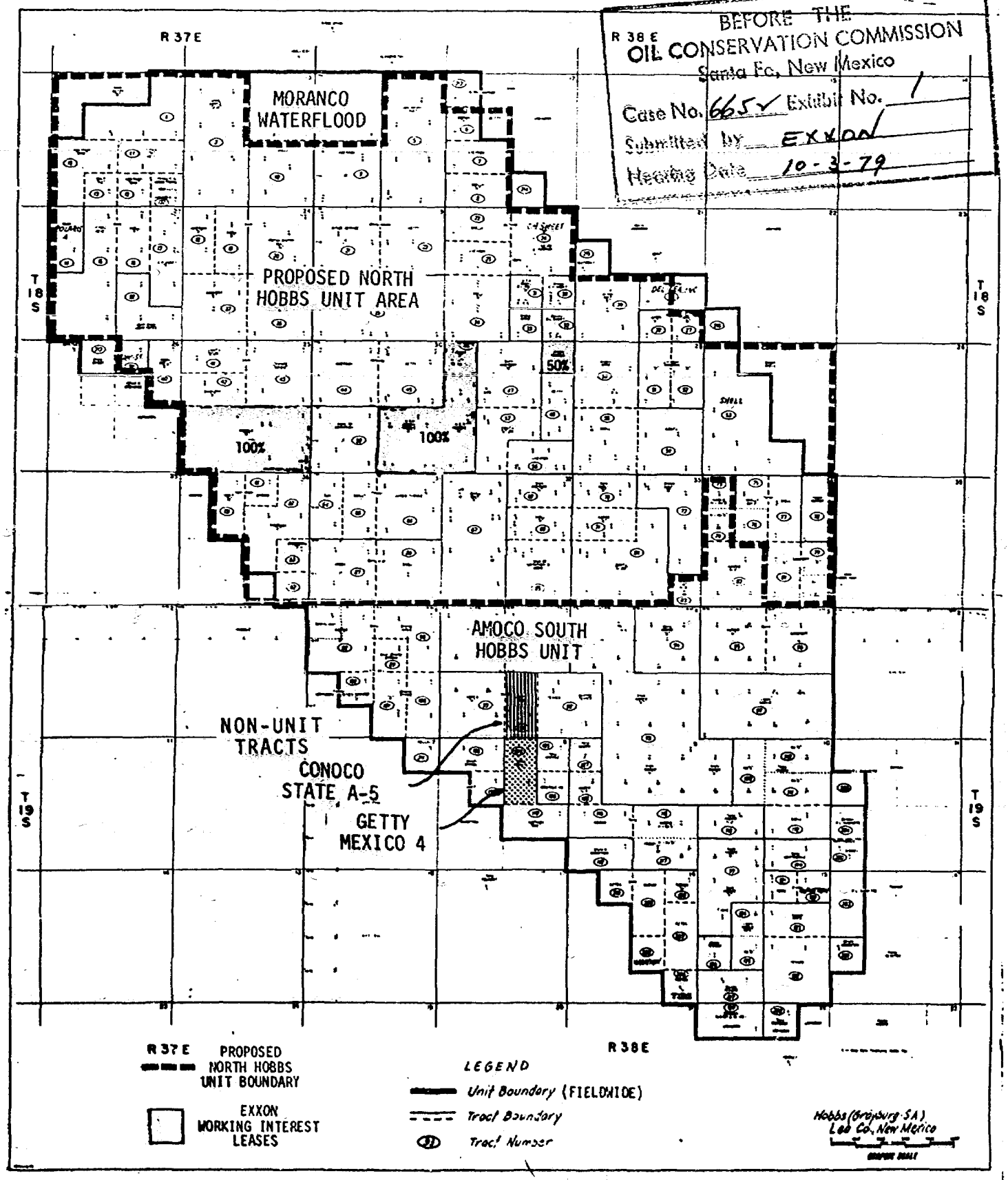
INITIALLY ADJUSTED TO INVESTMENT PARTICIPATION

READJUSTED AT INVESTMENT READJUSTMENT DATE TO PHASE III UNIT PARTICIPATION.

ADJUSTMENT OF INVESTMENT EXPENSES

AT THE TIME OF THE INVESTMENT READJUSTMENT DATE, INVESTMENT ACCOUNT WILL BE ADJUSTED FROM INVESTMENT PARTICIPATION TO PHASE III UNIT PARTICIPATION.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 665 Exhibit No. 1
Submitted by EXXON
Hearing Date 10-3-79



BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 665 Exhibit No. 2
Submitted by EXXON
Hearing Date 10-3-79

PROPOSED
NORTH HOBBS (GRAYBURG – SAN ANDRES) UNIT
Lea County, New Mexico

LEGEND
- WELLS COMPLETED IN UNITIZED FORMATION
- UNIT BOUNDARY
- (67) TRACT NUMBER

EXXON WORKING INTEREST LEASES

R 37 E
R 38 E
T 18 S
T 19 S
R 38 E
100%
50%

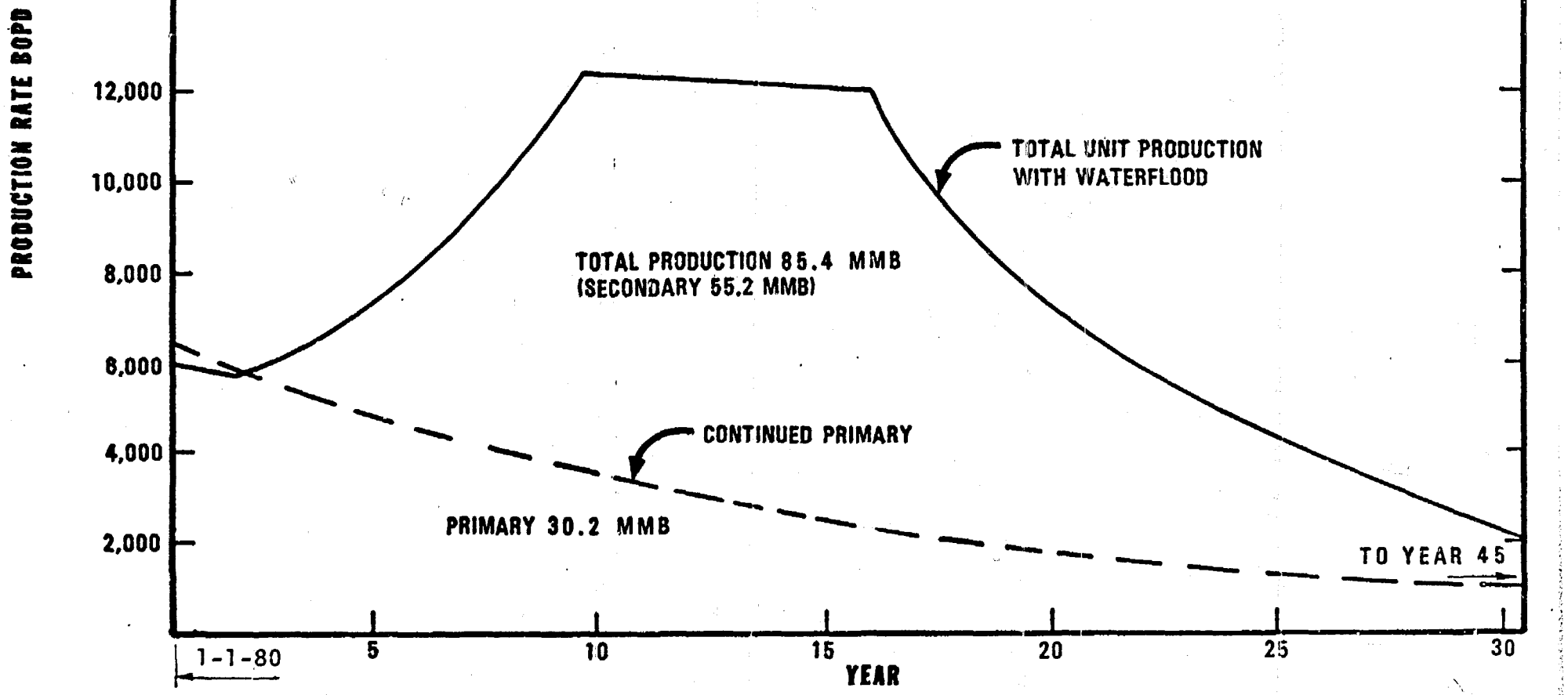
BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6652 Exhibit No. 3
Submitted by EXXON
Hearing Date 10-3-79

PERFORMANCE FORECAST

TECHNICAL COMMITTEE REPORT

PROPOSED NORTH HOBBS UNIT

LEA CO., NEW MEXICO



UNIT AGREEMENT FORMULA
(REVENUE PARTICIPATION)
PHASE 1
20% 1976 PRODUCING RATE
80% 1976 PRIMARY RESERVES
PHASE 2
100% 1976 PRIMARY RESERVES
PHASE 3
100% SECONDARY OIL

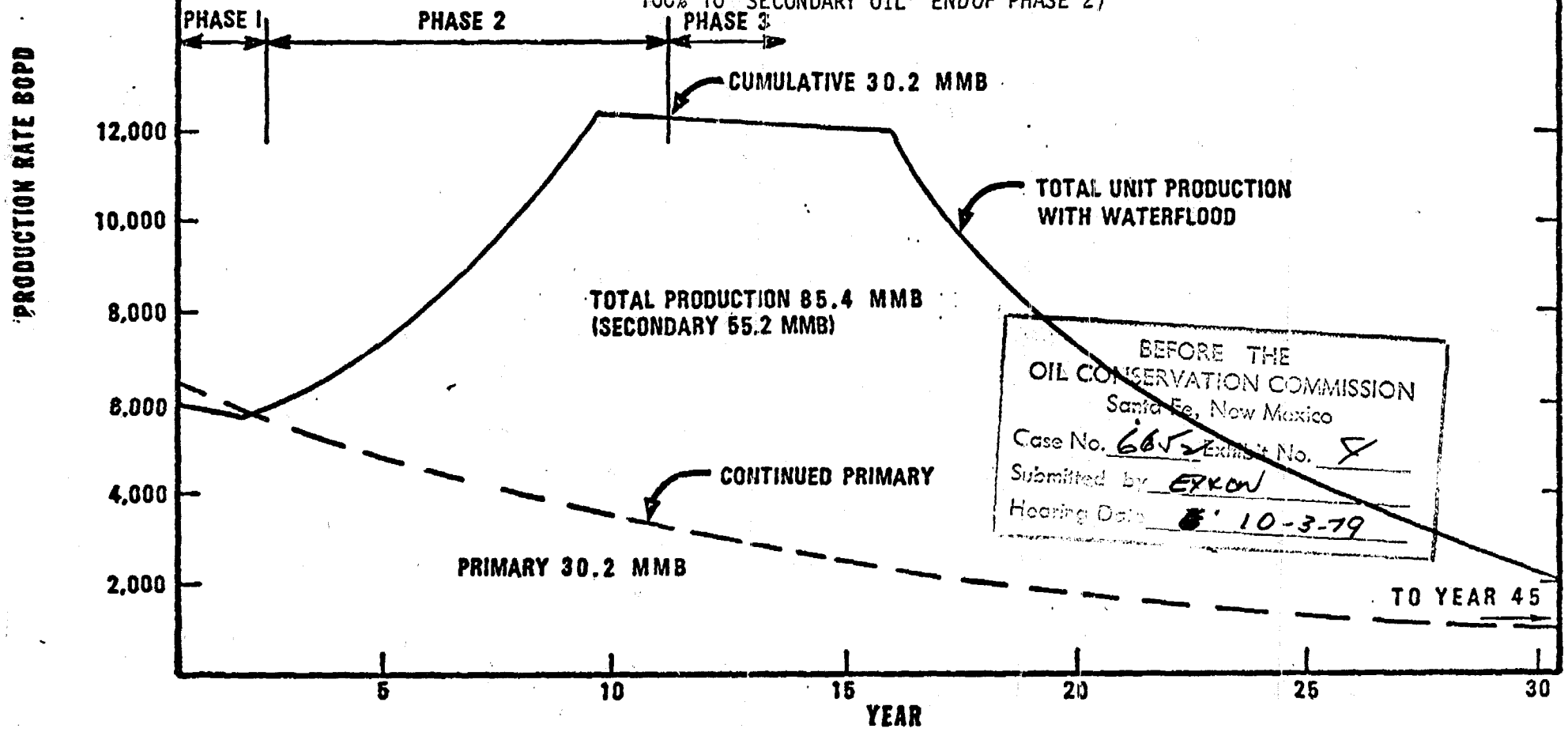
UNIT AGREEMENT FORMULA
(FOR PAYMENT OF INVESTMENT)
PHASE 1 AND 2
58% 1976 PRIMARY RESERVE
42% SECONDARY OIL
PHASE 3
100% SECONDARY OIL
(PHASE 1 AND 2 ACCUMULATED INVESTMENT ADJUSTED 100% TO "SECONDARY OIL" ENDOF PHASE 2)

PERFORMANCE FORECAST

TECHNICAL COMMITTEE REPORT

PROPOSED NORTH HOBBS UNIT

LEA CO., NEW MEXICO



BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 665 Exhibit No. 5
Submitted by EXXON
Hearing Date 10-3-79

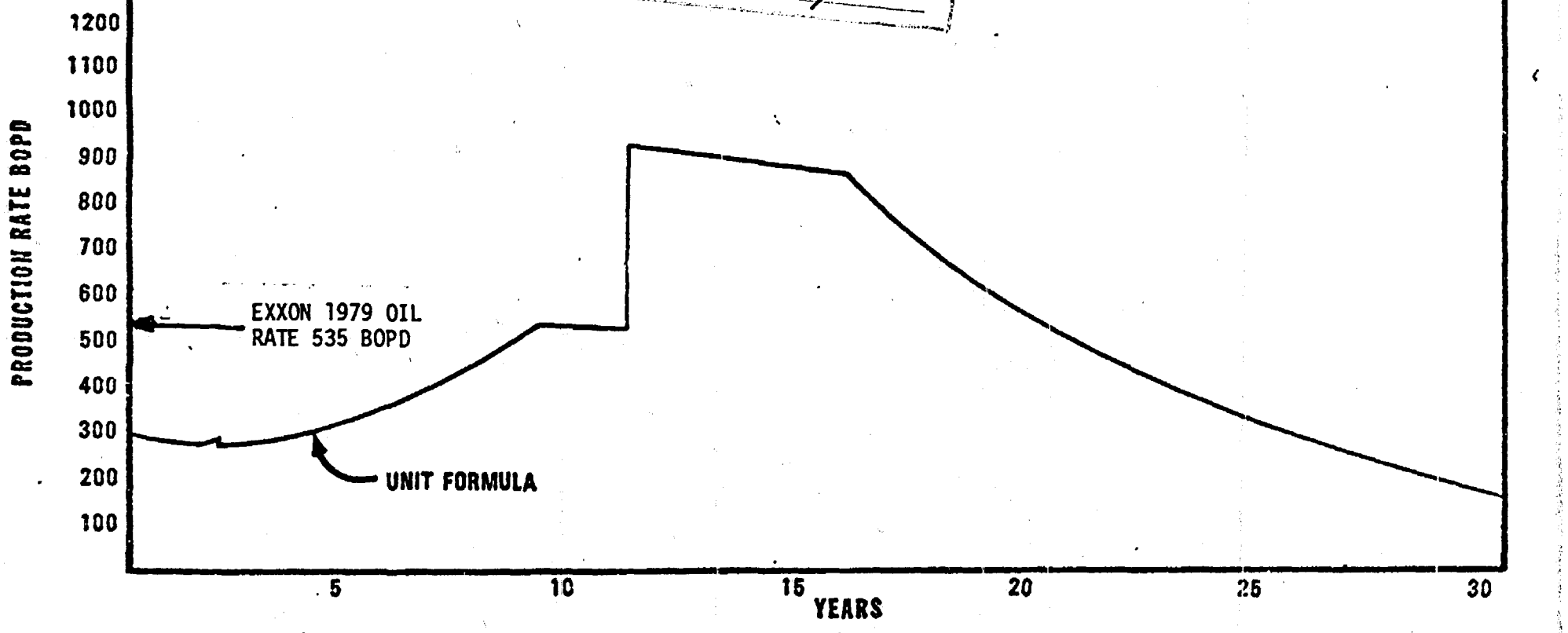
BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 665 Exhibit No. 5
Submitted by EXXON
Hearing Date 10-3-79

PERFORMANCE FORECAST
EXXON SHARE PROPOSED UNIT

UNIT AGREEMENT FORMULA

HOBBS POOL

LEA CO., NEW MEXICO

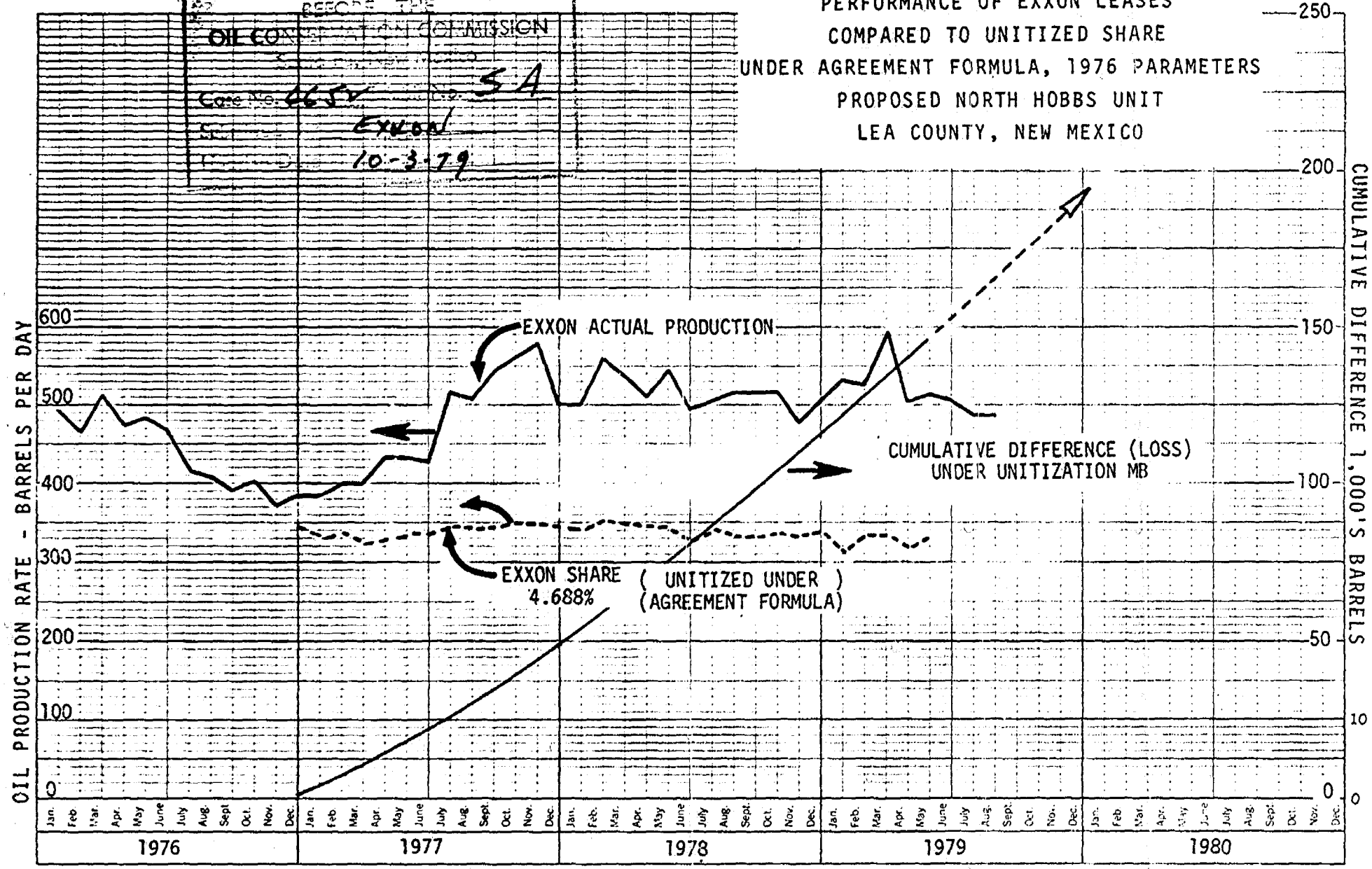


K&E 5 YEARS BY MONTHS X 100 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

46 3650

BEFORE THE
OIL CONSERVATION COMMISSION
Case No. 465 Exhibit No. 5A
Submitted by: Exxon
Hearing Date: 10-3-79

PERFORMANCE OF EXXON LEASES COMPARED TO UNITIZED SHARE UNDER AGREEMENT FORMULA, 1976 PARAMETERS PROPOSED NORTH HOBBS UNIT LEA COUNTY, NEW MEXICO

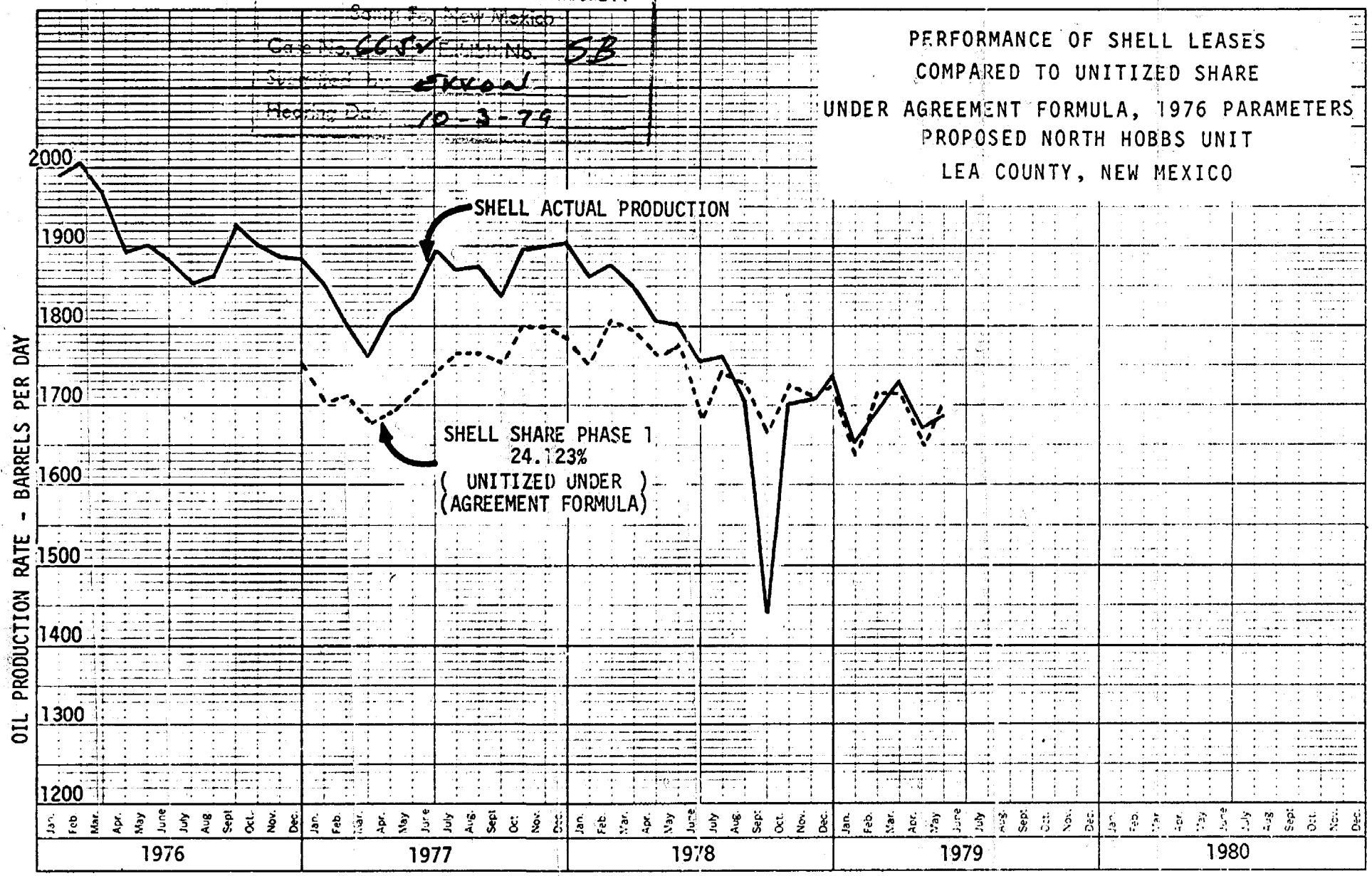


K·E 5 YEARS BY MONTHS X 100 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

46 3650

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6654 Exhibit No. 5B
Submitted by: EXXON
Hearing Date: 10-3-79

PERFORMANCE OF SHELL LEASES COMPARED TO UNITIZED SHARE UNDER AGREEMENT FORMULA, 1976 PARAMETERS PROPOSED NORTH HOBBS UNIT LEA COUNTY, NEW MEXICO

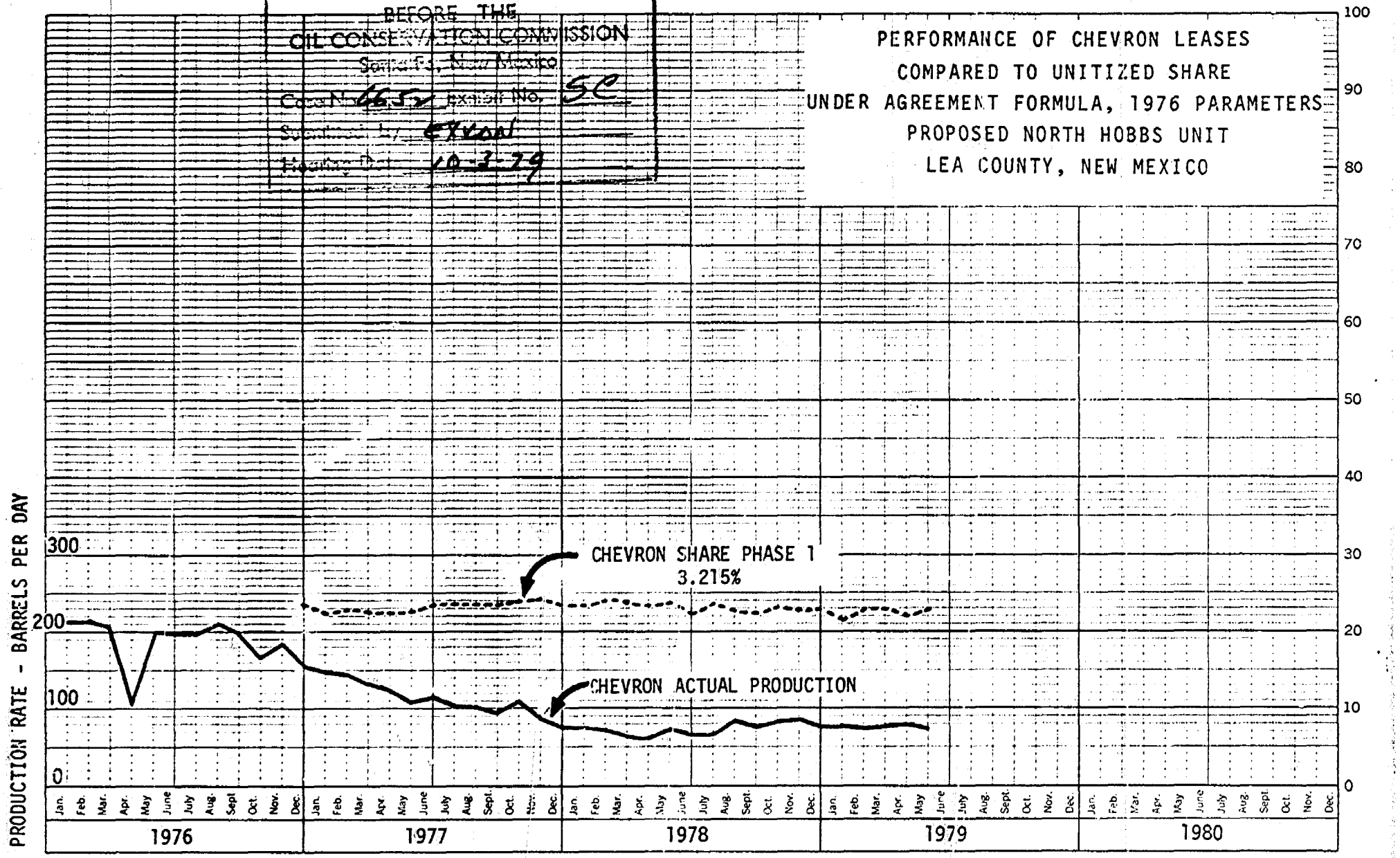


K·E 5 YEARS BY MONTHS X 100 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

46 3650

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 665 Exhibit No. 5C
Submitted by Exxon
Hearing Date 10-2-79

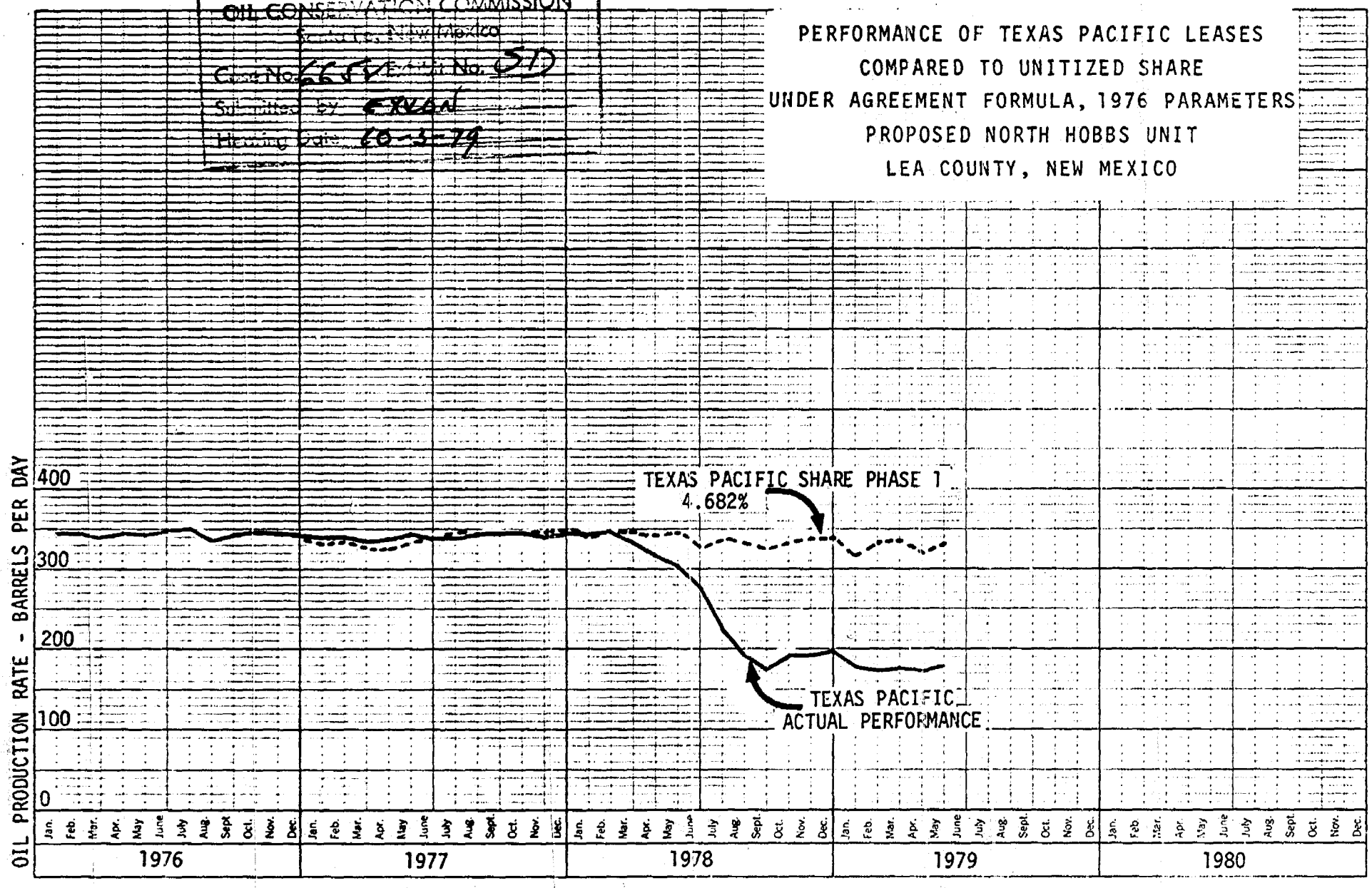
PERFORMANCE OF CHEVRON LEASES COMPARED TO UNITIZED SHARE UNDER AGREEMENT FORMULA, 1976 PARAMETERS PROPOSED NORTH HOBBS UNIT LEA COUNTY, NEW MEXICO



K·E 5 YEARS BY MONTHS X 100 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

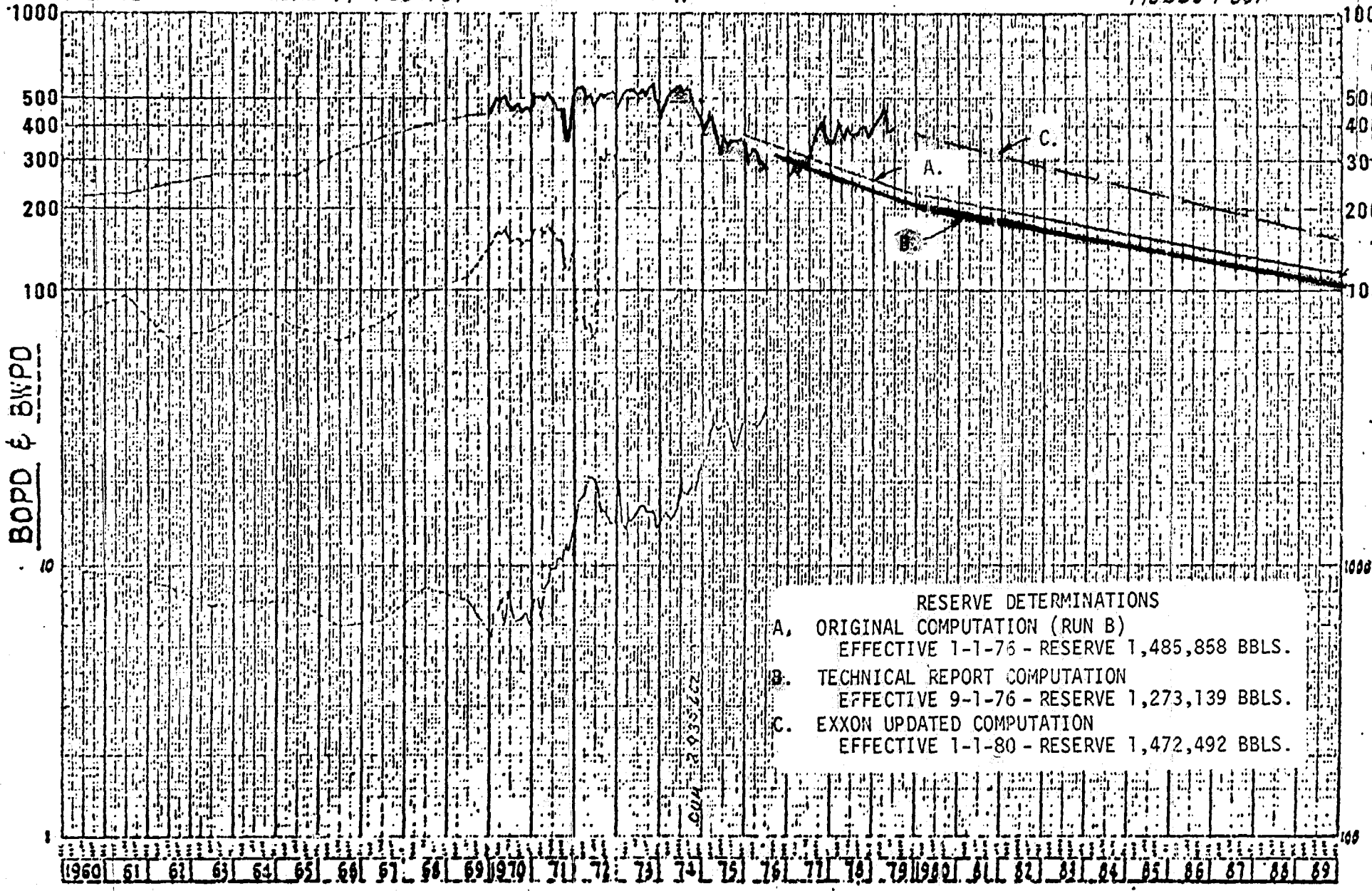
BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6654 Exhibit No. 5D
Submitted by EXXON
Hearing Date 10-3-79

PERFORMANCE OF TEXAS PACIFIC LEASES
COMPARED TO UNITIZED SHARE
UNDER AGREEMENT FORMULA, 1976 PARAMETERS
PROPOSED NORTH HOBBS UNIT
LEA COUNTY, NEW MEXICO



EXXON

HUMBLE - Bowers "A" Federal Secs 29 & 30 Hobbs Pool



BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 665 Exhibit No. 6
Submitted by EXXON
Hearing Date 10-3-79

TRACT 47

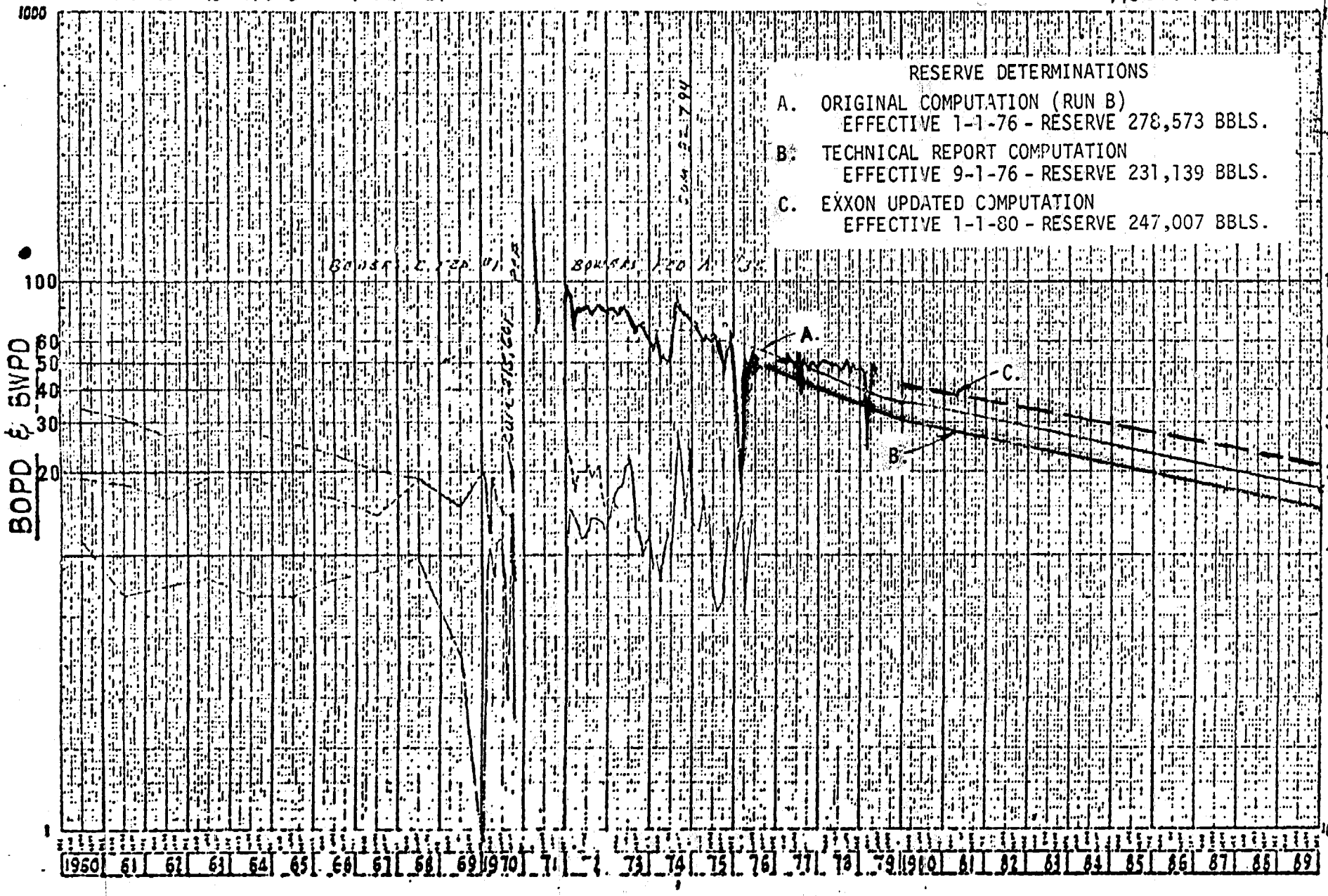
EXXON

BOWERS "A" FEDERAL

1273139.	SR76
316.	S76
206.	S80
102.	S90
21.	EL
12.04744378	%D76
6.787684787	%D80
6.792060162	%D90
2012.469599	SFYR
409.	A79
226.6160211	S79
8.540438073	%DEX
381.1485837	E80
156.0937373	E90
1472492.846	ER80
960377.6776	SR80
512115.1683	DR80

EXXON

HUMBLE – Bowers "A" Federal Common — Hobbs Pool



BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 66Kv Exhibit No. 7
Submitted by EXXON
Hearing Date 10-3-79
TRACT 48

EXXON

BOWERS "A" FEDERAL COMMON

231139.	SR76
48.	S76
32.	S80
15.	S90
3.	EL
11.45432785	%D76
7.29692757	%D80
4.234143515	%D90
2027.200422	SFYR
42.	A79
35.02713736	S79
5.350664934	%DEX
40.21445326	E80
23.20373204	E90
247007.5658	ER80
183133.0937	SR80
63874.47213	DR80

COMPARISON OF 1976 AND UPDATED PARAMETERS

FOR EXXON AND SHELL WORKING INTERESTS

A. OIL PRODUCTION RATE

	1976 OIL PRODUCTION RATE BARRELS	%	1978 OIL PRODUCTION RATE BARRELS	%
EXXON	160,433	5.854	~~180,000~~ 188,000	7.145
SHELL	699,966	25.540	638,905	24.282
UNIT TOTAL	2,740,636	--	2,631,234	--

B. OIL RESERVES

	1976 PRIMARY OIL RESERVES BARRELS	%	1979 PRIMARY OIL RESERVES BARRELS	%	SECONDARY OIL RESERVES BARRELS	%
EXXON	1,673,668	4.396	1,875,393	5.468	4,216,642	7.639
SHELL	9,048,999	23.769	7,776,948	23.421	10,419,216	18.875
TOTAL	38,071,683	--	33,205,631	--	55,200,000	--

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 665 Exhibit No. 8
Submitted by EXXON
Hearing Date 10-3-79

EXXON PARTICIPATION

UNIT AGREEMENT FORMULA

COMPARING 1976 AND UPDATED PARAMETERS

A. USING 1976 PARAMETERS

FORMULA	PERCENT	BARRELS
PHASE 1 (4MM BBLS)		
20% 1976 Oil Producing Rate		
.20 x 5.854%	1.171	47,000
80% 1976 Primary Oil Reserves		
.80 x 4.396%	3.517	140,000
	4.688	187,000
PHASE 2 (26.2 MM BBLS)		
100% 1976 Primary Oil Reserves	4.396	1,154,000
TOTAL		1,341,000

B. USING UPDATED PARAMETERS

PHASE 1 (4MM BBLS)		
20% 1978 Oil Producing Rate		
.20 x 7.145%	1.429	57,000
80% 1979 Primary Oil Reserves		
.80 x 5.648%	4.518	181,000
	5.947	238,000
PHASE 2 (26.2 MM BBLS)		
100% 1979 Primary oil Recovery	5.648	1,480,000
TOTAL		1,718,000

DIFFERENCE 377,000 Barrels

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 665 Exhibit No. 9
Submitted by EXXON
Hearing Date 10-3-79

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 665 Exhibit No. 10
Submitted by EXXON
Hearing Date 10-3-79

SHELL PARTICIPATION

UNIT AGREEMENT FORMULA

COMPARING 1976 AND UPDATED PARAMETERS

A. USING 1976 PARAMETERS

FORMULA	PERCENT	BARRELS
PHASE 1 (4MM BBLS)		
20% 1976 Oil Producing Rate		
.20 x 25.540%	5.108	204,000
80% 1976 Primary Oil Reserve		
.80 x 23.768%	19.015	760,000
	24.123	964,000
PHASE 2 (26.2 MM BBLS)		
100% 1976 Primary Oil Reserves	23.768	6,227,000
		7,191,000

B. USING UPDATED PARAMETERS

PHASE 1 (4MM BBLS)		
20% 1978 Oil Producing Rate		
.20 x 24.282%	4.856	194,000
80% 1979 Primary Oil Reserves		
.80 x 23.421%	18.737	749,000
	23.593	943,000
PHASE 2 (26.2 MM BBLS)		
100% 1979 Primary Oil Reserves	23.421	6,136,000
		7,079,000

REQUIRED INVESTMENT

EXXON SHARE UNDER UNIT AGREEMENT FORMULA

1976 PARAMETERS

PROPOSED NORTH HOBBS UNIT

LEA COUNTY, NEW MEXICO

ESTIMATED RANGE OF TOTAL UNIT INVESTMENT	EXXON INVESTMENT SHARE $M	EXXON PRODUCTION MB	EXXON COST/BBL
$ 31.0 million	2371	1341	$1.77
$106.4 million	8131	1341	$6.06

	OIL PRODUCTION SHARE		INVESTMENT SHARE $M		
				INVESTMENT TOTAL	
	%	MB	%	$31.0 MM	$106.4 MM
Phase 1	4.688	187	5.758	1,744	1,744
Phase 2	4.396	1,154	5.758	39	4,385
Sub Total	4.440	1,341	5.758	1,787	6,129
Adjustment*	-	-	1.881	584	2,002
Total	4.440	1,341	7.639	2,371	8,131
Oil Production Share			4.440	1,378	4,726
Paid By Exxon In Excess of Exxon's Share of Oil Production			3.199	993	3,405

*Adjusted to Phase 3 interest at termination of Phase 2.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 665 Exhibit No. 11
Submitted by EXXON
Hearing Date 10-3-79

REQUIRED INTESTMENT

SHELL SHARE UNDER UNIT AGREEMENT FORMULA

1976 PARAMETERS

PROPOSED NORTH HOBBS UNIT

LEA COUNTY, NEW MEXICO

ESTIMATED RANGE OF TOTAL UNIT INVESTMENT	SHELL INVESTMENT SHARE $M	SHELL PRODUCTION MB	SHELL COST/BBL
$31.0 million	5859	7191	$ .81
$106.4 million	20090	7191	$2.79

	OIL PRODUCTION SHARE		INVESTMENT SHARE $M		
				INVESTMENT TOTAL	
	%	MB	%	$31.0 MM	$106.4 MM
Phase 1	24.123	964	21.713	6,578	6,579
Phase 2	23.768	6,227	21.713	152	16,532
Sub Total	23.811	7,191	21.713	6,740	23,111
Adjustment*			-2.838	-881	-3,021
Total	23.811	7,191	18.875	5,859	20,090
Oil Production Share			23.811	7,391	25,344
Investment Paid by Others for Shell's Production Share of Investments			4.936	1,532	5,254

*Adjusted to Phase 3 interest at termination of Phase 2.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 665 Exhibit No. 12
Submitted by EXXON
Hearing Date 10-3-79

REQUIRED INVESTMENT

EXXON SHARE UNDER UNIT AGREEMENT FORMULA

UPDATED PARAMETERS

PROPOSED NORTH HOBBS UNIT

LEA COUNTY, NEW MEXICO

ESTIMATE RANGE OF TOTAL UNIT INVESTMENT	EXXON INVESTMENT SHARE $M	EXXON PRODUCTION MB	EXXON COST/BBL
$ 31.0 million	2371	1718	$1.38
$106.4 million	8131	1718	$4.73

	OIL PRODUCTION SHARE		INVESTMENT SHARE $M		
				INVESTMENT TOTAL	
	%	MB	%	$31.0 MM	$106.4 MM
Phase 1	5.947	238	6.484	1,966	1,966
Phase 2	5.648	1,480	6.484	44	4,933
Sub Total	5.689	1,718	6.484	2,010	6,899
Adjustment*	-	-	1.155	361	1,232
Total	5.689	1,718	7.639	2,371	8,131
Oil Production Share			5.689	1,764	6,053
Paid By Exxon In Excess of Exxon's Share of Oil Production			1.945	607	2,078

*Adjusted to Phase 3 interest at termination of Phase 2.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6657 Exhibit No. 13
Submitted by EXXON
Hearing Date 10-3-79

REQUIRED INVESTMENT

SHELL SHARE UNDER UNIT AGREEMENT FORMULA

UPDATED PARAMETERS

PROPOSED NORTH HOBBS UNIT

LEA COUNTY, NEW MEXICO

ESTIMATED RANGE OF TOTAL UNIT INVESTMENT	SHELL INVESTMENT SHARE $M	SHELL PRODUCTION MB	SHELL COST/BBL
$ 31.0 million	5859	7079	$ .83
$106.4 million	20090	7079	$2.84

	OIL PRODUCTION SHARE		INVESTMENT SHARE $M		
				INVESTMENT TOTAL	
	%	MB	%	$31.0 MM	$106.4 MM
Phase 1	23.593	943	21.512	6,523	6,523
Phase 2	23.421	6,136	21.512	146	16,366
Sub Total	23.440	7,079	21.512	6,669	22,889
Adjustment*	-	-	2.637	-810	2,799
Total	23.440	7,079	18.875	5,859	20,090
Oil Production Share			23.440	7,266	24,940
Investment Paid by Others for Shell's Production Share of Investments			4.565	1,307	4,850

*Adjusted to Phase 3 interest at termination of Phase 2.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 665-V Exhibit No. 14
Submitted by EXXON
Hearing Date 10-3-29

TRACT PARAMETERS

OIL PRODUCTION RATE

BEFORE THE
OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Case No. 6652 Exhibit No. 15
Submitted by: EXXON
Hearing Date: 10-3-79

		1976 OIL PRODUCTION RATE		1978 OIL PRODUCTION RATE		1979 OIL PRODUCTION RATE	
		VALUE	FRACTION	VALUE	FRACTION	VALUE	FRACTION
1	GETTY STATE B	1927	0.00070312	1889	0.00071791	804	0.00076388
2	AM HESS ST WHB	2158	0.00078741	1113	0.00042300	602	0.00057196
3	GULF LEA FO ST	1381	0.00050390	1159	0.00044048	473	0.00044940
4	T P STATE V AC1	4577	0.00167005	3133	0.00119070	1494	0.00141946
5	FSTES ENG STATE	3642	0.00132889	1587	0.00060314	596	0.00056626
6	CONOCO ST B 13	3683	0.00134385	6363	0.00241826	1850	0.00175769
7	SHELL RICE	15090	0.00550602	9640	0.00366368	3782	0.00359330
8	AM HESS BHARDIN	0	0.0	0	0.0	0	0.0
9	GULF D HARDIN	13604	0.00496381	11365	0.00431927	4583	0.00435433
10	MORANCO ST T 17	1681	0.00061336	1453	0.00055221	772	0.00073348
11	CHEVRON ST I 17	0	0.0	0	0.0	0	0.0
12	GETTY STATE A	1165	0.00042508	1066	0.00040513	436	0.00041425
13	ANTWEIL HCTOWNS	3162	0.00115375	4120	0.00156581	1767	0.00167884
14	WISER MORRIS B	4307	0.00157153	3801	0.00144457	1425	0.00135390
15	WISER MORRIS A	8816	0.00321677	6418	0.00243916	2511	0.00238571
16	GULF GRIMES C	6387	0.00233048	4321	0.00164220	1530	0.00145366
17	SWEET MCKINLY B	1126	0.00041085	1098	0.00041729	392	0.00037244
18	GETTY MCKINLY A	1154	0.00042107	1307	0.00049673	417	0.00039619
19	CHEVRON MCKINLY	15031	0.00548449	10778	0.00409618	4327	0.00411111
20	SWEET GRIMES	112	0.00004087	99	0.00003762	41	0.00003895
21	SWEET BOWERS BF	1112	0.00040575	1113	0.00042300	420	0.00039904
22	SWEET BOWERS BF	0	0.0	0	0.0	0	0.0
23	ARCO GRIMES	3216	0.00117345	4525	0.00171973	1872	0.00177860
24	SHELL MCKINLY B	53070	0.01936412	40063	0.01522594	14031	0.01333093
25	GETTY B HARDIN	15077	0.00550128	12280	0.00466701	4915	0.00466977
26	CITCO HARDIN	27971	0.01020603	18900	0.00718294	7655	0.00727306
27	SHELL MCKINLY A	166619	0.06079574	142337	0.05409515	57306	0.05444673
28	GULF GRAM ST A	55708	0.02032667	50746	0.01928601	19182	0.01822492
29	SHELL STATE D	30411	0.01109633	22893	0.00870048	8521	0.00809585
30	AM HESS ST E	10245	0.00373818	8261	0.00313959	2408	0.00228785
31	T P STATE G	116644	0.04256092	86730	0.03296172	23643	0.02246334
32	SAMEDAN ST C	111286	0.04060590	107934	0.04102030	47586	0.04521171
33	SWEET STATE F	8527	0.00311132	8962	0.00340601	3797	0.00360755
34	SHELL STATE F	1745	0.00063671	1097	0.00041691	573	0.00054441
35	T P STATE V AC2	4665	0.00170216	3691	0.00140276	1445	0.00137290
36	C C OPR SAIFF A	799	0.00029154	865	0.00032874	344	0.00032684
37	YATES SHELL ST	6070	0.00221481	4417	0.00167868	1673	0.00158953
38	WISER STATE L	286	0.00010436	395	0.00015012	75	0.00007126
39	GETTY HOBBS E	1802	0.00065751	1802	0.00068485	742	0.00070498
40	CONOCO ST B 25	5057	0.00184519	40005	0.01520389	15586	0.01480834
41	SAMEDAN ST B	3074	0.00112164	4119	0.00156543	1527	0.00145081
42	TEXACO NM BC ST	92971	0.03392315	88586	0.03366709	33695	0.03201380
43	EXXON STATE A	36878	0.01345600	33147	0.01259751	12429	0.01180886
44	AMERADA MCKINLY	87842	0.03205168	71227	0.02706981	25622	0.02434360
45	GETTY MCKINLEY	88127	0.03215567	87272	0.03316771	37090	0.03523940
46	MARATHON ST 30	46500	0.01696686	36718	0.01395467	14972	0.01422498
47	EXXON BOWRS FED	105400	0.03845823	136522	0.05188516	61810	0.05872600
48	EXXON BOWRS COM	16198	0.00591031	17811	0.00676907	6381	0.00606262
49	AMERADA ST B	43173	0.01575291	35361	0.01343894	14676	0.01394374
50	EXXON GRIMES	3905	0.00142485	1040	0.00039525	423	0.00040189
51	CONOCO ST A 29	45198	0.01649179	68451	0.02601479	26367	0.02505142
52	GETTY WD GRIMES	24984	0.00911613	23454	0.00891369	8870	0.00842743
53	CHEVRON ST I 29	52872	0.01929187	16236	0.00617049	7074	0.00672104
54	ARCO GRIMES SOC	34014	0.01241099	28124	0.01068852	11291	0.01072764
55	SAMEDAN MOON A	41848	0.01526945	35986	0.01367647	14715	0.01398080
56	SAMEDAN MOON B	37877	0.01382051	44965	0.01708894	18783	0.01784583
57	SHELL GRIMES	73867	0.02695250	68692	0.02610638	25990	0.02469323
58	CONOCO GRIMES	51921	0.01894487	76001	0.02888417	34069	0.03236913
59	SHELL SANGER	149429	0.05452348	146984	0.05586124	60301	0.05729230
60	MORANCO HOBBS	5419	0.00197728	4315	0.00163991	1657	0.00157432
61	SHELL TURNER	58721	0.02142605	57741	0.02194446	24151	0.02294599
62	GETTY TURNER	28955	0.01056507	28902	0.01098420	12428	0.01180791
63	GETTY TURNER B2	29154	0.01063768	30263	0.01150145	10941	0.01039510
64	SAMEDAN TURNERB	12818	0.00467702	10258	0.00389855	3699	0.00351444
65	SAMEDAN TURNRB2	11143	0.00406584	5872	0.00223165	2957	0.00280946
66	SAMEDAN TURNR A	41077	0.01498813	39400	0.01497396	15819	0.01502971
67	GULF GRIMES NCB	66640	0.02431552	63887	0.02428024	25528	0.02425429
68	SHELL STATE B	40060	0.01461705	44163	0.01678414	19415	0.01844629
69	AMOCO [illegible] G	54956	0.02005228	37464	0.01423819	13007	0.01235802
70	CONOCO ST A 33	150165	0.05479203	183367	0.06969620	67901	0.06451309
71	AM HESS ST A	42053	0.01534425	45679	0.01736030	24932	0.02368802
72	SHELL ST A	33646	0.01227671	44485	0.01690652	16155	0.01534895
73	GULF GRIMES A 2	82743	0.03019117	78184	0.02971381	30185	0.02867893
74	GULF GRIMES AB2	69272	0.02527588	60557	0.02301468	28406	0.02698869
75	MARATHON ST3218	33453	0.01220629	33247	0.01263552	12142	0.01153618
76	CITCO FOWLER	62607	0.02284397	67287	0.02557241	27740	0.02635592
77	GETTY FOWLER	38735	0.01413358	37006	0.01406412	14387	0.01366916
78	SUN C FOWLER	9582	0.00349627	9714	0.00369180	3187	0.00302799
79	SHELL BERRY	77308	0.02820805	60810	0.02311083	25620	0.02434170
80	NOBILN BERRY	36174	0.01319913	32447	0.01233148	13271	0.01260885
81	AM HESS ST C	6681	0.00243776	4412	0.00167678	1857	0.00176435
82	BYRON HOLT ST	3883	0.00141682	3332	0.00126633	1469	0.00139570
83	GULF HOLT NCT D	0	0.0	0	0.0	0	0.0
TOTAL		2740636	1.00000000	2631234	1.00000000	1052515	1.00000000

TRACT PARAMETERS

OIL RESERVES

TRACT NO.	TRACT NAME	1976 PRIMARY OIL RESERVES VALUE	1976 PRIMARY OIL RESERVES FRACTION	1979 PRIMARY OIL RESERVES VALUE	1979 PRIMARY OIL RESERVES FRACTION	SECONDARY OIL RESERVES VALUE	SECONDARY OIL RESERVES FRACTION
1	GETTY STATE A	13132	0.00034493	10068	0.00030320	77157	0.00139777
2	AM HESS ST WHB	13310	0.00034960	7260	0.00021864	114241	0.00206958
3	GULF LEA FO ST	10062	0.00026429	6579	0.00019813	46155	0.00083614
4	T P STATE V AC1	38702	0.00101656	27091	0.00081586	160975	0.00291621
5	ESTES ENG STATE	12875	0.00033818	4414	0.00013293	109123	0.00197687
6	CONOCO ST A 13	11753	0.00030871	15671	0.00047194	746260	0.01351920
7	SHELL RICE	108709	0.00285538	87355	0.00263073	1310749	0.02374545
8	AM HESS BHARDIN	0	0.0	0	0.0	1167812	0.02115601
9	GULF D HARDIN	79117	0.00207811	56831	0.00171149	714483	0.01294353
10	MORANCO ST T 17	13857	0.00036397	11779	0.00035473	22523	0.00040803
11	CHEVRON ST I 17	0	0.0	0	0.0	40169	0.00072770
12	GETTY STATE A	7968	0.00020929	4850	0.00014606	59260	0.00107355
13	ANTWEIL HCTOWNS	30642	0.00080485	43775	0.00131830	19480	0.00035290
14	WISER MORRIS B	67500	0.00177297	47927	0.00144334	10039	0.00018187
15	WISER MORRIS A	152766	0.00401259	99648	0.00300094	17299	0.00031339
16	GULF GRIMES C	61284	0.00160970	27140	0.00081733	94558	0.00171301
17	SWEET MCKINLY B	8755	0.00022996	7748	0.00023333	72019	0.00130469
18	GETTY MCKINLY A	50	0.00000131	2190	0.00006595	108286	0.00196170
19	CHEVRON MCKINLY	168560	0.00442744	138931	0.00418396	216759	0.00392679
20	SWEET GRIMES	0	0.0	0	0.0	23948	0.00043384
21	SWEET ROWERS BF	8755	0.00022996	7879	0.00023728	47299	0.00085687
22	SWEET ROWERS BF	0	0.0	0	0.0	50822	0.00092069
23	ARCO GRIMES	19360	0.00050851	24201	0.00072882	71951	0.00130346
24	SHELL MCKINLY B	830343	0.02180999	587851	0.01770335	513410	0.00930091
25	GETTY B HARDIN	130519	0.00342824	105927	0.00319003	756545	0.01370553
26	CITCO HARDIN	250448	0.00657833	184547	0.00555770	1620620	0.02935906
27	SHELL MCKINLY A	1800740	0.04729867	1889400	0.05689999	2031806	0.03680808
28	GULF GRAM ST A	548519	0.01440730	531205	0.01599744	1649731	0.02988647
29	SHELL STATE D	234712	0.00616500	164276	0.00494723	617020	0.01117790
30	AM HESS ST E	124491	0.00326991	60387	0.00181858	394858	0.00715322
31	T P STATE G	1724405	0.04529364	1016837	0.03062243	1205850	0.02184511
32	SAMEDAN ST C	1133353	0.02976892	1046398	0.03151267	768452	0.01392123
33	SWEET STATE F	83172	0.00218462	83172	0.00250476	342318	0.00620141
34	SHELL STATE F	3768	0.00009897	2930	0.00008824	131973	0.00239082
35	T P STATE V AC2	27714	0.00072794	16282	0.0004903+	189441	0.00343190
36	C C OPR SAIFF A	2621	0.00006884	2359	0.00007104	17373	0.00031473
37	YATES SHELL ST	40718	0.00106951	25057	0.00075460	214237	0.00388111
38	WISER STATE L	0	0.0	1732	0.00005216	47079	0.00085288
39	GETTY HOBBS E	9196	0.00024154	8228	0.00024779	95058	0.00172207
40	CONOCO ST B 25	122580	0.00321972	291024	0.00876430	242968	0.00440159
41	SAMEDAN ST B	23221	0.00060993	27091	0.00081586	147458	0.00267134
42	TEXACO NM AC ST	1176835	0.03091103	1069289	0.03220204	643161	0.01165147
43	EXXON STATE A	188655	0.00495526	148229	0.00446397	542724	0.00983196
44	AMERADA MCKINLY	1298478	0.03410614	951790	0.02866351	1030776	0.01867348
45	GETTY MCKINLEY	1430026	0.03756141	1403939	0.04228015	1564561	0.02834350
46	MARATHON ST 30	711092	0.01867771	644560	0.01941056	1098123	0.01989353
47	EXXON ROWRS FED	1240799	0.03259113	1472493	0.04434468	3372482	0.06109569
48	EXXON ROWRS COM	225943	0.00593467	247008	0.00743874	235403	0.00426455
49	AMERADA ST B	504066	0.01323992	463905	0.01397067	778077	0.01409560
50	EXXON GRIMES	36542	0.00095982	15327	0.00046158	132066	0.00239250
51	CONOCO ST A 29	800184	0.02101783	843383	0.02539879	1572538	0.02848801
52	GETTY WD GRIMES	330641	0.00868470	326638	0.00983683	682254	0.01235967
53	CHEVRON ST I 29	1125489	0.02956237	403942	0.01216486	1384281	0.02507755
54	ARCO GRIMES SOC	870238	0.02285788	581446	0.01751046	602837	0.01092096
55	SAMEDAN MOON A	925933	0.02432078	748316	0.02253582	137794	0.00249627
56	SAMEDAN MOON B	959843	0.02521147	841801	0.02535115	58983	0.00106853
57	SHELL GRIMES	1131000	0.02970712	1031908	0.03107630	1698814	0.03077562
58	CONOCO GRIMES	1801701	0.04732391	1600053	0.04818619	930424	0.01685551
59	SHELL SANGER	2552086	0.06703371	1708581	0.05145456	183495	0.00332418
60	MORANCO HOBBS	40718	0.00106951	28189	0.00084892	3631	0.00006578
61	SHELL TURNER	872424	0.02291530	699541	0.02106694	60936	0.00110391
62	GETTY TURNER	447206	0.01174642	363834	0.01095703	62987	0.00114107
63	GETTY TURNER B2	447399	0.01175149	413257	0.01244539	171717	0.00311082
64	SAMEDAN TURNERB	118976	0.00312505	84395	0.00254159	8092	0.00014659
65	SAMEDAN TURNRB2	141017	0.00370399	67477	0.00203210	9171	0.00016614
66	SAMEDAN TURNR A	942535	0.02475685	586563	0.01766456	209337	0.00379234
67	GULF GRIMES NCB	805626	0.02116077	815173	0.02454924	1881021	0.03407647
68	SHELL STATE B	320671	0.00842282	376822	0.01134814	1371455	0.02484520
69	AMOCO STATE G	685404	0.01800293	427628	0.01287818	1374539	0.02490107
70	CONOCO ST A 33	1714203	0.04502567	1965835	0.05920186	4405495	0.07980969
71	AM HESS ST A	553998	0.01455144	676362	0.02036889	1128454	0.02044301
72	SHELL ST A	316414	0.00831101	387801	0.01167877	1415049	0.02563495
73	GULF GRIMES A 2	710915	0.01867306	1219808	0.03673497	1919007	0.03476462
74	GULF GRIMES AB2	1378346	0.03620397	815503	0.02455918	2074045	0.03757328
75	MARATHON ST321A	647994	0.01702037	388979	0.01171425	2263840	0.04101159
76	CITCO FOWLER	900733	0.02365887	987285	0.02973246	1393769	0.02524944
77	GETTY FOWLER	446513	0.01172822	509906	0.01535601	391610	0.00709438
78	SUN C FOWLER	74842	0.00196582	56582	0.00170399	239730	0.00434293
79	SHELL BERRY	878132	0.02306523	840484	0.02531149	1084508	0.01964688
80	NORILN BERRY	315251	0.00828046	256358	0.00772032	371295	0.00672636
81	AM HESS ST C	43561	0.00114418	24201	0.00072882	331741	0.00600980
82	BYROM HOLT ST	41586	0.00109231	3502	0.00105464	65957	0.00119487
83	GULF HOLT NCT D	0	0.0	0	0.0	26255	0.00047563
	TOTAL	38071683	1.00000000	33205631	1.00000000	55200000	1.00000000

WORKING INTEREST OWNERS
AND TRACT IDENTIFICATION
PROPOSED NORTH HOBBS UNIT

TRACT NO	TRACT NAME	LOCATION	OWNER	WORKING INTEREST FRACTION
1	GETTY STATE N	14 18S 37E	GETTY	1.00000000
2	AM MESS ST ANN	14 18S 37E	AMERADA MESS	1.00000000
3	GULF LEA FO ST	14 18S 37E	GULF	1.00000000
4	T P STATE V AC1	14 18S 37E	TEXAS PACIFIC	1.00000000
5	ESTES ENG STATE	14 18S 37E	ANDERSON ADA A	0.11718750
			ANDERSON EST	0.11718750
			ANDERSON W SONS	0.23437500
			ARMSTRONG J M	0.23437500
			ESTES A O	0.04250000
			YEAGER A A	0.23437500
6	CONOCO ST R 15	15 18S 37E	CONOCO	1.00000000
7	SHELL WICH	18 18S 37E	SHELL	1.00000000
8	AM MESS NMAUDIN	18 18S 38E	AMERADA MESS	1.00000000
9	GULF D MARDIN	18 18S 38E	GULF	1.00000000
10	MORANCO ST F 17	17 18S 38E	BUMLAVEY J W	0.04687500
			FIRST NOS CO	0.09375000
			GETTY	0.25000000
			LAFLIN G P	0.04687500
			MCPETERS K O	0.07031300
			MORANCO	0.09375000
			MORAN R M	0.28124900
			SPEAR H	0.02343800
			WHITLEY LOYD	0.04687500
			WILLIAMSON A E	0.04687500
11	CHEVRON ST 1 17	17 18S 38E	CHEVRON	1.00000000
12	GETTY STATE A	17 18S 38E	GETTY	1.00000000
13	ANTWELL HOLDYS	21 18S 38E	DEL LEA INC	1.00000000
14	WISER MORRIS H	21 18S 38E	HEADLEY K N	0.12500000
			TWO STATE	0.37500000
			WISER OIL	0.50000000
15	WISER MORRIS A	21 18S 38E	CONRAD M O	0.04250000
			CHILE H R	0.00375000
			HEADLEY K N	0.00375000
			HURD PETER	0.00250000
			JUDSON CONRA	0.01250300
			MCCARTHY H L C	0.01250000
			MURDOCK CONRA	0.01250000
			ROSE CONRAD	0.01250000
			TREADAWAY CONRA	0.01250000
			WISER OIL	0.50000000
			YEAGER JR DR H	0.04067466
			YEAGER RUTH A	0.03025000
			YEAGER R H HENRY	0.01841670
			YEAGER P PELLA	0.04365970
16	GULF GRIMES C	21 18S 38E	GULF	1.00000000
17	SWEET MCKINLY H	28 18S 38E	SWEET C H	1.00000000
18	GETTY MCKINLY A	28 18S 38E	GETTY	1.00000000
19	CHEVRON MCKINLY	28 18S 38E	CHEVRON	1.00000000
20	SWEET GRIMES	28 18S 38E	SWEET C H	1.00000000
21	SWEET ROWERS AF	28 18S 38E	SWEET BILL L	1.00000000
22	SWEET ROWERS AF	28 18S 38E	SWEET BILL L	1.00000000
23	ARCO GRIMES	28 18S 38E	ARCO	1.00000000
24	SHELL MCKINLY B	28 18S 38E	SHELL	1.00000000
25	GETTY B MARDIN	19 18S 38E	GETTY	1.00000000
26	CITCO MARDIN	19 18S 38E	CITCO	1.00000000
27	SHELL MCKINLY A	13 18S 38E	SHELL	1.00000000
28	GULF GRAM ST A	24 18S 37E	GULF	1.00000000
29	SHELL STATE D	24 18S 37E	SHELL	1.00000000
30	AM MESS ST F	24 18S 37E	AMERADA MESS	0.50000000
			GETTY	0.50000000
31	T P STATE G	24 18S 37E	TEXAS PACIFIC	1.00000000
32	SAMEDAN ST C	24 18S 37E	FORRES C C	0.01900000
			FORRES ILAMAE	0.01650000
			KENNITZ A A	0.28750000
			MORRIS G D	0.01250000
			NOBLE R L	0.15200000
			PORTALIS NATLBK	0.01875000
			RORING JOHN	0.03750000
			SAMEDAN	0.37800000
			SEA PROPERTIES	0.00750000
			1ST NATL BK FW	0.01250000
			SULLIVAN E C	0.01875000
			1ST NATL CASPER	0.03750000
33	SWEET STATE F	23 18S 37E	SWEET C H	1.00000000
34	SHELL STATE F	23 18S 37E	SHELL	1.00000000
35	T P STATE V AC2	23 18S 37E	TEXAS PACIFIC	1.00000000
36	C C OPR SAIFF A	23 18S 37E	C C OPER CO	1.00000000
37	YATES SHELL ST	23 18S 37E	YATES JOHN A	1.00000000
38	WISER STATE L	26 18S 37E	WISER OIL	1.00000000
39	GETTY MORRS E	26 18S 37E	GETTY	1.00000000
40	CONOCO ST A 25	25 18S 37E	CONOCO	1.00000000
41	SAMEDAN ST A	25 18S 37E	SAMEDAN	1.00000000
42	TEXACO NM AC ST	25 18S 37E	TEXACO	1.00000000
43	EXXON STATE A	25 18S 37E	EXXON	1.00000000
44	AMERADA MCKINLY	30 18S 38E	AMERADA MESS	1.00000000
45	GETTY MCKINLEY	30 18S 38E	GETTY	1.00000000
46	MARATHON ST 30	30 18S 38E	MARATHON	1.00000000
47	EXXON MORRS FED	29 30 18S 38E	EXXON	1.00000000
48	EXXON MORRS COM	29 30 18S 38E	EXXON	1.00000000
49	AMERADA ST 3	29 18S 38E	AMERADA MESS	1.00000000
50	EXXON GRIMES	29 18S 38E	CITCO	0.25000000
			CONOCO	0.25000000
			EXXON	0.50000000
51	CONOCO ST A 29	29 18S 38E	CONOCO	1.00000000
52	GETTY WD GRIMES	29 18S 38E	GETTY	1.00000000
53	CHEVRON ST 1 29	29 18S 38E	CHEVRON	1.00000000
54	ARCO GRIMES SDC	29 18S 38E	ARCO	1.00000000
55	SAMEDAN MOON A	29 18S 38E	CUSACK J P JR	0.25000000
			CUSACK M F	0.25000000
			SAMEDAN	0.45500000
			SEA PROPERTIES	0.01500000
56	SAMEDAN MOON B	29 18S 38E	CUSACK J P JR	0.25000000
			CUSACK M F	0.25000000
			SAMEDAN	0.48500000
			SEA PROPERTIES	0.01500000
57	SHELL GRIMES	29 18S 38E	SHELL	1.00000000
58	CONOCO GRIMES	29 18S 38E	CONOCO	1.00000000
59	SHELL SANGER	27 18S 38E	SHELL	1.00000000
60	MORANCO MORRS	34 18S 38E	DEL LEA INC	0.18750000
			LOWE N RALPH	0.25000000
			MCPETERS K O	0.04680000
			MORANCO	0.23440000
			MORAN R M	0.18750000
			PARRISH MC EST	0.09380000
61	SHELL TURNER	34 18S 38E	SHELL	1.00000000
62	GETTY TURNER	34 18S 38E	GETTY	1.00000000
63	GETTY TURNER 42	34 18S 38E	GETTY	1.00000000
64	SAMEDAN TURNER	34 18S 38E	CUSACK J P	0.37500000
			SAMEDAN	0.62500000
65	SAMEDAN TURNER2	34 18S 38E	CUSACK J P	0.31500000
			SAMEDAN	0.43500000
66	SAMEDAN TURNER A	34 18S 38E	CITCO	0.06250000
			SAMEDAN	0.87891000
			WILLIAMS M C	0.05859000
67	GULF GRIMES NCR	33 18S 38E	GULF	1.00000000
AA	SHELL STATE A	33 18S 38E	SHELL	1.00000000
69	AMOCO STATE G	33 18S 38E	AMOCO	0.75435010
			LANDRETH INT	0.24564990
70	CONOCO ST A 33	33 18S 38E	CONOCO	1.00000000
71	AM MESS ST A	32 18S 38E	AMERADA MESS	1.00000000
72	SHELL ST A	32 18S 38E	SHELL	1.00000000
73	GULF GRIMES A 2	32 18S 38E	GULF	1.00000000
74	GULF GRIMES AR2	32 18S 38E	GULF	1.00000000
75	MARATHON ST 32 A	32 18S 38E	MARATHON	0.50000000
			ARCO	0.50000000
76	CITCO FOWLER	31 18S 38E	CITCO	1.00000000
77	GETTY FOWLER	31 18S 38E	GETTY	1.00000000
78	SUN C FOWLER	31 18S 38E	SUN OIL CO	1.00000000
79	SHELL BERRY	31 18S 38E	SHELL	1.00000000
80	MOBIL BERRY	31 18S 38E	MOBIL	1.00000000
81	AM MESS ST C	36 18S 37E	AMERADA MESS	1.00000000
A2	ATOKA HOLT ST	36 18S 37E	ATOKA W K	0.58593750
			GULF	0.06250000
			MCPHERSON M N	0.17578130
			MCPHERSON R L	0.08789060
			WALLACE MCPHER	0.08789060
83	GULF HOLT NCT D	36 18S 37E	GULF	1.00000000

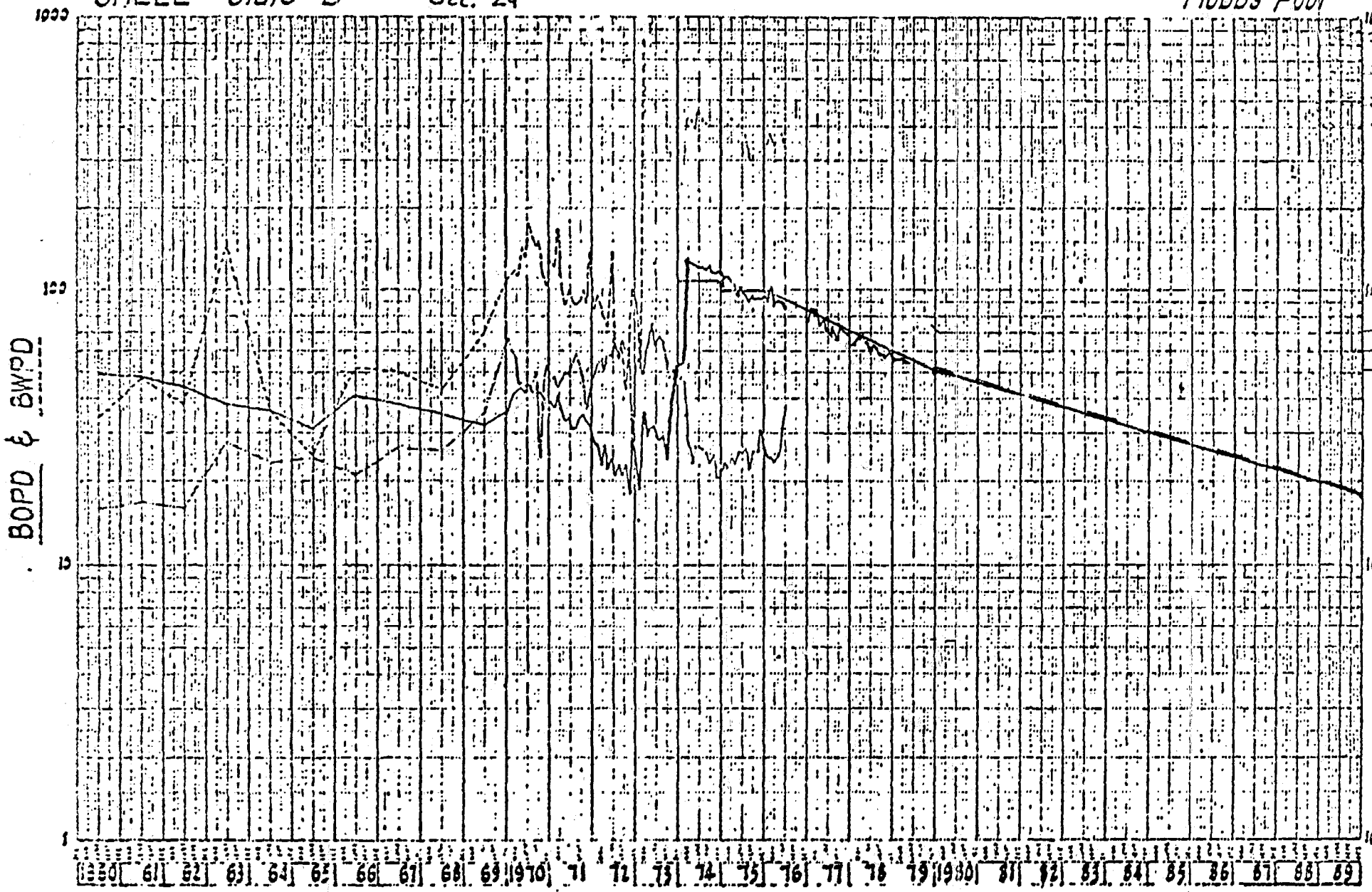
WORKING INTEREST OWNER SHARE
OIL PRODUCTION AND INVESTMENT
AGREEMENT FORMULA PROPOSED BY SHELL
USING 1976 PARAMETER INFORMATION

WORKING INTEREST OWNER CODE	NAME	PHASE 1 — 20% 1976 OIL PRODUCTION RATE 80% 1976 PRIMARY OIL RESERVES PARTICIPATION	PHASE 2 — 100% 1976 PRIMARY OIL RESERVES PARTICIPATION	PHASE 3 — 100% SECONDARY OIL RESERVES PARTICIPATION	INVESTMENT — 42% PHASE 3 58% PHASE 2 PARTICIPATION
0001	AMERADA HESS	0.06566961	0.06502624	0.08602409	0.07384534
0002	AMOCO	0.01388973	0.01358055	0.01878412	0.01576405
0003	ANDERSON ADA A	0.00006285	0.00003963	0.00023166	0.00012028
0004	ANDERSON EST	0.00006285	0.00003963	0.00023166	0.00012028
0005	ANDERSON W SONS	0.00012570	0.00007926	0.00046333	0.00024057
0006	ARMSTRONG J M	0.00012570	0.00007926	0.00046333	0.00024057
0007	ARCO	0.02943878	0.03187658	0.03273022	0.03223511
0008	BYROM W K	0.00067805	0.00064002	0.00070012	0.00066526
0009	C C OPER CO	0.00011338	0.00006884	0.00031473	0.00017212
0010	CHEVRON	0.03214712	0.03398980	0.02973205	0.03220155
0011	CITCO	0.03248816	0.03202446	0.05544364	0.04166051
0012	CONRAD M D	0.00024084	0.00025079	0.00001959	0.00015368
0013	CONOCO	0.11246342	0.11713579	0.14367213	0.12828105
0014	CRILE H R	0.00036126	0.00037618	0.00002938	0.00023052
0015	CUSACK J P	0.00270443	0.00256089	0.00011728	0.00153457
0016	CUSACK J P JR	0.01136095	0.01238306	0.00089120	0.00755648
0017	CUSACK M F	0.01136095	0.01238306	0.00089120	0.00755648
0018	DEL LEA INC	0.00110920	0.00100538	0.00036523	0.00073652
0019	DUNLAVEY J W	0.00001940	0.00001706	0.00001913	0.00001793
0020	ESTES P G	0.00003352	0.00002114	0.00012355	0.00006415
0021	EXXON	0.04687617	0.04396097	0.07638844	0.05758051
0022	FIRST ROS CO	0.00003880	0.00003412	0.00003825	0.00003586
0023	FORBES C C	0.00060679	0.00056561	0.00026450	0.00043914
0024	FORBES ILANAE	0.00059082	0.00055073	0.00025754	0.00042759
0025	GETTY	0.08720652	0.08742350	0.07558867	0.08245287
0026	GULF	0.09717157	0.09446546	0.15234383	0.11877436
0027	HEADLEY K N	0.00057784	0.00059780	0.00005211	0.00036861
0028	HURD PETER	0.00024084	0.00025079	0.00001959	0.00015368
0029	JUDSON CONRA	0.00004817	0.00005016	0.00000392	0.00003074
0030	KEMNITZ A A	0.00918169	0.00855857	0.00400235	0.00664496
0031	LAFLIN G P	0.00001940	0.00001706	0.00001913	0.00001793
0032	LOWE N RALPH	0.00031277	0.00026738	0.00001644	0.00016199
0033	MARATHON	0.02636432	0.02718790	0.04039933	0.03273670
0034	MCCARTHY K L C	0.00004817	0.00005016	0.00000392	0.00003074
0035	MCPETERS K D	0.00008765	0.00007564	0.00003177	0.00005722
0036	MCPHERSON M N	0.00020342	0.00019201	0.00021004	0.00019958
0037	MCPHERSON R L	0.00010171	0.00009600	0.00010502	0.00009979
0038	MOBIL	0.00926419	0.00828046	0.00672636	0.00762774
0039	MORANCO	0.00033205	0.00028482	0.00005367	0.00018773
0040	MORAN R M	0.00035097	0.00030290	0.00012709	0.00022906
0041	MORRIS G D	0.00039920	0.00037211	0.00017402	0.00028891
0042	MURDOCK CONRA	0.00004817	0.00005016	0.00000392	0.00003074
0043	NOBLE R L	0.00485432	0.00452488	0.00211603	0.00351316
0044	PARRISH MC EST	0.00011735	0.00010032	0.00000617	0.00006078
0045	PORTALIS NATLBK	0.00059881	0.00055817	0.00026102	0.00043337
0046	RORING JOHN	0.00119761	0.00111633	0.00052205	0.00086673
0047	ROSE CONRAD	0.00004817	0.00005016	0.00000392	0.00003074
0048	SAMEDAN	0.05937369	0.06191291	0.01319108	0.04144974
0049	SEA PROPERTIES	0.00092118	0.00096625	0.00015788	0.00062674
0050	SHELL	0.24122710	0.23768319	0.18875389	0.21713289
0052	1ST NATL BK FW	0.00039920	0.00037211	0.00017402	0.00028891
0053	SPEAR H	0.00000970	0.00000853	0.00000956	0.00000896
0054	SULLIVAN E C	0.00059881	0.00055817	0.00026102	0.00043337
0055	SUN OIL CO	0.00227191	0.00196582	0.00434293	0.00296421
0056	SWEET BILL L	0.00026512	0.00022996	0.00177755	0.00087995
0057	SWEET C H	0.00264427	0.00241458	0.00793995	0.00473523
0058	1ST NATL CASPER	0.00119761	0.00111633	0.00052205	0.00086673
0059	TEXACO	0.03151345	0.03091103	0.01165147	0.02282201
0060	TEXAS PACIFIC	0.04681714	0.04703814	0.02819322	0.03912327
0061	TREADAWAY CONRA	0.00004817	0.00005016	0.00000392	0.00003074
0062	TWO STATE	0.00064976	0.00066486	0.00006820	0.00041427
0063	WALLACE MCRER	0.00010171	0.00009600	0.00010502	0.00009979
0064	WHITLEY LOYD	0.00001940	0.00001706	0.00001913	0.00001793
0065	WILLIAMS H C	0.00133603	0.00145050	0.00022219	0.00093461
0066	WILLIAMSON A T	0.00001940	0.00001706	0.00001913	0.00001793
0067	WISER OIL	0.00281393	0.00289278	0.00110051	0.00214003
0068	YATES JOHN A	0.00129857	0.00106951	0.00388111	0.00225038
0069	YEAGER A A	0.00012570	0.00007926	0.00046333	0.00024057
0070	YEAGER JR DR H	0.00015674	0.00016321	0.00001275	0.00010002
0071	YEAGER RUTH A	0.00011660	0.00012141	0.00000948	0.00007440
0072	YEAGER R HENRY	0.00004014	0.00004180	0.00000326	0.00002561
0073	YEAGER R PELLR	0.00016820	0.00017515	0.00001368	0.00010733
0074	LANDRETH INT	0.00452311	0.00442243	0.00611695	0.00513413
	TOTAL	1.00000000	1.00000000	1.00000000	1.00000000

WORKING INTEREST OWNER SHARE
OIL PRODUCTION AND INVESTMENT
AGREEMENT FORMULA PROPOSED BY SHELL
USING UPDATED PARAMETERS CALCULATED BY EXXON

WORKING INTEREST OWNER CODE	NAME	PHASE 1 20% 1978 OIL PRODUCTION RATE 80% 1979 PRIMARY OIL RESERVES PARTICIPATION	PHASE 2 100% 1979 PRIMARY OIL RESERVES PARTICIPATION	PHASE 3 100% SECONDARY OIL RESERVES PARTICIPATION	INVESTMENT 42% PHASE 3 58% PHASE 2 PARTICIPATION
0001	AMERADA HESS	0.06419559	0.06485983	0.08602409	0.07374882
0002	AMOCO	0.00991984	0.00971465	0.01878412	0.01352383
0003	ANDERSON ANA A	0.00002660	0.00001558	0.00023166	0.00010633
0004	ANDERSON EST	0.00002660	0.00001558	0.00023166	0.00010433
0005	ANDERSON W SONS	0.00005320	0.00003116	0.00046333	0.00021267
0006	ARMSTRONG J M	0.00005320	0.00003116	0.00046333	0.00021267
0007	ARCO	0.02302233	0.02409641	0.03273022	0.02772261
0008	BYROM W K	0.00064276	0.00061795	0.00070012	0.00065246
0009	C C OPER CO	0.00012258	0.00007104	0.00031473	0.00017339
0010	CHEVRON	0.01513239	0.01634882	0.02973205	0.02196978
0011	CITCO	0.03596568	0.03650959	0.05544364	0.04446189
0012	CONRAD M D	0.00018054	0.00018756	0.00001959	0.00011701
0013	CONOCO	0.14217400	0.14213847	0.14367213	0.14278261
0014	CRILE H R	0.00027080	0.00028134	0.00002938	0.00017552
0015	CUSACK J P	0.00183187	0.00171513	0.00011728	0.00104403
0016	CUSACK J P JR	0.01111566	0.01197174	0.00089120	0.00731791
0017	CUSACK M F	0.01111566	0.01197174	0.00089120	0.00731791
0018	DEL LEA INC	0.00155664	0.00147747	0.00036523	0.00101033
0019	DUNLAVEY J W	0.00001848	0.00001663	0.00001913	0.00001769
0020	ESTES R G	0.00001419	0.00000831	0.00012355	0.00005671
0021	EXXON	0.05947241	0.05647818	0.07638844	0.06484044
0022	FIRST ROS CO	0.00003696	0.00003326	0.00003825	0.00003535
0023	FORBES C C	0.00063487	0.00059874	0.00026450	0.00045236
0024	FORBES ILAMAE	0.00061816	0.00058298	0.00025754	0.00044630
0025	GETTY	0.09412323	0.09582438	0.07558867	0.08732654
0026	GULF	0.10426212	0.10463369	0.15234383	0.12467195
0027	HEADLEY K N	0.00045125	0.00046176	0.00005211	0.00028971
0028	HURD PETER	0.00018054	0.00018756	0.00001959	0.00011701
0029	JUDSON CONRA	0.00003611	0.00003751	0.00000392	0.00002340
0030	KENNITZ A A	0.00960658	0.00905989	0.00400235	0.00693573
0031	LAFLIN G P	0.00001848	0.00001663	0.00001913	0.00001769
0032	LOWE N RALPH	0.00025178	0.00021223	0.00001644	0.00013000
0033	MARATHON	0.02426864	0.02526769	0.04039933	0.03162294
0034	MCCARTHY K L C	0.00003611	0.00003751	0.00000392	0.00002340
0035	MCPETERS K D	0.00007485	0.00006467	0.00003177	0.00005085
0036	MCPHERSON M N	0.00019283	0.00018539	0.00021004	0.00019574
0037	MCPHERSON R L	0.00009641	0.00009269	0.00010502	0.00009787
0038	MORIL	0.00864255	0.00772032	0.00672636	0.00730285
0039	MORANCO	0.00027303	0.00023224	0.00005367	0.00015724
0040	MORAN R M	0.00029971	0.00025894	0.00012709	0.00020356
0041	MORRIS G D	0.00041768	0.00039391	0.00017402	0.00030155
0042	MURDOCK CONRA	0.00003611	0.00003751	0.00000392	0.00002340
0043	NOBLE R L	0.00507896	0.00478993	0.00211603	0.00365689
0044	PARRISH MC EST	0.00009447	0.00007963	0.00000617	0.00004827
0045	PORTALIS NATLBK	0.00062652	0.00059086	0.00026102	0.00045233
0046	RORING JOHN	0.00125303	0.00118173	0.00052205	0.00090466
0047	ROSE CONRAD	0.00003611	0.00003751	0.00000392	0.00002340
0048	SAMEDAN	0.05326644	0.05433694	0.01319108	0.03705568
0049	SEA PROPERTIES	0.00091755	0.00095465	0.00015788	0.00062001
0050	SHELL	0.23592773	0.23420573	0.18875389	0.21511596
0052	1ST NATL BK FW	0.00041768	0.00039391	0.00017402	0.00030155
0053	SPEAR H	0.00000924	0.00000831	0.00000956	0.00000884
0054	SULLIVAN E C	0.00062652	0.00059086	0.00026102	0.00045233
0055	SUN OIL CO	0.00210155	0.00170399	0.00434293	0.00291235
0056	SWEET BILL L	0.00027442	0.00023728	0.00177755	0.00088419
0057	SWEET C H	0.00296266	0.00273809	0.00793995	0.00492287
0058	1ST NATL CASPER	0.00125303	0.00118173	0.00052205	0.00090465
0059	TEXACO	0.03249505	0.03220204	0.01165147	0.02357080
0060	TEXAS PACIFIC	0.03265393	0.03192862	0.02819322	0.03035975
0061	TREADAWAY CONRA	0.00003611	0.00003751	0.00000392	0.00002340
0062	TWO STATE	0.00054134	0.00054125	0.00006820	0.00034257
0063	WALLACE MCPHER	0.00009641	0.00009269	0.00010502	0.00009787
064	WHITLEY LOYD	0.00001848	0.00001663	0.00001913	0.00001768
0065	WILLIAMS H C	0.00100344	0.00103497	0.00022219	0.00060360
0066	WILLIAMSON A T	0.00001848	0.00001663	0.00001913	0.00001768
0067	WISER OIL	0.00223784	0.00227430	0.00110051	0.00178131
0068	YATES JOHN A	0.00093942	0.00075460	0.00388111	0.00206773
0069	YEAGER A A	0.00005320	0.00003116	0.00046333	0.00021267
0070	YEAGER JR DR H	0.00011749	0.00012206	0.00001275	0.00007415
0071	YEAGER RUTH A	0.00008740	0.00009080	0.00000948	0.00005665
0072	YEAGER R HENRY	0.00003009	0.00003126	0.00000326	0.00001950
0073	YEAGER R PELLR	0.00012609	0.00013099	0.00001368	0.00008172
0074	LANDRETH INT	0.00323034	0.00316352	0.00611695	0.00440396
	TOTAL	1.00000000	1.00000000	1.00000000	1.00000000

SHELL - State "D" Sec. 24 Hobbs Pool



BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6652 Exhibit No. 16
Submitted by EXXON
Hearing Date 10/3

TRACT 29

SHELL

STATE "D"

243785.	SR76
90.	S76
49.	S80
19.	S90
6.	EL
16.67445767	XD76
9.038889858	XD80
9.767757981	XD90
2001.21465	SFYR
56.	A79
56.11227996	S79
9.652375935	XDEX
51.6847296	E80
18.72964774	E90
164276.1411	ER80
161746.8143	SR80
2529.326757	DR80

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION FOR THE PURPOSE OF CONSIDERING:

Case No. 6653
Order No. R-6199

APPLICATION OF SHELL OIL COMPANY FOR A PRESSURE MAINTENANCE PROJECT, LEA COUNTY, NEW MEXICO.

CCP Draft

ORDER OF THE COMMISSION

By The Commission:

This case and cause of action came on for hearing at 9 a.m. on October 3, 1979, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the Commission.

NOW, on this ____ day of November, 1979, the Commission, a quorum having been present, having considered the testimony and the record, and being otherwise fully advised in the premises,

FINDS:

(1) That due public notice has been given as required by law and the Commission has jurisdiction of this case and cause of action and the subject matter hereof.

(2) That by Commission Order No. R-6198 dated November __, 1979, statutory unitization was approved for the North Hobbs Grayburg-San Andres Unit Area, Lea County, New Mexico.

(3) That the applicant herein, Shell Oil Company, seeks authority to institute a pressure maintenance project for the aforesaid North Hobbs Grayburg-San Andres Unit Area within the Hobbs Grayburg-San Andres Pool, Lea County, New Mexico, by the injection of water into the Grayburg-San Andres formation through 70 wells at orthodox and unorthodox locations, 52 of which are producing wells which will be converted to injection wells in 1980;

(4) That during 1980 for the pressure maintenance project, applicant proposes to drill five producing wells and 18 injection wells at orthodox and unorthodox locations as specified below:

Township 18 South, Range 37 East, NMPM

Sec.	Unit Well No.	Unit Letter	Well Location
24	242	N	1220' FSL & 2540' FWL
25	412	A	1220' FNL & 1220' FEL

Township 18 South, Range 38 East, NMPM

Sec.	Unit Well No.	Unit Letter	Well Location
18	242	N	1220' FSL & 2540' FWL
19	142	M	1220' FSL & 100' FWL
19	242	N	1220' FSL & 2540' FWL
28	242	N	990' FSL & 1330' FWL
29	112	D	330' FNL & 1000' FWL
29	142	M	1220' FSL & 100' FWL
29	242	N	1220' FSL & 1650' FWL
30	222	F	2540' FNL & 1420' FWL
31	432	I	2540' FSL & 1220' FEL
31	442	P	100' FSL & 1220' FEL
32	122	E	2310' FNL & 1220' FWL
32	242	N	100' FSL & 1420' FWL
32	412	A	1220' FNL & 1220' FEL
32	432	I	2310' FSL & 1310' FEL
32	442	P	100' FSL & 1220' FEL
33	112	D	1220' FNL & 100' FWL
33	212	C	1220' FNL & 1440' FWL
33	232	K	1420' FSL & 1420' FWL
33	242	N	100' FSL & 1420' FWL
33	332	J	2540' FSL & 2540' FEL
33	342	O	100' FSL & 1420' FEL

(5) That all of the wells referred to in Findings Nos. (3) and (4) above, being the 70 injection wells and the five producing wells, together with wells currently completed in the Grayburg San-Andres formation, will provide a thorough and efficient sweep of hydrocarbons throughout the unit area, and will result in the recovery of otherwise unrecoverable oil and gas, thereby preventing waste.

(6) That the above-described injection and producing wells, some of which will be at unorthodox locations along the unit

boundary in accordance with lease-line agreements with operators of offsetting lands, will not impair but will protect correlative rights.

(7) That the applicant further seeks the designation of a project area for said pressure maintenance project for the North Hobbs Grayburg-San Andres Unit, and for the promulgation of special rules and regulations governing said project, including special allowable provisions, which is in the interest of conservation and should be approved, subject to certain provisions set forth herein.

(8) That the project area should consist of all those proration units within the boundary of the North Hobbs Grayburg-San Andres Unit Area as described in Order R-6198 upon which are located wells completed in the Hobbs Grayburg-San Andres Pool.

(9) That the ~~project~~ area allowable should be equal to the sum of the basic project area allowable plus the water injection credit allowable as hereinafter defined.

(10) That the basic project area allowable should be equal to 80 barrels of oil per day times the number of ~~developed~~ 40-acre proration units in the North Hobbs Grayburg San Andres Unit Area. upon which are ~~completed wells~~ located wells in the Hobbs Grayburg-San Andres Pool.

(11) That the water injection credit allowable should be based upon the following formula:

$$\text{Water Injection Credit Allowable} = \left[\frac{\text{Net Water Injected}}{\text{Basic Project Area Allowable Reservoir Voidage}} - 1 \right] \times \text{Basic Project Area Allowable}$$

and should be calculated in accordance with this formula using the formula and data set forth on Exhibits "A" and "B" attached hereto. ~~to this Order, and incorporated by reference;~~

(12) That a weighted average project area reservoir pressure should be determined prior to commencement of injection of water into the reservoir and at least annually thereafter.

(13) That the project area allowable should be permitted to be produced from the wells within the project area in any proportion, of the Oil Conservation Division.

(14) That the ~~Division~~ Director should have authority to approve, without notice and hearing, the drilling of wells at unorthodox locations anywhere within the boundary of the

North Hobbs Grayburg-San Andres Unit Area, provided however, no unorthodox location shall be closer than ten feet to any quarter-quarter section line, and provided further, that no such unorthodox location shall be closer than 330 feet to the boundary of the unit area, unless such well is covered by a lease-line agreement with the operator of the lands offsetting such well, and a copy of the lease-line agreement accompanies the application for such unorthodox location, or unless such offset operator has waived objection to the proposed unorthodox location in writing, and his waiver accompanies the application;

provision should be made whereby the same could

(15) Application for approval of additional wells to be used for injection should be filed in accordance with Rule 701 of the Division Rules and ~~may~~ be approved administratively by the Division Director without notice and hearing.

(16) That each newly drilled injection or producing well should be equipped as follows:

a. Minimum of 350 feet of surface casing and production casing run to total depth (approximately 4500 feet), or

b. Surface casing cemented below the "red beds" (approximately 1600 ft.) and production casing run to total depth (approximately 4500 feet). ~~or~~

c. The Division Director should have authority to approve

~~or~~ exceptions to the aforesaid casing programs ~~may be granted by administrative approval of the Division Director,~~ for good cause shown.

All casing strings should be cemented to the surface except that in any well in which an intermediate casing string has been run and cemented to the surface, the production string may be cemented back into the base of the intermediate casing.

(17) That injection should be accomplished through tubing installed in a packer set within 100 feet of the uppermost perforation, or in case of an open hole completion, 100 feet above the casing shoe. The injection tubing should be corrosion protected by a non-reactive internal lining or coating. The casing-tubing annulus in each injection well should be filled with an inert fluid and a surface pressure gauge or approved leak detection device should be attached to the annulus.

(18) That the injection wells or system should be equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 0.2 psi per foot of depth to the injection zone. The Division Director should have authority to ~~may~~ administratively authorize a pressure limitation in excess of the above upon a showing by the Unit Operator that such higher pressure will not result in fracturing of the confining strata

(19) That all wells within the unit area should be equipped with risers or in some other acceptable manner so as to facilitate the periodic testing of the bradenhead for pressure or fluid production.

(20) That there are a number of wells within the North Hobbs Grayburg-San Andres Unit Area and on lands offsetting the unit area which have previously been plugged and abandoned in a manner which may permit waters injected into the Grayburg-San Andres formation to escape into other formations, including the Salado formation and the shallow fresh water-bearing formations unless remedial action is taken on said wells prior to injection in their near vicinity.

(21) That there are a number of wells within the North Hobbs Grayburg-San Andres Unit Area and on lands offsetting the unit area which penetrate the Hobbs Grayburg-San Andres Pool and are completed in deeper pay zones, but which are cased and cemented in such a manner as may permit the escape of waters injected into the Grayburg-San Andres formation into other formations as described in the preceding paragraph.

(22) That those wells referred to in Findings Nos. (20) and (21) above which are inadequately plugged and abandoned or are inadequately cased and cemented, or are suspected of being so, include, but are not necessarily limited to, the wells listed in Exhibit "C" attached hereto. ~~and incorporated by reference.~~

(23) That no injection at greater than hydrostatic pressure should be made into the Grayburg-San Andres formation in any well in the North Hobbs Grayburg-San Andres Unit Area within one-half mile of any well listed on Exhibit "C" until remedial action has been taken on such well to ensure that it will not serve as an avenue of escape for injected waters, or until tests have been conducted on such well or until other evidence concerning such well has been presented establishing to the satisfaction of the Supervisor of the Hobbs District Office of the Division that remedial work on such well is unnecessary.

IT IS THEREFORE ORDERED:

(1) That the applicant, Shell Oil Company, is hereby authorized to institute and operate a pressure maintenance project in the North Hobbs Grayburg-San Andres Unit Area within the Hobbs Grayburg-San Andres Pool, Lea County, New Mexico, by the injection of water into the Grayburg-San Andres formation through certain wells which will be administratively approved for water injection by the Division Director.

(2) That said project shall be designated the North Hobbs Grayburg-San Andres Unit Pressure Maintenance Project.

(3) That the following orthodox and unorthodox locations are hereby approved for the drilling of new injection and producing wells:

Township 18 South, Range 37 East, NMPM

Sec.	Unit Well No.	Unit Letter	Well Location
24	242	N	1220' FSL & 2540' FWL
25	412	A	1220' FNL & 1220' FEL

Township 18 South, Range 38 East, NMPM

Sec.	Unit Well No.	Unit Letter	Well Location
18	242	N	1220' FSL & 2540' FWL
19	142	M	1220' FSL & 100' FWL
19	242	N	1220' FSL & 2540' FWL
28	242	N	990' FSL & 1330' FWL
29	112	D	330' FNL & 1000' FWL
29	142	M	1220' FSL & 100' FWL
29	242	N	1220' FSL & 1650' FWL
30	222	F	2540' FNL & 1420' FWL
31	432	I	2540' FSL & 1220' FEL
31	442	P	100' FSL & 1220' FEL
32	122	E	2310' FNL & 1220' FWL
32	242	N	100' FSL & 1420' FWL
32	412	A	1220' FNL & 1220' FEL
32	432	I	2310' FSL & 1310' FEL
32	442	P	100' FSL & 1220' FEL
33	112	D	1220' FNL & 100' FWL
33	212	C	1220' FNL & 1440' FWL
33	232	K	1420' FSL & 1420' FWL
33	242	N	100' FSL & 1420' FWL
33	332	J	2540' FSL & 2540' FEL
33	342	O	100' FSL & 1420' FEL

(4) That Special Rules and Regulations governing the North Hobbs Grayburg-San Andres Unit Pressure Maintenance Project are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
NORTH HOBBS GRAYBURG-SAN ANDRES UNIT
PRESSURE MAINTENANCE PROJECT

RULE 1. That the ~~unit~~ project area shall consist of all those proration units within the boundary of the North Hobbs Grayburg-San Andres Unit Area upon which is completed a well in the Hobbs Grayburg-San Andres Pool.

RULE 2. The project area shall receive a project area allowable, and said project area allowable shall be the sum of the basic project area allowable plus the water injection credit allowable.

RULE 3. The basic project area allowable shall be equal to 80 barrels of oil per day times the number of developed 40-acre proration units in the project area.

RULE 4. The water injection credit allowable shall be based upon the following formula:

$$\text{Water Injection Credit Allowable} = \left[\frac{\text{Net Water Injected}}{\text{Basic Project Area Allowable Reservoir Voidage}} - 1 \right] \times \text{Basic Project Area Allowable}$$

The water injection credit allowable shall be calculated in accordance with this formula using the formula and data set forth on Exhibits "A" and "B" attached hereto and incorporated herein by reference. In no event shall the water injection credit allowable be less than zero. Therefore, negative numbers derived from the application of the above formula shall be ignored.

RULE 5. A weighted average project area reservoir pressure shall be determined prior to commencement of injection of water into the reservoir and at least annually thereafter.

RULE 6. The project area allowable may be produced from the wells within the project area in any proportion.

RULE 7. The ~~Division~~ Director of the Oil Conservation Division shall have authority to approve, without notice and hearing, the drilling of wells at unorthodox locations anywhere within the boundary of the North Hobbs Grayburg-San Andres Unit Area, provided however, no unorthodox location shall be closer than ten feet to any quarter-quarter section line, and provided further, that no such unorthodox location shall be closer than 330 feet to the boundary of the unit area, unless such well is covered by a lease-line agreement with the operator of the lands offsetting such well, and a copy of the lease-line agreement accompanies the application for such unorthodox location, or unless such offset operator has waived objection to the proposed unorthodox location in writing, and his waiver accompanies the application.

RULE 8. Application for approval of additional wells to be used for injection shall be filed in accordance with Rule 701 of the Division Rules and Regulations and may be approved administratively by the Division Director without notice and hearing.

RULE 9. Each newly drilled injection or producing well shall be equipped as follows:

a. Minimum of 350 feet of surface casing and production casing run to total depth (approximately 4500 feet), or

b. Surface casing cemented below the "red beds" (approximately 1600 ft.) and production casing run to total depth (approximately 4500 feet), ~~or~~

c. Exceptions to the aforesaid casing programs may be granted by administrative approval of the Division Director upon good cause shown.

All casing strings shall be cemented to the surface except that in any well in which an intermediate casing string has been run and cemented to the surface, the production string may be cemented back into the base of the intermediate casing.

RULE 10. Injection shall be accomplished through tubing installed in a packer set within 100 feet of the uppermost perforation, or in case of an open hole completion, 100 feet above the casing shoe. The injection tubing shall be corrosion protected by a non-reactive internal lining or coating. The casing-tubing annulus in each injection well shall be filled with an inert fluid and a surface gauge or approved leak detection device shall be attached to the annulus.

RULE 11. The injection wells or system shall be equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 0.2 psi per foot of depth to the injection zone. The Division Director may administratively authorize a pressure limitation in excess of the above upon a showing by the Unit Operator that such higher pressure will not result in fracturing of the confining strata.

RULE 12. All wells within the unit area shall be equipped with risers or in some other acceptable manner so as to facilitate the periodic testing of the bradenhead for pressure or fluid production.

RULE 13. The Unit Operator shall immediately notify the Supervisor of the Hobbs District Office of the Division of the failure of the tubing or packer in any of the injection wells, the leakage of water or oil from or around any producing well, the leakage of water or oil from or around any plugged and abandoned well within the unit area, or any other evidence of fluid migration from the injection zone, and shall take such timely steps as may be necessary or required to correct such failure or leakage.

RULE 14. Prior to placing any well on injection, a cement bond log shall be run on said well; also at any time the tubing is pulled from any producing well in the unit area, a cement bond log shall be run on said well. Copies of all cement bond logs shall be sent to the Hobbs District Office of the Division. If any well is found to have an inadequate casing-cement bond, such measures as may be necessary to prevent leakage or migration of fluids within the wellbore shall be taken before placing the well on injection or restoring it to production.

Where multiple casing strings prevent technical interpretation of bonding, the cement bond shall be deemed adequate when the log shows acoustic coupling with the formation. In addition, radioactive tracer surveys, or any other acceptable survey presently available or developed in the future, that show no fluid migration out of the Grayburg-San Andres formation shall be acceptable evidence of bonding.

RULE 15. Each month the Unit Operator shall submit to the Division a Pressure Maintenance Project Operator's Report, on a form prescribed by the Division, outlining thereon the data required and requesting a project area allowable.

RULE 16. The Division shall, upon review of the report and after any adjustments deemed necessary, calculate the allowable for the project area for the next succeeding month in accordance with these rules. The allowable so calculated shall be assigned to the unit area and may be produced from the wells in the project area in any proportion.

IT IS FURTHER ORDERED: attached hereto and by reference herein incorporated,

(1) That no injection at greater than hydrostatic pressure shall be made into the Grayburg-San Andres formation in any well in the North Hobbs Grayburg-San Andres Unit Area within one-half mile of any well listed on Exhibit "C" until remedial action has been taken on such well to ensure that it will not serve as an avenue of escape for injected waters, or until tests have been conducted on such well, or until other evidence concerning such well has been presented establishing to the satisfaction of the Supervisor of the Hobbs District Office of the Division that remedial work on such well is unnecessary.

(2) That the rules in this order concerning project allowables and the transfer thereof shall not be applicable until actual water injection begins in the North Hobbs Grayburg-San Andres Unit Area, provided however, that pending commencement of water injection activities, those wells in the said unit area which directly or diagonally offset injection wells in any other proje water injection project in the Hobbs Pool or which directly or diagonally offset producing wells in any other water injection project in the Hobbs Pool, which [illegible]

[illegible] transfer [illegible] allowable and are producing at a rate in excess of top unit allowable for the pool, shall be eligible to nominate and produce transferred allowable.

(3) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove described.

NORTH HOBBS GRAYBURG-SAN ANDRES UNIT AREA
PRESSURE MAINTENANCE PROJECT

HOBBS GRAYBURG-SAN ANDRES POOL

LEA COUNTY, NEW MEXICO

Water Injection Credit Allowable Calculation Data

$$\text{Water Injection Credit Allowable} = \left[\frac{W_i - W_p}{BPAA\left(B_o + \frac{R_p - R_s}{1{,}000} B_g \right)} \right] \times BPAA$$

W_i = Average daily water injection during previous month, barrels per day unit area

W_p = Average daily water produced during previous month, barrels per day unit area

BPAA = Basic project area allowable, 80 bopd × _____ (number of developed 40-acre proration unit in unit area)

P = Weighted average unit area reservoir pressure, psig, from _____, 19___, survey data

B_o = Oil formation volume factor, reservoir barrels per stock tank barrel (Exhibit B)

R_p = Producing gas-oil ratio, cubic feet per barrel for previous month

R_s = Solution gas-oil ratio, cubic feet per barrel (Exhibit B)

B_g = Gas formation volume factor, reservoir barrels per Mcf (Exhibit B)

Water injection credit allowable for _____, 19___, = _____ barrels of oil per day

EXHIBIT "A"

OIL (B_o) AND GAS (B_g) FORMATION VOLUME FACTORS
AND GAS SOLUBILITY VS RESERVOIR PRESSURE

GRAYBURG–SAN ANDRES RESERVOIR
HOBBS FIELD
LEA COUNTY, NEW MEXICO

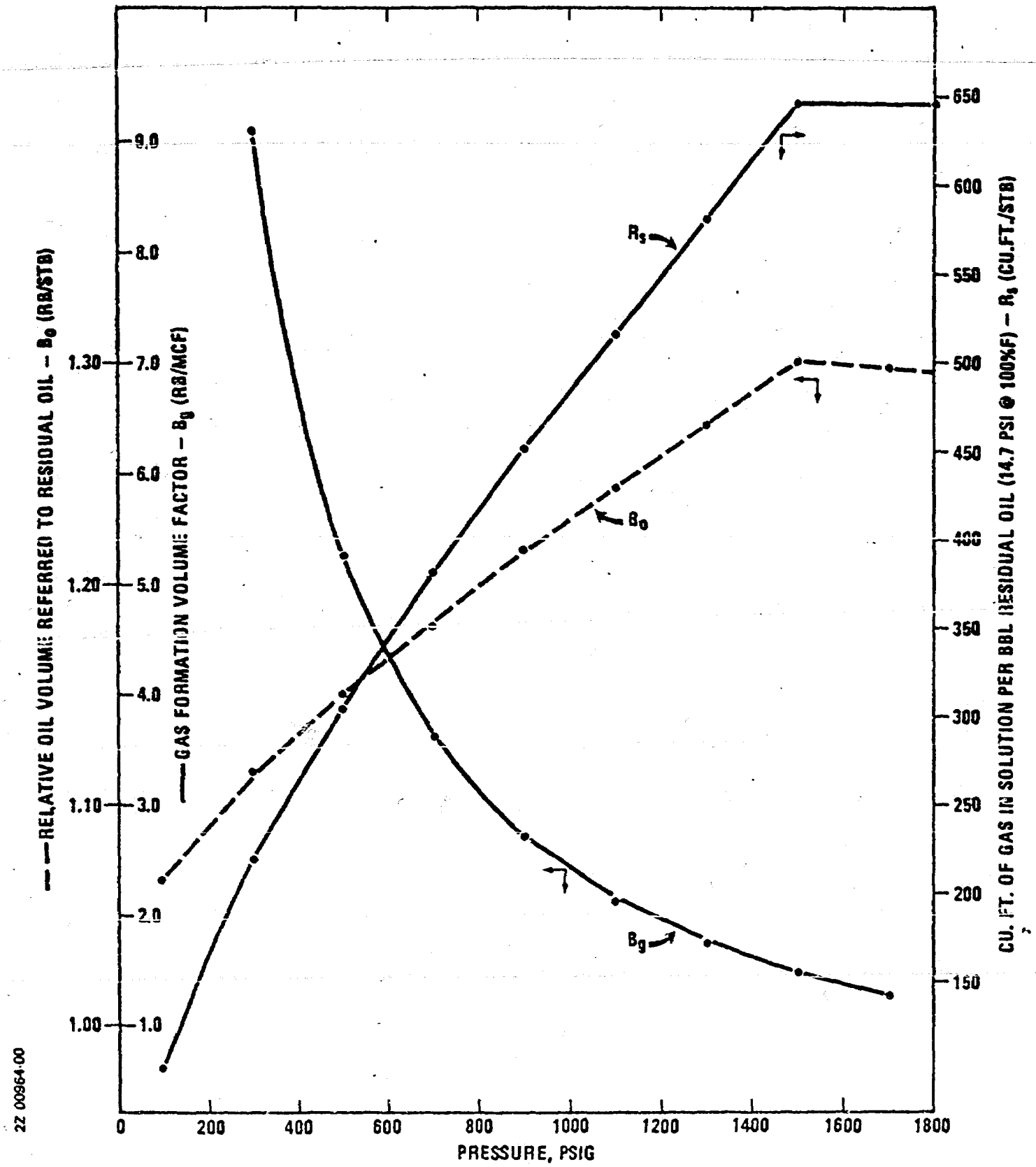


EXHIBIT "B"

WELLS SUSPECTED OF BEING INADEQUATELY
PLUGGED AND ABANDONED OR INADEQUATELY
CASED AND CEMENTED

Operator	Lease	Well No.	Unit	Sec-Twp-Rge
Amoco	"G" State	6	F	33-18S-38E
Chevron	"A" State	5	O	29-18S-38E
Continental	"A-29" State	7	N	29-18S-38E
Continental	"A-29" State	8	K	29-18S-38E
Continental	"A-33" State	12	L	33-18S-38E
Exxon	USA Bowers	28	M	29-18S-38E
Exxon	Boon Hardin	1	E	18-18S-38E
Getty	Grimes	2	H	29-18S-38E
Getty	Grimes	5	H	29-18S-38E
Gulf	Morris	1	B	21-18S-38E
Gulf	North Grimes	4	K	21-18S-38E
Hobbs-High Inc.	Tatums	1	M	35-18S-38E
Landreth Production	State	1A	O	7-18S-38E
Pontotoc	"B" Hobbs State	1	F	29-18S-38E
Pontotoc	"B" Hobbs State	2	G	29-18S-38E
C. H. Sweet	Grimes	1	I	20-18S-38E

EXHIBIT "C"

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SHELL OIL COMPANY
PETROLEUM BUILDING
P.O. BOX 1509
MIDLAND, TEXAS 79701

July 20, 1973

Subject: North Hobbs Unit Proposed
Hobbs Field
Lea County, New Mexico

ALL OPERATORS

At the meeting of the Working Interest Owners of the proposed Hobbs (Grayburg-San Andres) Unit held July 12, 1973, it was agreed that efforts would be made to form two Units in the Hobbs Field for purposes of secondary recovery operations instead of one field wide unit previously attempted. It was further agreed that the Hobbs Field would be divided along the Township line between Townships 18S and 19S, R37-38E. Amoco Production Company will be the Unit Expeditor of the area to the south of such line and Shell Oil Company the Unit Expeditor of the area to the north.

A meeting of all Operators of properties to the north of the above stated dividing line is called for 1:30 p.m., July 31, 1973, in the Texas Electric Service Company Reddy Room, 124 North Colorado, Midland, Texas.

The agenda for the meeting will be as follows:

1. Confirm the interest of all Operators of properties to proceed with efforts to unitize and waterflood the properties of the Hobbs Field to the north of the Township line between Townships 18S and 19S, R37 and 38E, Lea County, New Mexico.

2. Discuss plans for further unitization efforts.

3. Organize an Engineering Sub-committee.

4. Develop a charge to the Engineering Sub-committee.

5. Any other business.

This meeting call is being sent only to the Operators of leases, as a list of Working Interest Owners is not as yet available. It is asked that each Operator invite the Working Interest Owners in their properties to attend the meeting if they so desire.

Yours very truly,

W E Buck

for Jack L. Mahaffey
Production Manager
Mid-Continent Division

WEB:NO

1

MINUTES OF OPERATORS MEETING
NORTH HOBBS UNIT PROPOSED
JULY 31, 1973

A meeting of the Operators of the North Hobbs Unit (Proposed) was held July 31, 1973, in Midland, Texas. Representatives attending the meeting are shown on the attached attendance list.

Mr. Buck (Shell) opened the meeting by restating the decisions reached by the Working Interest Owners of the proposed Hobbs (Grayburg-San Andres) Unit at the Operators Committee meeting of July 12, 1973. He pointed out that the purpose of the present meeting was to go further with the above decisions in determining the interest of the Operators in proceeding with unitization and secondary recovery efforts for the area of the Hobbs Field north of the township line between Townships 18S and 19S, R37-38E.

Mr. Buck then asked for comments and discussion concerning such unitization efforts. With the exception of Gulf and without motion, all representatives present agreed to proceed and to participate in an effort to form a North Hobbs Unit with Shell acting as Unit Expeditor. Mr. F. W. Moran (Gulf) then stated that while not opposing unitization, Gulf was concerned that such efforts were somewhat premature and therefore would not actively participate at this time. He further advised that Gulf would cooperate in supplying data and would from time to time review their position for possible change.

With this confirmation of interest, plans for further unitization efforts were discussed. Mr. Buck explained that a complete list of Working Interest Owners had not as yet been developed and asked that if an Operator wished the names of any non-operators be added to the mailing list to please so advise. He also stated that arrangements were being made to obtain all pertinent data from the files maintained by Amoco for the field-wide unitization effort. Mr. Buck submitted a schedule of fixed pre-unit expenses and said a ballot would be submitted for approval.

As a first step toward unitization and waterflooding, the organizing of a Technical Committee and the charge to such Committee was discussed. In answer to Mr. Buck's inquiry the following named companies advised that they would have representatives on the Technical Committee: Exxon, Skelly, Marathon, Continental, Amoco, Cities Service, Texas Pacific, Texaco, Amerada, Getty, Sun, and Chevron.

Mr. Buck then introduced Mr. M. A. Thieme (Shell) who would serve as chairman of the Technical Committee. Mr. Thieme then outlined briefly his plans for the Technical Committee. He advised that it would be the intent of the Committee to use as much data as possible from the study proposed by the Hobbs Unit. However, because of the complexity of the reservoir behavior in the north part of the field, he believed the Technical Committee should make a more detailed study in some instances. Mr. Thieme then submitted a suggested charge for the Technical Committee. After some discussion and modification, the following charge to the Technical Committee was approved by all present:

PROPOSED NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT

WORKING INTEREST OWNERS' CHARGE TO THE TECHNICAL COMMITTEE

A. Construct an acceptable base map.

B. Define the vertical interval to be unitized.

C. Recommend a Unit Area or areas.

D. Determine feasibility of waterflooding the Grayburg.

1. Construct Grayburg net pay map and (net Øh, if possible).
2. Determine floodable net acre-feet.
3. Determine secondary oil potential.

E. Determine feasibility of waterflooding the San Andres.

1. Review Øh maps.
2. Review GOR and water-cut maps.
3. Construct continuous pay maps by zone.
4. Determine remaining primary production.
5. Establish secondary oil potential by zones.

F. Tabulate the following parameters by tract, by zones, and by Working Interest Owners:

1. Current oil and gas production rate and value for the most recent representative period.
2. Cumulative oil production.
3. Usable completions.
4. Active producing wells.
5. Total acres.
6. Original oil in place.
7. Floodable net acre-feet.
8. Remaining Primary Reserves.
9. Ultimate Primary Oil.
10. Secondary reserves.
11. Any other parameter considered appropriate by the Engineering Subcommittee.

G. Develop recommended plans of depletion including economic comparisons versus continued primary operations.

It was agreed that every effort would be made to obtain general agreement of the Technical Committee on all items. If such agreement could not be reached, it was decided that the Technical Committee would bring such matter to the attention of the Operators Committee for direction or decision. It was further agreed that decisions reached by vote of Technical Committee would be fully recorded in minutes of meetings.

Through further discussion, the opinion was expressed that although it was scheduled for the Technical Committee to complete the charge by July 1974, such Committee should not be bound by this date if it became apparent that additional time would be required to complete an acceptable study. In this regard, Mr. G. R. Meyers (Texas Pacific) pointed out that one of the significant matters to be resolved is the problem of migration and that it might be necessary for Operators to spend money to help delineate and resolve the problem in certain areas of the field.

Mr. Thieme then advised that he would call the first meeting of the Technical Committee during the last part of August.

There being no further business, the meeting was adjourned.

W. E. Buck
Chairman, Operators Committee

ATTENDANCE LIST
OPERATORS COMMITTEE MEETING
NORTH HOBBS UNIT
JULY 31, 1973

Name	Company
V. T. Lyon	Conoco
Chas. F. Dwyar, Jr.	Chevron
J. C. Solari	Chevron
Ken McPeters	Moran Co.
William S. McEven	Samedan
J. E. Eakin	Getty
Bill Larsen	Wiser
S. R. Denton	Amoco
F. W. Moran, Jr.	Gulf
G. R. Meyers	Texas Pacific
Gerald Bell	Texas Pacific
F. A. Bowling	Amerada Hess
R. A. Dawson	Texaco
E. R. Frazier	Mobil
W. E. Nolan	Exxon
J. M. Shepherd	Exxon
G. A. Naert	Marathon
Frank D. McAtee	Skelly
E. H. Lowrey	Cities Service
Jack Andrews	Sun
W. E. Buck	Shell
M. A. Thieme	Shell
Jim E. Greve	Shell
Steve Pontius	Shell
George A. Teer	Shell

BALLOT

Unitization Expense
North Hobbs Unit
Lea County, New Mexico

The undersigned hereby approves the following listed flat rate unitization expenses and agrees to pay a share of such expense; the share being determined by the method stated below:

1.	Drafting, reporduction, assembling and distribution of Engineering Sub-Committee Report and Tabulations such rate not to include special computer studies or laboratory analysis.	$900.00
2.	Printing and assembling Unit Agreements.	$500.00
3.	Appearance before regulatory bodies to obtain approval of the project.	$600.00
4.	Postage, telephone, telegraph and normal and usual expenses of securing joinder. Does not include expenses of personal contacts if travel required exceeds 100 mile radius from Midland, Texas.	$1,000.00
	Total	$3,000.00
5.	Filing and recording fees and associated travel expenses will be considered Unit Expense and charged to the joint account.	

With the formation of the Proposed North Hobbs Unit, all above stated expense items will be shared on the basis of Unit Participation (Phase I). If the Unit does not become effective, then the expense items which have been incurred will be apportioned on the basis of oil produced during the period January 1, 1973 to July 1, 1973. It is understood that any Working Interest Owner may withdraw at any time by giving the Unit Expeditor written notice of such withdrawal, and by paying his share of expenses incurred prior to withdrawal. The withdrawing Owners share shall be determined on the basis of the production period stated above.

Company_____

Representative_____

Date_____

NORTH HOBBS UNIT
LEA COUNTY, NEW MEXICO

1. Operators Committee

Company_____

Representative_____

Mailing Address_____

_____

_____

_____

2. Technical Committee

Company_____

Representative_____

Mailing Address_____

_____

_____

_____

Return to:

Shell Oil Company
P. O. Box 1509
Midland, Texas 79701
Attention Mr. W. E. Buck

ADDRESSEE LIST
NORTH HOBBS UNIT
WORKING INTEREST OWNERS

AMERADA HESS CORPORATION
ATT: MR. J. C. BLACKWOOD
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
~~ATTN: MR. L. J. GRANDAL~~ Technical Comm.
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77001

ATLANTIC RICHFIELD COMPANY
ATTN: MR. A. J. BROWN (2)
P. O. BOX 1610
MIDLAND, TX 79701

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

PENROSE PRODUCTION COMPANY
ATTN: MR. H. S. WINSTON
1605 COMMERCE BUILDING
FORT WORTH, TX 76102

MR. CHARLES B. READ
READ & STEVENS, INC.
BOX 2126
ROSWELL, NM 88201

CHEVRON OIL COMPANY
ATTN: MR. R. M. DICHARRY
P. O. BOX 1660
MIDLAND, TX 79701

CITIES SERVICE OIL COMPANY
ATTN: MR. SAM J. MATTHEWS
P. O. BOX 4906
MIDLAND, TX 79701

CONTINENTIAL OIL COMPANY
ATTN: L. P. THOMPSON
P. O. BOX 460
HOBBS, NM 88240

DEL-LEA, INC.
P. O. BOX 1889
HOBBS, NM 88240

GRACKLE OIL COMPANY
P. O. BOX 2038
HOBBS, NM 88240

GETTY OIL COMPANY R.L. White
ATTN: ~~MR. R. J. STARKAK~~
P. O. BOX 1231
MIDLAND, TX 79701
2

GULF OIL COMPANY - U. S.
ATTN: MR. H. E. BRAUNIG, JR.
P. O. DRAWER 1150
MIDLAND, TX 79701

EXXON COMPANY - U. S. A.
ATTN: MR. D. V. EMERY
P. O. BOX 1600
MIDLAND, TX 79701

MARATHON OIL COMPANY
ATTN: MR. G. A. NAERT
P. O. BOX 522
MIDLAND, TX 79701

MINERALS, INC.
P. O. BOX 1320
HOBBS, NM 88240

MOBIL OIL CORPORATION
ATTN: MR. JOHN D. HOWARD
P. O. BOX 633
MIDLAND, TX 79701

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MR. J. H. MORRIS AS AGENT
1615 FIRST NATIONAL BUILDING
TULSA, OK 74103

7

POLARIS PRODUCTION CORPORATION
P. O. BOX 1703
MIDLAND, TX 79701

SAMEDAN OIL CORPORATION
ATTN: MR. H. LEON VEEDER
P. O. BOX 909
ARDMORE, OK 73401

SAMEDAN OIL CORPORATION
ATTN: MR. M. G. MARTIN
2207 WILCO BUILDING
MIDLAND, TX 79701

Bryce Hart

SKELLY OIL COMPANY
ATTN: MR. C. J. LOVE
P. O. BOX 1351
MIDLAND, TX 79701

MR. ROBERT L. SUMMERS
P. O. BOX 860
HOBBS, NM 88240

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THORNTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS &
MR. JACK ANDREWS
P. O. BOX 1861
MIDLAND, TX 79701

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO, INC.
ATTN: DIVISION UNIT. ENGINEER
P. O. BOX 3109
MIDLAND, TX 79701

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
1700 ONE MAIN PLACE
DALLAS, TX 75250

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. R. J. WOMACK
P. O. BOX 4067
MIDLAND, TX 79701

THE WISER OIL COMPANY
ATTN: MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

YATES PETROLEUM CORPORATION
ATTN: MR. E. M. MAHFOOD
207 SOUTH FOURTH
ARTESIA, NM 88210

John P Cosa JR
P.O Box 350
Roswell, NM 88201

Yeager & Arrington
Western United Bldg
Midland, Texas 79701

SHELL OIL COMPANY
PETROLEUM BUILDING
P.O. BOX 1509
MIDLAND, TEXAS 79701

August 13, 1973

Subject: North Hobbs Unit (Proposed)
Hobbs Field
Lea County, New Mexico

ALL OPERATORS
(Mailing List Attached)

Attached are the minutes of the North Hobbs Unit (Proposed) Operators Committee meeting held July 31, 1973, in Midland, Texas.

Also attached for your consideration is a ballot pertaining to fixed pre-unitization expenses as discussed in the meeting of July 31, 1973. Please indicate your approval by signing and returning one copy to Shell Oil Company, P. O. Box 1509, Midland, Texas 79701.

We would also appreciate you advising us of your representatives on the Operators and Technical Committees, by completing and returning one copy of the attached forms.

Yours very truly,

O D MacDonald

Jack L. Mahaffey
Production Manager
Mid-Continent Division

WEB:NO

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

September 26, 1974

Subject: Proposed North Hobbs Unit
Hobbs Field
Lea County, New Mexico

TO: ALL WORKING INTEREST OWNERS - PROPOSED NORTH HOBBS UNIT
(MAILING LIST ATTACHED)

As noted from the minutes of the meeting of September 11, 1974, the North Hobbs Engineering Subcommittee has submitted for the decision of the Working Interest Owners the following recommendation:

> "A cut-off date of January 1, 1975 be established for all well logging data and well test information that is to be considered by the Subcommittee in completing the charges given by the Working Interest Owners."

In order for the Engineering Subcommittee to bring certain facets of their work to a conclusion and to proceed with their charge, it is essential that a cut-off date be established. Therefore, the recommendation of the Subcommittee is hereby submitted for your consideration. Please indicate your decision in the space provide below and return one copy to Shell Oil Company, P. O. Box 991, Houston, Texas 77001, Attention Mr. W. E. Buck.

Yours very truly,

W. J. Conrad

WEB:BDH In Absence of Jack L. Mahaffey
Division Production Manager
Mid-Continent Division

APPROVED_____ COMPANY_____

DISAPPROVED_____ REPRESENTATIVE_____

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABE PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. J. C. BLACKWOOD
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. L. J. CRANDAL
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

ATLANTIC RICHFIELD COMPANY
ATTN: MR. A. J. BROWN (2)
P. O. BOX 1610
MIDLAND, TX 79701

T. J. BERRY
RT. 4
WILLS POINT, TX 75169

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

MARY DANIEL CONRAD
4308 AVONDALE
DALLAS, TX 75219

CHEVRON OIL COMPANY
ATTN: MR. C. F. DWYER
P. O. BOX 1660
MIDLAND, TX 79701

CITIES SERVICE OIL COMPANY
ATTN: MR. SAM J. MATTHEWS
P. O. BOX 4906
MIDLAND, TX 79701

CONTINENTAL OIL COMPANY
ATTN: L. P. THOMPSON
P. O. BOX 460
HOBBS, NM 88240

HERMAN R. CRILE
BOX 864
ROSWELL, NM 88201

JOHN P. CUSACK, JR.
3815 McCART STREET
FORT WORTH, TX 76110

MICHAEL F. CUSACK
3815 McCART STREET
FORT WORTH, TX 76110

DEL-LEA, INC.
P. O. BOX 1889
HOBBS, NM 88240

J. N. DUNLAVY
P. O. BOX 837
ROSWELL, NM 88201

EXXON COMPANY - U. S. A.
ATTN: JOINT INTEREST MANAGER
P. O. BOX 1600
MIDLAND, TX 79701

FIRST ROSWELL COMPANY
P. O. BOX 1180
ROSWELL, NM 88201

GETTY OIL COMPANY
ATTN: MR. R. J. STARRAK
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MIDLAND, TX 79701

E. P. GOLDEN
C/O MILDRED G. TURNER
P. O. BOX 835
ROSWELL, NM 88201

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HOBBS, NM 88240

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MIDLAND, TX 79701

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ROSWELL, NM 38201

PETER HURD
SAN PATRICIO, NM 88348

B. J. JERNIGAN
P. O. BOX 993
MIDLAND, TX 79701

RUBY WANDA CONRAD JUDSON
7 JOSEPHINE COURT
NORTHPORT, LONG ISLAND
NEW YORK, NY 11768

LYNN KINCAID
217 E. VEGA DR.
HOBBS, NM 88240

GEORGE P. LAFLIN
P. O. BOX 21386
SALT LAKE, UT 84121

M. RALPH LOWE
C/O A. W. MOURSUND
P. O. BOX 125
JOHNSON CITY, TX 78636

MARATHON OIL COMPANY
ATTN: MR. G. A. NAERT
P. O. BOX 522
MIDLAND, TX 79701

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DALLAS, TX 75229

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MINERALS, INC.
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HOBBS, NM 88240

MOBIL OIL CORPORATION
ATTN: MR. JOHN D. HOWARD
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MIDLAND, TX 79701

WAYNE MOORE
403 N. MARINEFIELD
MIDLAND, TX 79701

J. E. MORAN
FIRST NATIONAL BANK - MIDLAND
TRUSTEE FOR F. E. MORAN
TRUST #1 (NO. 323)
P. O. BOX 1599
MIDLAND, TX 79701

R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
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HOBBS, NM 88240

MR. J. H. MORRIS AS AGENT
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NATHLYN IONE CONRAD MURDOCH
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C/O DANA T. RICHARDSON, JR.

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NUMBER ONE POST OAK PLACE
4615 POST OAK PLACE DRIVE
SUITE 240
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M. C. PARRISH ESTATE
C/O DANA T. RICHARDSON, JR.
NUMBER ONE POST OAK PLACE
4615 POST OAK PLACE DRIVE
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PENROSE PRODUCTION COMPANY
ATTN: MR. H. S. WINSTON
1605 COMMERCE BUILDING
FORT WORTH, TX 76102

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MIDLAND, TX 79701

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ROSWELL, NM 88201

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SAMEDAN OIL CORPORATION
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2207 WILCO BUILDING
MIDLAND, TX 79701

SAMEDAN OIL CORPORATION
ATTN: MR. H. LEON VEEDER
P. O. BOX 909
ARDMORE, OK 73401

SKELLY OIL COMPANY
ATTN: MR. C. J. LOVE
P. O. BOX 1351
MIDLAND, TX 79701

SKELLY OIL COMPANY
ATTN: FRANK D. McAFEE
P. O. BOX 1351
MIDLAND, TX 79701

HOWELL SPEAR
P. O. BOX 1684
MIDLAND, TX 79701

MR. ROBERT L. SUMMERS
P. O. BOX 860
HOBBS, NM 88240

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THRONTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS &
MR. JACK ANDREWS
P. O. BOX 1861
MIDLAND, TX 79701

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO, INC.
ATTN: ASSISTANT DIVISION MANAGER
P. O. BOX 3109
MIDLAND, TX 79701

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
1700 ONE MAIN PLACE
DALLAS, TX 75250

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. R. J. WOMACK
P. O. BOX 4067
MIDLAND, TX 79701

TEXAS PACIFIC OIL COMPANY
P. O. BOX 4067
MIDLAND, TX 79701

BETTYE CONRAD TREADAWAY
5215 HAVENWOODS
HOUSTON, TX 77066

TWO STATES OIL COMPANY
1910 EMPIRE LIFE BLDG.
DALLAS, TX 75201

LOYD WHITLEY
701 W. GEORGE APT. 99
MIDLAND, TX 79701

A. T. WILLIAMSON
1630 HARVARD CT.
HOBBS, NM 88240

THE WISER OIL COMPANY
ATTN: MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

YATES PETROLEUM CORPORATION
ATTN: MR. E. M. MAHFOOD
207 SOUTH FOURTH
ARTESIA, NM 88210

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701
(PRIMARY TERM ENDS OCTOBER, 1975)

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P. O. BOX 6031
DALLAS, TX 75222

RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

March 13, 1975

Subject: Computer Analysis
Proposed North Hobbs Unit
Hobbs Field
Lea County, New Mexico

OPERATORS - NORTH HOBBS UNIT
(Mailing List Attached)

The Technical Committee of the North Hobbs Unit has recommended that a computer analysis of the San Andres Reservoir be made. The primary objective of such study is to estimate the Zone I primary reserves that would be recovered, by areas, under the conditions of continued water influx and with the current completion status kept constant. The results will serve as a base case for Zone I primary reserves. Future recoveries can then be allocated by the Technical Committee to respective tracts. In addition, the results of such analysis will provide a more complete understanding of the performance of other zones within the San Andres formation.

Shell has agreed to make such an analysis using their three-phase, three-dimensional, compressible fluid reservoir simulation program. Shell's charge for such work shall be $6,000. This flat charge is Shell's estimate of actual computer running time and the associated contract clerical assistance required to assemble data. Shell shall make no charge for technical and non-technical efforts nor for a program licensing fee. A copy of the input data, results obtained, and an explanation of the calculations will be made available to all Operators. The cost of such study ($6,000) will be shared in the manner stated on the attached ballot.

The Technical Committee feels this study is essential to the completion of the charge made by the Operators Committee. Please indicate your decision on the attached ballot and return one signed copy to Shell Oil Company, P. O. Box 991, Houston, Texas 77001, Attention Mr. W. E. Buck.

Yours very truly,

Jack L. Mahaffey
Division Production Manager
Mid-Continent Division

WEB:JFM

Attachment

BALLOT

Unitization Expense
North Hobbs Unit
Lea County, New Mexico
March 13, 1975

The undersigned hereby approves the following listed flat rate charge for a special computer analysis of the San Andres Formation, which is to be made by Shell, and agrees to pay a share of such expense; the share being determined by the method stated below:

1.	Computer Usage Charge	$ 5,000.00
2.	Associated Contract Clerical Costs	$ 1,000.00
	Total	$ 6,000.00

With the formation of the Proposed North Hobbs Unit, all above stated expense items shall be shared on the basis of Unit Participation (Phase I). If the Unit does not become effective, then the expense items which have been incurred will be apportioned on the basis of oil produced during the period January 1, 1973 to July 1, 1973.

Company_____

Representative_____

Date_____

RETURN TO:

Shell Oil Company
Attn. Mr. W. E. Buck
P. O. Box 991
Houston, Texas 77001

BALLOT

Unitization Expense
North Hobbs Unit
Lea County, New Mexico
March 13, 1975

The undersigned hereby approves the following listed flat rate charge for a special computer analysis of the San Andres Formation, which is to be made by Shell, and agrees to pay a share of such expense; the share being determined by the method stated below:

1.	Computer Usage Charge	$ 5,000.00
2.	Associated Contract Clerical Costs	$ 1,000.00
	Total	$ 6,000.00

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Company_____

Representative_____

Date_____

RETURN TO:

Shell Oil Company
Attn. Mr. W. E. Buck
P. O. Box 991
Houston, Texas 77001

NORTH HOBBS UNIT
OPERATORS ADDRESSEE LIST

AMERADA HESS CORPORATION
ATTN. MR. J. C. BLACKWOOD
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN. BRUCK A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

ATLANTIC RICHFIELD COMPANY
ATTN. MR. A. J. BROWN (2)
P. O. BOX 1610
MIDLAND, TX 79701

MR. W. K. BYROM
ATTN. MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

PENROSE PRODUCTION COMPANY
ATTN. MR. H. S. WINSTON
1605 COMMERCE BUILDING
FORT WORTH, TX 76102

MR. CHARLES B. READ
READ & STEVENS, INC.
P. O. BOX 2126
ROSWELL, NM 88201

CHEVRON OIL COMPANY
ATTN. MR. C. F. DWYER
P. O. BOX 1660
MIDLAND, TX 79701

CITIES SERVICE OIL COMPANY
ATTN. MR. SAM J. MATTHEWS
P. O. BOX 4906
MIDLAND, TX 79701

CONTINENTAL OIL COMPANY
ATTN. MR. L. P. THOMPSON
P. O. BOX 460
HOBBS, NM 88240

MR. JOHN P. CUSUCK
P. O. BOX 250
ROSWELL, NM 88201

DEL-LEA, INC.
P. O. BOX 1889
HOBBS, NM 88240

EXXON COMPANY, U.S.A.
ATTN. JOINT INTEREST MGR
P. O. BOX 1600
MIDLAND, TX 79701

GETTY OIL COMPANY
ATTN. MR. R. J. STARRAK
P. O. BOX 1231
MIDLAND, TX 79701

GULF OIL COMPANY, U.S.A.
ATTN. MR. J. L. PIKE
P. O. DRAWER 1150
MIDLAND, TX 79701

MARATHON OIL COMPANY
ATTN. G. A. NAERT
P. O. BOX 522
MIDLAND, TX 79701

MINERALS, INC.
P. O. BOX 1320
HOBBS, NM 88240

MOBIL OIL CORPORATION
ATTN. MR. JOHN D. HOWARD
P. O. BOX 633
MIDLAND, TX 79701

MORANCO
ATTN. MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MR. J. H. MORRIS, AGENT
1615 FIRST NATIONAL BLDG.
TULSA, OK 74103

POLARIS PRODUCTION CORPORATI(
P. O. BOX 1703
MIDLAND, TX 79701

SAMEDAN OIL CORPORATION
ATTN. MR. H. LEON VEEDER
P. O. BOX 909
ARDMORE, OK 73401

SAMEDAN OIL CORPORATION
ATTN. MR. M. G. MARTIN
2207 WILCO BUILDING
MIDLAND, TX 79701

SKELLY OIL COMPANY
ATTN. MR. C. J. LOVE
P. O. BOX 1351
MIDLAND, TX 79701

SKELLY OIL COMPANY
ATTN. MR. FRANK D. McATEE
P. O. BOX 1351
MIDLAND, TX 79701

MR. ROBERT L. SUMMERS
P. O. BOX 860
HOBBS, NM 88240

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ATTN. MR. C. H. SWEET
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HOBBS, NM 88240

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MIDLAND, TX 79701

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MIDLAND, TX 79701

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ATTN. MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

YATES PETROLEUM CORP.
ATTN. E. M. MAHFOOD
207 SOUTH FOURTH
ARTESIA, NM 88210

YEAGO & ARMSTRONG
WESTERN UNITED BLDG.
MIDLAND, TX 79701

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

April 15, 1977

Subject: Proposed North Hobbs Unit
Hobbs Field
Lea County, New Mexico

ALL WORKING INTEREST OWNERS - PROPOSED NORTH HOBBS UNIT
(Mailing List Attached).

A meeting of the Working Interest Owners of the proposed North Hobbs Unit is called for 10:00 a.m., May 26, 1977, in the Texas Electric Service Company Reddy Room, 124 North Colorado Street, Midland, Texas.

The agenda for the meeting will be as follows:

1. Formal presentation of the report titled "Waterflood Feasibility and Unitization Parameters", as prepared by the Technical Committee.

2. Consideration of the Report as completing the charge to the Technical Committee.

3. Acceptance of the Report as a basis for Unitization negotiations.

4. Develop a course of action for further unitization efforts.

5. Any other business.

Efforts to unitize and to waterflood the northern part of the Hobbs Field were initiated in July, 1973, when the Operators' Committee charged the Technical Committee to develop a feasibility and parameter study of the area considered for unitization. Due to the different reservoir characteristics evident in the various zones of the Grayburg-San Andres reservoir, it was necessary for the Technical Committe to undertake methods of evaluation not normally required for unitization efforts. Considerable time and expense has been expended in developing the study. With the submittal of the Report to the Working Interest Owners, it appears that a critical point has been reached. All Working Interest Owners are therefore urged to be represented at the called meeting. It is also urged that all representatives attend the meeting prepared to commit their company with regard to the Report and to a course of action for further unitization efforts.

Copies of the Waterflood Feasibility and Unitization Parameters Report for the North Hobbs Unit are transmitted with this call to meeting to all Operators and participants of the Technical Committee as noted on the attached mailing list. Copies will be furnished any other Working Interest Owner upon request.

Yours very truly,

WEBuck

W. E. Buck
Chairman, Working Interest Owners' Committee

WEB:DTW

Attachments

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

*ABO PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

*AMERADA HESS CORPORATION
ATTN: MR. J. C. BLACKWOOD
P. O. BOX 2040
TULSA, OK 74102

*AMERADA HESS CORPORATION
ATTN: MR. L. J. CRANDAL
P. O. DRAWER 817
SEMINOLE, TX 79360

*AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

W. D. ANDERSON & SONS
P. O. BOX 136
MIDLAND, TX 79702

*ATLANTIC RICHFIELD COMPANY
ATTN: MR. G. THANE AKINS
P. O. BOX 1610
MIDLAND, TX 79702

T. J. BERRY
RT. 4
WILLS POINT, TX 75169

*MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

MARY DANIEL CONRAD
4308 AVONDALE
DALLAS, TX 75219

*C&C OPERATING CORP.
P. O. BOX 1829
HOBBS, NM 88240

*CHEVRON OIL COMPANY
ATTN: MR. C. F. DWYER
P. O. BOX 1660
MIDLAND, TX 79702

*CITIES SERVICE OIL COMPANY
ATTN: MR. SAM J. MATTHEWS
P. O. BOX 4906
MIDLAND, TX 79702

*CITIES SERVICE OIL COMPANY
E&P DIVISION
P. O. BOX 1919
MIDLAND, TX 79702

*CONTINENTAL OIL COMPANY (2)
ATTN: L. P. THOMPSON
P. O. BOX 460
HOBBS, NM 88240

HERMAN R. CRILE
BOX 864
ROSWELL, NM 88201

*JOHN P. CUSACK
P. O. BOX 250
ROSWELL, NM 88201

JOHN P. CUSACK, JR.
3815 McCART STREET
FORT WORTH, TX 76110

MICHAEL F. CUSACK
3815 McCART STREET
FORT WORTH, TX 76110

*DEL-LEA, INC. (ANTWEIL)
P. O. BOX 1889
HOBBS, NM 88240

J. N. DUNLAVY
P. O. BOX 837
ROSWELL, NM 88201

*ESTES ENGINEERING CO.
306 PETROLEUM BUILDING
MIDLAND, TX 79702

*EXXON COMPANY - U. S. A. (2)
ATTN: JOINT INTEREST MANAGER
P. O. BOX 1600
MIDLAND, TX 79702

FIRST ROSWELL COMPANY
P. O. BOX 1180
ROSWELL, NM 88201

*GETTY OIL COMPANY
ATTN: MR. R. J. STARRAK
P. O. BOX 1231
MIDLAND, TX 79702

*GETTY OIL COMPANY
P. O. BOX 1351
MIDLAND, TX 79702

*GETTY OIL COMPANY
P. O. BOX 1315
MIDLAND, TX 79702

E. P. GOLDEN
C/O MILDRED G. TURNER
P. O. BOX 835
ROSWELL, NM 88201

*GULF ENERGY & MINERALS CO.-U.S. (2)
ATTN: R. F. WARD, JR.
DISTRICT OPERATIONS MANAGER
P. O. BOX 1150
MIDLAND, TX 79702

KENNETH NOEL HEADLEY
P. O. BOX 2163
ROSWELL, NM 88201

PETER HURD
SAN PATRICIO, NM 88348

B. J. JERNIGAN
P. O. BOX 993
MIDLAND, TX 79701

RUBY WANDA CONRAD JUDSON
7 JOSEPHINE COURT
NORTHPORT, LONG ISLAND
NEW YORK, NY 11768

LYNN KINCAID
217 E. VEGA DR.
HOBBS, NM 88240

GEORGE P. LAFLIN
P. O. BOX 21386
SALT LAKE, UT 84121

M. RALPH LOWE
C/O A. W. MOURSUND
P. O. BOX 125
JOHNSON CITY, TX 78636

*MARATHON OIL COMPANY
ATTN: MR. G. A. NAERT
P. O. BOX 322
MIDLAND, TX 79702

KATHRYN LOUISE CONRAD McCARTHY
4435 SAN GABRIEL
DALLAS, TX 75229

J. S. McGANNON
P. O. BOX 1651
SANTA FE, NM 87501

K. D. McPETERS
P. O. BOX 1860
HOBBS, NM 88240

*MOBIL OIL CORPORATION
3 GREENWAY PLAZA EAST
SUITE 800
HOUSTON, TX 77046

WAYNE MOORE
403 N. MARINEFIELD
MIDLAND, TX 79701

J. E. MORAN
FIRST NATIONAL BANK - MIDLAND
TRUSTEE FOR F. E. MORAN
TRUST #1 (NO. 323)
P. O. BOX 1599
MIDLAND, TX 79701

R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

*MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MR. J. H. MORRIS AS AGENT
1615 FIRST NATIONAL BUILDING
TULSA, OK 74103

NATHLYN IONE CONRAD MURDOCH
4132 DEEP VALLEY DRIVE
DALLAS, TX 75234

LINDA [illegible] & BEN F. PARRISH
C/O DANA T. RICHARDSON, JR.
NUMBER ONE POST OAK PLACE
4615 POST OAK PLACE DRIVE
SUITE 240
HOUSTON, TX 77027

M. C. PARRISH ESTATE
C/O DANA T. RICHARDSON, JR.
NUMBER ONE POST OAK PLACE
4615 POST OAK PLACE DRIVE
SUITE 240
HOUSTON, TX 77027

FRANCES I. CONRAD ROSE
BOX 20234
DALLAS, TX 75220

*SAMEDAN OIL CORPORATION
ATTN: MR. M. G. MARTIN
2207 WILCO BUILDING
MIDLAND, TX 79702

*SAMEDAN OIL CORPORATION
ATTN: MR. BOYCE BERRY
P. O. BOX 909
ARDMORE, OK 73401

HOWELL SPEAR
P. O. BOX 1684
MIDLAND, TX 79701

*SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THRONTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS
P. O. BOX 1861
MIDLAND, TX 79702

*MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

*C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

*TEXACO, INC.
ATTN: ASSISTANT DIVISION MANAGER
P. O. BOX 3109
MIDLAND, TX 79702

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

*TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
1700 ONE MAIN PLACE
DALLAS, TX 75250

*TEXAS PACIFIC OIL CO., INC.
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DALLAS, TX 75201

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701 W. GEORGE APT. 99
MIDLAND, TX 79701

A. T. WILLIAMSON
1630 HARVARD CT.
HOBBS, NM 88240

*THE WISER OIL COMPANY
ATTN: MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

*THE WISER OIL COMPANY
ATTN: MR. C. P. LaRUE
P. O. BOX 192
SISTERVILLE, WV 26175

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701
(PRIMARY TERM ENDS OCTOBER, 1975)

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P. O. BOX 6031
DALLAS, TX 75222

RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

*Copy of Technical Report Enclosed

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

April 25, 1975

Subject: Computer Analysis
Proposed North Hobbs Unit
Hobbs Field
Lea County, New Mexico

OPERATORS - NORTH HOBBS UNIT
(Mailing List Attached)

The proposal for a special computer analysis of the San Andres formation of the North Hobbs Unit has received 88.5% approval of the participating operators with only one recorded dissension. With such response, Shell feels it is in order to proceed with the reservoir simulation study. Pending unitization, Shell will bear the costs to be allocated to the dissenting and non-responding parties.

Yours very truly,

Jack L. Mahaffey
Division Production Manager
Mid-Continent Division

WEB:JFM

NORTH HOBBS UNIT
OPERATORS
ADDRESSEE LIST

AMERADA HESS CORP.
ATTN. J. C. BLACKWOOD
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORP.
ATTN. MR. L. J. CRANDAL
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SEMINOLE, TX 79360

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MIDLAND, TX 79701

MR. W. K. BYROM
ATTN. MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

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MIDLAND, TX 79701

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JOHN P. CUSACK
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ROSWELL, NM 88201

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P. O. BOX 1600
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ATTN. MR. G. A. NAERT
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P. O. BOX 1860
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MR. J. H. MORRIS,
AS AGENT
1615 1ST NAT'L BLDG.
TULSA, OK 74103

PETRO-LEWIS CORP.
ATTN. MR. JOHN B. SOMERS
1600 BROADWAY
DENVER, CO 80202

POLARIS PRODUCTION CORP.
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MIDLAND, TX 79701

SAMEDAN OIL CORPORATION
ATTN. MR. H. LEON VEEDER
P. O. BOX 909
ARDMORE, OK 73401

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MIDLAND, TX 79701

SKELLY OIL COMPANY
ATTN. FRANK D. McAFEE
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ATTN. MR. E. M. MAHFOOD
207 SOUTH FOURTH
ARTESIA, NM 88210

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BLDG.
MIDLAND, TX 79701

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

May 11, 1977

Subject: Unitization Parameters
Proposed North Hobbs Unit
Hobbs (Grayburg - San Andres) Field
Lea County, New Mexico

All Working Interest Owners
(Addressee List Attached)

Please be advised that the Unitization Parameter Tables (Nos. 21 to 24), which were included in the Technical Committee Report, are being corrected. Revised copies will be distributed at the Working Interest Owners meeting on May 26, 1977 and also transmitted with the minutes of that session.

The following corrections and additions are being made:

1. Working Interest Ownership

   a. Tract No. 50 - Exxon 50%, Cities Service 25%, and Continental 25%

   b. Tract No. 69 - Amoco 75.43501% and Landreth 24.56499%

   c. Tract No. 75 - Marathon 50% and Atlantic Richfield 50%

2. Oil and Gas Production - Year 1976

The prior tabulation was based on the Monthly Statistical Reports. The Annual Report is now available and reflects the following corrections: oil decreased by 207 barrels and gas increased by 7037 MCF. These changes effect the following parameters: Cumulative Oil (Tables 21 A & B), Year 1976 Oil and Gas (Tables 21 A & B) and Ultimate Oil Recovery (Tables 23 A & B). (No corrections were made to oil production during the last four months of 1976 and consequently the Primary Oil Reserves are not affected.)

3. Productive Acres (Tables 22 A & B)

The tabulation included in the Report was based on the productive acres in the Basal Grayburg Upper Zone oil column and omitted the 2174 acres which lie entirely within the gas cap in that particular zone.

4. Gas Reserves

Continental has requested the addition of a parameter for remaining gas reserves. Therefore, such numbers will be added to the revised tables. This parameter will be calculated in the following manner:

a. Grayburg and/or upper San Andres Stringers - The oil reserves listed on Table 14 will be multiplied by the corresponding average GOR for the year 1976, and

b. San Andres (Main Zones) - The "updated" gas reserves will be calculated in a similar manner as shown for the oil reserves in Table 15; that is, the computed 9/1/76 gas reserves (previously furnished to the Technical Committee) will be updated to 1/1/77 values by subtracting the ensuing actual production.

It is requested that any other discrepancies noted be called to the attention of either Mr. W. E. Buck (713-220-1331) or Mr. H. J. Swartz (713-220-1022).

Yours very truly,

W. E. Buck, Chairman
Working Interest Owners' Committee

HJS:jmn

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. R. W. MULLINS
MANAGER - JOINT VENTURE OPERATIONS - U.S.
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. L. J. CRANDAL
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

W. D. ANDERSON & SONS
P. O. BOX 136
MIDLAND, TX 79702

ATLANTIC RICHFIELD COMPANY
ATTN: MR. G. THANE AKINS
P. O. BOX 1610
MIDLAND, TX 79702

T. J. BERRY
RT. 4
WILLS POINT, TX 75169

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

MARY DANIEL CONRAD
4308 AVONDALE
DALLAS, TX 75219

C&C OPERATING CORP.
P. O. BOX 1829
HOBBS, NM 88240

CHEVRON OIL COMPANY
ATTN: MR. C. F. DWYER
P. O. BOX 1660
MIDLAND, TX 79702

CITIES SERVICE OIL COMPANY
ATTN: MR. SAM J. MATTHEWS
P. O. BOX 4906
MIDLAND, TX 79702

CITIES SERVICE OIL COMPANY
E&P DIVISION
P. O. BOX 1919
MIDLAND, TX 79702

CONTINENTAL OIL COMPANY (2)
ATTN: L. P. THOMPSON
P. O. BOX 460
HOBBS, NM 88240

HERMAN R. CRILE
BOX 864
ROSWELL, NM 88201

JOHN P. CUSACK
P. O. BOX 250
ROSWELL, NM 88201

JOHN P. CUSACK, JR.
3815 McCART STREET
FORT WORTH, TX 76110

MICHAEL F. CUSACK
3815 McCART STREET
FORT WORTH, TX 76110

DEL-LEA, INC. (ANTWEIL)
P. O. BOX 1889
HOBBS, NM 88240

J. N. DUNLAVY
P. O. BOX 837
ROSWELL, NM 88201

ESTES ENGINEERING CO.
306 PETROLEUM BUILDING
MIDLAND, TX 79702

EXXON COMPANY - U. S. A. (2)
ATTN: JOINT INTEREST MANAGER
P. O. BOX 1600
MIDLAND, TX 79702

FIRST NATIONAL BANK OF CASPER
ESTATE OF M. E. TOLE
P. O. BOX 40
CASPER, WY 82601

FIRST NATIONAL BANK OF FORT WORTH
ESTATE OF SMITH SPRALDING
P. O. BOX 2546
FORT WORTH, TX 76101

FIRST ROSWELL COMPANY
P. O. BOX 1180
ROSWELL, NM 88201

C. C. FORBES
P. O. BOX 843
TULSA, OK 74101

ILAMAE FORBES
P. O. BOX 843
TULSA, OK 74101

GETTY OIL COMPANY (2)
ATTN: MR. A. B. CARY
P. O. BOX 1231
MIDLAND, TX 79702

E. P. GOLDEN
C/O MILDRED G. TURNER
P. O. BOX 835
ROSWELL, NM 88201

GULF ENERGY & MINERALS CO.-U.S. (2)
ATTN: R. F. WARD, JR.
DISTRICT OPERATIONS MANAGER
P. O. BOX 1150
MIDLAND, TX 79702

KENNETH NOEL HEADLEY
P. O. BOX 2163
ROSWELL, NM 88201

PETER HURD
SAN PATRICIO, NM 88348

B. J. JERNIGAN
P. O. BOX 993
MIDLAND, TX 79701

RUBY WANDA CONRAD JUDSON
7 JOSEPHINE COURT
NORTHPORT, LONG ISLAND
NEW YORK, NY 11768

A. A. KEMNITZ
P. O. BOX 729
HOBBS, NM 88240

LYNN KINCAID
217 E. VEGA DR.
HOBBS, NM 88240

GEORGE P. LAFLIN
815 METRO BANK BUILDING
DENVER, CO 80202

MR. GEORGE H. LONDRETH
8123 BOEDEKER CIRCLE
DALLAS, TX 75225

MR. W. A. LONDRETH
908 CONTINENTAL NATIONAL BANK BLDG
FT. WORTH, TX 76102

M. RALPH LOWE
C/O A. W. MOURSUND
P. O. BOX 125
JOHNSON CITY, TX 78636

MARATHON OIL COMPANY
ATTN: MR. G. A. NAERT
P. O. BOX 522
MIDLAND, TX 79702

KATHRYN LOUISE CONRAD McCARTHY
4435 SAN GABRIEL
DALLAS, TX 75229

J. S. McGANNON
P. O. BOX 1651
SANTA FE, NM 87501

K. D. McPETERS
P. O. BOX 1860
HOBBS, NM 88240

MOBIL OIL CORPORATION
3 GREENWAY PLAZA EAST
SUITE 800
HOUSTON, TX 77046

WAYNE MOORE
403 N. MARINEFIELD
MIDLAND, TX 79701

J. E. MORAN
FIRST NATIONAL BANK - MIDLAND
TRUSTEE FOR F. E. MORAN
TRUST #1 (NO. 323)
P. O. BOX 1599
MIDLAND, TX 79701

R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

G. D. MORRIS
2901 W. HWY 83, BOX 154
McALLEN, TX 78501

MR. J. H. MORRIS AS AGENT
1615 FIRST NATIONAL BUILDING
TULSA, OK 74103

NATHLYN IONE CONRAD MURDOCH
4132 DEEP VALLEY DRIVE
DALLAS, TX 75234

RICHARD L. NOBLE
P. O. BOX 67605
CENTURY CITY
LOS ANGELES, CA 90067

LINDA B. & BEN F. PARRISH
C/O DANA T. RICHARDSON, JR.
NUMBER ONE POST OAK PLACE
4615 POST OAK PLACE DRIVE
SUITE 240
HOUSTON, TX 77027

M. C. PARRISH ESTATE
C/O DANA T. RICHARDSON, JR.
NUMBER ONE POST OAK PLACE
4615 POST OAK PLACE DRIVE
SUITE 240
HOUSTON, TX 77027

PORTALES NATIONAL BANK
PORTALES, NM 88130

JOHN RORING
1710 WILSHIRE BOULEVARD
OKLAHOMA CITY, OK 73116

FRANCES I. CONRAD ROSE
BOX 20234
DALLAS, TX 75220

SAMEDAN OIL CORPORATION
ATTN: MR. M. G. MARTIN
2207 WILCO BUILDING
MIDLAND, TX 79702

SAMEDAN OIL CORPORATION
ATTN: MR. BOYCE BERRY
P. O. BOX 909
ARDMORE, OK 73401

HOWELL SPEAR
P. O. BOX 1684
MIDLAND, TX 79701

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THRONTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS
P. O. BOX 1861
MIDLAND, TX 79702

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO, INC.
ATTN: ASSISTANT DIVISION MANAGER
P. O. BOX 3109
MIDLAND, TX 79702

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
1700 ONE MAIN PLACE
DALLAS, TX 75250

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. R. J. WOMACK
P. O. BOX 4067
MIDLAND, TX 79702

BETTYE CONRAD TREADAWAY
5215 HAVENWOODS
HOUSTON, TX 77066

TWO STATES OIL COMPANY
1910 EMPIRE LIFE BLDG.
DALLAS, TX 75201

LOYD WHITLEY
701 W. GEORGE APT. 99
MIDLAND, TX 79701

HATTIE C. WILLIAMS
P. O. BOX 3187
LUBBOCK, TX 79410

A. T. WILLIAMSON
1630 HARVARD CT.
HOBBS, NM 88240

THE WISER OIL COMPANY
ATTN: MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

THE WISER OIL COMPANY
ATTN: MR. C. P. LaRUE
P. O. BOX 192
SISTERVILLE, WV 26175

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701
(PRIMARY TERM ENDS OCTOBER, 1975)

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P. O. BOX 6031
DALLAS, TX 75222

RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

June 3, 1977

Subject: Minutes - Working Interest Owners Meeting
Proposed North Hobbs Unit
Lea County, New Mexico

WORKING INTEREST OWNERS - (Mailing List Attached)

A meeting of the Working Interest Owners of the proposed North Hobbs Unit was held May 26, 1977, in Midland, Texas. Representatives attending the meeting are shown on the attached attendance list.

Mr. Buck (Shell) opened the meeting by advising that 90.7 percent of the Working Interest Owners (based on 1976 oil production) were represented at the meeting. He further advised that because of the importance of the meeting, every effort had been made to notify all Working Interest Owners of the meeting. All parties were asked to notify Mr. Buck of any corrections or additions that should be made to the mailing list.

Mr. Buck summarized the previous efforts of unitization in the Hobbs Field. He stated that Amoco initiated an effort in 1970 to form a field wide unit. A feasibility study was completed in March, 1972, and participation negotiations were started. However, it became apparent that agreement could not be reached and in July, 1973, it was decided to divide the Hobbs Field into two parts for unitization and water flooding purposes.

Amoco undertook unitization of the south part of the field and formed the South Hobbs Unit January 1, 1975. Shell acted as Unit Expeditor for the Northern portion of the field. A Technical committee was organized and at a meeting of the Working Interest Owners of the proposed North Hobbs Unit, held July 31, 1973, charged the Technical Committee to develop a waterflood feasibility and unitization parameter study. The Technical Committee has met repeatedly since such date and now have completed and are prepared to submit a report of their study. Mr. Buck pointed out that the attendence and participation of the parties in the Technical Committee was outstanding.

Mr. Buck then turned the meeting over to Mr. H. J. Swartz (Shell), Chairman of the Technical Committee for formal presentation of the "Waterflood Feasibility and Unitization Parameter Report" as prepared by the Technical Committee.

Mr. Swartz started by expressing his appreciation for the excellant cooperation of all parties in the work of the Technical Committee. He stated that the committee held 25 work sessions and that, on the average, 13 operators were represented at each session. He further advised that 22 of the 26 operators had been represented at at least one of the sessions. Mr. Swartz pointed out that it was the aim of the group to reach mutual agreement on all points of the study whenever possible rather than the agreement of only a majority. With only a few exceptions, the group was able to attain this aim.

Mr. Swartz then proceeded to present a summary of the committees work. Salient points of the study were presented with the assistance of projected slides. Several questions were asked and discussed during the presentation. At the end of the presentation Mr. Swartz handed out revised parameter tables which included corrections of production data and ownership. In addition the revised tables included a gas reserve parameter as requested by Continental Oil Company. Copies of revised tables are enclosed with these minutes.

Mr. Buck then asked that the second item of the agenda, completion of the charge of the Working Interest Owners, be considered. After some discussion, Sun Oil Company's representative moved that the report titled "Waterflood Feasibility and Unitization Parameters for the North Hobbs (Grayburg - San Andres) Unit" be accepted as completion of the charge of the Working Interest Owners to the Technical Committee. The motion was seconded by the representative of Amoco Production Company. The motion was passed by the affirmative vote of all present with the qualifications of Continental Oil Company and Exxon Company that their approvals did not include the Gas Reserve Parameter submitted at the meeting as they had not had sufficient time to review such parameter. Marathon Oil Company, passed on the vote at the meeting but advised the chairman of their affirmative vote following the meeting.

Mr. Buck then asked that the third item of the agenda, acceptance of the report as a basis of unitization negotiations, be considered. After discussion, during which Mr. G. R. Meyers, Texas Pacific Oil Company, Inc., expressed concern over some of the relationships, the representative of Amoco Production Company moved that the report be accepted as a basis of unitization negotiations. The motion was seconded by Mobil Oil Company's representative. The motion was approved by the affimative vote of 76.6 percent (1976 production). No negative votes were cast. The affirmative vote of Exxon Company was qualified as to the Gas Reserve Parameter the same as for the previous motion. Continental Oil Company, Russel Estes, and Texas Pacific Oil Company, Inc., passed on the vote on the motion. Mr. Buck asked, and such parties agreed, that he be advised of a decisive vote on the motion at as early a date as possible.

Although a formal vote was not taken, all parties agreed on the basis of the response to the motions to move forward with unitization efforts. After some discussion, it was agreed that a meeting would be called during the first half of July for the purpose of negotiating participation.

In the discussion that followed, some parties expressed concern as to the handling of FEA classified "Stripper" and "Upper Tier" oil after unitization. Mr. Buck advised that it was Shell's general feeling that consideration should be given to parties contributing properties with the more favorable pricing classifications. He further advised that in other unitization efforts provisions had been included in the Unit Agreement rather than in participation negotiations to afford certain considerations to the contributing parties. Upon request, Mr. Buck agreed to include with the minutes of the meeting a provision prepared by Shell for inclusion in other Unit agreements. Such provision is attached hereto. Mr. Buck pointed out that although Shell is in agreement with the general principle of the provision, the submittal of the provision at this time should not be taken as a final Shell proposal in this regard. Shell would want the opportunity to review the problem after participation has been established before making a firm proposal.

Mr. Don Hunter, of Sipes, Williamson & Aycook, Inc., submitted a written proposal on behalf of Moranco for a cooperative waterflood agreement between the North Hobbs Unit and the adjoining Moranco Rice-Hardin Waterflood Unit and the sale of source water from the Moranco water supply system. Mr. Hunter was advised that his proposal would be included in the minutes of the meeting and given consideration by the Working Interest Owners at the appropriate time. The written proposal is included as an attachment to these minutes.

With regard to the water source, Mr. Buck advised that Shell has been negotiating with the city of Hobbs for the purchase of industrial process effluent from its industrial water treatment plant. A draft agreement has been prepared and submitted to the City of Hobbs. At the appropriate time, a negotiated agreement will be submitted to the Working Interest Owners for their consideration.

There being no further business, the meeting was adjourned.

W. E. Buck
Chairman, Working Interest Owners Committee

WEB:GLW

Attachments

NORTH HOBBS UNIT
MAY 26, 1977
ATTENDANCE LIST

NAME	COMPANY	LOCATION
W. E. Buck	Shell Oil Co.	Houston, Tx
R. W. Mullins	Amerada-Hess Corp.	Tulsa, Ok
J. B. Campbell	Exxon Company	Midland, Tx
W. E. Nolan	Exxon Company	Midland, Tx
Joe Paradiso	Marathon Oil Company	Midland, Tx
L. A. Carr	Mobil Oil Corp.	Houston, Tx
H. A. Seidel, Jr.	Sun Producing Company	Dallas, Tx
J. L. Relph	Cities Service Oil Company	Midland, Tx
Don Hunter	Sipes Williamson & Aycock (Rep. Moranco)	Midland, Tx
Don Barrett	Cities Service Oil Company	Midland, Tx
S. R. Denton	Amoco Producing Company	Houston, Tx
Bill Larsen	Wiser Oil Company	Midland, Tx
Boyce Perry	Samedan Oil Company	Ardmore, Ok
Jack Cusack	--Self--	Biswell, NM
W. A. Yeager	Yeager & Armstrong	Midland, Tx
Russell G. Estes	Estes Engineering	Midland, Tx
W. A. Goudeau	Chevron USA, Inc.	Midland, Tx
D. D. Allen	Chevron USS, Inc.	Midland, Tx
J. E. Eakin	Getty Oil Co.	Midland, Tx
C. F. Bosecker	Getty Oil Co.	Midland, Tx
J. D. Mussett	Gulf Energy & Minerals Co.-U.S.A.	Midland, Tx
Don Bolt	Continental Oil Company	Hobbs, NM
C. C. Woodward	Continental Oil Company	Hobbs, NM
R. O. Walker	Gulf Energy & Minerals Co.-U.S.A.	Midland, Tx
V. T. Lyon	Continental Oil Company	Hobbs, NM
Vance M. Hendricks	Gulf	Midland, Tx
Ken McPeters	Moranco	Hobbs, NM
Bob Moran	Moranco	Hobbs, NM
Paul Thompson	Continental Oil Company	Hobbs, NM
Joe Thornton	Sun Oil Company	Dallas, Tx
G. R. Meyers	Texas Pacific Oil Co., Inc.	Dallas, Tx
J. D. Waggoner	Texas Pacific Oil Co., Inc.	Dallas, Tx
Thane Akins	Atlantic Richfield Company	Midland, Tx
George Nathman	Atlantic Richfield Company	Midland, Tx
H. J. Swartz	Shell Oil Company	Houston, Tx

FEA PRICING

It is anticipated, at the effective date of unitization, crude oil produced, saved and sold from the _____ Unit will be subject to the rules and regulations of the Federal Energy Administration. Such rules provide for the classification of crude oil for pricing purposes as (1) Stripper Well Crude Oil, (2) Old Oil and (3) Upper Tier Crude Oil.

Under the rules and regulations of the Federal Energy Administration as of October 1976, a unit certification is allowed each month to include in the Upper Tier Crude Oil portion thereof, a constant number of barrels described by FEA Regulations as Imputed Upper Tier Crude Oil. The unit certification is further allowed each month to include in the Stripper Well Crude Oil portion thereof, a constant number of barrels described by FEA Regulations as Imputed Stripper Well Crude Oil.

In view of the above, and not withstanding the provisions of Section _____, crude oil produced, saved and sold shall be allocated as follows:

1. Stripper Well Crude Oil - The first oil produced, saved and sold each month up to a quantity equal to the Unit's Imputed Stripper Well Crude Oil shall be allocated to Tracts contributing Imputed Stripper Well Crude Oil to the Unit certification in proportion to their contributions of such Imputed Stripper Well Crude Oil. Should any Tract in any month be allocated out of Unit production in accordance with its Tract Participation as set forth in this Agreement, a total number of barrels of oil that is less than the Imputed Stripper Well Crude Oil that such Tract has contributed to the Unit certification, then such Tract's allocation of

Imputed Stripper Well Crude Oil shall be reduced by the amount that the Imputed Stripper Crude Oil exceeds the amount of oil to be allocated in accordance with its Tract Participation. The amount in excess of its Tract Participation shall be termed Excess Imputed Stripper Well Crude Oil. The total Excess Imputed Stripper Well Crude Oil of all Tracts shall be allocated to all Tracts, including Tracts which have not contributed Imputed Stripper Well Crude Oil to the Unit certification, in proportion to the quantities that the Unit production allocated a Tract by its Tract Participation exceeds the quantity Imputed Stripper Well Crude Oil allocated such tract.

c. Imputed Upper Tier Crude Oil - Oil produced, saved, and sold each month from the Unit after a quantity of oil equal to the Imputed Stripper Well Crude Oil is produced, saved and sold, up to a quantity equal to the Imputed Upper Tier Crude Oil, shall be allocated to those Tracts contributing Imputed Upper Tier Crude Oil to the Unit certification in proportion to their contributions of such Imputed Upper Tier Crude Oil. Should any Tract in any month be allocated out of Unit production in accordance with its Tract Participation, as set forth in this agreement, a total number of barrels that is less than the sum of its Imputed Stripper Well Crude Oil, its Excess Imputed Stripper Well Crude Oil as provided in Paragraph 1 of this Article, and its allocated Imputed Upper Tier Crude Oil, then such Tract's allocation of Imputed Upper Tier Crude Oil shall be reduced by the quantity

that the sum of the Tract's Imputed Stripper Well Crude Oil, its Excess Imputed Stripper Crude Oil and its allocated Imputed Upper Tier Crude Oil exceeds the total quantity of oil to be allocated in accordance with its Tract Participation. The amount in excess of its Tract Participation shall be termed Excess Imputed Upper Tier Crude Oil. The total Excess Imputed Upper Tier Crude Oil of all Tracts shall be allocated to all Tracts including Tracts which have not contributed Imputed Stripper Well Crude Oil and/or Imputed Upper Tier Crude Oil to the Unit certification, in proportion to the quantities that each Tract's allocation of Unit. production by its Tract Participation exceeds the sum of the Imputed Stripper Well Crude, Excess Imputed Stripper Well Crude Oil and Imputed Upper Tier Crude Oil allocated such Tract.

3. Upper Tier Crude Oil and Old Oil shall each be allocated to each Tract in proportion to the quantities that each Tract's allocation of Unit Production, in accordance with its Participation, exceeds the sum of the allocated Imputed Stripper Well Crude Oil, Excess Imputed Stripper Well Crude Oil, Imputed Upper Tier Crude Oil and Excess Imputed Upper Tier Crude Oil.

This provision shall remain in effect only so long as necessary for the unit to comply with applicable laws, rules, and regulations of appropriate governmental authorities. Should such laws, rules, and regulations hereafter change substantially so as to alter the basis for a certification of unit production as set forth above, then in such event a method of allocating the certification among the unit ownership shall be implemented by the Unit Operator which as nearly as possible achieves the stated intention

hereof. In any event this provision will automatically terminate in its entirety _____.

This provision is deemed supplementary to the other provisions of this Agreement and the provisions of the Unit Operating Agreement so that nothing contained herein shall alter the terms of such agreements, including but not limited to the portions thereof dealing with tract participation, and allocation of unit production, and the allocation of investment and operating costs.

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

June 8, 1977

Subject: Working Interest Owners Meeting
Proposed North Hobbs Unit
Lea County, New Mexico

TO: WORKING INTEREST OWNERS (MAILING LIST ATTACHED)

A meeting of the Working Interest Owners of the proposed North Hobbs Unit is called for 10:00 A.M. July 12, 1977 in the Texas Electric Service Company Reddy Room, 124 North Colorado Street, Midland, Texas.

The agenda for the meeting will be as follows:

1. Negotiation of a participation formula.

2. Any other business.

W. E. Buck
Chairman, Working Interest Owner's Committee

WEB:MJH

Attachment

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

June 29, 1977

Subject: Proposed North Hobbs Unit
Lea County, New Mexico

TO: ALL WORKING INTEREST OWNERS (MAILING LIST ATTACHED)

By letter of June 8, 1977, a meeting of the Working Interest Owners of the proposed North Hobbs Unit was called for July 12, 1977 for the purpose of negotiating unit participation. Realizing the difficulty in evaluating a participation formula when proposed for the first time at a meeting, Shell hereby submits to all Working Interest Owners the participation formula that will be proposed by Shell at such meeting. It is hoped that this early submittal will allow all Parties, especially those basing their decisions on present worth values, the opportunity to complete an evaluation and to make a decisive response at the meeting.

PARTICIPATION FORMULA TO BE PROPOSED BY SHELL OIL COMPANY

Oil Allocation

Phase I - 100 percent oil production for year 1976. Phase I to be in effect until either the oil production from the unit totals 11,670,070 barrels from the effective date of unitization or for a period of 5 years after the effective date of unitization, whichever occurs first. Limiting production is based on Unit becoming effective January 1, 1979 and is the amount of oil estimated by Technical Committee to be produced during first five years of unitized operations. Estimated annual production is shown on attached table.

Phase II -100 percent Primary Oil Reserves (1/1/77). Phase II to be in effect from the end of Phase I to the time the Unit oil production totals the estimated remaining primary reserve of 38,071,683 barrels from January 1, 1977.

Phase III - 100 percent Secondary Oil Reserve to be in effect after the termination of Phase II.

Gas Allocation

Phase I - 100 percent gas production for year 1976. Phase I gas to be same period as Phase I oil.

Phase II- 100 percent Primary Gas Reserve (1/1/77). Phase II gas to be same period as Phase II oil.

Phase III-Allocation to be same as oil and for same period as Phase III oil.

Expense Allocation

1) Operating and Overhead Expense

All such expenses to be allocated on phase-in-effect basis and based on Oil Allocation only.

2) Capital Expenditures

a) All costs of investment nature associated with injection station, injection lines, water source, drilling and equipping injection wells, and conversion expenses be charged initially on the Phase III Oil Allocation basis. From Tables 17, 18 and 19 of Technical Committee Report, such estimated costs would be: Injection System - $7,000,000; Source, $600,000; Drill Injectors, $2,325,000; Equip converted injectors, $988,000; and, Conversion Expense, $1,002,500.

b) All other costs of a capital expenditure type, including tank battery consolidation costs, be allocated initially on the basis of Phase II oil allocation and adjusted to Phase III oil allocation at the termination of Phase II.

3) Inventory

Inventory value to be allocated initially on the basis of Phase II oil allocation and adjusted to Phase III oil allocation at the termination of Phase II.

Yours very truly,

R. L. Howard

R. L. Howard
Division Production Manager
Mid-Continent Division

WEB:mjh

Attachment

PROPOSED NORTH HOBBS UNIT
PRODUCTION FUNCTION FOR UNITIZED OPERATIONS(1)

Year	Production Bbls. Oil	Year	Production Bbls. Oil
1977	2553339	2000	2123223
1978	2409459	2001	1900155
		2002	1700522
1979	2118643 (2)	2003	1521863
1980	2069097	2004	1361974
1981	2268486	2005	1218884
1982	2487088	2006	1090826
1983	2726756	2007	976223
1984	2989519	2008	873659
1985	3277603	2009	781872
1986	3593449		
1987	4205186	2010	699727
1988	4506869	2011	626213
1989	4435333 (3)	2012	560422
		2013	501544
1990	4364932	2014	448852
1991	4295649	2015	142151
1992	4227466	2016	134073
1993	4160364	2017	126455
1994	4094329	2018	119270
1995	3698530	2019	112493
1996	3309958	2020	106101
1997	2962209	2021	100072
1998	2650996	2022	94385
1999	2372479	2023	89022
		2024	83963
		Totals	93,271,683

Notes: (1) Includes all production from unitized area which consists of W.F. production from Gb, II, III_u and III_L zones and continued primary from Zone I.

(2) Effective date of unit 1/1/79. Water injection commences 7/1/79.

(3) Equivalent primary oil reserves volume (38,071,683 @ 1/1/77 or 33,108,885 @ 1/1/79) will be produced during 1989.

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. R. W. MULLINS
MANAGER - JOINT VENTURE OPERATIONS - U.S.
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. L. J. CRANDAL
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

W. D. ANDERSON & SONS
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MIDLAND, TX 79702

ATLANTIC RICHFIELD COMPANY
ATTN: MR. G. THANE AKINS
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MIDLAND, TX 79702

T. J. BERRY
RT. 4
WILLS POINT, TX 75169

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
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MARY DANIEL CONRAD
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MICHAEL F. CUSACK
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J. N. DUNLAVY
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ESTATE OF M. E. TOLE
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FIRST NATIONAL BANK OF FORT WORTH
ESTATE OF SMITH SPRALDING
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FORT WORTH, TX 76101

FIRST ROSWELL COMPANY
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HOBBS, NM 88240

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
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IMA EMMETTA SWEET TRUST
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TEXACO, INC.
ATTN: DISTRICT ENGINEER
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YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701
(PRIMARY TERM ENDS OCTOBER, 1975)

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P. O. BOX 6031
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RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

July 19, 1977

Subject: Minutes - Working Interest Owners Meeting
Proposed North Hobbs Unit
Lea County, New Mexico

TO: WORKING INTEREST OWNERS (MAILING LIST ATTACHED)

A meeting of the Working Interest Owners of the proposed North Hobbs Unit was held July 12, 1977, in Midland, Texas. Representatives attending the meeting are shown on the attached attendance list.

Mr. Buck opened the meeting by asking if there were any corrections or additions to the published minutes of the May 26, 1977 meeting. No corrections were submitted and the minutes stand as written.

Mr. Buck then pointed out that at the previous meeting Exxon, Continental Texas Pacific, and Russel Estes, passed on the vote regarding acceptance of the parameter table as a basis for participation negotiations and asked if any of the parties had any change to make in their vote. Exxon changed their vote to yes. Continental sustained the pass vote, stating they were concerned with the shut-in status of some wells during the production period. Texas Pacific retained their pass vote. Estes was not present during the discussion.

Mr. Buck then stated that it was the purpose of the meeting to negotiate a participation formula for Unitization. Before any formula was submitted, Mr. Shepherd, suggested that oil and gas allocation(s) be considered separately from expense allocation(s). After some discussion it was agreed that participation formulas could be proposed with or with out expense considerations.

Mr. Buck then formally proposed the formula previously submitted in writing by Shell. A total of 12 formulas were submitted and considered by the Working Interest Owners. Details of each formula and the resulting vote are shown by attachments hereto.

Prior to submitting Formula No. 12, Mr. Shepherd, Exxon, presented a graph showing the projected performance of the project under unitized operations. He pointed out that under such conditions, an amount of oil equal to the estimated primary reserve would be recovered in less than 1/3 of the time required by non-unitized operations. He also pointed out that with certain formulas, as much as 50 percent of the secondary oil could be produced before secondary parameters become effective. He felt these points should be considered in the development of a participation formula.

As sufficient agreement was not reached on a formula to proceed with other unitization matters, it was agreed to again attempt participation negotiations after all parties had had time to review the negotiations to date.

There being no further business, the meeting was adjourned.

W.E. Buck
Chairman, Working Interest
Owners Committee

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
YATES BUILDING
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MARY DANIEL CONRAD
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CONTINENTAL OIL COMPANY (2)
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P. O. BOX 250
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MIDLAND, TX 79702

EXXON COMPANY - U. S. A. (2)
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P. O. BOX 1600
MIDLAND, TX 79702

FIRST NATIONAL BANK OF CASPER
FIRST NATIONAL BANK TRUSTEE M. E. TATE
P. O. BOX 40
CASPER, WY 82601

FIRST NATIONAL BANK OF FORT WORTH
ESTATE OF SMITH SPRALDING
P. O. BOX 2546
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IMA EMMETTA SWEET TRUST
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YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701
(PRIMARY TERM ENDS OCTOBER, 1975)

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
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RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

Formula No. 1 (Shell)

Oil Allocation

Phase I - 100% Oil Production year 1976 - to be in effect until 11,670, 070 bbls of oil produced after effective date of Unit or 5 years whichever occurs first.

Phase II - 100% Primary Oil Reserve (1/1/77) - to become effective at end of Phase I and to be in effect until production for area equals 38,071,683 bbls from January 1, 1977.

Phase III - 100% Secondary Oil Reserve - to become effective at termination of Phase II.

Gas Allocation

Phase I - 100% Gas Production for year 1976 - Phase I gas to be same period as Phase I Oil.

Phase II - 100% Primary Gas Reserve - Phase II gas to be same period as Phase II Oil.

Phase III - Gas allocation to be same ás Oil allocation.

Operating Expenses

Allocation to be on phase-in-effect and based on Oil Allocation only.

Capital Expenditures

(a) All costs of investment nature associated with injection injection station, injection lines, water source, drilling equiping injection wells and conversion expense be charged initially on Phase III Oil Allocation.

(b) All other costs of a capital expenditure type, including tank battery consolidation costs, be allocated initially on Phase II Oil Allocation and adjusted to Phase III Oil Allocation at termination of Phase II.

Inventory

Inventory value to be allocated initially on basis of Phase II. Oil Allocation and adjusted to Phase III Oil Allocation at termination of Phase II.

Formula No. 1 (Shell)

Voting Results (Based on Oil Allocation Only)

Company	Working Interest - %			
	Phase I	Phase II	Phase III	Vote
Amerada	6.82433	6.50263	8.60241	Yes
Amoco	1.51264	1.35806	1.87842	No
Atlantic	1.96877	3.18766	3.27302	Pass
Chevron	2.47763	3.39898	2.97321	Yes
Cities Service	3.43427	3.20244	5.54436	No
Continental	9.37738	11.71357	14.36721	No
J.F. Cusack (15, 16, 17)	1.78236	2.73271	0.18997	No
Estes (Tract 5)	0.00832	0.00211	0.01236	Yes
Exxon	5.85371	4.39610	7.63885	No
Getty	8.63387	8.74235	7.55887	No
Gulf	10.79961	9.44655	15.23438	Yes
M. Ralph Lowe, Inc.	0.04944	0.02674	0.00164	Pass
Marathon	2.30702	2.71879	4.03993	Pass
Mobil	1.31991	0.82805	0.67264	Yes
Moran (19, 22, 31, 35, 39, 40, 44, 53, 64, 66)	0.15723	0.08743	0.03431	No
Samedan (48, 49)	4.99574	6.28791	1.33490	No
Shell	25.54027	23.76832	18.87539	Yes
Sun	0.34962	0.19658	0.43429	No
Texaco	3.39231	3.09110	1.16515	No
Texas Pacific	4.59331	4.70381	2.81932	No
Wiser Oil (Tract 14 & 15, 38)	0.24987	0.28928	0.11005	No
J.A. Yates	0.22148	0.10695	0.38811	Yes
Yes	47.19155	Yes 44.05359	Yes 46.75850	
No	44.33231	No 46.80134	No 43.07570	
Pass	4.32523	Pass 5.93319	Pass 7.31459	
Total	95.84909	Total 96.78812	Total 97.14879	

Formula No. 2 (Samedan) Oil and Gas Allocation only - Expense Allocation not considered.

Phase I - To be in effect until 38,071,683 bbls of oil produced from area after January 1, 1977.

4% Grayburg Primary Oil Reserve 1/1/77
56% San Andres Zone I Primary Oil Reserve 1/1/77
20% San Andres Zone II Primary Oil Reserve 1/1/77
20% San Andres Zone III Primary Oil Reserve 1/1/77

Phase II - To be effective at termination of Phase I.

15% Remaining Primary Oil Reserve 1/1/77
85% Secondary Oil Reserve 1/1/77

Voting Results

Company		Working Interest % Phase I		Working Interest % Phase II	Vote
Amerada		6.50815		8.28744	No
Amoco		1.34769		1.80037	No
Atlantic		3.18583		3.26022	Yes
Chevron		3.40581		3.03708	Yes
Cities Service		3.19707		5.19307	No
Continental		11.64751		13.96916	No
J. P. Cusack (15, 16, 17)		2.74114		0.57138	Yes
Estes		0.00217		0.01082	No
Exxon		4.40407		7.15244	No
Getty		8.74745		7.73639	No
Gulf		9.41771		14.36621	No
M. Ralph Lowe, Inc.		0.02741		0.00540	No
Marathon		2.71070		3.84176	Pass
Mobil		0.84900		0.69595	No
Moran (19, 22, 31, 35, 39, 40, 44, 53, 64, 66)		0.08966		0.04228	No
Samedan (48, 49)		6.30597		2.07785	Yes
Shell		23.77159		19.60933	Yes
Sun		0.19889		0.39863	No
Texaco		3.09609		1.45404	No
Texas Pacific		4.71393		3.10199	Yes
Wiser (Tract 14, 15, 38)		0.29025		0.13693	Pass
Yates		0.10966		0.34594	No
	Yes	44.12427	Yes	31.65785	
	No	49.64253	No	61.45814	
	Pass	3.00095	Pass	3.97869	
TOTAL		96.76775		97.09468	

Formula No. 3 (Amerada) Oil and Gas Allocation only - Expense Allocation not included.

Oil

Phase I - To be effective until 38, 071, 683 bbls of oil produced from area after January 1, 1977.
- 1/3 Cumulative Oil Production 1/1/77
- 1/3 Oil Production Year 1976
- 1/3 Remaining Primary Oil Reserve 1/1/77

Phase II - 100% Secondary Oil Reserve

Gas

Phase I - To be same term as Phase I oil
- 100% Remaining Gas Reserve 1/1/77

Phase II - Same as oil allocation.

Voting Results - Based on oil allocation only.

Company	Working Interest %		Vote
	Phase I	Phase II	
Amerada	7.59346	8.60241	Yes
Amoco	1.30733	1.87842	Yes
Atlantic	3.01644	3.27302	Pass
Chevron	2.68416	2.97321	No
Cities Service	3.82167	5.54436	Yes
Continental	10.26443	14.36721	No
Cusack (15, 16, 17)	1.89037	0.18997	No
Estes	0.00441	0.01236	No
Exxon	6.22854	7.63885	Yes
Getty	9.17771	7.55887	Yes
Gulf	10.58952	15.23438	Yes
Ralph Lowe	0.03216	0.00164	Pass
Marathon	2.96131	4.03993	Pass
Mobil	1.06123	0.67264	Pass
Moran (19, 22, 31, 35, 44, 53, 64, 66)	0.10753	0.03431	No
Samedan (48, 49)	4.84186	1.33490	No
Shell	22.91260	18.87539	No
Sun	0.36203	0.43429	No
Texaco	3.05454	1.16515	No
Texas Pacific	4.04139	2.81932	No
Wiser (14, 15, 38)	0.28957	0.11005	Pass
Yates	0.19402	0.38811	Yes
Yes	38.91225	46.84540	
No	50.16332	42.20611	
Pass	7.36071	8.09728	
TOTAL	96.43628	97.14879	

Formula No. 4 (Shell)

Same as Formula No. 1 (Shell) but for Oil and Gas.
Allocation only - Expense allocation not included.

Voting Results (Based on Oil Allocation Only)

Company	Working Interest - %			
	Phase I	Phase II	Phase III	Vote
Amerada	6.82433	6.50263	8.60241	Yes
Amoco	1.51264	1.35806	1.87842	Yes
Atlantic	1.96877	3.18766	3.27302	Pass
Chevron	2.47763	3.39898	2.97321	Yes
Cities Service	3.43427	3.20244	5.54436	No
Continental	9.37738	11.71357	14.36721	No
J.P. Cusack (15, 16, 17)	1.78236	2.73271	0.18997	Pass
Estes (Tract 5)	0.00832	0.00211	0.01236	Yes
Exxon	5.85371	4.39610	7.63885	Pass
Getty	8.63387	8.74235	7.55887	No
Gulf	10.79961	9.44655	15.23438	Yes
M. Ralph Lowe, Inc.	0.04944	0.02674	0.00164	Pass
Marathon	2.30702	2.71879	4.03993	Pass
Mobil	1.31991	0.82805	0.67264	Yes
Moran (19, 22, 31, 35, 39, 40, 44, 53, 64, 66)	0.15723	0.08743	0.03431	No
Samedan (48, 49)	4.99574	6.28791	1.33490	No
Shell	25.54027	23.76832	18.87539	Yes
Sun	0.34962	0.19658	0.43429	No
Texaco	3.39231	3.09110	1.16515	No
Texas Pacific	4.59331	4.70381	2.81932	Yes
Wiser Oil (Tract 14 & 15, 38)	0.24987	0.28928	0.11005	No
J.A. Yates	0.22148	0.10695	0.38811	Yes
Yes	53.29750	Yes 50.11546	Yes 51.45624	
No	30.59029	No 33.61066	No 30.54914	
Pass	11.96130	Pass 13.06200	Pass 15.14341	
Total	95.84909	Total 96.78812	Total 97.14879	

Formula No. 5 (Texaco) Oil and Gas Allocation only - Expense Allocation not included.

Phase I - 100% Oil Production Year 1976 - to be in effect until 11,670,070 bbls oil produced after unit becomes effective.

Phase II - 100% Primary Oil Reserve 1/1/77 - to be effective of termination at Phase I and to remain until 38,071,683 bbls of oil produced from area after January 1, 1977.

Phase III 50% Secondary Oil Reserve
50% Ultimate Primary Oil Recovery

Voting Results	Working Interest %			Vote
	Phase I	Phase II	Phase III	
Amerada	6.82433	6.50263	8.75411	Yes
Amoco	1.51264	1.35806	1.49334	No
Atlantic	1.96877	3.18766	3.51753	Pass
Chevron	2.47763	3.39898	2.68810	No
Cities Service	3.43427	3.20244	5.03546	No
Continental	9.37738	11.71357	12.22159	No
Cusack (15, 16, 17)	1.78236	2.73271	0.81938	Yes
Estes (Tract 5)	0.00832	0.00211	0.00752	No
Exxon	5.85371	4.39610	7.66244	Pass
Getty	8.63387	8.74235	8.72670	Yes
Gulf	10.79961	9.44655	13.18583	No
Ralph Lowe, Inc.	-	-	-	-
Marathon	2.30702	2.71879	3.84331	Pass
Mobil	-	-	-	-
Moran (19, 22, 31, 35, 44, 53, 64, 66)	0.15723	0.08743	0.05698	No
Samedan	4.99574	6.28791	2.57120	Pass
Shell	25.54027	23.76832	19.55534	Yes
Sun	0.34962	0.19658	0.45522	No
Texaco	3.39231	3.09110	1.96085	Yes
Texas Pacific	4.59331	4.70381	2.99744	Yes
Wiser (Tract 14, 15, 38)	0.24987	0.28928	0.21606	Pass
Yates	0.22148	0.10695	0.30726	No
Yes	50.76645	49.54092	42.81382	
No	28.33818	29.51267	35.45130	
Pass	15.37511	16.87974	17.81054	
TOTAL	94.47974	95.93333	96.07566	

Formula No. 6 (Atlantic) Oil and Gas Allocation - Expense Allocation not included.

Oil - (In effect until 38,071,683 BO prod. after 1/1/77.)

Phase I -
- 2% Grayburg Primary Oil Reserve 1/1/77
- 28% San Andres Zone I Primary Oil Reserve 1/1/77
- 10% San Andres Zone II Primary Oil Reserve 1/1/77
- 10% San Andres Zone III Primary Oil Reserve 1/1/77
- 16.66% Cumulative Oil production 1/1/77
- 16.67% Oil Production Year 1976
- 16.67% Remaining Primary Oil Reserve 1/1/77

Phase II -
- 7.5% Primary Oil Reserve 1/1/77
- 92.5% Secondary Oil Reserve

Gas

Phase I -
- 50% Primary Gas Reserve 1/1/77
- 2% Grayburg Primary Oil Reserve 1/1/77
- 28% San Andres Zone I Primary Oil Reserve 1/1/77
- 10% San Andres Zone II Primary Oil Reserve 1/1/77
- 10% San Andres Zone III Primary Oil Reserve 1/1/77

Phase II - Same as Oil Allocation

Voting Results - (Based on Oil Allocation)

Company	Working Interest % Phase I	Working Interest % Phase II	Vote
Amerada	7.050805	8.44493	Yes
Amoco	1.327510	1.83939	No
Atlantic	3.101135	3.26662	Yes
Chevron	3.044985	3.00514	Yes
Cities Service	3.509370	5.36872	No
Continental	10.955970	14.16819	No
Cusack (15, 16, 17)	2.315755	0.38068	No
Estes	0.003290	0.01159	No
Exxon	5.316305	7.39564	No
Getty	8.962580	7.64763	No
Gulf	10.003615	14.80029	No
Moran (19, 22, 31, 35, 44, 53, 64, 66)	0.098595	0.03829	No
Samedan (48, 49)	5.573915	1.70638	Pass
Shell	23.342095	19.24236	Pass
Sun	0.280460	0.41646	No
Texaco	3.075315	1.30960	No
Texas Pacific	4.377660	2.96066	No
Wiser (Tracts 14, 15, 38)	0.289910	0.12349	Pass
Yates	0.151840	0.36702	Pass
Yes	13.196925	14.71669	
No	50.226425	56.33714	
Pass	29.357760	21.43925	
TOTAL	92.78110	92.49308	

Formula No. 7 (Texas Pacific) Oil and Gas Allocation only - Expense Allocation not included.

Oil Allocation

Phase I - To be in effect until 11,670,070 bbls oil produced from area after date of unitization.

60% - Oil Production Year 1976
40% - Primary Oil Reserve 1/1/77

Phase II - To be in effect from termination of Phase I unit 38,071,683 bbls of oil produced from area after 1/1/77.

40% - Oil Production Year 1976
60% - Primary Oil Reserve 1/1/77

Phase III - To be in effect at termination of Phase II

80% - Secondary Oil Reserve
20% - Ultimate Primary Oil Recovery

Gas Allocation

Phase I - To be same as Oil Phase I 100% Gas Production 1976

Phase II - To be same as Oil Phase II 100% Primary Gas Reserve (1/1/77).

Phase III - To be same as Oil Phase III Gas Allocation to be same as Oil Allocation.

Voting Results - (Oil Allocation only)

Company	Working Interest %			Vote
	Phase I	Phase II	Phase III	
Amerada	6.69565	6.63131	8.66309	Yes
Amoco	1.45081	1.41989	1.72439	No
Atlantic	2.45633	2.70010	3.37083	No
Chevron	2.84617	3.03044	2.85917	No
Cites Service	3.34154	3.29517	5.34080	No
Continental	10.31186	10.77909	13.50896	No
Cusack (15, 16, 17)	2.16250	2.35257	0.44173	No
Estes (Tract 5)	0.00584	0.00459	0.01042	No
Exxon	5.27067	4.97914	7.64829	No
Getty	8.67726	8.69896	8.02600	No
Gulf	10.25839	9.98777	14.41496	No
Samedan (48, 49)	5.51261	5.77104	1.82942	Pass
Shell	24.83149	24.47710	19.14737	Yes
Sun	0.28840	0.25780	0.44266	No
Texaco	3.27183	3.21158	1.48343	No
Texas Pacific	4.63751	4.65961	2.89057	Yes
Wiser (Tract 14, 15, 38)	0.26563	0.27352	0.15246	No
Yates	0.17567	0.15276	0.35577	Pass
Yes	36.16465	35.76802	30.70103	
No	50.60723	50.99062	59.42410	
Pass	5.68829	5.92380	2.18519	
TOTAL	92.46017	92.68244	92.31032	

Formula No. 8 (Chevron) - Single Phase - Expense allocation not included.

45% - Primary Oil Reserve 1/1/77
45% - Secondary Oil Reserve
10% - Primary Gas Reserve 1/1/77

Voting Results

Company	Working Interest %	Vote
Amerada	7.54901	Pass
Amoco	1.73734	Yes
Atlantic	3.22274	Yes
Chevron	3.04459	Yes
Cities Service	4.22608	No
Continental	13.75089	No
Cusack (15, 16, 17)	1.39272	Pass
Estes (Tract 5)	0.00716	No
Exxon	5.90707	No
Getty	8.20666	No
Gulf	12.62912	No
Samedan (48,49)	3.59565	Pass
Shell	21.10105	No
Sun	0.30288	No
Texaco	2.01379	No
Texas Pacific	3.61015	No
Wiser (Tract 14, 15, 38)	0.18381	No
Yates	0.24127	No

Yes	8.00467
No	72.17993
Pass	12.53738
Total	92.72198

Formula No. 9 (Getty) - Oil and Gas Allocation - Expense Allocation not included.

Phase I - to be in effect until 38,071,683 bbls of all produced from area after January 1, 1977.

Phase II - to be effective at termination of Phase I

25% Ultimate Primary Oil Recovery
75% Secondary Oil Reserve

Voting Results

Company	Working Interest %		
	Phase I	Phase II	Vote
Amerada	7.64187	8.67826	Yes
Amoco	1.75852	1.68588	Yes
Atlantic	3.36800	3.39528	Yes
Chevron	2.52430	2.83066	No
Cities Service	3.54302	5.28991	No
Continental	13.97816	13.29440	No
Cusack (16,17,18)	1.65220	0.50467	No
Estes (Tract 5)	0.00376	0.00994	No
Exxon	5.66512	7.65065	No
Getty	9.11591	8.14278	Yes
Gulf	11.93682	14.21011	No
Samedan (48,49)	3.91637	1.95305	No
Shell	21.03893	10.21537	No
Sun	0.28754	0.44476	No
Texaco	2.27745	1.56300	No
Texas Pacific	3.37557	2.90838	No
Wiser	0.21749	0.16306	No
Yates	0.17276	0.34768	Yes
Yes	22.05706	22.24988	
No	70.41673	70.03796	
Pass	0	0	
Total	92.47379	92.28784	

Formula No. 10 (Continental) - Expense Allocation not included.

Oil

Phase I - To be in effect until 38,071,683 bbls oil produced from area after January 1, 1977.
- 100% Remaining Primary Oil Reserve (1/1/77).

Phase II - To be in effect at termination at Phase I.
- 100% Secondary Oil Reserve

Gas

Phase I - To be in effect for same period as Phase I Oil.
- 100% Remaining Primary Gas (1/1/77).

Voting Results - Based on oil allocation only.

Company	Working Interest % Phase I	Working Interest % Phase II	Vote
Amerada	6.50263	8.60241	Yes
Amoco	1.35806	1.87842	Yes
Atlantic	3.18766	3.27302	Yes
Chevron	3.39898	2.97321	Yes
Cities Service	3.20244	5.54436	No
Continental	11.71357	14.36721	Yes
Cusack (15, 16, 17)	2.73271	0.18997	Yes
Estes (Tract 5)	0.00211	0.01236	Pass
Exxon	4.39610	7.63885	No
Getty	8.74235	7.55887	No
Gulf	9.44655	15.23438	Yes
Samedan (48, 49)	6.28791	1.33490	Yes
Shell	23.76832	18.87539	No
Sun	0.19658	0.43429	No
Texaco	3.09110	1.16515	No
Texas Pacific	4.70381	2.81932	Yes
Wiser	0.28928	0.11005	No
Yates	0.10695	0.38811	Pass
Yes	49.331880	50.672840	
No	43.686170	41.326960	
Pass	0.109060	0.400470	
TOTAL	93.12711	92.40027	

Formula No. 11 (Texas Pacific) - Oil and Gas Allocation Only - Expense allocation not included.

Oil

Phase I - to be in effect until 38,071,683 barrels of oil produced from area after January 1, 1977.

- 50% Oil Production year 1976
- 50% Remaining Primary Oil Reswrve 1/1/77

Phase II - to be in effect at termination of Phase I
- 100% Secondary Oil Reserve

Gas

Phase I - to be in effect during Phase I Oil
- 50% Gas Production year 1976
- 50% Gas Reserve (1/1/77)

Phase II - to be in effect during Phase II Oil
- same as Phase II oil

Voting Results - based on Oil Allocation only

Company	Working Interest % Phase I	Phase II	Vote
Amerada	6.66348	8.60241	Yes
Amoco	1.43535	1.87842	Yes
Atlantic	2.57821	3.27302	No
Chevron	2.93830	2.97321	No
Cities Service	3.31835	5.54436	No
Continental	10.54547	14.36721	No
Cusack (15,16,17)	2.25753	0.18997	No
Estes (Tract 5)	0.00521	0.01236	Yes
Exxon	5.12490	7.63885	Pass
Getty	8.68811	7.55887	No
Gulf	10.12308	15.23438	Yes
Samedan (48,46)	5.64182	1.33490	No
Shell	24.65429	18.87539	Pass
Sun	0.27310	0.43429	No
Texaco	3.24170	1.16515	No
Texas Pacific	4.64856	2.81932	Yes
Wiser	0.26957	0.11005	Pass
Yates	0.16421	0.38811	Yes
Yes	23.03989	Yes 28.93500	
No	39.48259	No 36.84098	
Pass	30.04876	Pass 26.62429	
Total	92.57124	Total 92.40027	

Formula No. 12 (Exxon) Oil and Gas Allocation only - Expense Allocation not included.

Oil

Phase I - To be in effect until 11,670,070 barrel of oil produced from area after date of unitization.
- 75% Oil Production Year 1976
- 25% Remaining Primary Oil Reserve (1/1/77)

Phase II - To be in effect at termination of Phase I and until 38,071,683 bbls of oil produced from area after January 1, 1977.

II
- 75% Remaining Primary Oil Reserve (1/1/77)
- 100% Secondary Oil Reserve

Gas

Phase I - To be in effect during Phase I oil
- 75% Gas Production Year 1976
- 25% Remaining Gas Reserve (1/1/77)

Phase II - To be in effect during Phase II oil.
- 75% Remaining Gas Reserve
- 25% Gas Production Year 1976

Phase III - To be in effect during Phase III oil some as Phase III oil allocation.

Voting Results - Based on oil allocation only.

Company	Working Interest %			Vote
	Phase I	Phase II	Phase III	
Amerada	6.74390	6.58305	8.60241	Yes
Amoco	1.47399	1.39670	1.87842	Yes
Atlantic	2.27349	2.88294	3.27302	No
Chevron	2.70797	3.16864	2.97321	Yes
Cities Service	3.37631	3.26040	5.54436	No
Continental	9.96143	11.12952	14.36721	No
Cusack (15, 16, 17)	2.01995	2.49512	0.18997	No
Estes (Tract 5)	0.00677	0.00366	0.01236	Yes
Exxon	5.48931	4.76050	7.63885	Yes
Getty	8.66099	8.71523	7.55887	No
Gulf	10.46134	9.78481	15.23438	Yes
Samedan (48, 49)	5.31878	5.96487	1.33490	Pass
Shell	25.09728	24.21131	18.87539	Yes
Sun	0.31136	0.23484	0.43429	No
Texaco	3.31701	3.16640	1.16515	No
Texas Pacific	4.62093	4.67618	2.81932	Yes
Wiser	0.25972	0.27943	0.11005	Pass
Yates	0.19285	0.13558	0.38811	Yes
Yes	56.79434	54.72043	58.42245	
No	29.92054	31.88445	32.53287	
Pass	5.57850	6.24430	1.44495	
TOTAL	92.29338	92.84918	92.40027	

ATTENDANCE LIST

WORKING INTEREST OWNER'S MEETING

NORTH HOBBS UNIT

JULY 12, 1977

COMPANY	NAME	LOCATION
Amerada-Hess Corp.	Gerald Hill	Tulsa, Ok
Amerada-Hess Corp.	Kussim T. Kassim	Seminole, Tx
Amerada-Hess Corp.	R.W. Mullins	Tulsa, Ok
Amoco Producing Company	Steve Denton	Houston, Tx
Atlantic Richfield Company	Thane Akins	Midland, Tx
Atlantic Richfield Company	George Nathman	Midland, Tx
Chevron USA, Inc.	W.A. Goudeau	Midland, Tx
Chevron USS, Inc.	D.D. Allen	Midland, Tx
Cities Service Oil Company	Don Barrett	Midland, Tx
Continental Oil Company	V.T. Lyon	Hobbs, NM
Curry Engineering - J.P. Cusack	Max E. Curry	Midland, Tx
Exxon Company	W.E. Nolan	Midland, Tx
Exxon Company	J.M. Shepherd	Midland, Tx
Getty Oil Company	J.E. Eakin	Midland, Tx
Getty Oil Company	O.V. Stuckey	Midland, Tx
Gulf	Vance M. Hendricks	Midland, Tx
Gulf Energy & Minerals Co. U.S.A.	J.D. Mussett	Midland, Tx
Gulf Energy & Minerals Co. U.S.A.	R.O. Walker	Midland, Tx
John A. Yates	Eddie Matford	Anteria, NM
M. Ralph Lowe, Inc.	Jack D. Semon	Midland, Tx
Marathon Oil Company	G.H. Naert	Midland, Tx
Mobil Oil Corporation	L.A. Carr	Houston, Tx
Moranco	Ken McPeters	Hobbs, NM
Samedan Oil Company	Boyce Perry	Ardmore, OK
Jack Crusack	Jack Cusack	Biswell, NM
Shell Oil Company	W.E. Buck	Houston, Tx
Shell Oil Company	H.J. Swartz	Houston, Tx
Sipes Williamson & Aycock (Rep. Moranco)	Don Hunter	Midland, Tx
Sun Producing Company	Joe Martin	Midland, Tx
Sun Producing Company	Herb Seidel, Jr.	Dallas, Tx
Sun Producing Company	Joe Thornton	Dallas, Tx
Sun Producing Company	Wanda Vance	Dallas, Tx
Texaco, Inc.	H.E. Harper	Hobbs, NM
Texaco, Inc.	Morris Todd	Midland, Tx
Texas Pacific Oil Co., Inc.	G.R. Meyers	Dallas, Tx
Texas Pacific Oil Co., Inc.	J.D. Waggoner	Dallas, Tx
Wiser Oil Company	William R. Larsen	Midland, Tx

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

July 21, 1977

Subject: Formula No. 12 - Correction
Minutes Working Interest Owners Meeting
Proposed North Hobbs Unit
Lea County, New Mexico

To Working Interest Owners

Formula No. 12 as stated in the minutes of the Working Interest Owners Meeting of July 12, 1977 was in error. Attached is a corrected statement of such formula.

W. E. Buck
Chairman, Working Interest Owner
Committee

WEB:CLM

Attachment

Formula No. 12 (Exxon) Oil and Gas Allocation only - Expense Allocation not included.

Oil

Phase I - To be in effect until 11,670,070 barrell of oil produced from area after date of unitization.
- 75% Oil Production Year 1976
- 25% Remaining Primary Oil Reserve (1/1/77)

Phase II - To be in effect at termination of Phase I and until 38,071,683 bbls of oil produced from area after January 1, 1977.
- 75% Remaining Primary Oil Reserve (1/1/77)
- 25% Oil Production year 1976

Phase III - to be in effect at termination of Phase II
- 100% secondary oil reserve

Gas

Phase I - To be in effect during Phase I oil
- 75% Gas Production Year 1976
- 25% Remaining Gas Reserve (1/1/77)

Phase II - To be in effect during Phase II oil
- 75% Remaining Gas Reserve
- 25% Gas Production Year 1976

Phase III - To be in effect during Phase III oil and same as Phase III oil allocation.

Voting Results - Based on oil allocation only.

Company	Working Interest % Phase I	Phase II	Phase III	Vote
Amerada	6.74390	6.58305	8.60241	Yes
Amoco	1.47399	1.39670	1.87842	Yes
Atlantic	2.27349	2.88294	3.27302	No
Chevron	2.70797	3.16864	2.97321	Yes
Cities Service	3.37631	3.26040	5.54436	No
Continental	9.96143	11.12952	14.36721	No
Cusack (15, 16, 17)	2.01995	2.49512	0.18997	No
Estes (Tract 5)	0.00677	0.00366	0.01236	Yes
Exxon	5.48931	4.76050	7.63885	Yes
Getty	8.66099	8.71523	7.55887	No
Gulf	10.46134	9.78481	15.23438	Yes
Samedan (48,49)	5.31878	5.96487	1.33490	Pass
Shell	25.09728	24.21131	18.87539	Yes
Sun	0.31136	0.23484	0.43429	No
Texaco	3.31701	3.16640	1.16515	No
Texas Pacific	4.62093	4.67618	2.81932	Yes
Wiser	0.25972	0.27943	0.11005	Pass
Yates	0.19285	0.13558	0.38811	Yes
Yes	56.79434	54.72043	58.42245	
No	29.92054	31.88445	32.53287	
Pass	5.57850	6.24430	1.44495	
TOTAL	92.29338	92.84918	92.40027	

Mr. Buck

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

Subject: Proposed North Hobbs Unit
Hobbs Field
Lea County, New Mexico

ALL WORKING INTEREST OWNERS - PROPOSED NORTH HOBBS UNIT
(MAILING LIST ATTACHED)

A meeting of the Working Interest Owners of the proposed North Hobbs Unit is called for 10:00 a.m., September 20, 1977 in the First National Room, First National Bank Building, Midland, Texas.

The agenda for the meeting will be as follows:

1. Negotiation of a participation formula for unitization.

2. Any other business.

W E Buck

W. E. Buck
Chairman, Working Interest Owners
Committee

WEB:CLM

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. R. W. MULLINS
MANAGER - JOINT VENTURE OPERATIONS - U.S.
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. L. J. CRANDAL
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

W. D. ANDERSON & SONS
P. O. BOX 136
MIDLAND, TX 79702

ATLANTIC RICHFIELD COMPANY
ATTN: MR. G. THANE AKINS
P. O. BOX 1610
MIDLAND, TX 79702

T. J. BERRY
RT. 4
WILLS POINT, TX 75169

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

MARY DANIEL CONRAD
4308 AVONDALE
DALLAS, TX 75219

C&C OPERATING CORP.
P. O. BOX 1829
HOBBS, NM 88240

CHEVRON OIL COMPANY
ATTN: MR. C. F. DWYER
P. O. BOX 1660
MIDLAND, TX 79702

CITIES SERVICE OIL COMPANY
E&P DIVISION
P. O. BOX 1919
MIDLAND, TX 79702

CONTINENTAL OIL COMPANY (2)
ATTN: L. P. THOMPSON
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BOX 864
ROSWELL, NM 88201

JOHN P. CUSACK
P. O. BOX 250
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JOHN P. CUSACK, JR.
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FORT WORTH, TX 76110

MICHAEL F. CUSACK
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ESTES ENGINEERING CO.
306 PETROLEUM BUILDING
MIDLAND, TX 79702

EXXON COMPANY - U. S. A. (2)
ATTN: JOINT INTEREST MANAGER
P. O. BOX 1600
MIDLAND, TX 79702

FIRST NATIONAL BANK OF CASPER
ESTATE OF M. E. TOLE
P. O. BOX 40
CASPER, WY 82601

FIRST NATIONAL BANK OF FORT WORTH
ESTATE OF SMITH SPRALDING
P. O. BOX 2546
FORT WORTH, TX 76101

FIRST ROSWELL COMPANY
P. O. BOX 1180
ROSWELL, NM 88201

C. C. FORBES
P. O. BOX 843
TULSA, OK 74101

ILAMAE FORBES
P. O. BOX 843
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GETTY OIL COMPANY (2)
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E. P. GOLDEN
C/O MILDRED G. TURNER
P. O. BOX 835
ROSWELL, NM 88201

GULF ENERGY & MINERALS CO.-U.S. (2)
ATTN: R. F. WARD, JR.
DISTRICT OPERATIONS MANAGER
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HOBBS, NM 88240

LYNN KINCAID
217 E. VEGA DR.
HOBBS, NM 88240

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DENVER, CO 80202

MR. GEORGE H. LANDRETH
8123 BOEDEKER CIRCLE
DALLAS, TX 75225

MR. W. A. LANDRETH
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FT. WORTH, TX 76102

M. RALPH LOWE
C/O A. W. MOURSUND
P. O. BOX 125
JOHNSON CITY, TX 78636

MARATHON OIL COMPANY
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MIDLAND, TX 79702

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DALLAS, TX 75229

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MOBIL OIL CORPORATION
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SUITE 800
HOUSTON, TX 77046

WAYNE MOORE
403 N. MARINEFIELD
MIDLAND, TX 79701

74

J. E. MORAN
FIRST NATIONAL BANK - MIDLAND
TRUSTEE FOR F. E. MORAN
TRUST #1 (NO. 323)
P. O. BOX 1599
MIDLAND, TX 79701

R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

G. D. MORRIS
2901 W. HWY 83, BOX 154
McALLEN, TX 78501

MR. J. H. MORRIS AS AGENT
1615 FIRST NATIONAL BUILDING
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MIDLAND, TX 79702

SAMEDAN OIL CORPORATION
ATTN: MR. BOYCE BERRY
P. O. BOX 909
ARDMORE, OK 73401

HOWELL SPEAR
P. O. BOX 1684
MIDLAND, TX 79701

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THRONTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS
P. O. BOX 1861
MIDLAND, TX 79702

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

FIRST NATIONAL BANK OF LEA COUN
TRUSTEE FOR CECIL H. SWEET AND
IMA EMMETTA SWEET TRUST
P. O. BOX 70
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO, INC.
ATTN: ASSISTANT DIVISION MANAG
P. O. BOX 3109
MIDLAND, TX 79702

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
1700 ONE MAIN PLACE
DALLAS, TX 75250

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. R. J. WOMACK
P. O. BOX 4067
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5215 HAVENWOODS
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TWO STATES OIL COMPANY
1910 EMPIRE LIFE BLDG.
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P. O. BOX 3187
LUBBOCK, TX 79410

A. T. WILLIAMSON
1630 HARVARD CT.
HOBBS, NM 88240

THE WISER OIL COMPANY
ATTN: MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

THE WISER OIL COMPANY
ATTN: MR. C. P. LaRUE
P. O. BOX 192
SISTERVILLE, WV 26175

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701
(PRIMARY TERM ENDS OCTOBER, 1975)

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P. O. BOX 6031
DALLAS, TX 75222

RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

August 29, 1977

Subject: Proposed North Hobbs Unit
Lea County, New Mexico

TO: ALL WORKING INTEREST OWNERS - PROPOSED NORTH HOBBS UNIT
(MAILING LIST ATTACHED)

Prior to the meeting of the Working Interest Owners of the proposed North Hobbs Unit of July 12, 1977, Shell submitted a participation formula that was to be formally submitted at the called meeting. The purpose of the early submittal was to allow all Parties the opportunity to complete an evaluation of the formula and to make a decisive response at the meeting. Although the proposed formula did not receive sufficient acceptance to proceed with other unitization matters, we feel the response of the Parties justifies a repeat of the procedure. Shell will, therefore, formally submit the following stated participation formula for the consideration of the Working Interest Owners at the meeting called for September 20, 1977.

Oil Allocation

Phase I - Allocation to be based on two parameters, the proportion of each to be determined as stated below. Parameter "A" to be Oil Production for year 1976 and Parameter "B" to be Remaining Primary Oil Reserves (1/1/77). Phase I to be in effect for a period of 5 years from the effective date of unitization. During the term of Phase I, oil shall be allocated to Tracts in the following manner:

First Year - The first 6500 barrels of oil per day, averaged for a calendar month, produced, saved, and sold from the Unit shall be allocated to Tracts based on Parameter "A". All oil produced, saved, and sold in excess of 6500 barrels per day averaged for a calendar month shall be allocated on the basis of Parameter "B".

Second Year - The first 5200 barrels of oil per day, averaged for a calendar month, produced, saved, and sold from the Unit shall be allocated to Tracts based on Parameter "A". All oil produced, saved, and sold in excess of 5200 barrels per day, averaged for a calendar month, shall be allocated on the basis of Parameter "B".

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Third Year - The first 3900 barrels of oil per day, averaged for a calendar month, produced, saved, and sold from the Unit shall be allocated to Tracts based on the Parameter "A". All oil produced, saved, and sold in excess of 3900 barrels per day, averaged for a calendar month, shall be allocated on the basis of Parameter "B".

Fourth Year - The first 2600 barrels of oil per day, averaged for a calendar month, and produced, saved, and sold from the Unit shall be allocated to Tracts based on Parameter "A". All oil produced, saved, and sold in excess of 2600 barrels per day, averaged for a calendar month, shall be allocated on the basis of Parameter "B".

Fifth Year - The first 1300 barrels of oil per day, averaged for a calendar month, produced, saved, and sold from the Unit shall be allocated to Tracts based on Parameter "A". All oil produced, saved, and sold in excess of 1300 barrels per day, averaged for a calendar month, shall be allocated on the basis of Parameter "B".

Phase II - 100 percent Remaining Primary Oil Reserves (1/1/77). Phase II to be in effect from the end of Phase I to the time the oil production from the Unit Area totals the estimated Remaining Primary Oil Reserve of 38,071,683 barrels from January 1, 1977.

Phase III - 100 percent Secondary Oil Reserve. Phase III to be in effect after the termination of Phase II.

Gas Allocation

Phase I - 100 percent Gas Production for Year 1976. Phase I gas to be same period as Phase I oil.

Phase II - 100 percent Primary Gas Reserve (1/1/77). Phase II gas to be same period as Phase II oil.

Phase III - Allocation to be same as oil and for same period as Phase III oil.

The limiting average of daily production of 6500 barrels as used during the first year of Phase I is the projected daily production of the Unit Area for the year 1979. It will be noted from the attached production function forecast for unitized operations that the unit production would start to exceed the limiting production during the second year of unitized operations.

R. L. Howard

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WEB:CLM

PROPOSED NORTH HOBBS UNIT
PRODUCTION FUNCTION FOR UNITIZED OPERATIONS(1)

Year	Production Bbls. Oil	Year	Production Bbls. Oil
1977	2553339	2000	2123223
1978	2409459	2001	1900155
		2002	1700522
1979	2118643 (2)	2003	1521863
1980	2069097	2004	1361974
1981	2268486	2005	1218884
1982	2487088	2006	1090826
1983	2726756	2007	976223
1984	2989519	2008	873659
1985	3277603	2009	781872
1986	3593449		
1987	4205186	2010	699727
1988	4506869	2011	626213
1989	4435333 (3)	2012	560422
		2013	501544
1990	4364932	2014	448852
1991	4295649	2015	142151
1992	4227466	2016	134073
1993	4160364	2017	126455
1994	4094329	2018	119270
1995	3698530	2019	112493
1996	3309958	2020	106101
1997	2962209	2021	100072
1998	2650996	2022	94385
1999	2372479	2023	89022
		2024	83963
		Totals	93,271,683

Notes: (1) Includes all production from unitized area which consists of W.F. production from Gb, II, III_u and III_L zones and continued primary from Zone I.

(2) Effective date of unit 1/1/79. Water injection commences 7/1/79.

(3) Equivalent primary oil reserves volume (38,071,683 @ 1/1/77 or 33,108,885 @ 1/1/79) will be produced during 1989.

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. R. W. MULLINS
MANAGER - JOINT VENTURE OPERATIONS - U.S.
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. L. J. CRANDAL
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

W. D. ANDERSON & SONS
P. O. BOX 136
MIDLAND, TX 79702

ATLANTIC RICHFIELD COMPANY
ATTN: MR. G. THANE AKINS
P. O. BOX 1610
MIDLAND, TX 79702

T. J. BERRY
RT. 4
WILLS POINT, TX 75169

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

MARY DANIEL CONRAD
4308 AVONDALE
DALLAS, TX 75219

C&C OPERATING CORP.
P. O. BOX 1829
HOBBS, NM 88240

CHEVRON OIL COMPANY
ATTN: MR. C. F. DWYER
P. O. BOX 1660
MIDLAND, TX 79702

CITIES SERVICE OIL COMPANY
E&P DIVISION
P. O. BOX 1919
MIDLAND, TX 79702

CONTINENTAL OIL COMPANY (2)
ATTN: L. P. THOMPSON
P. O. BOX 460
HOBBS, NM 88240

HERMAN R. CRILE
BOX 864
ROSWELL, NM 88201

JOHN P. CUSACK
P. O. BOX 250
ROSWELL, NM 88201

JOHN P. CUSACK, JR.
3815 McCART STREET
FORT WORTH, TX 76110

MICHAEL F. CUSACK
3815 McCART STREET
FORT WORTH, TX 76110

DEL-LEA, INC. (ANTWEIL)
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HOBBS, NM 88240

J. N. DUNLAVY
P. O. BOX 837
ROSWELL, NM 88201

ESTES ENGINEERING CO.
306 PETROLEUM BUILDING
MIDLAND, TX 79702

EXXON COMPANY - U. S. A. (2)
ATTN: JOINT INTEREST MANAGER
P. O. BOX 1600
MIDLAND, TX 79702

FIRST NATIONAL BANK OF CASPER
ESTATE OF M. E. TOLE
P. O. BOX 40
CASPER, WY 82601

FIRST NATIONAL BANK OF FORT WORTH
ESTATE OF SMITH SPRALDING
P. O. BOX 2546
FORT WORTH, TX 76101

FIRST ROSWELL COMPANY
P. O. BOX 1180
ROSWELL, NM 88201

C. C. FORBES
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TULSA, OK 74101

ILAMAE FORBES
P. O. BOX 843
TULSA, OK 74101

GETTY OIL COMPANY (2)
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MARATHON OIL COMPANY
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WAYNE MOORE
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MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
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SAMEDAN OIL CORPORATION
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MIDLAND, TX 79702

SAMEDAN OIL CORPORATION
ATTN: MR. BOYCE BERRY
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ARDMORE, OK 73401

HOWELL SPEAR
P. O. BOX 1684
MIDLAND, TX 79701

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THRONTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
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MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

FIRST NATIONAL BANK OF LEA COUNT
TRUSTEE FOR CECIL H. SWEET AND
IMA EMMETTA SWEET TRUST
P. O. BOX 70
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO, INC.
ATTN: ASSISTANT DIVISION MANAGE
P. O. BOX 3109
MIDLAND, TX 79702

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
1700 ONE MAIN PLACE
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ATTN: MR. R. J. WOMACK
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5215 HAVENWOODS
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1910 EMPIRE LIFE BLDG.
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LOYD WHITLEY
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HATTIE C. WILLIAMS
P. O. BOX 3187
LUBBOCK, TX 79410

A. T. WILLIAMSON
1630 HARVARD CT.
HOBBS, NM 88240

THE WISER OIL COMPANY
ATTN: MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

THE WISER OIL COMPANY
ATTN: MR. C. P. LaRUE
P. O. BOX 192
SISTERVILLE, WV 26175

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701
(PRIMARY TERM ENDS OCTOBER, 1975)

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P. O. BOX 6031
DALLAS, TX 75222

RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

EXXON COMPANY, U.S.A.
POST OFFICE BOX 1600 · MIDLAND, TEXAS 79701

PRODUCTION DEPARTMENT
MIDCONTINENT DIVISION

J. M. SHEPHERD
JOINT INTERESTS MANAGER

September 1, 1977

RE: North Hobbs (Grayburg-San Andres)
Proposed Unit
Lea County, New Mexico

2 WEB
10

Shell Oil Company
P. O. Box 991
Houston, Texas 77001

Attention: Mr. W. E. Buck

Gentlemen:

A review of the Shell minutes for the May 26 and July 12, 1977, meetings of the working interest owners in the proposed subject unit reflect that (1) the technical report titled "Waterflood Feasibility and Unitization Parameters for the North Hobbs (Grayburg-San Andres) Unit" has been basically accepted by the working interest owners, and (2) that most of these owners have appeared willing to use, along with an initial period of "current production", the "primary" and "secondary" reserves in the negotiation proceedings thus far. However, no resolution has been made as to the timing of distribution of these "primary" and "secondary" reserves in the formulas considered. The Shell formula presented for consideration in its August 29, 1977 letter likewise does not address this timing factor.

The attached graph "Performance Forecast - Proposed North Hobbs Unit" shows a consolidation for all zones of the "primary" and "secondary" reserves included in the technical report and assumes unitization will be effective January 1, 1979. This chart was shown by Exxon and discussed at the last meeting. The included table gives the technical committee data from which the graph is constructed. As indicated, the committee forecasts secondary oil will be first recovered after some 6.4 million barrels have been produced, followed then by varying ratios of primary and secondary oil production for the life of the project. Exxon believes this projection should be considered in the development of a participation formula for the proposed unit and to such end will introduce the following formula at the called September 20 working interest owner's meeting.

A DIVISION OF EXXON CORPORATION

	Oil Reserve	
	Primary MMB	Secondary MMB
Phase 1		
for 6.4 MMB after 1-1-79		
100% Current Oil Production	6.4	
Phase 2		
for the next 26.7 MMB (Cumulative 33.1 MMB)		
44.6% Primary Reserves	11.9	
55.4% Secondary Reserves		14.8
Phase 3		
for remainder (Estimated 55.2 MMB)		
26.8% Primary Reserves	14.8	
73.2% Secondary Reserves		40.4
Total Primary and Secondary	33.1	55.2

During Phase I and Phase II gas parameters would be substituted in the above formula for allocation of gas production.

Very truly yours,

J. M. Shepherd

JMS:dp

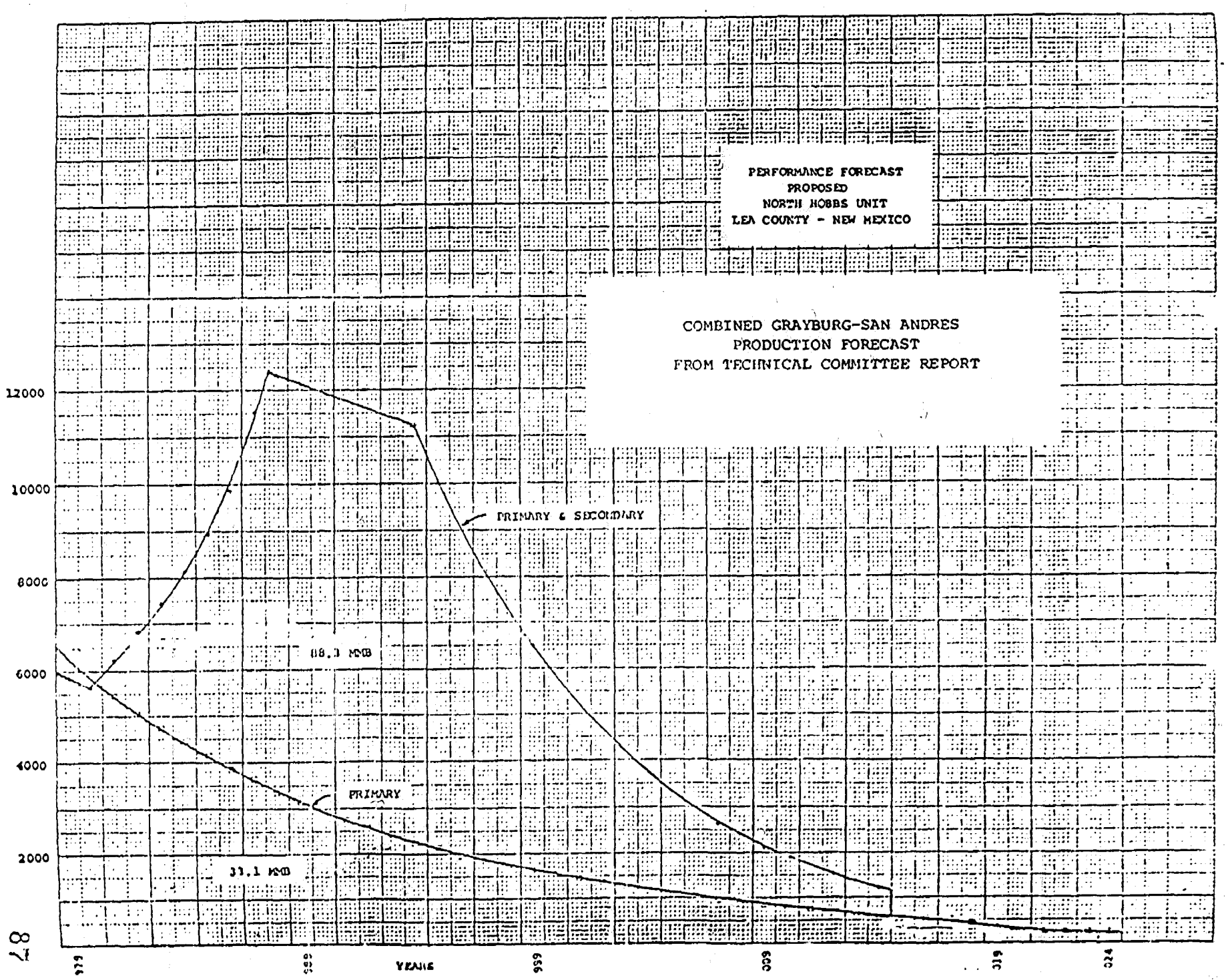
cc: Working Interest Owners

PERFORMANCE FORECAST
PROPOSED
NORTH HOBBS UNIT
COMBINED GRAYBURG-SAN ANDRES PRODUCTION FORECAST
FROM TECHNICAL COMMITTEE REPORT

YEAR PRO-JECT	CAL-ENDAR	PRIMARY OIL MB ANNUAL	PRIMARY OIL MB CUMULATIVE	TOTAL OIL MB ANNUAL	TOTAL OIL MB CUMULATIVE	SECONDARY OIL MB ANNUAL	SECONDARY OIL MB CUMULATIV
1	1979	2291.200	2291.2	2118.6	2118.6	-172.6	-172.6
2	1980	2136.700	4427.9	2069.1	4187.7	-67.6	-240.2
3	1981	1993.400	6421.3	2268.5	6456.2	275.1	34.9
4	1982	1860.400	8281.7	2487.1	8943.3	626.7	661.6
5	1983	1737.000	10018.7	2726.8	11670.1	989.8	1651.4
6	1984	1622.200	11640.9	2989.5	14659.6	1367.3	3018.7
7	1985	1515.600	13156.5	3277.6	17937.2	1762.0	4780.7
8	1986	1416.300	14572.8	3593.4	21530.6	2177.1	6957.8
9	1987	1323.900	15896.7	4205.2	25735.8	2881.3	9839.1
10	1988	1237.800	17134.5	4506.9	30242.7	3269.1	13108.2
11	1989	1157.600	18292.1	4435.3	34678.0	3277.7	16385.9
12	1990	1082.800	19374.9	4364.9	39042.9	3282.1	19668.0
13	1991	1013.000	20387.9	4295.6	43338.5	3282.6	22950.6
14	1992	947.900	21335.8	4227.5	47566.0	3279.6	26230.1
15	1993	887.100	22222.9	4160.4	51726.4	3273.3	29503.4
16	1994	830.300	23053.2	4094.3	55820.7	3264.0	32767.4
17	1995	777.300	23830.5	3698.5	59519.2	2921.2	35688.6
18	1996	727.800	24558.3	3310.0	62829.2	2582.2	38270.8
19	1997	681.500	25239.8	2962.2	65791.4	2280.7	40551.5
20	1998	637.300	25877.1	2651.0	68442.4	2013.7	42565.2
21	1999	590.400	26467.5	2372.5	70814.9	1782.1	44347.3
22	2000	553.600	27021.1	2123.2	72938.1	1569.6	45916.9
23	2001	519.000	27540.1	1900.2	74838.3	1381.2	47298.1
24	2002	486.600	28026.7	1700.5	76538.8	1213.9	48512.0
25	2003	456.300	28483.0	1521.9	78060.6	1065.6	49577.6
26	2004	427.800	28910.8	1362.0	79422.6	934.2	50511.8
27	2005	401.100	29311.8	1218.9	80641.5	817.8	51329.6
28	2006	376.100	29687.9	1090.8	81732.3	714.7	52044.3
29	2007	352.700	30040.6	976.2	82708.4	623.5	52667.8
30	2008	330.700	30371.3	873.7	83582.1	543.0	53210.8
31	2009	310.000	30681.3	781.9	84364.0	471.9	53682.7
32	2010	290.700	30972.0	699.7	85063.7	409.0	54091.7
33	2011	272.600	31244.6	626.2	85689.9	353.6	54445.3
34	2012	255.600	31500.2	560.4	86250.3	304.8	54750.1
35	2013	239.600	31739.8	501.5	86751.8	261.9	55012.0
36	2014	224.700	31964.5	448.9	87200.6	224.2	55236.2
37	2015	178.500	32143.0	142.9	87343.5	-35.6	55200.
38	2016	134.100	32277.1	134.1	87477.6		
39	2017	126.500	32403.6	126.5	87604.1		
40	2018	119.300	32522.9	119.3	87723.3		
41	2019	112.500	32635.4	112.5	87835.8		
42	2020	106.100	32741.5	106.1	87941.9		
43	2021	100.100	32841.6	100.1	88041.9		
44	2022	94.400	32936.0	94.1	88136.0		
45	2023	89.000	33025.0	89.0	88225.0		
46	2024	84.000	33109.0	84.0	88309.0		

PERFORMANCE FORECAST
PROPOSED
NORTH HOBBS UNIT
LEA COUNTY - NEW MEXICO

COMBINED GRAYBURG-SAN ANDRES
PRODUCTION FORECAST
FROM TECHNICAL COMMITTEE REPORT



SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

September 23, 1977

Subject: Minutes - Working Interest Owners' Meeting
Proposed North Hobbs Unit
Lea County, New Mexico

TO: WORKING INTEREST OWNERS (MAILING LIST ATTACHED)

A meeting of the Working Interest Owners of the proposed North Hobbs Unit was held September 20, 1977 in Midland, Texas. Representatives attending the meeting are shown on the attached attendance list.

Mr. Buck opened the meeting by advising that Mr. H. J. Swartz, Shell representative on and Chairman of the Technical Committee, had been given a new assignment and would be replaced by Mr. W. R. Lancaster. Mr. Buck then stated that the purpose of the meeting was to negotiate a participation formula for unitization. It was pointed out that participation formulas had been submitted by letter by Shell and Exxon prior to the meeting, and these formulas would be considered first.

A total of 5 formulas were submitted and considered by the Working Interest Owners. Details of each formula and the resulting votes are shown by attachments hereto.

Prior to consideration of Formula No. 14 (Exxon), Mr. Buck stated that it was Shell's feeling that the Shell formula (13) and the Exxon formula (14) offered two different approaches to unitization. He pointed out that Shell's formula offered certain benefits for the remaining primary reserve; whereas, the Exxon formula did not appear to provide appreciable benefits to the primary reserve. Mr. Shepherd, Exxon, again pointed out that the projected performance of the unit indicated that a major portion of the secondary oil would be recovered prior to recovery of the estimated primary reserve and felt that the formula submitted by Exxon recognized this and took it into account.

Before considering Formula No. 16 (Texas-Pacific), Mr. Lyons (Continental) questioned whether the 1976 Oil Production parameter reflected the relationship existing among individual properties. He further advised that Continental believed such parameter, if used, should be given only minimum weight.

As shown by the voting results, Formula No. 17 (Continental) received in excess of 80 percent approval of the Working Interest Owners in attendance. It was therefore agreed to submit Formula No. 17 for a ballot vote to all Working interest Owners.

Formula No. 17, as proposed by Continental, applied only to the allocation of oil and gas production. A brief discussion then followed as to the method of allocating expenses. Although a method of allocation was not formally submitted or voted on, it was generally agreed that a ballot vote would be submitted on the following method of allocating expenses.

Operating & Overhead Expenses

All Operating, Maintenance and Overhead expenses to be borne by Working Interest Owners in proportion to their phase-in-effect Unit Oil Participation.

Capital Expenditures and Inventory

All expenditures of a capital nature and the inventoried value of personal property to be borne initially on the basis of the Phase II Oil Participation and adjusted to Phase III Oil Participation at the termination of Phase II.

Shell, as Unit Expeditor, agreed to submit for ballot vote, Participation Formula No. 17 and the above-stated method of allocating costs.

It was agreed, without vote, that Shell would proceed to develop drafts of the Unit and Unit Operating Agreements for submittal to all Working Interest Owners.

There being no further business, the meeting was adjourned.

Attached for your convenience is a tabulation of gas participation under Formula No. 17.

W. E. Buck
Chairman, Working Interest
Owners' Committee

WEB:MJH

Attachments

Formula No. 13 (Shell, Oil and Gas Allocation only - Expense Allocation not included.

Oil Allocation

Phase I - Allocation to be based on two parameters, the proportion of each to be determined as stated below. Parameter "A" to be Oil Production for year 1976 and Parameter "B" to be Remaining Primary Oil Reserves (1/1/77). Phase I to be in effect for a period of 5 years from the effective date of unitization. During the term of Phase I, oil shall be allocated to Tracts in the following manner:

First Year - The first 6500 barrels of oil per day, averaged for a calendar month, produced, saved, and sold from the Unit shall be allocated to Tracts based on Parameter "A". All oil produced, saved, and sold in excess of 6500 barrels per day averaged for a calendar month, shall be allocated on the basis of Parameter "B".

Second Year- The first 5200 barrels of oil per day, averaged for a calendar month, produced, saved, and sold from the Unit shall be allocated to Tracts based on Parameter "A". All oil produced, saved, and sold in excess of 5200 barrels per day, averaged for a calendar month, shall be allocated on the basis of Parameter "B".

Third Year- The first 3900 barrels of oil per day, averaged for a calendar month, produced, saved, and sold from the Unit shall be allocated to Tracts based on the Parameter "A". All oil produced, saved, and sold in excess of 3900 barrels per day, averaged for a calendar month, shall be allocated on the basis of Parameter "B".

Fourth Year- The first 2600 barrels of oil per day, averaged for a calendar month, and produced, saved, and sold from the Unit shall be allocated to Tracts based on Parameter "A". All oil produced, saved, and sold in excess of 2600 barrels per day, averaged for a calendar month, shall be allocated on the basis of Parameter "B"

Fifth Year- The first 1300 barrels of oil per day, averaged for a calendar month, produced, saved, and sold from the Unit shall be allocated to Tracts based on Parameter "A". All oil produced, saved, and sold in excess of 1300 barrels per day, averaged for a calendar month, shall be allocated on the basis of Parameter "B".

Oil Allocation

Phase II - 100 percent Remaining Primary Oil Reserves (1/1/77). Phase II to be in effect from the end of Phase I to the time the oil production from the Unit Area totals the estimated Remaining Primary Oil Reserve of 38,071,683 barrels from January 1, 1977.

Phase III - 100 percent Secondary Oil Reserve. Phase III to be in effect after the termination of Phase II.

Gas Allocation

Phase I - 100 percent Gas Production for Year 1976. Phase I gas to be same period as Phase I oil.

Phase II - 100 percent Primary Gas Reserve (1/1/77). Phase II gas to be same period as Phase II oil.

Phase III - Allocation to be same as oil and for same period as Phase II oil.

Voting Results - Based on oil allocation only.

Company	Working Interest % Phase I Weighted	Phase II	Phase III	Vote
Amerada Hess Corp.	6.69179	6.50263	8.60241	Pass
Amoco Production Co.	1.44895	1.35806	1.87842	Pass
Atlantic Richfield Co.	2.47095	3.18766	3.27302	Yes
Chevron Oil Co.	2.85723	3.39898	2.97321	Yes
Cities Service Oil Co.	3,33876	3.20244	3.54436	No
Continental Oil Co.	10.33989	11.71357	14.36721	No
Cusack, J. P.(WIO 15, 16, 17)	2.17390	2.73271	0.18997	Yes
Estes, Russell G. (Tract 5)	0.09211	0.03382	0.19769	Yes
Exxon Company - U.S.A.	5.25317	4.39610	7.63885	No
Getty Oil Co.	8.67856	8.74235	7.55887	No
Gulf Energy & Minerals	10.24215	9.44655	15.23438	Yes
Moranco (WIO 19, 22, 31, 35, 39, 40, 44, 53, 64, 66)	0.12847	0.08743	0.03431	No
Samedan Oil Corp. (WIO 48, 49	5.52811	6.28791	1.33490	Yes
Shell Oil Co.	24.81023	23.76832	18.87539	Yes
Sun Oil Co. (Delaware)	0.28657	0.19658	0.43429	No
Texaco Inc.	3.26821	3.09110	1.16515	Yes
Texas Pacific Oil Co., Inc.	4.63884	4.70381	2.81932	Yes
Yes	56.08173	56.65086	46.06303	
No	28.02542	28.33847	35.57789	
Pass	8.14074	7.86069	10.48083	
total	92.24789	92.85002	92.12175	

'or ula No. 14 (Exxon) Oil and Gas Allocation only - Expense Allocation not included.

Oil Allocation

Phase I - 100% 1976 Oil Production. To be in effect until 6,400,000 barrels of oil product from Unit Area after effective date of unitization (Est. 1/1/79).

Phase II- 44.6% Remaining Primary Reserves 1/1/77 plus 55.4% Secondary Reserves to be in effect at the termination of Phase I and until 26,700,000 barrels of oil have been produced from the Unit Area after termination of Phase I.

Phase III-26.8% Remaining Primary Reserves 1/1/77 plus 73.2% Secondary Reserves to be in effect from the termination of Phase II until termination of the Unit.

Gas Allocation

Phase I - 100% 1976 Gas Production. Effective period to be same as Phase I oil above.

Phase II- 44.6% Remaining Gas Reserves 1/1/77 plus 55.4% Secondary Oil Reserve. Effective period to be same as Phase II oil above.

Phase III-Same as Phase III oil allocation.

oting Results - Based on oil allocation only.

omp ny	Working Interest %			Vote
	Phase I	Phase II	Phase III	
nerada Hess Corp.	6.82433	7.66591	8.03967	Yes
noc Production Co.	1.51264	1.64634	1.73896	Yes
la tic Richfield Co.	1.96877	3.23495	3.25014	Yes
evron Oil Co.	2.47763	3.16310	3.08732	Yes
ties Service Oil Co.	3.42437	4.49986	4.91673	Pass
nt ental Oil Co.	9.37738	13.18369	13.65603	No
sack, J. P.(WIO 15, 16, 17)	1.78236	1.32403	.87142	No
xon Company-U.S.A.	5.85371	6.19258	6.76979	Yes
te, Russell G. (Tract 5)	0.13296	.12460	.15377	Yes
tt Oil Company	8.63387	8.08670	7.87604	Yes
lf Energy & Minerals	10.79961	12.65301	13.68324	No
ra to (WIO 19, 22, 31, 35, 39, 40, 44, 53, 64, 66)	.15723	.05800	..04855	No
medan Oil Corp. (WIO 48 & 49)	4.99574	3.54394	2.66231	No
ell Oil Co.	25.54027	21.05764	20.18669	No
n l Co. (Delaware)	.34962	.32827	.37058	No
xaco Inc.	3.39231	2.02412	1.68130	Yes
xas Pacific Oil Co., Inc.	4.59331	3.65980	3.32436	No
Yes	30.79622	32.13830	32.59699	
No	57.59552	55.80838	54.80318	
Pass	3.43427	4.49986	4.91673	
Total	91.82601	92.44654	92.31690	

Formula No. 15 (Exxon Oil and Gas Allocation only - Expense Allocation not include

Oil Allocation

Phase I - 100% 1976 Oil Production. To be in effect until 6,400,000 barrels of oil produced from Unit Area after effective date of unitization (Est. 1/1/79).

Phase II- 1/3 1976 Oil Production
1/3 Remaining Primary Oil Reserve
1/3 Secondary Reserve
To be in effect at termination of Phase I and until 26,700,000 barrels of oil have been produced from Unit Area after termination of Phase I.

Phase III- 26.8% Remaining Primary Oil Reserves 1/1/77 plus 73.2% secondary Reserves - to be in effect from termination of Phase II until termination of Unit.

Gas Allocation

Phase I - 100% 1976 Gas Production - effective period to be same as Phase I oil above.

Phase II- 1/3 1976 Gas Production
1/3 Primary Gas Reserve (1/1/77)
1/3 Secondary Oil Reserve
Effective period to be same as Phase II oil above.

Phase III- Same as Phase III oil allocation.

Voting Results - Based on oil allocation only.

Company		Working Interest % Phase I	Phase II	Phase III	Vote
Amerada Hess Corp.		6.82433	7.30979	8.03967	Pass
Amoco Production Co.		1.51264	1.58304	1.73896	Yes
Atlantic Richfield Co.		1.96877	2.80982	3.25014	No
Chevron Oil Co.		2.47763	2.94994	3.08732	Yes
Cities Service Oil Co.		3.43427	4.06036	4.91673	Pass
Continental Oil Co.		9.37738	11.81939	13.65603	No
Cusack, J. P.(WIO 15, 16, 17)		1.78236	1.56835	0.87142	No
Estes, Russell G. (Tract 5)		0.13296	0.11805	0.15377	Pass
Exxon Company-U.S.A.		5.85371	5.96289	6.76979	Yes
Getty Oil Company		8.63387	8.31170	7.87604	Yes
Gulf Energy & Minerals		10.79961	11.82685	13.68324	No
Moranco (WIO 19, 22, 31, 35, 39, 40, 44, 53, 64, 66)		0.15723	0.10167	0.04855	No
Samedan Oil Corp. (WIO 48 & 49)		4.99574	4.20618	2.66231	No
Shell Oil Co.		25.54027	22.72799	20.18669	No
Sun Oil Co. (Delaware)		.34962	0.32683	0.37058	No
Texaco Inc.		3.39231	2.54952	1.68130	Yes
Texas Pacific Oil Co., Inc.		4.59331	4.03881	3.32436	No
	Yes	21.87016	21.35709	21.15341	
	No	59.56429	59.42589	58.05332	93
	Pass	10.39156	11.48820	13.11017	
Total		91.82601	92.27118	92.31690	

Formula No. 15 (Exxon Oil and Gas Allocation only - Expense Allocation not include

Oil Allocation

Phase I - 100% 1976 Oil Production. To be in effect until 6,400,000 barrels of oil produced from Unit Area after effective date of unitization (Est. 1/1/79).

Phase II- 1/3 1976 Oil Production
1/3 Remaining Primary Oil Reserve
1/3 Secondary Reserve
To be in effect at termination of Phase I and until 26,700,000 barrels of oil have been produced from Unit Area after termination of Phase I.

Phase III- 26.8% Remaining Primary Oil Reserves 1/1/77 plus 73.2% secondary Reserves - to be in effect from termination of Phase II until termination of Unit.

Gas Allocation

Phase I - 100% 1976 Gas Production - effective period to be same as Phase I oil above.

Phase II- 1/3 1976 Gas Production
1/3 Primary Gas Reserve (1/1/77)
1/3 Secondary Oil Reserve
Effective period to be same as Phase II oil above.

Phase III- Same as Phase III oil allocation.

Voting Results - Based on oil allocation only.

Company	Working Interest %			Vote
	Phase I	Phase II	Phase III	
Amerada Hess Corp.	6.82433	7.30979	8.03967	Pass
Amoco Production Co.	1.51264	1.58304	1.73896	Yes
Atlantic Richfield Co.	1.96877	2.80982	3.25014	No
Chevron Oil Co.	2.47763	2.94994	3.08732	Yes
Cities Service Oil Co.	3.43427	4.06036	4.91673	Pass
Continental Oil Co.	9.37738	11.81939	13.65603	No
Cusack, J. P.(WIO 15, 16, 17)	1.78236	1.56835	0.87142	No
Estes, Russell G. (Tract 5)	0.13296	0.11805	0.15377	Pass
Exxon Company-U.S.A.	5.85371	5.96289	6.76979	Yes
Getty Oil Company	8.63387	8.31170	7.87604	Yes
Gulf Energy & Minerals	10.79961	11.82685	13.68324	No
Moranco (WIO 19, 22, 31, 35, 39, 40, 44, 53, 64, 66)	0.15723	0.10167	0.04855	No
Samedan Oil Corp. (WIO 43 & 49)	4.99574	4.20618	2.66231	No
Shell Oil Co.	25.54027	22.72799	20.18669	No
Sun Oil Co. (Delaware)	.34962	0.32683	0.37058	No
Texaco Inc.	3.39231	2.54952	1.68130	Yes
Texas Pacific Oil Co., Inc.	4.59331	4.03881	3.32436	No
Yes	21.87016	21.35709	21.15341	
No	59.56429	59.42589	58.05332	93
Pass	10.39156	11.48820	13.11017	
Total	91.82601	92.27118	92.31690	

Formula No. 16 (Texas-Pacific) Oil and Gas Allocation Only -
Expense Allocation not included.

Oil Allocation

Phase I - 20% 1976 Oil Production
- 80% Remaining Primary Oil Reserve (1/1/77)
To be in effect until 38,071,683 barrels of oil are produced from Unit Area after January 1, 1977.

Phase II- 100% Secondary Oil Reserve
To be in effect from termination of Phase I until termination of Unit.

Gas Allocation

Phase I - 20% 1976 Gas Production
80% Remaining Gas Reserve 1/1/77
Effective Period to be same as Phase I oil.

Phase II- Same as Phase II oil.

Voting Results - Based on oil allocation only.

Company		Working Interest % Phase I	Working Interest % Phase II	Vote
Amerada Hess Corp.		6.56697	8.60241	Yes
Amoco Production Co.		1.38898	1.87842	Yes
Atlantic Richfield Co.		2.94388	3.27302	Yes
Chevron Oil Co.		3.21471	2.97321	Yes
Cities Service Oil Co.		3.24881	5.54436	No
Continental Oil Co.		11.24633	14.36721	No
Cusack, J. P.(WIO 15, 16, 17)		2.54264	0.18997	Yes
Estes, Russell G. (Tract 5)				
Exxon Company-U.S.A.		4.68762	7.63885	No
Getty Oil Company		8.72065	7.55887	Yes
Gulf Energy & Minerals		9.71716	15.23438	Yes
Moranco (WIO 19, 22, 31, 35, 39, 40, 44, 53, 64, 66)		0.10139	0.03431	No
Samedan Oil Corp. (WIO 48 & 49)		6.02948	1.33490	Pass
Shell Oil Co.		24.12271	18.87539	Pass
Sun Oil Co. (Delaware)		0.22719	0.43429	No
Texaco Inc.		3.15134	1.16515	Yes
Texas Pacific Oil Co., Inc.		4.68171	2.81932	Yes
	Yes	42.92804	43.69475	
	No	19.51134	28.01902	
	Pass	30.15219	20.21029	
Total		92.59157	91.92406	

Formula No. 17 (Continental) Oil & Gas Allocation Only - Expense location not included.

Oil Allocation

PHASE I - 20% 1976 Oil Production plus 80% Remaining imary Oil Reserve (1/1/77) - to be in effect until t: total oil production from the Unit totals 4,000,000 : rels of oil after the effective date of unitization.

Phase II - 100% Primary Oil Reserve (1/1/77) - to bec effective at the end of Phase I and to be in effect t il production from the Unit Area equals 38,071,683 barre of oil after January 1, 1977.

Phase III- 100% Secondary Oil Reserve - to become eff ive at termination of Phase II and to remain in ef ect until termination of the Unit.

Gas Allocation

Phase I - 20% 1976 Gas Production plus 80% Remaining Primary Gas Reserves (1/1/77). Phase I gas to be the same period as Phase I oil.

Phase II- 100% Primary Gas Reserve (1/1/77) - Phase II gas to be the same period as Phase II oil.

Phase III- Gas allocation to be the same as oil allocation.

Voting Results - Based on oil allocation only.

Company	Working Interest %			Vote
	Phase I	Phase II	Phase III	
Amerada Hess Corp.	6.56697	6.50263	8.60241	Yes
Amoco Production Co.	1.38898	1.35806	1.87842	Yes
Atlantic Richfield Co.	2.94388	3.18766	3.27302	Yes
Chevron Oil Co.	3.21471	3.39898	2.97321	Yes
Cities Service Oil Co.	3.24881	3.20244	5.54436	Yes
Continental Oil Co.	11.24633	11.71357	14.36721	Yes
Cusack, J. P.(WIO 15, 16, 17)	2.54264	2.73271	0.18997	Yes
Exxon Company-U.S.A.	4.68762	4.39610	7.63885	No
Getty Oil Company	8.72065	8.74235	7.55887	Yes
Gulf Energy & Minerals	9.71716	9.44655	15.23438	Yes
Moranco (WIO 19, 22, 31, 35, 39, 40, 44, 53, 64, 66)	0.10139	0.08743	0.03431	No
Samedan Oil Corp. (WIO 48 & 49)	6.02948	6.28791	1.33490	Yes
Shell Oil Co.	24.12271	23.76832	18.87539	Yes
Sun Oil Co. (Delaware)	0.22719	0.19658	0.43429	No
Texaco Inc.	3.15134	3.09110	1.16515	Yes
Texas Pacific Oil Co., Inc.	4.68171	4.70381	2.81932	Yes
Yes	87.57537	88.13609	83.81661	
No	5.01620	4.68011	8.10745	
Pass	-	-	-	
Total	92.59157	92.81620	91.92406	

NORTH HOBBS UNIT

GAS PARTICIPATION - PHASE I AND PHASE II

FORMULA NO. 17

WIO NO.	WORKING INTEREST OWNER	PHASE I PCT	PHASE II PCT
1	AMERADA HESS CORP.	7.29779	7.51740
2	AMOCO PRODUCTION CO.	2.36758	2.30928
3	ANDERSON ADA A	.01947	.01215
4	ANDERSON EST., WARREN D	.01947	.01215
5	ANDERSON, W D AND SONS	.03895	.02431
6	ARMSTRONG, J M	.03895	.02431
7	ATLANTIC RICHFIELD CO.	3.30150	3.15439
8	BYROM W K	.05021	.04715
9	C&C OPERATING CO.	.00021	.00013
10	CHEVRON OIL COMPANY	1.54140	1.77100
11	CITIES SERVICE OIL CO.	2.53402	2.90017
12	CONRAD MARY DANIEL	.00649	.00405
13	CONTINENTAL OIL CO.	17.34810	20.14537
14	CRILE, HERMAN R.	.00973	.00607
15	CUSACK, J. F.	.10632	.04006
16	CUSACK, JR., J. F.	.42374	.36754
17	CUSACK, MICHAEL F.	.42374	.36754
18	DEL-LEA, INC. (ANTWEIL)	.46849	.42617
19	DUNLAVEY, J.N.	.00113	.00099
20	ESTES, RUSSELL G	.01038	.00648
21	EXXON COMPANY - U.S.A.	5.33179	4.91338
22	FIRST ROSWELL COMPANY	.00326	.00198
23	FORBES C. C.	.01311	.01302
24	FORBES, ILAMAE	.01763	.01267
25	GETTY OIL COMPANY	8.30166	8.71113
26	GULF ENERGY & MINERALS	14.35717	15.22697
27	HEADLEY, KENNETH NOEL	.02757	.00825
28	HURD, PETER	.00649	.00405
29	JUDSON, RUBY WANDA COMPA	.00130	.00081
30	KEMNITZ, A. A.	.27397	.13695
31	LAFLIN, GEORGE P.	.00113	.00099
32	LOWE, M. RALPH	.05243	.04453
33	MARATHON OIL COMPANY	2.33490	3.07184
34	MCCARTHY, KATHRYN L. C.	.00130	.00081
35	MCPETERS, K. D.	.01151	.00988
36	MCPHERON, MARGARET M.	.01507	.01415
37	MCPHERON, ROBERT L.	.00753	.00707
38	MOBIL OIL CORP.	1.33618	1.18726
39	MORANCO	.05142	.04373
40	MORAN, P. M.	.04610	.03932
41	MORRIS, G. D.	.01191	.00856
42	MURDOCH, MATHLYN I. CONPA	.00130	.00081
43	NOBLE, RICHARD L.	.14485	.10413
44	PARRISH, M.C. ESTATE	.01967	.01671
45	PORTALES NATIONAL BANK	.01786	.01284
46	PORING JOHN	.03974	.02569
47	ROSE, FRANCIS I. CONRAD	.00130	.00081
48	SAMEDAN OIL CORP.	1.95294	1.62664
49	SEA PROPERTIES, LTD.	.03257	.02719
50	SHELL OIL COMPANY	19.32181	19.11379
52	1ST NATL BANK/FT.WORTH	.01191	.00856
53	SPEAR HOWELL	.00056	.00049
54	SULLIVAN, E.C.	.01786	.01284
55	SUN OIL CO. (DELAWARE)	.32052	.18999
56	SWEET, BILL L.	.02649	.02283
57	SWEET, C.W. OIL CO.	1.32518	1.30237
58	1ST NATL BANK OF CASPER	.03974	.02569
59	TEXACO, INC.	1.54441	.98477
60	TEXAS PACIFIC OIL CO.IN	2.30510	2.24744
61	TREADAWAY, BETTYE CONPA	.00130	.00081
62	TWO STATES OIL CO.	.05358	.00474
63	WALLACE, COLLEEN MCPHERO	.00753	.00707
64	WHITLEY, LOYD	.00113	.00099
65	WILLIAMS, HATTIE C.	.03283	.03295
66	WILLIAMSON, A.T.	.00113	.00099
67	WISER OIL COMPANY, THE	.13385	.04111
68	YATES, JOHN A	.23618	.18492
69	YEAGER & ARMSTRONG	.03895	.02431
70	YEAGER JR.DR.HENRY	.00422	.00263
71	YEAGER RUTH ANNE	.00214	.00135
72	YEAGER RUTH HENRY	.00105	.00067
73	YEAGER RUTH REELER	.00453	.00283

ATTENDANCE LIST

WORKING INTEREST OWNERS' MEETING

NORTH HOBBS UNIT

SEPTEMBER 20, 1977

COMPANY	NAME	LOCATION
Amerada-Hess Corp.	R. W. Mullins	Tulsa, Ok.
Amerada-Hess Corp.	Cliff Richard	Tulsa, Ok.
Amoco Production Company	S. R. Denton	Houston, Tx.
Atlantic Richfield Company	Thane Akins	Midland, Tx.
Atlantic Richfield Company	George Nathman	Midland, Tx.
Chevron USA, Inc.	W. A. Goudeau	Midland, Tx.
Chevron USA, Inc.	D. D. Allen	Midland, Tx.
Cities Service Oil Company	Mike S. Mabry	Midland, Tx.
Cities Service Company	Don Barrett	Hobbs, N.M.
Continental Oil Company	V. T. Lyon	Roswell, N.M.
Cusack Inc.	John P. Cusack	Midland, Tx.
Cusack Inc.	Max E. Curry	Midland, Tx.
Estes Engineering Co.	Russell G. Estes	Midland, Tx.
Exxon Company	J. M. Shepherd	Midland, Tx.
Exxon Company	J. K. Lytle	Midland, Tx.
Getty Oil Company	O. V. Stuckey	Midland, Tx.
Gulf Oil Company	J. D. Mussett	Midland, Tx.
Gulf Oil Company	R. D. Walker	Hobbs, N.M.
Moranco	Ken McPeters	Ardmore, Ok.
Samedan Oil Company	Boyce Perry	Houston, Tx.
Shell Oil Company	W. E. Buck	Midland, Tx.
Shell Oil Company	J. F. Miner	Houston, Tx.
Shell Oil Company	P. L. Bondor	Houston, Tx.
Shell Oil Company	Wm. R. Lancaster	Hobbs, N.M.
Sun Production Company	Darlynne Hayden	Dallas, Tx.
Sun Production Company	H. A. Seidel, Jr.	Midland, Tx.
Texaco Inc.	Morris Todd	Hobbs, N. M.
Texaco Inc.	Bob Anthony	Dallas, Tx.
Texas Pacific Oil	J. D. Waggoner	Dallas, Tx.
Texas Pacific Oil	Russ Meyers	

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

SEPTEMBER 23, 1977

Subject: Proposed Participation Formula
North Hobbs Unit
Lea County, New Mexico

TO: ALL WORKING INTEREST OWNERS (MAILING LIST ATTACHED)

At the Working Interest Owners Meeting of the proposed North Hobbs Unit of September 20, 1977, it was agreed to submit for ballot vote the Participation Formula No. 17 and a method of allocating costs. In accordance with such agreement, the ballots are hereby submitted for the two items in reference. Please indicate your decision on these matters in the spaces provided and return one copy of each to Shell Oil Company, Box 991, Houston, Texas 77001, attention W. E. Buck.

Enclosed for your convenience is a self-addressed, stamped envelope.

WEB:MJH

W. E. Buck
Chairman, Working Interest
Owners Committee

Attachments

17

98

PROPOSED NORTH HOBBS UNIT

PARTICIPATION FORMULA NO. 17 (CONTINENTAL)

Oil Allocation

Phase I - 20% 1976 Oil Production plus 80% Remaining Primary Oil Reserve (1/1/77) - to be in effect until the total oil production from the Unit totals 4,000,000 barrels of oil after the effective date of unitization.

Phase II- 100% Primary Oil Reserve (1/1/77) - to become effective at the end of Phase I and to be in effect until production from the Unit Area equals 38,071,683 barrels of oil after January 1, 1977.

Phase III-100% Secondary Oil Reserve - to become effective at termination of Phase II and to remain in effect until termination of the Unit.

Gas Allocation

Phase I - 20% 1976 Gas Production plus 80% Remaining Primary Gas Reserves (1/1/77). Phase I gas to be the same period as Phase I oil.

Phase II- 100% Primary Gas Reserve (1/1/77) - Phase II gas to be the same period as Phase II Oil.

Phase III-Gas allocation to be the same as oil allocation.

The undersigned votes as noted below in regard to Participation Formula No. 17 (Continental):

APPROVED_____ COMPANY_____

DISAPPROVED_____ REPRESENTATIVE_____

DATE_____

RETURN TO: SHELL OIL COMPANY
P. O. BOX 991
HOUSTON, TX 77001
ATTN: W. E. BUCK

SAMEDAN C. CORPORATION
BOX 907
ARDMORE, OKLAHOMA 73401

October 3, 1977

Working Interest Owners
Proposed North Hobbs Unit
Lea County, New Mexico

Re: Proposed Method of Allocating
Operating Cost, Inventory Value
and Capital Expenditure

Ladies and Gentlemen:

A Letter Ballot submitted September 23, 1977, by Shell Oil Company recommended a basis by which Operating Costs, Inventory Value and Capital Expenditures should be allocated to Joint Account. Shell's proposal apportions an unfair share of the inventory value and capital expenditures to the primary oil phase (Phase II) resulting in a disproportionate financial burden on those Working Interest Owners having a low ratio of Phase III to Phase II participation. Approximately 59 percent of the Working Interest Owners (Formula No. 17) have a lesser Phase III participation than Phase II.

Assuming the proposed waterflood responds as predicted, the remaining primary recovery will be accelerated, increasing the present value of these reserves. However, the Unit is being formed primarily for the recovery of secondary oil, and considerable expenditure is required to accomplish this process.

Therefore, we wish to propose the method of allocating Unit costs outlined on the attached Letter Ballot for your consideration. This method does not overburden Phase II but apportions the expenditures to the phases in a more equitable manner.

Please indicate your approval of the attached Letter Ballot and submit it to:

Shell Oil Company
P. O. Box 991
Houston, Texas 77001
Attn: W. B. [illegible]

Very truly yours,

Royce Perry
Mgr., Secondary Recovery

RP/kg

Enclosures

18

100

LETTER BALLOT

PROPOSED NORTH HORSE UNIT

METHOD OF ALLOCATING COSTS

(Samedan Oil Corporation)

I. Operating Expenses

1. Operating, Maintenance and Overhead expenses incurred in the production, handling and treating of oil and gas shall be charged on the basis of the phase-in-effect oil participation.

2. Operating, Maintenance and Overhead expenses pertaining to the supply of make-up water, injection of water and all injection facilities, including the injection wells, shall be charged on the basis of 33⅓% Phase II Oil Participation plus 66⅔% Phase III Oil Participation during the Phase I and Phase II periods.

   All the above charges shall be made on the basis of Phase III Oil Participation during the Phase III period.

II. Inventoried Value of Personal Property - Capital Expenditures

1. The inventoried value of personal property shall be made on the basis of 33⅓% Phase II Oil Participation plus 66⅔% Phase III Oil Participation with such value, corrected for retirements, to be adjusted on the basis of Phase III Oil Participation within a reasonable time following the effective date of the Phase III period.

2. All expenditures of a capital nature shall be made on the basis of 33⅓% Phase II Oil Participation plus 66⅔% Phase III Oil Participation during the Phase I and Phase II periods.

   All the above expenditures, corrected for retirements, shall be adjusted on the basis of Phase III Oil Participation within a reasonable time after the effective date of the Phase III period.

3. All expenditures of a capital nature made during the Phase III period shall be charged to the joint account on the basis of Phase III Oil Participation.

APPROVED _____ COMPANY _____

DISAPPROVED _____ REPRESENTATIVE _____

DATE _____

RETURN TO:

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

November 2, 1977

Subject: Ballot Results - Participation Formula
and Cost Allocation Formula
North Hobbs (Grayburg-San Andres) Unit
Lea County, New Mexico

TO: WORKING INTEREST OWNERS (Mailing List Attached)

By letter of September 23, 1977, ballots were submitted to the Working Interest Owners of the proposed North Hobbs (Grayburg-San Andres) Unit concerning a participation formula and a cost allocation formula. Tabulated below are the results of the ballots returned as of this date. The percentages shown are the Working Interest Owners' participation based on Formula 17 (Oil Allocation).

Participation Formula (No. 17)

	Working Interest Owners' %	
	Approved	Disapproved
Phase I	92.01237	1.46358
Phase II	92.58657	1.30069
Phase III	89.76525	1.27189

Cost Allocation

	Working Interest Owners'%	
	Approved	Disapproved
Phase I	78.13850	15.05034
Phase II	78.33749	15.33648
Phase III	85.16566	5.76775

Following are the results received to date on the cost allocation formula submitted by Samedan Oil Corporation.

Cost Allocation (Samedan)

	Working Interest Owners'%	
	Approved	Disapproved
Phase I	9.07946	30.19928
Phase II	9.53079	29.52246
Phase III	1.72004	28.39264

Shell is currently preparing drafts of the Unit and Unit Operating Agreements and will submit such drafts for your consideration in the near future.

Attached for your consideration and use is a tabulation showing the tract interest and tract participation of each Working Interest Owner as calculated from Participation Formula No. 17. Also attached is a summary tabulation showing the unit participation of each Working Interest Owner as calculated from Participation Formula No. 17.

In the near future you will receive a letter from Shell's Land Department requesting confirmation of Working Interests and other data required for the various exhibits that will be included in the Unit and Unit Operating Agreements. Please give such request your earliest consideration so that all the data will be available when needed for preparation of the Agreements in final form.

Yours very truly,

R L Howard

WEB:MJH

R. L. Howard
Division Production Manager
Mid-Continent Division

Attachments

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. R. W. MULLINS
MANAGER - JOINT VENTURE OPERATIONS - U.S.
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. L. J. CRANDAL
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

W. D. ANDERSON & SONS
P. O. BOX 136
MIDLAND, TX 79702

ATLANTIC RICHFIELD COMPANY
ATTN: MR. G. THANE AKINS
P. O. BOX 1610
MIDLAND, TX 79702

T. J. BERRY
RT. 4
WILLS POINT, TX 75169

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

MARY DANIEL CONRAD
4308 AVONDALE
DALLAS, TX 75219

C&C OPERATING CORP.
P. O. BOX 1829
HOBBS, NM 88240

CHEVRON OIL COMPANY
ATTN: MR. C. F. DWYER
P. O. BOX 1660
MIDLAND, TX 79702

CITIES SERVICE OIL COMPANY
E&P DIVISION
P. O. BOX 1919
MIDLAND, TX 79702

CONTINENTAL OIL COMPANY (2)
ATTN: L. P. THOMPSON
P. O. BOX 460
HOBBS, NM 88240

HERMAN R. CRILE
BOX 864
ROSWELL, NM 88201

JOHN P. CUSACK
P. O. BOX 250
ROSWELL, NM 88201

JOHN P. CUSACK, JR.
3815 McCART STREET
FORT WORTH, TX 76110

MICHAEL F. CUSACK
3815 McCART STREET
FORT WORTH, TX 76110

DEL-LEA, INC. (ANTWEIL)
P. O. BOX 1889
HOBBS, NM 88240

J. N. DUNLAVY
P. O. BOX 837
ROSWELL, NM 88201

ESTES ENGINEERING CO.
306 PETROLEUM BUILDING
MIDLAND, TX 79702

EXXON COMPANY - U. S. A. (2)
ATTN: JOINT INTEREST MANAGER
P. O. BOX 1600
MIDLAND, TX 79702

FIRST NATIONAL BANK OF CASPER
ESTATE OF M. E. TOLE
P. O. BOX 40
CASPER, WY 82601

FIRST NATIONAL BANK OF FORT WORTH
ESTATE OF SMITH SPRALDING
P. O. BOX 2546
FORT WORTH, TX 76101

FIRST ROSWELL COMPANY
P. O. BOX 1180
ROSWELL, NM 88201

C. C. FORBES
P. O. BOX 843
TULSA, OK 74101

ILAMAE FORBES
P. O. BOX 843
TULSA, OK 74101

GETTY OIL COMPANY (2)
ATTN: MR. A. B. CARY
P. O. BOX 1231
MIDLAND, TX 79702

E. P. GOLDEN
C/O MILDRED G. TURNER
P. O. BOX 835
ROSWELL, NM 88201

GULF ENERGY & MINERALS CO.-U.S. (2)
ATTN: R. F. WARD, JR.
DISTRICT OPERATIONS MANAGER
P. O. BOX 1150
MIDLAND, TX 79702

KENNETH NOEL HEADLEY
P. O. BOX 569
TIJERAS, NM 87059

PETER HURD
SAN PATRICIO, NM 88348

B. J. JERNIGAN
P. O. BOX 993
MIDLAND, TX 79701

RUBY WANDA CONRAD JUDSON
7 JOSEPHINE COURT
NORTHPORT, LONG ISLAND
NEW YORK, NY 11768

A. A. KEMNITZ
P. O. BOX 729
HOBBS, NM 88240

LYNN KINCAID
217 E. VEGA DR.
HOBBS, NM 88240

GEORGE P. LAFLIN
815 METRO BANK BUILDING
DENVER, CO 80202

MR. GEORGE H. LANDRETH
8123 BOEDEKER CIRCLE
DALLAS, TX 75225

MR. W. A. LANDRETH
908 CONTINENTAL NATIONAL BANK BLDG.
FT. WORTH, TX 76102

M. RALPH LOWE
C/O A. W. MOURSUND
P. O. BOX 125
JOHNSON CITY, TX 78636

MARATHON OIL COMPANY
ATTN: MR. G. A. NAERT
P. O. BOX 522
MIDLAND, TX 79702

KATHRYN LOUISE CONRAD McCARTHY
4435 SAN GABRIEL
DALLAS, TX 75229

J. S. McGANNON
P. O. BOX 1651
SANTA FE, NM 87501

K. D. McPETERS
P. O. BOX 1860
HOBBS, NM 88240

MOBIL OIL CORPORATION
3 GREENWAY PLAZA EAST
SUITE 800
HOUSTON, TX 77046

WAYNE MOORE
403 N. MARINEFIELD
MIDLAND, TX 79701

J. E. MORAN
FIRST NATIONAL BANK - MIDLAND
TRUSTEE FOR F. E. MORAN
TRUST #1 (NO. 323)
P. O. BOX 1599
MIDLAND, TX 79701

R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

G. D. MORRIS
2901 W. HWY 83, BOX 154
McALLEN, TX 78501

MR. J. H. MORRIS AS AGENT
1615 FIRST NATIONAL BUILDING
TULSA, OK 74103

NATHLYN IONE CONRAD MURDOCH
4132 DEEP VALLEY DRIVE
DALLAS, TX 75234

RICHARD L. NOBLE
P. O. BOX 67605
CENTURY CITY
LOS ANGELES, CA 90067

LINDA B. & BEN F. PARRISH
C/O DANA T. RICHARDSON, JR.
NUMBER ONE POST OAK PLACE
4615 POST OAK PLACE DRIVE
SUITE 240
HOUSTON, TX 77027

M. C. PARRISH ESTATE
C/O DANA T. RICHARDSON, JR.
NUMBER ONE POST OAK PLACE
4615 POST OAK PLACE DRIVE
SUITE 240
HOUSTON, TX 77027

PORTALES NATIONAL BANK
PORTALES, NM 88130

JOHN RORING
1710 WILSHIRE BOULEVARD
OKLAHOMA CITY, OK 73116

FRANCES I. CONRAD ROSE
BOX 20234
DALLAS, TX 75220

SAMEDAN OIL CORPORATION
ATTN: MR. M. G. MARTIN
2207 WILCO BUILDING
MIDLAND, TX 79702

SAMEDAN OIL CORPORATION
ATTN: MR. BOYCE BERRY
P. O. BOX 909
ARDMORE, OK 73401

HOWELL SPEAR
P. O. BOX 1684
MIDLAND, TX 79701

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THRONTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS
P. O. BOX 1861
MIDLAND, TX 79702

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO, INC.
ATTN: ASSISTANT DIVISION MANAGER
P. O. BOX 3109
MIDLAND, TX 79702

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
1700 ONE MAIN PLACE
DALLAS, TX 75250

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. R. J. WOMACK
P. O. BOX 4067
MIDLAND, TX 79702

BETTYE CONRAD TREADAWAY
5215 HAVENWOODS
HOUSTON, TX 77066

TWO STATES OIL COMPANY
1910 EMPIRE LIFE BLDG.
DALLAS, TX 75201

LOYD WHITLEY
701 W. GEORGE APT. 99
MIDLAND, TX 79701

HATTIE C. WILLIAMS
P. O. BOX 3187
LUBBOCK, TX 79410

A. T. WILLIAMSON
1630 HARVARD CT.
HOBBS, NM 88240

THE WISER OIL COMPANY
ATTN: MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

THE WISER OIL COMPANY
ATTN: MR. C. P. LaRUE
P. O. BOX 192
SISTERVILLE, WV 26175

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701
(PRIMARY TERM ENDS OCTOBER, 1975)

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P. O. BOX 6031
DALLAS, TX 75222

RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001
December 14, 1977

Subject: North Hobbs (Grayburg - San Andres) Unit
Lea County, New Mexico

TO: ALL WORKING INTEREST OWNERS
NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT
(Mailing List Attached)

A meeting of the Working Interest Owners of the proposed North Hobbs (Grayburg - San Andres) Unit is called for 10:00 A.M. February 2, 1978 in the Midland Room, Midland National Bank, Midland, Texas.

The agenda for the meeting will be as follows:

1. Review drafts of Unit and Unit Operating Agreements.
2. Develop course of action for further unitization efforts.
3. Any other business.

Attached for your review are copies of proposed Unit and Unit Operating Agreements. Exhibits pertaining to tract and unit participation have not been included as current division of interests are not yet available. Tabulations showing the interests as now available have been attached and the exhibits will be prepared as soon as the data is complete.

We would appreciate any written comments prior to the meeting and asked that all parties attend the meeting prepared to render decisions regarding the various provisions of the agreements.

Response to date on the ballots submitted September 23, 1977 is as follows:

Participation Formula (No. 17)

	Working Interest Owners' %	
	Approved	Disapproved
Phase I	92.04485	1.46358
Phase II	92.62039	1.30069
Phase III	89.76789	1.27189

Cost Allocation

	Working Interest Owners' %	
	Approved	Disapproved
Phase I	78.13850	15.08282
Phase II	78.33749	15.37030
Phase III	85.16566	5.77039

Cost Allocation (Samedon)

	Working Interest Owners' %	
	Approved	Disapproved
Phase I	9.18740	36.47405
Phase II	9.59976	35.82007
Phase III	1.73943	38.79959

Yours very truly,

W. E. Buck
Chairman, Working Interest
Owners' Committee

WEB:TS

Attachments

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. R. W. MULLINS
MANAGER - JOINT VENTURE OPERATIONS - U.S.
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. GEORGE GARRETT
P. O. DRAWER 817
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AMOCO PRODUCTION COMPANY
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BOX 909
ARDMORE, OKLAHOMA 73401

January 16, 1978

Working Interest Owners
Proposed North Hobbs Unit
Lea County, New Mexico

Re: Method of Allocating
Operating Costs, Inventory
Value and Capital Expenditure

Ladies and Gentlemen:

Proceedings toward unitization of the North Hobbs Field have resulted in two proposals of methods by which to make charges to the various Tracts within the proposed Unit, such charges pertaining to Operating Costs, Inventory Adjustment and Capital Expenditures.

Shell Oil Company presented a method September 23, 1977, which recommends charging operating costs on the basis of the oil participation phase-in-effect and allocating inventory adjustment and capital expenditures on the basis of 100% Remaining Primary Oil Reserves (Phase II), with readjustment to occur at the beginning of Phase III (100% Secondary Oil Reserve Parameter).

Samedan Oil Corporation proposed a second method for allocating the above charges on October ?, 1977. Samedan contended at the time of their proposal that Shell's recommendation was disproportionately weighted on the remaining primary oil reserves. Samedan's proposal tended to make charges using a combination of Remaining Primary Oil Reserves (Phase II) and Secondary Oil Reserves (Phase III), thereby allocating costs more fairly and more commensurate with the purpose of forming the Unit.

Shell Oil Company has scheduled a Working Interest Owners Meeting on February 2, 1978, at Midland, Texas. In preparation for this meeting, Samedan has conducted an in-depth study of the different proposals for allocating costs, and by this letter we intend to show the inequitable, high development costs incurred by Shell's proposal for those Tracts having a high remaining primary oil parameter and a low secondary oil parameter.

The proposed North Hobbs Unit incorporates basically three distinct types of oil producing Tracts:

(1) Some 31 of the 83 Tracts produce only from the Grayburg zone and have no remaining primary reserves in the San Andres formation.

The current producing rate of these Tracts places them in a "stripper" status, or essentially a depleted state. Conversely, all of these Tracts have secondary reserves. Three of these leases have no current production and no remaining primary reserves, but do have secondary reserves. Tracts having only Grayburg reserves are paying a low development cost for secondary reserves during the early phases of the Unit.

(2) Tracts having San Andres II, San Andres III Upper and San Andres III Lower have a higher producing rate than those having Grayburg only, and consequently, also have a higher remaining primary reserve position. These San Andres zones also are given secondary oil reserves, which brings the Phase II (Remaining Primary Oil) and Phase III (Secondary Oil) parameters closer together. However, these zones are pressure depleting, having a solution gas drive mechanism.

(3) The third category of producing properties includes those Tracts which produce almost entirely from the San Andres I zone, which has no secondary reserves due to the active water-drive reservoir mechanism. There are 17 Tracts which have 70% or more of their remaining primary reserves in the San Andres I zone, but have little or no secondary reserves. There are 6 Tracts which receive 100% of the remaining reserves from the San Andres I zone and have relatively small secondary reserves.

This third category is paying an unfairly high development cost for its negligible secondary reserves during the initial stage of the operations.

Below is a tabulation of all Samedan operated leases showing a comparison of investment and discounted net cash flow before Federal Income Taxes. The assumption is made that a basic 1/8 Royalty Interest exists and that the bulk of the investment or development capital expenditures will be made during the first three years of operations.

Tract No.	Lease Name	Remaining Primary Oil Zone	Development Cost Per Secondary Bbl.		Discounted Primary Phase Income @ 10%	
			Shell Proposal	Samedan Proposal	Shell Proposal (M$)	Samedan Proposal (M$)
32	State 'C'	San Andres I	$ 0.92	$ 0.55	$2,746	$3,135
41	State 'B'	Grayburg	$ 0.09	$ 0.29	$ 56	$ 46
55	Moon 'A'	S.A. I, S.A. II	$ 3.90	$ 1.56	$2,253	$2,611
56	Moon 'B'	S.A. I, S.A. II	$ 9.45	$ 3.39	$2,335	$2,702
64	Turner 'B'	San Andres I	$ 8.54	$ 3.13	$ 289	$ 351
65	Turner 'B-2'	San Andres I	$ 8.93	$ 3.18	$ 343	$ 412
66	Turner 'A'	San Andres I	$ 2.41	$ 1.13	$2,285	$2,646

The above clearly shows the wide range of development costs as they apply from lease to lease, but more significantly, the figures show that Tracts having a high remaining primary position, mainly because of the San Andres I

zone, and a low secondary reserves position are paying for a large share of the development costs which are being made for secondary oil recovery. The principle is totally unacceptable to Samedan.

We believe water injection will enhance the recovery of remaining primary reserves, and consequently, the primary phase should incur a portion of the development costs. However, the Unit is being formed for the recovery of secondary reserves, and the secondary phase is obligated to share its portion of the development costs. Even though an adjustment of the costs are to be made at the beginning of Phase III, there is no assurance that the operations will reach the Phase III period. Should Phase III not become effective, development costs administered against the high percentage remaining primary-low percentage secondary participants will not be recovered. Further, the excessive early high costs charged against the Tracts with a high remaining primary position, requires those Tracts to sustain an unfavorable present value position by, in effect, loaning money to the Tracts having a low remaining primary - high secondary position for the duration of the primary phase. Such loan made today, and repaid at the beginning of Phase III, has little present worth.

Due to the extreme difference in the present worth value of the primary phase Tract income, between Shell's proposal and Samedan's proposal, as a percent of the total primary phase Tract net income, Samedan must take the strong position of refusing to become a part of the North Hobbs Unit should Shell's proposal be adopted. Further, we have an obligation to our joint interest owners to make them aware of this unfair basis of administering expenses. Should Shell's proposal be made a part of the Unit Operating Agreement, Samedan will resort to any available legal means to prevent its enactment.

We request that the agenda for the meeting scheduled for February 2, 1978, be modified to permit renegotiation of a method for allocating costs. This request is in the interest of permitting continued progress toward unitization.

Very truly yours,

SAMEDAN OIL CORPORATION

Boyce Perry

Boyce Perry
Mgr., Secondary Recovery

BP/kg

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

January 24, 1978

Subject: North Hobbs (Grayburg San Andres) Unit
Lea County, New Mexico

TO: ALL WORKING INTEREST OWNERS

By letter of January 16, 1978, Samedan Oil Corporation advised that they considered the cost allocation formula as balloted by letter of September 23, 1977, inequitable. Samedan further requested by their letter that negotiation of a cost allocation formula be included on the agenda for the Working Interest Owners meeting called for February 2, 1978. In view of Samedan's request and as it was agreed at the previous Working Interest Owners meeting that the cost allocation formula would be considered at the time the draft agreements were reviewed, the stated agenda of the meeting called for February 2, 1978, is hereby amended to include consideration of a cost allocation formula.

Shell does not agree that the comparisons set forth by Samedan are acceptable criteria for determining equity. However, Shell has reviewed the effects of both the Samedan and Shell formulas and is concerned that either of the two formulas might result in the secondary recovery project yielding a less-than-acceptable investment opportunity for certain parties. This situation results from the extreme variation in participation of tracts from the primary to secondary phase.

In an effort to evaluate the effect of the two cost formulas, Shell developed a comparison of the incremental present value profit for each tract. Incremental profit as used in the analysis, is the difference between the present value profit to be derived from unit operations (recovery of primary plus secondary oil) and the present value profit resulting from non-unit (primary oil and gas only) operations of any given tract. A discount factor of 10 percent was used in all cases and only the before tax profit was calculated. The production rates and capital and operating cost estimates as developed by the Technical Committee and presented in the "Waterflood Feasibility Study" were used in the evaluation.

The attached graph shows the results of Shell's review. The percent incremental present value profit (incremental present value profit divided by present value capital for each tract) was plotted against the ratio of each tract's primary participation percentage to its secondary participation. To facilitate computer plotting, the natural logarithm of the ratio was used. The results indicate that by using the Samedan formula, the tracts having a high ratio (high primary and relatively low secondary participation) would yield a very favorable return on the capital investment; whereas, the tracts with a low ratio (low primary and relatively high secondary) would yield a low return on investment. With the Shell formula, the reverse is true. Tracts with a high ratio would yield a low

return on investment and tracts with a relatively low ratio would enjoy a high return on investment.

It is recognized that the method of evaluation does not result in absolute values for each tract. However, it is felt that the method offers a realistic means of comparing the trends of the cost allocation formulas and that such trends should be considered in developing an acceptable formula.

Based on the above comparisons, it is Shell's feeling that further consideration should be given to negotiating a cost allocation formula which would provide for a unitized operation that would yield acceptable investment opportunities to all parties. It is, therefore, asked that all Working Interest Owners attend the meeting of February 2, 1978, prepared to render a decision regarding a method of allocating unit costs.

Yours very truly,

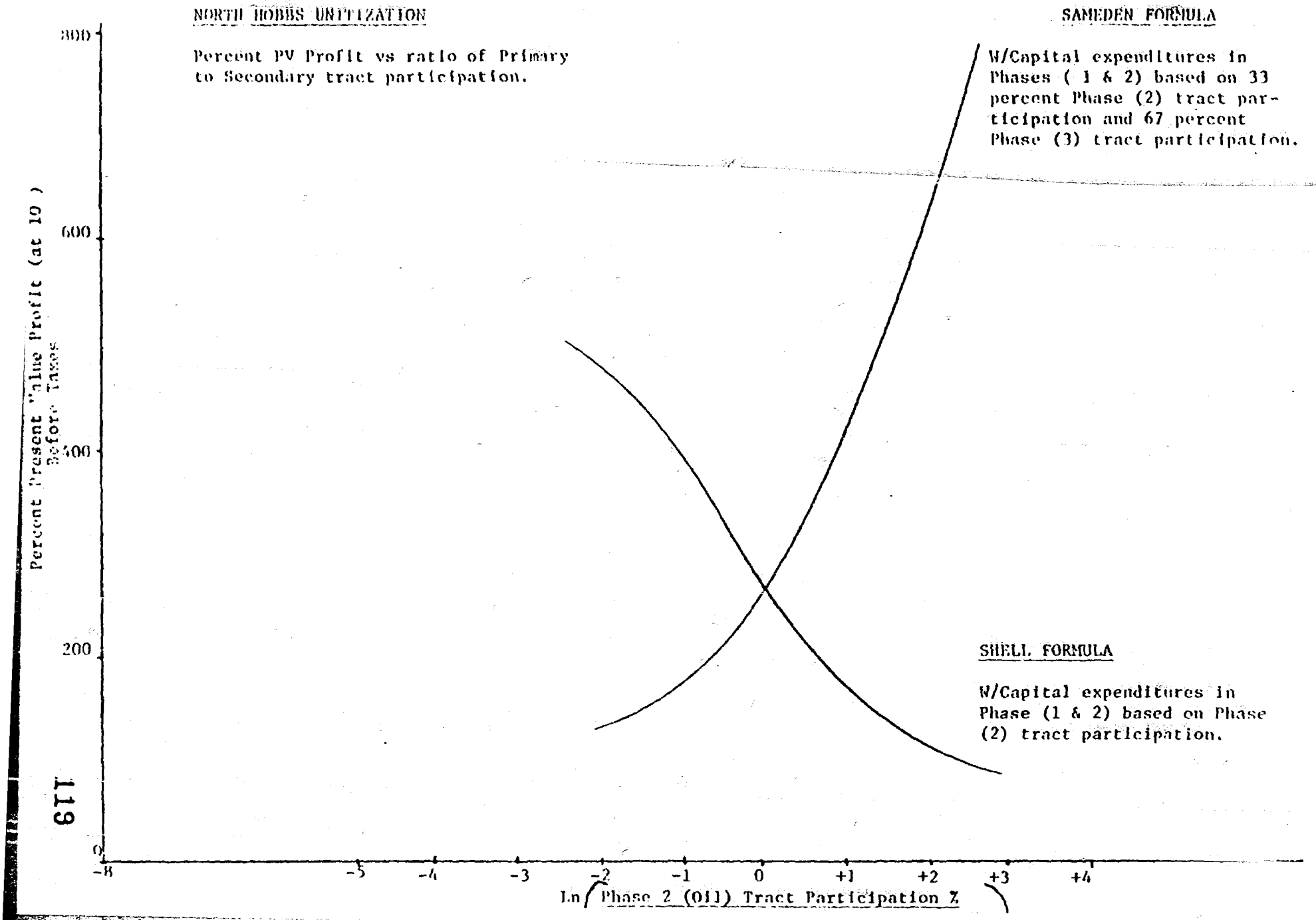
For: R. L. Howard
Division Production Manager
Mid-Continent Division

WEB:TS

Attachment

NORTH HOBBS UNITIZATION

Percent PV Profit vs ratio of Primary to Secondary tract participation.



NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

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SHELL OIL COMPANY
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February 8, 1978

Subject: Minutes - Working Interest Owners' Meeting
Proposed North Hobbs (Grayburg-San Andres) Unit
Lea County, New New Mexico

TO: WORKING INTEREST OWNERS (Mailing List Attached)

A meeting of the Working Interest Owners of the proposed North Hobbs (Grayburg-San Andres) Unit was held February 2, 1978 in Midland, Texas. Representatives attending the meeting are shown on the attached attendance list.

Mr. Buck opened the meeting by stating that at the meeting of September 23, 1977, general agreement was reached on an oil and gas allocation formula. Mr. Buck stated that it was also agreed at such meeting for Shell to submit ballots on the oil and gas allocation formula and a cost allocation formula. In addition, Shell was to develop drafts of Unit and Unit Operating Agreements and to submitt such drafts to the Working Interest Owners for review. Mr. Buck advised that the draft agreements had been completed and were submitted with the call to meeting.

Mr. Buck then advised that the results of the ballots on the oil and gas allocation formula were as follows:

	Working Interest Owners' % (Oil Only)	
	Approved	Disapproved
Phase I	92.04485	1.46358
Phase II	92.62039	1.30069
Phase III	89.76789	1.27189

Response to date on the cost allocation formula is as follows:

	Working Interest Owners' % (Oil Only)	
	Approved	Disapproved
Phase I	82.82611	15.0828
Phase II	82.73358	15.37030
Phase III	92.80451	5.77039

Mr. Buck then stated that Samedan Oil Corporation submitted a cost allocation formula in writing to all Working Interest Owners and requested a ballot vote. The ballot response to such formula was as follows:

Working Interest Owners' % (Oil Only)

	Approved*	Disapproved
Phase I	13.86912	36.47405
Phase II	14.30357	35.82007
Phase III	4.55875	38.79959

*Includes Texas Pacific approval stated at meeting.

Mr. Buck went on to advise that the program of unitization and water injection has been submitted to the Commissioner of Public Land, State of New Mexico and to the United States Department of Interior, Geological Survey. Although neither agency has given any written response, Mr. Buck felt from the discussions at the presentations that the program was favorably received by both.

Mr. Buck advised that a review of the division of interests received to date indicated a diversity of working interests above and below 4500 feet in a number of leases. In view of this, it is believed that the base of the unitized formation (Section 2 (h), Unit Agreement) should be defined as the depth of 4500 feet beneath the surface. The depth of 4500 feet is approximately 200 feet below the established water level in the San Andres formation.

Mr. Buck pointed out that some parties advised in writing of their objections to the cost allocation formula and that they would object to an effort to form a unit on such basis under the New Mexico Unitization Statute. In view of this, Mr. Buck felt the Working Interest Owners should decide whether to proceed with unitization efforts based on the cost allocation formula which has an indicated acceptance by more than 75 percent of the Working Interests or to attempt to develop another formula that would receive greater acceptance. It was noted that the Working Interests approving both the participation formula and the Shell cost allocation formula, and which could, therefore, be anticipated to ratify a unit agreement, total 78 percent for each Phase I and Phase II and 85 percent for Phase III. The meeting was then opened for discussion.

Mr. Joe Thorton, Sun Production Company, advised that Sun would oppose an effort to form the unit under the New Mexico Unitization Statute. Mr. Thornton stated that such opposition was not on a matter of equity but as a matter of principle. Sun did not feel the New Mexico Oil Conservation Commission had the authority to act in this particular instance.

Mr. Boyce Perry, Samedan, stated they would oppose unitization if based on present cost allocation formula and that they felt the formula proposed by Samedan was more in keeping with the benefits to be derived from the project. Mr. John Cusack, Cusack interests, advised that he would not accept the formula as presented and favored the one submitted by Samedan. After more discussion in which some parties indicated a preference to proceed with the formula which has received in excess of 75% approval, Mr. Boyce Perry, Samedan, moved that an effort be made to negotiate a cost allocation which would be acceptable to a greater number of the Working Interest Owners. The motion was seconded by Mr. Cusack, Cusack Interests. Voting results were as follows:

	Working Interest Owners' % (Oil Only)		
	For	Against	Pass
Phase I	75.23913	21.67889	0.22719
Phase II	76.07912	21.12195	0.19658
Phase III	62.00388	34.33593	0.43429
	97.14531	97.39765	96.77410

The motion was considered passed and the meeting was opened for suggested cost allocation formulas.

Mr. Boyce Perry, Samedan, requested that the formula submitted in writing be again submitted for vote. The formula was as follows:

I. Operating Expenses

1. Operating, Maintenance and Overhead expenses incurred in the production, handling and treating of oil and gas shall be charged on the basis of the phase-in-effect oil participation.

2. Operating, Maintenance and Overhead expenses pertaining to the supply of make-up water, injection of water and all injection facilities, including the injection wells, shall be charged on the basis of 33% Phase II Oil Participation plus 67% Phase III Oil Participation during the Phase I and Phase II periods.

   All the above charges shall be made on the basis of Phase III Oil Participation during the Phase III period.

II. Inventoried Value of personal Property - Capital Expenditures

1. The inventoried value of personal property shall be made on the basis of 33% Phase II Oil Participation plus 67% Phase III Oil Participation with such value, corrected for retirements, to be adjusted on the basis of Phase III Oil Participation within a reasonable time following the effective date of the Phase III period.

2. All expenditures of a capital nature shall be made on the basis of 33% Phase II Oil Participation plus 67% Phase III Oil Participation during the Phase I and Phase II periods.

3. All the above expenditures, corrected for retirements, shall be adjusted on the basis of Phase III Oil Participation within a reasonable time after the effective date of the Phase III period.

4. All expenditures of a capital nature made during the Phase III period shall be charged to the joint account on the basis of Phase III Oil Participation.

Details of the voting are shown on Attachment No. I and the summary results were as follows:

	Working Interest Owners' % (Oil Only)		
	For	Against	Pass
Phase I	18.42891	78.48903	
Phase II	18.99331	78.17770	
Phase III	8.11158	88.18190	
.33 Phase II + .67 Phase III	11.70255	83.82857	

Mr. R. W. Mullins, Amerada-Hess Corporation, proposed that the Samedan formula be used, only that no adjustment in the investment account be made at the termination of Phase II (Oil). Details of the voting are shown on Attachment No. 2 and summary results were as follows:

	Working Interest Owners' % (Oil Only)		
	For	Against	Pass
Phase I	6.56696	79.03633	11.54184
Phase II	6.56261	78.89605	11.96893
Phase III	8.60241	73.91749	14.81957
.33 Phase II + .67 Phase III			

Mr. O. V. Stuckey, Getty Oil Company, proposed that all capital expenditures during Phase I and Phase II be allocated on 2/3 Phase II Interest (Oil) plus 1/3 Phase III Interest (Oil) and adjusted to Phase III at termination of Phase II (Oil). Operating expenses were to be based on phase-in-effect. Details of the voting are shown on Attachment No. 3, and the summary results were as follows:

	Working Interest Owners' % (Oil Only)		
	For	Against	Pass
Phase I	59.97659	36.94135	
Phase II	60.40459	36.76642	
Phase III	56.81526	39.47822	
2/3 Phase II + 1/3 Phase III	59.20220	37.66659	

Mr. Boyce Perry, proposed that all capital expenditures be allocated on 1/3 Phase II (oil) + 2/3 Phase III (oil) during Phase I and II and adjusted to Phase III interests at termination of Phase II (Oil). Operating costs to be based on phase-in-effect. Details of the vote are shown on Attachment No. 4 and the summary results were as follows:

	Working Interest Owners' % (Oil)		
	For	Against	Pass
Phase I	18.42891	78.48903	
Phase II	18.99331	78.17770	
Phase III	8.11158	88.18190	
1/3 Phase II + 2/3 Phase III	11.73764	84.83870	

Mr. Thane Aikens, Arco, proposed that all capital expenditures during Phase I (Oil) and Phase II (Oil) be allocated on .50 Phase II (Oil) plus .50 Phase III (Oil) interest and adjusted to Phase III (Oil) at termination of Phase II. All operating expenses to be allocated on phase-in-effect. Details of the vote are shown on Attachment No. 5 and summary results were as follows:

	Working Interest Owners' % (Oil)		
	For	Against	Pass
Phase I	78.27269	18.64525	
Phase II	78.88410	18.28691	
Phase III	68.56783	27.72595	
.5 Phase II + .5 Phase III	73.72588	23.00645	

Mr. Buck, Shell, proposed a compromise of two previous proposals, (Getty and Arco). Such proposal was that all capital expenditures during Phase I (Oil) and Phase II (Oil) be allocated on 58 percent Phase II (Oil) interest and 42 percent Phase III (Oil) interest and adjusted to Phase III (Oil) at termination of Phase II (Oil). Operating expenses to be allocated on basis of phase-in-effect. Details of the vote are shown on Attachment No. 6 and summary results are as follows:

	Working Interest Owners' % (Oil Only)		
	For	Against	Pass
Phase I	82.01563	10.87691	2.63643
Phase II	82.36473	10.72944	2.71879
Phase III	76.86992	13.50522	4.03993
.58 Phase II + .42 Phase III	80.05693	11.89528	2.27367

In view of the favorable response to the last cost formula submitted by Shell, it was agreed to submit the formula for ballot vote. It was understood that all votes were cast subject to management approval.

Time did not permit review of the Unit and Unit Operating Agreements and Mr. Buck advised that a meeting would be called at a later date for such purpose. Comments regarding the agreements have been received from two parties. Based on the comments, Shell proposed certain changes or additions. A list of the changes were given to the Working Interest Owners present and a copy is attached to the minutes.

Mr. Shepherd, Exxon, asked for an explanation of the limiting quantity of 23,000,000 barrels of oil stated in Article 16 (c) of the Unit Agreement. Mr. Buck advised that based on the projected primary performance of the Unit, it was estimated that, without water injection, the unit production would average 10 barrels of oil per day per well after the production of 23,000,000 barrels from January 1, 1979. As all production would qualify as stripper for FEA pricing purposes at such time and under such conditions, it was suggested that this amount be used as the limiting quantity of oil.

All parties who had not done so, were ask to submit as soon as possible the division of interests for their properties in order that the necessary exhibits for the agreements could be completed.

There being no further business, the meeting was adjourned.

Yours very truly,

W E Buck

W. E. Buck
Chairman, Working Interest Owners Committee

WEB:TS

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. R. W. MULLINS
MANAGER - JOINT VENTURE OPERATIONS - U.S.
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. GEORGE GARRETT
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

ADA A. ANDERSON
P. O. BOX 136
MIDLAND, TX 79702

W. D. ANDERSON & SONS
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WARREN ANDERSON ESTATE
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ATLANTIC RICHFIELD COMPANY
ATTN: MR. G. THANE AKINS
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MR. W. K. BYROM
ATTN: MR. C. W. BYROM
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MARY DANIEL CONRAD
4308 AVONDALE
DALLAS, TX 75219

C&C OPERATING CORP.
P. O. BOX 1829
HOBBS, NM 88240

CHEVRON OIL COMPANY
ATTN: MR. C. F. DWYER
P. O. BOX 1660
MIDLAND, TX 79702

CITIES SERVICE OIL COMPANY
E&P DIVISION
P. O. BOX 1919
MIDLAND, TX 79702

CONTINENTAL OIL COMPANY (2)
ATTN: L. P. THOMPSON
P. O. BOX 460
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HERMAN R. CRILE, SR. REVOCABLE TRUST
BOX 864
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JOHN P. CUSACK, JR.
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FORT WORTH, TX 76110

MICHAEL F. CUSACK
3815 McCART STREET
FORT WORTH, TX 76110

DEL-LEA, INC. (ANTWEIL)
P. O. BOX 1889
HOBBS, NM 88240

J. N. DUNLAVY
P. O. BOX 837
ROSWELL, NM 88201

ESTES ENGINEERING CO.
306 PETROLEUM BUILDING
MIDLAND, TX 79702

EXXON COMPANY - U. S. A. (2)
ATTN: JOINT INTEREST MANAGER
P. O. BOX 1600
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FIRST NATIONAL BANK OF CASPER
FIRST NATIONAL BANK TRUSTEE M. E. TATE
P. O. BOX 40
CASPER, WY 82601

FIRST NATIONAL BANK OF FORT WORTH
ESTATE OF SMITH SPRALDING
P. O. BOX 2546
FORT WORTH, TX 76101

FIRST ROSWELL COMPANY
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ROSWELL, NM 88201

C. C. FORBES
P. O. BOX 843
TULSA, OK 74101

ILAMAE FORBES
P. O. BOX 843
TULSA, OK 74101

GETTY OIL COMPANY (2)
ATTN: MR. A. B. CARY
P. O. BOX 1231
MIDLAND, TX 79702

GULF ENERGY & MINERALS CO.-U.S. (2)
ATTN: R. F. WARD, JR.
DISTRICT OPERATIONS MANAGER
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PETER HURD
SAN PATRICIO, NM 88348

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M. RALPH LOWE, INC.
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P. O. BOX 522
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R. M. MORAN
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HOBBS, NM 88240

MORANCO
MR. R. M. MORAN
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P. O. BOX 1860
HOBBS, NM 88240

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MR. J. H. MORRIS AS AGENT
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LOS ANGELES, CA 90067

PORTALES NATIONAL BANK
PORTALES, NM 88130

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2207 WILCO BUILDING
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ATTN. MR. BOYCE BERRY
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SEA PROPERTIES, LTD.
BOX 1486
ARDMORE, OK 73401

HOWELL SPEAR
P. O. BOX 1684
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E. C. SULIVAN
C/O SAMEDAN OIL CORPORATION
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MIDLAND, TX 79702

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THRONTON
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DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS
P. O. BOX 1861
MIDLAND, TX 79702

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

FIRST NATIONAL BANK OF LEA COUNTY
TRUSTEE FOR CECIL H. SWEET AND
IMA EMMETTA SWEET TRUST
P. O. BOX 70
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO, INC.
ATTN: ASSISTANT DIVISION MANAGER
P. O. BOX 3109
MIDLAND, TX 79702

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
1700 ONE MAIN PLACE
DALLAS, TX 75250

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. R. J. WOMACK
P. O. BOX 4067
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HOUSTON, TX 77066

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MERCANTILE COMMERCE BLDG., SUITE 1910
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MIDLAND, TX 79701

THE WISER OIL COMPANY
ATTN: MR. C. P. LaRUE
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SISTERVILLE, WV 26175

W. A. YEAGER
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RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P. O. BOX 6031
DALLAS, TX 75222

RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

ATTENDANCE LIST"

WORKING INTEREST OWNERS'MEETING
NORTH HOBBS (GRAYBURG-SAN ANDRESS) UNIT
FEBRUARY 2, 1978

COMPANY	NAME	LOCATION
Amerada-Hess Corp.	R. W. Mullins	Tulsa, Ok.
Amerada-Hess Corp.	Gerald Hill	Tulsa, Ok.
Amoco Production Company	S. R. Denton	Houston, Tx.
Atlantic Richfield	Tom Furtwangler	Midland, Tx.
Atlantic Richfield	Thane Akins	Midland, Tx.
Atlantic Richfield	George Nathman	Midland, Tx.
Chevron USA, Inc.	W. A. Goudeau	Midland, Tx.
Chevron USA, Inc.	B. O. Gunn	Midland, Tx.
Chevron USA, Inc.	D. D. Allen	Midland, Tx.
Cities Service Oil Company	J. L. Relph ✓	Midland, Tx.
Cities Service Oil Company	M. S. Mabry	Midland, Tx.
Conoco Oil Company	V. T. Lyon	Hobbs, N.M.
Conoco Oil Company	J. S. Anderson	Hobbs, N. M.
Cusack Inc.	John P. Cusack	Roswell, N.M.
Cusack Inc.	Max E. Curry	Midland, Tx.
Exxon Company	J. M. Shepherd	Midland, Tx.
Exxon Company	J. B. Campbell	Midland, Tx.
Exxon Company	W. E. Nolan	Midland, Tx.
First National Bank Dallas (Trust - Yeager Interests)	Gene Thomas	Dallas, Tx.
Getty Oil Company	O. V. Stuckey	Midland, Tx.
Gulf Oil Company	J. D. Mussett	Midland, Tx.
Marathon Oil Company	G. A. Naert	Midland, Tx.
Morance Oil Company	Ken McPeters	Hobbs, N.M.
Samedan Oil Company	Boyce Perry	Ardmore, Ok.
Shell Oil Company	W. E. Buck	Houston, Tx.
Shell Oil Company	Bill Lancaster	Houston, Tx.
Shell Oil Company	Paul L. Bondor	Houston, Tx.
Shell Oil Company	Shri B. Mathur	Houston, Tx.
Shell Oil Company	Lee Campbell	Houston, Tx.
Sun Oil Company	Joseph Martin	Midland, Tx.
Sun Oil Company	Joe Thornton	Dallas, Tx.
Texaco Inc.	Robert E. Davis	Midland, Tx.
Texaco Inc.	Morris Todd	Midland, Tx.
Texas Pacific Oil Company	G. R. Meyer	Dallas, Tx.
Wiser Oil Company	W. R. Larsen	Midland, Tx.

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Attachment No. 1 pg 1 of 2

PROPOSED NORTH HOBBS UNIT

Cost Allocation Formula - Samedan

WIO NO	WINAME	PHASE I Oil	PHASE II Oil	PHASE III Oil	.33 Phase II / .67 Phase III	Vote
1	AMERADA HESS CORP.	656696	650261	860241	7.90948	No
2	AMOCO PRODUCTION CO.	138897	135805	187841	1.70669	No
3	ANDERSON ADA A	.00629	.00396	.02317		
4	ANDERSON EST., WARREN D	.00629	.00396	.02317		
5	ANDERSON, W D AND SONS	.01257	.00793	.04633		
6	ARMSTRONG, J M	.01257	.00793	.04633		
7	ATLANTIC RICHFIELD CO.	294388	318766	327303	2.19293	No
8	BYROM W K	.06780	.06400	.07001		
9	C&C OPERATING CO.	.01133	.00688	.03147		
10	CHEVRON OIL COMPANY	321471	339898	297321	3.11371	Yes
11	CITIES SERVICE OIL CO.	324881	320246	554436	4.77153	No
12	CONRAD MARY DANIEL	.02408	.02508	.00196		
13	CONTINENTAL OIL CO.	1124634	1171358	1436721	13.49151	No
14	CRILE, HERMAN R.	.03613	.03762	.00294		
15	CUSACK, J. P.	.27045	.25609	.01173	.09237	Yes
16	CUSACK, JR., J. P.	1.13609	1.23831	.08912	.46835	Yes
17	CUSACK, MICHAEL F.	1.13609	1.23831	.08912	.46835	Yes
18.	DEL-LEA, INC. (ANTWEIL)	.11092	.10053	.03652		
19	DUNLAVEY, J. N.	.00194	.00171	.00191		
20	ESTES, RUSSELL G.	.00335	.00211	.01236		
21	EXXON COMPANY - U.S.A.	4.68761	4.39609	7.63885	6.56874	No
22	FIRST ROSWELL COMPANY	.00388	.00340	.00303		
23	FORBES C. C.	.06067	.05656	.02645	.03638	Yes
24	FORBES, ILAMAE	.05908	.05507	.02575	.03542	Yes
25	GETTY OIL COMPANY	8.72066	8.74234	7.55887	7.94941	No
26	GULF ENERGY & MINERALS	9.71717	9.44656	15.23438	13.32439	No
27	HEADLEY, KENNETH NOEL	.05778	.05978	.00522		
28	HURD, PETER	.02408	.02508	.00196		
29	JUDSON, RUBY WANDA CONRA	.00482	.00502	.00039		
30	KEMNITZ, A. A.	.91817	.85586	.40024	.55059	Yes
31	LAFLIN, GEORGE P.	.00194	.00171	.00191		
32	LOWE, M. RALPH	.03128	.02674	.00165		
33	MARATHON OIL COMPANY	2.63643	2.71879	4.03993	3.60395	No
34	MCCARTHY, KATHRYN L. C.	.00482	.00502	.00039		
35	MCPETERS, K. D.	.00877	.00757	.00318		
36	MCPHERON, MARGARAT M.	.02034	.01920	.02101		
37	MCPHERON, ROBERT L.	.01017	.00960	.01050		
38	MOBIL OIL CORP.	.92642	.82805	.67264		
39	MORANCO	.03320	.02848	.00537	.01300	Yes

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Ah [illegible] No. 1 Cont

PROPOSED NORTH HOBBS UNIT

WIO NO	WINAME					
40	MORAN, R. M.	.03511	.03029	.01270	.01851	Yes
41	MORRIS, G. D.	.03992	.03721	.01740	.02394	Yes
42	MURDOCH, NATHYLYN I. CONRA	.00482	.00502	.00039		
43	NOBLE, RICHARD L.	.48543	.45249	.21160		
44	PARRISH, M.C. ESTATE	.01173	.01003	.00062		
45	PORTALES NATIONAL BANK	.05989	.05582	.02610	.03591	Yes
46	RORING JOHN	.11975	.11163	.05221	.07182	Yes
47	ROSE, FRANCIS I. CONRAD	.00482	.00502	.00039		
48	SAMEDAN OIL CORP.	5.93726	6.19129	1.31910	2.92693	Yes
49	SEA PROPERTIES, LTD.	.09213	.09662	.01578	.04245	Yes
50	SHELL OIL COMPANY	24.12270	23.76832	8.87538	20.49005	No
51	1ST NATL BANK/FT. WORTH	.03992	.03721	.01740	.02394	Yes
53	SPEAR HOWELL	.00096	.00085	.00096		
54	SULLIVAN, E. C.	.05989	.05582	.02610	.03591	Yes
55	SUN OIL CO. (DELEWARE)	.22719	.19658	.43429		
56	SWEET, BILL L.	.02651	.02300	.17776		
57	SWEET, C. H. OIL CO.	.26443	.24146	.79399		
58	1ST NATL BANK OF CASPER	.11976	.11163	.05221	.07182	Yes
59	TEXACO, INC.	3.16134	3.09110	1.16515	1.80071	No
60	TEXAS PACIFIC OIL CO. IN	4.68172	4.70381	2.81932	3.44120	Yes
61	TREADAWAY, BETTYE CONRA	.00482	.00502	.00039		
62	TWO STATES OIL CO.	.06498	.06649	.00682		
63	WALLACE, COLLEEN MCPHERO	.01017	.00960	.01050		
64	WHITLEY, LOYD	.00194	.00171	.00191		
65	WILLIAMS, HATTIE C.	.13361	.14505	.02222	.06276	Yes
66	WILLIAMSON, A. T.	.00194	.00171	.00191		
67	WISER OIL COMPANY, THE	.28139	.28927	.11005	.16919	Yes
68	YATES, JOHN A	.12986	.10695	.33811		
69	YEAGER & ARMSTRONG	.01257	.00793	.04633		
70	YEAGER JR. DR. HENRY	.01586	.01631	.00127	.00623	No
71	YEAGER RUTH ANNE	.01166	.01214	.00095	.00465	No
72	YEAGER RUTH/HENRY	.00402	.00418	.00033	.00166	No
73	YEAGER RUTH PEELER	.01682	.01751	.00137	.00670	No
74	LANDRETH INTERESTS	.45232	.44225	.61170		
	Yes	18.42891	18.99331	8.11158	11.70255	
	No	78.48903	78.17770	88.18190	83.82857	

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Attachment No. 2 pg 1 of 2

PROPOSED NORTH HOBBS UNIT

Amerada-Hess - Cost Allocation Formula

.33 Phase II + .67 Phase III - No adjustment.

WIO NO	WINAME	PHASE I Oil	PHASE II Oil	PHASE III Oil	.33 Phase II + .67 Phase III	Vote
1	AMERADA HESS CORP.	656696	650261	860241	790948	Yes
2	AMOCO PRODUCTION CO.	138897	135805	187841	170669	No
3	ANDERSON ADA A	.00629	.00396	.02317		
4	ANDERSON EST., WARREN D	.00629	.00396	.02317		
5	ANDERSON, W D AND SONS	.01257	.00793	.04633		
6	ARMSTRONG, J M	.01257	.00793	.04633		
7	ATLANTIC RICHFIELD CO.	294388	318766	327303	219293	No
8	BYROM W K	.06780	.06400	.07001		
9	C&C OPERATING CO.	.01133	.00688	.03147		
0	CHEVRON OIL COMPANY	321471	339898	297321	311371	No
11	CITIES SERVICE OIL CO.	324881	320246	554436	477163	No
12	CONRAD MARY DANIEL	.02408	.02508	.00196		
13	CONTINENTAL OIL CO.	1124634	1171358	1436721	1349151	Pass
14	CRILE, HERMAN R.	.03613	.03762	.00294		
15	CUSACK, J. P.	.27045	.25609	.01173	.09237	No
16	CUSACK, JR., J. P.	113609	123831	.08912	.46835	No
17	CUSACK, MICHAEL F.	113609	123831	.08912	.46835	No
18.	DEL-LEA, INC. (ANTWEIL)	.11092	.10053	.03652		
19	DUNLAVEY, J.N.	.00194	.00171	.00191		
20	ESTES, RUSSELL G.	.00335	.00211	.01236		
21	EXXON COMPANY - U.S.A.	468761	439609	763885	656874	No
22	FIRST ROSWELL COMPANY	.00388	.00340	.00303		
23	FORBES C. C.	.06067	.05656	.02645	.03638	No
24	FORBES, ILAMAE	.05908	.05507	.02575	.03542	No
25	GETTY OIL COMPANY	872066	874234	755887	794941	No
26	GULF ENERGY & MINERALS	971717	944656	1523438	1332439	No
27	HEADLEY, KENNETH NOEL	.05778	.05978	.00522		
28	HURD, PETER	.02408	.02508	.00196		
29	JUDSON, RUBY WANDA CONRA	.00482	.00502	.00039		
30	KEMNITZ, A. A.	.91817	.85586	.40024	.55059	No
31	LAFLIN, GEORGE P.	.00194	.00171	.00191		
32	LOWE, M. RALPH	.03128	.02674	.00165		
33	MARATHON OIL COMPANY	263643	271879	403993	360395	No
34	MCCARTHY, KATHRYN L. C.	.00482	.00502	.00039		
35	MCPETERS, K. D.	.00877	.00757	.00318		
36	MCPHERON, MARGARAT M.	.02034	.01920	.02101		
37	MCPHERON, ROBERT L.	.01017	.00960	.01050		
38	MOBIL OIL CORP.	.92642	.82805	.67264		
39	MORANCO	.03320	.02848	.00537	.01300	Pass

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Attachment No. 2 (Cont)

PROPOSED NORTH HOBBS UNIT

WIC NO	WINAME					
40	MORAN, R. M.	.03511	.03029	.01270	.01851	Pass
41	MORRIS, G. D.	.03992	.03721	.01740	.02394	No
42	MURDOCH, NATHYLYN I. CONRA	.00482	.00502	.00039		
43	NOBLE, RICHARD L.	.48543	.45249	.21160		
44	PARRISH, M.C. ESTATE	.01173	.01003	.00062		
45	PORTALES NATIONAL BANK	.05989	.05582	.02610	.03591	No
46	RORING JOHN	.11975	.11163	.05221	.07182	No
47	ROSE, FRANCIS I. CONRAD	.00482	.00502	.00039		
48	SAMEDAN OIL CORP.	5.98716	6.19129	1.31910	2.92693	No
49	SEA PROPERTIES, LTD.	.09213	.09662	.01578	.02415	No
50	SHELL OIL COMPANY	24.12270	23.76832	4.88753	20.49005	No
51	1ST NATL BANK/FT. WORTH	.03992	.03721	.01740	.02394	No
53	SPEAR HOWELL	.00096	.00085	.00096		
54	SULLIVAN, E. C.	.05989	.05582	.02610	.03591	No
55	SUN OIL CO. (DELEWARE)	3.27119	3.19658	.93429	3.65584	Pass
56	SWEET, BILL L.	.02691	.04300	.01776		
57	SWEET, C. H. OIL CO.	.16443	.14146	.07395		
58	1ST NATL BANK OF CASPER	.11976	.11163	.05221	.07182	No
59	TEXACO, INC.	3.16134	3.09110	1.16515	1.80071	No
60	TEXAS PACIFIC OIL CO. IN	4.48172	4.10381	2.81932	3.44120	No
61	TREADAWAY, BETTYE CONRA	.00482	.00502	.00039		
62	TWO STATES OIL CO.	.06498	.06649	.00682		
63	WALLACE, COLLEEN MCPHERO	.01017	.00960	.00510		
64	WEITLEY, LOYD	.00194	.00171	.00191		
65	WILLIAMS, HATTIE C.	.13381	.14505	.02222	.06276	No
66	WILLIAMSON, A. T.	.00194	.00171	.00191		
67	WISER OIL COMPANY, THE	.28139	.28927	.11005	.16919	No
68	YATES, JOHN A	.12986	.10695	.03811		
69	YEAGER & ARMSTRONG	.01257	.00793	.00463		
70	YEAGER JR. DR. HENRY	.01586	.01631	.00127	.00623	No
71	YEAGER RUTH ANNE	.01146	.01214	.00095	.00465	No
72	YEAGER RUTH/HENRY	.00402	.00418	.00033	.00160	No
73	YEAGER-RUTH PEELER	.01682	.01751	.00137	.00670	No
74	LANDRETH INTERESTS	.45232	.44245	.41170		
	Yes	6.56696	6.50201	2.66241	7.90948	
	No	79.03633	78.19605	73.91749	74.09882	138
	Pass	11.54184	11.96893	11.48195	13.87826	

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At Amend No. 3 pg 1 of 2

PROPOSED NORTH HOBBS UNIT

Getty Formula - 2/3 Phase II + 1/3 Phase III - Adj to Phase III

WIO NO	WINAME	PHASE I Oil	PHASE II Oil	PHASE III Oil	2/3 Phase II + 1/3 Phase III	Vote
1	AMERADA HESS CORP.	656696	650261	860241	7.20182	Yes
2	AMOCO PRODUCTION CO.	138897	135805	187841	1.53135	No
3	ANDERSON ADA A	.00629	.00396	.02317		
4	ANDERSON EST., WARREN D	.00629	.00396	.02317		
5	ANDERSON, W D AND SONS	.01257	.00793	.04633		
6	ARMSTRONG, J M	.01257	.00793	.04633		
7	ATLANTIC RICHFIELD CO.	294388	318766	327303	3.21579	Yes
8	BYROM W K	.06780	.06400	.07001		
9	C&C OPERATING CO.	.01133	.00688	.03147		
10	CHEVRON OIL COMPANY	321471	339898	297321	3.25673	Yes
11	CITIES SERVICE OIL CO.	324881	320246	554436	3.98270	No
12	CONRAD MARY DANIEL	.02408	.02508	.00196		
13	CONTINENTAL OIL CO.	1124634	1171358	1436721	12.59686	Yes
14	CRILE, HERMAN R.	.03613	.03762	.00294		
15	CUSACK, J. P.	.27045	.25609	.01173	.17462	No
16	CUSACK, JR., J. P.	113609	123831	.08912	.85516	No
17	CUSACK, MICHAEL F.	113609	123831	.08912	.85516	No
18	DEL-LEA, INC. (ANTWEIL)	.11092	.10053	.03652		
19	DUNLAVEY, J.N.	.00194	.00171	.00191		
20	ESTES, RUSSELL G.	.00335	.00211	.01236		
21	EXXON COMPANY - U.S.A.	468761	439609	763885	5.47646	No
22	FIRST ROSWELL COMPANY	.00388	.00340	.00303		
23	FORBES C. C.	.06067	.05656	.02645	.04652	No
24	FORBES, ILAMAE	.05908	.05507	.02575	.04529	No
25	GETTY OIL COMPANY	872066	874234	755887	8.34701	Yes
26	GULF ENERGY & MINERALS	971717	944656	1523438	11.37470	No
27	HEADLEY, KENNETH NOEL	.05778	.05978	.00522		
28	HURD, PETER	.02408	.02508	.00196		
29	JUDSON, RUBY WANDA CONRA	.00482	.00502	.00039		
30	KEMNITZ, A. A.	.91817	.85586	.40024	.70392	No
31	LAFLIN, GEORGE P.	.00194	.00171	.00191		
32	LOWE, M. RALPH	.03128	.02674	.00165		
33	MARATHON OIL COMPANY	263643	271879	403993	3.15886	No
34	MCCARTHY, KATHRYN L. C.	.00482	.00502	.00039		
35	MCPETERS, K. D.	.00877	.00757	.00318		
36	MCPHERON, MARGARAT M.	.02034	.01920	.02101		
37	MCPHERON, ROBERT L.	.01017	.00960	.01050		
38	MOBIL OIL CORP.	.92642	.82805	.67264		
39	MORANCO	.03320	.02848	.00537	.02077	No

Attachment No. 3 (Cont)

PROPOSED NORTH HOBBS UNIT

WIO NO	WINAME					
40	MORAN, R. M.	.03511	.03029	.01270	.02442	No
41	MORRIS, G. D.	.03992	.03721	.01740	.03060	No
42	MURDOCH, NATHYLYN I. CONRA	.00482	.00502	.00039		
43	NOBLE, RICHARD L.	.48543	.45249	.21160		
44	PARRISH, M.C. ESTATE	.01173	.01003	.00062		
45	PORTALES NATIONAL BANK	.05989	.05582	.02610	.04591	No
46	RORING JOHN	.11975	.11163	.05221	.09181	No
47	ROSE, FRANCIS I. CONRAD	.00482	.00502	.00039		
48	SAMEDAN OIL CORP.	5.93726	6.19129	1.31910	4.56677	No
49	SEA PROPERTIES, LTD.	.09213	.09662	.01578	.06967	No
50	SHELL OIL COMPANY	24.12270	23.76832	18.87538	22.13512	Yes
51	1ST NATL BANK/FT. WORTH	.03992	.03721	.01740	.03060	No
53	SPEAR HOWELL	.00096	.00085	.00096		
54	SULLIVAN, E. C.	.05989	.05582	.02610	.04591	No
55	SUN OIL CO. (DELEWARE)	.22719	.19658	.43429		
56	SWEET, BILL L.	.02651	.02300	.17776		
57	SWEET, C. H. OIL CO.	.26443	.24146	.79399		
58	1ST NATL BANK OF CASPER	.11976	.11163	.05221	.09181	No
59	TEXACO, INC.	3.16134	3.09110	1.16515	2.44887	Yes
60	TEXAS PACIFIC OIL CO. IN	4.68172	4.70381	2.81932	4.07524	No
61	TREADAWAY, BETTYE CONRA	.00482	.00502	.00039		
62	TWO STATES OIL CO.	.06498	.06649	.00682		
63	WALLACE, COLLEEN MCPHERO	.01017	.00960	.01050		
64	WHITLEY, LOYD	.00194	.00171	.00191		
65	WILLIAMS, HATTIE C.	.13361	.14505	.02222	.10410	No
66	WILLIAMSON, A. T.	.00194	.00171	.00191		
67	WISER OIL COMPANY, THE	.28139	.28927	.11005	.22951	No
68	YATES, JOHN A	.12986	.10695	.38811		
69	YEAGER & ARMSTRONG	.01257	.00793	.04633		
70	YEAGER JR. DR. HENRY	.01586	.01631	.00127	.01129	No
71	YEAGER RUTH ANNE	.01166	.01214	.00095	.00841	No
72	YEAGER RUTH/HENRY	.00402	.00418	.00033	.00290	No
73	YEAGER RUTH PEELER	.01682	.01751	.00137	.01213	No
74	LANDRETH INTERESTS	.45232	.44225	.61170		
	Yes	59.97659	60.40459	56.81526	59.20[illegible]	
	No	36.94135	36.76642	39.47822	37.666[illegible]	

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Attachment No. 4 Pg 1 of 2

PROPOSED NORTH HOBBS UNIT

Samedan Compromise Cost Formula 1/3 Phase II + 2/3 Phase III
Adj after Phase II - Expense - Phase-in-effect

WIO NO	WINAME	PHASE I Oil	PHASE II Oil	PHASE III Oil	1/3 Phase II 2/3 Phase III	Vote
1	AMERADA HESS CORP.	656696	650261	860241	7.90169	No.
2	AMOCO PRODUCTION CO.	138897	135805	187841	1.70479	No
3	ANDERSON ADA A	.00629	.00396	.02317		
4	ANDERSON EST., WARREN D	.00629	.00396	.02317		
5	ANDERSON, W D AND SONS	.01257	.00793	.04633		
6	ARMSTRONG, J M	.01257	.00793	.04633		
7	ATLANTIC RICHFIELD CO.	294388	318766	327303	3.24425	No
8	BYROM W K	.06780	.06400	.07001		
9	C&C OPERATING CO.	.01133	.00688	.03147		
0	CHEVRON OIL COMPANY	321471	339898	297321	3.11482	Yes
11	CITIES SERVICE OIL CO.	324881	320246	554436	4.76325	No
12	CONRAD MARY DANIEL	.02408	.02508	.00196		
13	CONTINENTAL OIL CO.	1124634	1171358	1436721	13.48132	No
14	CRILE, HERMAN R	.03613	.03762	.00294		
15	CUSACK, J. P.	.27045	.25609	.01173	.09317	Yes
16	CUSACK, JR., J. P.	113609	123831	.08912	.47214	Yes
17	CUSACK, MICHAEL F.	113609	123831	.08912	.47214	Yes
18.	DEL-LEA, INC. (ANTWEIL)	.11092	.10053	.06652		
19	DUNLAVEY, J.N.	.00194	.00171	.00191		
20	ESTES, RUSSELL G	.00335	.00211	.01236		
21	EXXON COMPANY - U.S.A.	468761	439609	763885	6.55728	No
22	FIRST ROSWELL COMPANY	.00388	.00340	.00303		
23	FORBES C. C.	.06067	.05656	.02645	.03648	Yes
24	FORBES, ILAMAE	.05908	.05507	.02575	.03551	Yes
25	GETTY OIL COMPANY	872066	874234	755887	7.95256	No
26	GULF ENERGY & MINERALS	971717	944656	1523438	13.30378	No
27	HEADLEY, KENNETH NOEL	.05778	.05978	.00522		
28	HURD, PETER	.02408	.02508	.00196		
29	JUDSON, RUBY WANDA CONRA	.00482	.00502	.00039		
30	KEMNITZ, A. A.	.91817	.85586	.40024	.55206	Yes
31	LAFLIN, GEORGE P.	.00194	.00171	.00191		
32	LOWE, M. RALPH	.03128	.02674	.00165		
33	MARATHON OIL COMPANY	263643	271879	403993	3.59919	No
34	MCCARTHY, KATHRYN L. C.	.00482	.00502	.00039		
35	MCPETERS, K. D.	.00877	.00757	.00318		
36	MCPHERON, MARGARAT M.	.02034	.01920	.02101		
37	MCPHERON, ROBERT L.	.01017	.00960	.01050		
38	MOBIL OIL CORP.	.92642	.82805	.67264		
39	MORANCO	.03320	.02848	.00537	.01307	Yes

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Attachment No. 4 (Cont)

PROPOSED NORTH HOBBS UNIT

WIO NO	WINAME					
40	MORAN, R. M.	.03511	.03029	.01270	.01857	Yes
41	MORRIS, G. D.	.03992	.03721	.01740	.02400	Yes
42	MURDOCH, NATHYLYN I. CONRA	.00482	.00502	.00039		
43	NOBLE, RICHARD L.	.48543	.45249	.21160		
44	PARRISH, M.C. ESTATE	.01173	.01003	.00062		
45	PORTALES NATIONAL BANK	.05989	.05582	.02610	.03600	Yes
46	RORING JOHN	.11975	.11163	.05221	.07201	Yes
47	RO[illegible] FRANCIS I. CONRAD	.00482	.00502	.00039		
48	SA[illegible]AN OIL CORP.	5.93726	6.19129	1.31910	2.94287	Yes
49	[illegible] PROPERTIES, LTD.	.09213	.09662	.01578	.04272	Yes
50	SHELL OIL COMPANY	24.12270	23.76832	18.87538	20.50431	No
51	1ST NATL BANK/FT. WORTH	.03992	.03721	.01740	.02400	Yes
53	SPEAR HOWELL	.00096	.00085	.00096		
54	SULLIVAN, E. C.	.05989	.05582	.02610	.03600	Yes
55	SUN OIL CO. (DELEWARE)	.22719	.19658	.43429		
56	SWEET, BILL L.	.02651	.02300	.17776		
57	SWEET, C. H. OIL CO.	.26443	.24146	.79399		
58	1ST NATL BANK OF CASPER	.11976	.11163	.05221	.07201	Yes
59	TEXACO, INC.	3.16134	3.09110	1.16515	1.80695	No
60	TEXAS PACIFIC OIL CO. IN	4.68172	4.70381	2.81932	3.44714	Yes
61	TREADAWAY, BETTYE CONRA	.00482	.00502	.00039		
62	TWO STATES OIL CO.	.06498	.06649	.00682		
63	WALLACE, COLLEEN MCPHERO	.01017	.00960	.01050		
64	WHITLEY, LOYD	.00194	.00171	.00191		
65	WILLIAMS, HATTIE C.	.13381	.14505	.02222	.06316	Yes
66	WILLIAMSON, A. T.	.00194	.00171	.00191		
67	WISER OIL COMPANY, THE	.28139	.28927	.11005	.16977	Yes
68	YATES, JOHN A	.12986	.10695	.38811		
69	YEAGER & ARMSTRONG	.01257	.00793	.04633		
70	YEAGER JR. DR. HENRY	.01586	.01631	.00127	.00629	No
71	YEAGER RUTH ANNE	.01166	.01214	.00095	.00468	No
72	YEAGER RUTH/HENRY	.00402	.00418	.00033	.00181	No
73	YEAGER RUTH PEELER	.01682	.01751	.00137	.00675	No
74	LANDRETH INTERESTS	.45232	.44225	.21170		
		Yes 18.42891	18.99331	8.11158	11.72764	
		No 78.48903	78.17770	88.18190	84.83870	

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Attac' zent No. 5

PROPOSED NORTH HOBBS UNIT

Atlantic Richfield - Cost Allocation Formula

.5 Phase II + .5 Phase III during Phase I & II, Adjust to Phase III Operating - Phase-in-effect

WIO NO	WINAME	PHASE I Oil	PHASE II Oil	PHASE III Oil	.5 Phase II + .5 Phase III	Vote
1	AMERADA HESS CORP.	656696	650261	860241	7.55251	No
2	AMOCO PRODUCTION CO.	138897	135805	187841	1.61823	No
3	ANDERSON ADA A	.00629	.00396	.02317		
4	ANDERSON EST., WARREN D	.00629	.00396	.02317		
5	ANDERSON, W D AND SONS	.01257	.00793	.04633		
6	ARMSTRONG, J M	.01257	.00793	.04633		
7	ATLANTIC RICHFIELD CO.	294388	318766	327303	3.23035	Yes
8	BYROM W K	.06780	.06400	.07001		
9	C&C OPERATING CO.	.01133	.00688	.03147		
0	CHEVRON OIL COMPANY	321471	339898	297321	3.18610	Yes
11	CITIES SERVICE OIL CO.	324881	320246	554436	4.37341	No
12	CONRAD MARY DANIEL	.02408	.02508	.00196		
13	CONTINENTAL OIL CO.	1124634	1171358	1436721	13.04040	Yes
14	CRILE, HERMAN R.	.03613	.03762	.00294		
15	CUSACK, J. P.	.27045	.25609	.01173	.13391	Yes
16	CUSACK, JR., J. P.	113609	123831	.08912	.66372	Yes
17	CUSACK, MICHAEL F.	113609	123831	.08912	.66372	Yes
18	DEL-LEA, INC. (ANTWEIL)	.11092	.10053	.03652		
19	DUNLAVEY, J.N.	.00194	.00171	.00191		
20	ESTES, RUSSELL G	.00335	.00211	.01236		
21	EXXON COMPANY - U.S.A.	468761	439609	763885	6.01747	No
22	FIRST ROSWELL COMPANY	.00388	.00340	.00303		
23	FORBES C. C.	.06067	.05656	.02645	.04151	Yes
24	FORBES, ILAMAE	.05908	.05507	.02575	.04041	Yes
25	GETTY OIL COMPANY	872066	874234	755887	8.15061	Yes
26	GULF ENERGY & MINERALS	911717	944656	1523438	12.34047	Yes
27	HEADLEY, KENNETH NOEL	.05778	.05978	.00522		
28	HURD, PETER	.02408	.02508	.00196		
29	JUDSON, RUBY WANDA CONRA	.00482	.00502	.00039		
30	KEMNITZ, A. A.	.91817	.85586	.40024	.62805	Yes
31	LAFLIN, GEORGE P.	.00194	.00171	.00191		
32	LOWE, M. RALPH	.03128	.02674	.00165		
33	MARATHON OIL COMPANY	263643	271879	403993	3.37936	No
34	MCCARTHY, KATHRYN L. C.	.00482	.00502	.00039		
35	MCPETERS, K. D.	.00877	.00757	.00318		
36	MCPHERON, MARGARAT M.	.02034	.01920	.02101		
37	MCPHERON, ROBERT L.	.01017	.00960	.01050		
38	MOBIL OIL CORP.	.92642	.82805	.67264		
39	MORANCO	.03320	.02848	.00537	.01693	No

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PROPOSED NORTH HOBBS UNIT Attachment No. 5 (Cont.)

WIO NO	WINAME					
40	MORAN, R. M.	.03511	.03019	.01270	.02150	No
41	MORRIS, G. D.	.03992	.03721	.01740	.02731	Yes
42	MURDOCH, MATHYLYN I. CONRA	.00482	.00502	.00039		
43	NOBLE, RICHARD L.	.48543	.45249	.21160		
44	PARRISH, M.C. ESTATE	.01173	.01003	.00062		
45	PORTALES NATIONAL BANK	.05989	.05582	.02610	.04096	Yes
46	RORING JOHN	.11975	.11163	.05221	.08192	Yes
47	ROSE, FRANCIS I. CONRAD	.00482	.00502	.00039		
48	SAMEDAN OIL CORP.	5.93726	6.19139	1.31910	3.75520	Yes
49	SEA PROPERTIES, LTD.	.09213	.09662	.01518	.05626	Yes
50	SHELL OIL COMPANY	24.12270	23.76832	8.87538	21.32185	Yes
51	1ST NATL BANK/FT. WORTH	.03992	.03721	.01740	.02731	Yes
53	SPEAR HOWELL	.00096	.00085	.00096		
54	SULLIVAN, E. C.	.05989	.05582	.02610	.04096	Yes
55	SUN OIL CO. (DELEWARE)	2.27119	1.96558	1.34229		
56	SWEET, BILL L.	.02615	.02300	.01776		
57	SWEET, C. E. OIL CO.	.26443	.24146	.17399		
58	1ST NATL BANK OF CASPER	.11976	.11163	.05221	.08192	Yes
59	TEXACO, INC.	3.16134	3.49116	1.16515	2.12813	Yes
60	TEXAS PACIFIC OIL CO. IN	4.88172	4.76381	2.81932	3.76157	Yes
61	TREADAWAY, BETTYE CONRA	.00482	.00502	.00039		
62	TWO STATES OIL CO.	.06498	.06649	.02682		
63	WALLACE, COLLEEN MCPHERSO	.01017	.00960	.01010		
64	WHITLEY, LOYD	.00194	.00171	.00191		
65	WILLIAMS, HATTIE C.	.11381	.11405	.02222	.08384	Yes
66	WILLIAMSON, A. T.	.00194	.00171	.00191		
67	WISER OIL COMPANY, THE	.28139	.28927	.11005	.19916	Yes
68	YATES, JOEN A	.12986	.10695	.03811		
69	YEAGER & ARMSTRONG	.01257	.00793	.00463		
70	YEAGER JR. DR. HENRY	.01546	.01631	.00127	.00879	No
71	YEAGER RUTH ANNE	.01146	.01214	.00095	.00655	No
72	YEAGER RUTH/HENRY	.00402	.00418	.00033	.00226	No
73	YEAGER-RUTH PEELER	.01682	.01751	.00137	.00944	No
74	LANDRETH INTERESTS	.45232	.44225	.21170		
	Yes	78.27269	78.84410	28.96753	73.72588	
	No	18.64525	18.18691	7.70595	23.06645	144

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Attachment No. 6 pg 1 of [illegible]

PROPOSED NORTH HOBBS UNIT

Shell Formula - .58 Phase II + .42 Phase III

Adj to Phase III - Expense - Phase-in-effect

WIO NO	WINAME	PHASE I Oil	PHASE II Oil	PHASE III Oil	.58 Phase II .42 Phase III	Vote
1	AMERADA HESS CORP.	656696	650261	860241	7.38452	Yes
2	AMOCO PRODUCTION CO.	138897	135805	187841		
3	ANDERSON ADA A	.00629	.00396	.02317		
4	ANDERSON EST., WARREN D	.00629	.00396	.02317		
5	ANDERSON, W D AND SONS	.01257	.00793	.04633		
6	ARMSTRONG, J M	.01257	.00793	.04633		
7	ATLANTIC RICHFIELD CO.	294388	318766	327303	3.22351	Yes
8	BYROM W K	.06780	.06400	.07001		
9	C&C OPERATING CO.	.01133	.00688	.03147		
10	CHEVRON OIL COMPANY	321471	339898	297321	3.22016	Yes
11	CITIES SERVICE OIL CO.	324881	320246	554436	4.18606	No
12	CONRAD MARY DANIEL	.02408	.02508	.00196		
13	CONTINENTAL OIL CO.	1124634	1171358	1436721	12.82811	Yes
14	CRILE, HERMAN R.	.03613	.03762	.00294		
15	CUSACK, J. P.	.27045	.25609	.01173	.15346	No
16	CUSACK, JR., J. P.	113609	123831	.08912	.75565	No
17	CUSACK, MICHAEL F.	113609	123831	.08912	.75565	No
18	DEL-LEA, INC. (ANTWEIL)	.11092	.10053	.03652		
19	DUNLAVEY, J.N.	.00194	.00171	.00191		
20	ESTES, RUSSELL G.	.00335	.00211	.01236		
21	EXXON COMPANY - U.S.A.	468761	439609	763885	5.75805	No
22	FIRST ROSWELL COMPANY	.00388	.00340	.00323		
23	FORBES C. C.	.06067	.05656	.02645	.04391	Yes
24	FORBES, ILAMAE	.05908	.05507	.02575	.04276	Yes
25	GETTY OIL COMPANY	872066	874234	755887	8.24529	Yes
26	GULF ENERGY & MINERALS	971717	944656	1523438	11.87744	Yes
27	HEADLEY, KENNETH NOEL	.05778	.05978	.00522		
28	HURD, PETER	.02408	.02508	.00196		
29	JUDSON, RUBY WANDA CONRA	.00482	.00502	.00039		
30	KEMNITZ, A. A.	.91817	.85586	.40024	.66450	Yes
31	LAFLIN, GEORGE P.	.00194	.00171	.00191		
32	LOWE, M. RALPH	.03128	.02674	.00165		
33	MARATHON OIL COMPANY	263643	271879	403993	3.27367	Pass
34	MCCARTHY, KATHRYN L. C.	.00482	.00502	.00039		
35	MCPETERS, K. D.	.00877	.00757	.00318		
36	MCPHERON, MARGARAT M.	.02034	.01920	.02101		
37	MCPHERON, ROBERT L.	.01017	.00960	.01050		
38	MOBIL OIL CORP.	.92642	.82805	.67264		

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Attachment No. 6 (Cont.)

PROPOSED NORTH HOBBS UNIT

WIO ID	WINAME					
40	MORAN, R. M.	.03511	.03019	.01270	.02290	No.
41	MORRIS, G. D.	.03992	.03721	.01740	.02889	Yes
42	MURDOCH, NATHYLYN I.CONRA	.00482	.00502	.00039		
43	NOBLE, RICHARD L.	.08543	.05249	.02160		
44	PARRISH, M.C. ESTATE	.01173	.01003	.00062		
45	PORTALES NATIONAL BANK	.05989	.05582	.02610	.04334	Yes
46	RORING JOHN	.11975	.11163	.05221	.08668	Yes
47	ROSE, FRANCIS I. CONRAD	.00482	.00502	.00039		
48	SAMEDAN OIL CORP.	5.93726	6.19139	2.31910	4.14497	Yes
49	SEA PROPERTIES, LTD.	.09213	.09662	.01578	.06267	Yes
50	SHELL OIL COMPANY	24.12710	23.76832	8.87538	21.21329	Yes
51	1ST NATL BANK/FT. WORTH	.03992	.03721	.01740	.02889	Yes
53	SPEAR HOWELL	.00096	.00085	.00096		
54	SULLIVAN, E. C.	.05989	.05582	.02610	.04334	Yes
55	SUN OIL CO. (DELEWARE)	2.27119	1.96518	.91429		
56	SWEET, BILL L.	.02691	.02300	.01776		
57	SWEET, C. H. OIL CO.	.26443	.24146	.09399		
58	1ST NATL BANK OF CASPER	.11976	.11163	.05221	.08668	Yes
59	TEXACO, INC.	3.16134	3.49116	1.16515	2.28220	Yes
60	TEXAS PACIFIC OIL CO. IN	4.08172	4.70381	2.81932	3.91232	Yes
61	TREADAWAY, BETTYE CONRA	.00482	.00502	.00039		
62	TWO STATES OIL CO.	.06498	.06649	.02682		
63	WALLACE, COLLEEN MCPHERO	.01017	.00960	.00450		
64	WHITLEY, LOYD	.00194	.00171	.00091		
65	WILLIAMS, HATTIE C.	.13381	.11505	.02222	.09346	Yes
66	WILLIAMSON, A. T.	.00194	.00171	.00091		
67	WISER OIL COMPANY, THE	.28139	.28927	.11005	.21400	No
68	YATES, JOEL A	.12986	.10695	.03811		
69	YEAGER & ARMSTRONG	.01257	.00793	.00433		
70	YEAGER JR. DR. HENRY	.01546	.01631	.00127	.00999	No
71	YEAGER RUTH ANNE	.01166	.01214	.00095	.00744	No
72	YEAGER RUTH/HENRY	.00402	.00418	.00033	.00256	No
73	YEAGER RUTH PEELER	.01682	.01751	.00137	.01074	No
74	LANDRETH INTERESTS	.45232	.42225	.04170		
	Yes	72.01563	72.36473	27.86992	80.05693	146
	No	10.87691	10.79404	13.50522	11.89528	
	Pass	2.03643	2.71879	4.03993	3.27367	

PROPOSED CHANGES IN UNIT AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT

Page 3: In subsection (h), delete "and 5347 feet" and add at the end "and the depth of 4500 feet beneath the surface".

Page 9: In the third paragraph of Section 12, delete "owner" and insert "party or parties entitled thereto".

Page 10: At the end of the next to last paragraph in Section 13 add:

"Unit Operator shall notify the Supervisor and the Land Commissioner as to the date each phase change occurs".

Page 19: At the end of the first paragraph in Section 24 add:

"Unit Operator shall not file this Agreement or notice thereof for record, and hence this Agreement shall not become effective, unless such filing is approved by Working Interest Owners owning a combined Phase III Unit Participation of at least eighty percent (80%) as to all Tracts then committed to this Agreement".

Page 24: In the fifth line of the first paragraph of Section 39 after "become parties to this Agreement" insert "or have approved this Agreement in writing".

Page 25: At the end of the first paragraph in the revised Section 24 add:

"Unit Operator shall not file this Agreement or notice thereof for record, and hence this Agreement shall not become effective, unless within ninety (90) days after the date all other prerequisites for effectiveness of this Agreement have been satisfied, such filing is approved by Working Interest Owners owning a combined Phase III Unit Participation of at least sixty-five percent (65%) as to all Tracts within the Unit Area.

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

February 9, 1978

Subject: Proposed Cost Allocation Formula
North Hobbs (Grayburg - San Andres) Unit
Lea County, New Mexico

TO: ALL WORKING INTEREST OWNERS

At the Working Interest Owners Meeting of the proposed North Hobbs (Grayburg - San Andres) Unit of February 2, 1978, it was agreed to submit for ballot vote a method of allocating unit costs as proposed by Shell Oil Company. Accordingly, a ballot is hereby submitted for such method of allocating unit costs. Please indicate your decision on this matter in the space provided and return one copy to Shell Oil Company, Box 991, Houston, Texas 77001, Attention W. E. Buck.

Enclosed for your convenience is a self-addressed, stamped envelope.

Yours very truly,

W E Buck

W. E. Buck
Chairman, Working Interest Owners Comm

WEB:TS

Attachments

NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT
COST ALLOCATION FORMULA - PROPOSED BY SHELL AT
MEETING OF FEBRUARY 2, 1978

I. Operating Expenses

Operating, maintenance, and overhead expenses to be allocated on phase-in-effect unit participation (oil).

II. Capital Expenditures and Inventoried Value of Personal Property

1. The inventoried value of personal property and all expenditures of a capital nature (including injection well conversion costs) made during Phase I (oil) and Phase II (oil) will be allocated on the basis of .58 Phase II (oil) participation plus .42 Phase III (oil) participation.

2. At the termination of Phase II (oil), the inventoried value of personal property and the capital investment account (both adjusted for retirements and including conversion costs) shall be adjusted to Phase III (oil) participation.

3. All expenditures of a capital nature made during Phase III will be allocated on the basis of Phase III (oil) participation.

The undersigned votes as noted below in regard to the above stated cost allocation formula.

Approved _____ Company _____

Disapproved _____ Representative _____

Date _____

Return to: Shell Oil Company
P. O. Box 991
Houston, Texas 77001
Attention: W. E. Buck

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001
May 3, 1978

Subject: North Hobbs (Grayburg - San Andres) Unit
Lea County, New Mexico

TO: Working Interest Owners
(Mailing List Attached)

A meeting of the working interest owners of the proposed North Hobbs (Grayburg-San Andres) Unit is called for 10:00 A.M., May 18, 1978, in the Reddy Room, Texas Electric Service Company, Midland, Texas.

The agenda for the meeting will be as follows:

1. Review drafts of Unit and Unit Operating Agreements with view to preparing agreements in final form and submitting to working and royalty interests for ratification.

2. Develop further course of action for unitization matters.

3. Any other business

The indicated response to date on the ballot submitted February 9, 1978, is as follows:

Investment Participation

	Working Interest Owners' Participation %	
	Approved	Disapproved
Phase I Oil (Unit Participation)	85.33638	10.18781
Phase II Oil (Unit Participation)	85.79607	9.70702
Phase III Oil (Unit Participation)	83.62214	14.55282
Investment Participation	84.88304	11.74226

(Detailed response is shown on attached tabulation)

The response shown includes, as approved, the indicated acceptance of Samedan Oil Corporation. Samedan has advised that they will accept the formula with the added provision that the investment account be re-adjusted to Phase III Oil Unit Participation at the termination of Phase II (production of 38,071,683 bbls oil after 1/1/77) or at January 1, 1991, which ever occurs first. The date,

January 1, 1991, is the first day of the year following the approximate date that oil production from the unit area after January 1, 1977, totals 38,071,683 barrels as determined from the unit production performance estimated by the Technical Committee. As this is in keeping with the intent and purpose of the proposed formula for investment expenditures, the draft of the Unit Operating Agreement has been revised to include such stipulation.

All working interests owners, who have now indicated acceptance of the cost allocation formula, have previously indicated acceptance also of the gas and oil participation formulas. Shell considers this response sufficient to proceed with finalization of the Unit and Unit Operating Agreements and to submit such agreements for ratification at the earliest possible date.

Drafts of the Unit and Unit Operating agreements were submitted with the call to meeting of December 14, 1977. Due to further negotiation of the cost allocation formula, the drafts were not reviewed at the meeting of February 2, 1978. In the interim, written comments have been received from a number of the working interest owners. The comments have been reviewed and the revisions suggested by Shell are attached. All comments will be discussed at the meeting and representatives are asked to attend the meeting prepared to render decisions concerning the agreements.

A current listing of all working interest owners has been made and, as there have been changes in ownership, a new tabulation showing unit participation (oil and gas) and investment participation (based on .58 -.42 formula) is being prepared. Such tabulation will be mailed to you as soon as completed.

Yours very truly,

W E Buck

W. E. Buck
Chairman, Working Interest Owners
Committee

WEB:TS

Attachments

PROPOSED NORTH HOBBS UNIT

COST ALLOCATION FORMULA (Investment Participation)

.58 Phase II (oil) + .42 Phase III (oil)

WIO No.	WINAME	PHASE I Oil %	PHASE II Oil %	PHASE III Oil %	INVESTMENT PARTICIPATION (.58 Phase II + .42 Phase III) %	Acceptance Y-Yes N-No
1	AMERADA HESS CORP.	656696	650261	860241	7.38453	Y
2	AMOCO PRODUCTION CO.	138897	135805	187841	1.57660	Y
3	ANDERSON ADA A	.00629	.00396	.02317	.01203	N
4	ANDERSON EST., WARREN D	.00629	.00396	.02317	.01203	N
5	ANDERSON, W D AND SONS	.01257	.00793	.04633	.02406	N
6	ARMSTRONG, J M	.01257	.00793	.04633	.02406	N
7	ATLANTIC RICHFIELD CO.	294388	318766	327303	3.22351	Y
8	BYROM W K	.06780	.06400	.07001		
9	C&C OPERATING CO.	.01133	.00688	.03147		
10	CHEVRON OIL COMPANY	321471	339898	297321	3.22016	Y
11	CITIES SERVICE OIL CO.	324881	320246	554436	4.18604	N
12	CONRAD MARY DANIEL	.02408	.02508	.00196		
13	CONTINENTAL OIL CO.	1124634	1171358	1436721	12.82810	Y
14	CRILE, HERMAN R.	.03613	.03762	.00294	.02305	N
15	CUSACK, J. P.	.27045	.25609	.01173		
16	CUSACK, JR., J. P.	113609	123831	.08912		
17	CUSACK, MICHAEL F.	113609	123831	.08912		
18	DEL-LEA, INC. (ANTWEIL)	.11092	.10053	.03652		
19	DUNLAVEY, J.N.	.00194	.00171	.00191		
20	ESTES, RUSSELL G	.00335	.00211	.01236	.00642	N
21	EXXON COMPANY - U.S.A.	468761	439609	763885	5.75805	N
22	FIRST ROSWELL COMPANY	.00388	.00340	.00303	.00358	N
23	FORBES C. C.	.06067	.05656	.02645		
24	FORBES, ILAMAE	.05908	.05507	.02575		
25	GETTY OIL COMPANY	872066	874234	755887	8.24529	Y
26	GULF ENERGY & MINERALS	971717	944656	1523438	11.87744	Y
27	HEADLEY, KENNETH NOEL	.05778	.05978	.00522		
28	HURD, PETER	.02408	.02508	.00196		
29	JUDSON, RUBY WANDA CONRA	.00482	.00502	.00039		
30	KEMNITZ, A. A.	.91817	.85586	.40024	.66450	N
31	LAFLIN, GEORGE P.	.00194	.00171	.00191		
32	LOWE, M. RALPH	.03128	.02674	.00165		
33	MARATHON OIL COMPANY	263643	271879	403993	3.27367	Y
34	MCCARTHY, KATHRYN L. C.	.00482	.00502	.00039		
35	MCPETERS, K. D.	.00877	.00757	.00318		
36	MCPHERON, MARGARAT M.	.02034	.01920	.02101		
37	MCPHERON, ROBERT L.	.01017	.00960	.01050		
38	MOBIL OIL CORP.	.92642	.82805	.67264		
39	MORANCO	.03320	.02848	.00537	.01877	N

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PROPOSED NORTH HOBBS UNIT

WIO	WINAME							
40	MORAN, R. M.	.03511	.03029	.01270	.02290			N
41	MORRIS, G. D.	.03992	.03721	.01740				
42	MURDOCH, NATHYLYN I.CONRA	.00482	.00502	.00039				
43	NOBLE, RICHARD L.	.48543	.45249	.21160	.35132			N
44	PARRISH, M.C. ESTATE	.01173	.01003	.00062				
45	PORTALES NATIONAL BANK	.05989	.05582	.02610				
46	RORING JOHN	.11975	.11163	.05221				
47	ROSE, FRANCIS I. CONRAD	.00482	.00502	.00039				
48	SAMEDAN OIL CORP.	5.93716	6.19129	1.31910	4.14497	Y		
49	SEA PROPERTIES, LTD.	.09213	.09662	.01578	.06107			N
50	SHELL OIL COMPANY	24.12270	23.76832	18.87538	21.71329	Y		
51	1ST NATL BANK/FT. WORTH	.03992	.03721	.01740				
53	SPEAR HOWELL	.00096	.00085	.00096				
54	SULLIVAN, E. C.	.05989	.05582	.02610				
55	SUN OIL CO. (DELEWARE)	.27119	.19658	.43429	.29642			N
56	SWEET, BILL L.	.02651	.02300	.01776				
57	SWEET, C. H. OIL CO.	.26443	.34146	.19399	.47352	Y		
58	1ST NATL BANK OF CASPER	.11976	.11163	.05221	.08667			N
59	TEXACO, INC.	3.16134	3.49110	1.16515	2.18220	Y		
60	TEXAS PACIFIC OIL CO. IN	4.68172	4.70381	2.81732	3.91234	N		
61	TREADAWAY, BETTYE CONRA	.00482	.00502	.00039				
62	TWO STATES OIL CO.	.06498	.06649	.00682	.04148			N
63	WALLACE, COLLEEN MCPHERO	.01017	.00960	.01050				
64	WHITLEY, LOYD	.00194	.00171	.00191				
65	WILLIAMS, HATTIE C.	.13381	.14505	.02222	.09346			N
66	WILLIAMSON, A. T.	.00194	.00171	.00191				
67	WISER OIL COMPANY, THE	.28139	.28927	.11405	.21404	Y		
68	YATES, JOHN A	.12986	.10695	.03811				
69	YEAGER & ARMSTRONG	.01257	.00793	.04633	.02404			N
70	YEAGER JR., DR. HENRY	.01546	.01631	.00137	.00999			N
71	YEAGER [illegible] ANNE	.01146	.01214	.00095	.00744			N
72	YEAGER RUTH/HENRY	.00402	.00418	.00033	.00256			N
73	YEAGER RUTH PEELER	.01682	.01751	.00137	.01073			N
74	LANDRETH INTERESTS	.05232	.04225	.01170	.05342	Y		
	Totals							
	Yes	85.33638	85.79607	83.62214	84.88304			
	No.	10.48781	9.70702	14.55282	11.74226			

PROPOSED CHANGES IN UNIT AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT

Page 3: In subsection (h), delete "and 5347 feet" and add at the end "and the depth of 4500 feet beneath the surface".

Page 9: In the 5th line of the 1st paragraph in Section 12, after "water" insert "injection plants", and in the next line after "injection" insert "plants".

Page 9: In the 3rd paragraph in Section 12, delete "owner" and insert "party or parties entitled thereto".

Page 10: At the end of the next to last paragraph in Section 13 add:

"Unit Operator shall notify the Supervisor and the Land Commissioner as to the date each phase change occurs".

Page 15: At the end of the 3rd sentence in the last paragraph in Section 16, change the period to a semicolon and add "thereafter all oil produced, saved and sold from the unit shall, as to each and every category into which such production may then or thereafter be classified for pricing or other purposes, be allocated to all qualified Tracts in proportion to Tract Participation in accordance with the provisions of Section 15".

Page 16: At the beginning of Section 18, delete "The State of New Mexico and United States of America and" and insert "Any and".

Page 19: In the 10th and 14th lines in Section 23, change "instrument or transfer" to "instrument of transfer" and delete the comma in the 14th line.

Page 19: At the end of the 1st paragraph in Section 24 add:

"Unit Operator shall not file this Agreement or notice thereof for record, and hence this Agreement shall not become effective, unless such filing is approved by Working Interest Owners owning a combined Phase III Unit Participation of at least eighty percent (80%) as to all Tracts then qualified under the provisions of Section 14".

Page 21: At the beginning of Section 27 insert "Unless a different representative is designated by Working Interest Owners,".

Page 22: In the 8th line in Section 32 change "interested subject thereto" to "interest subject hereto".

PROPOSED CHANGES IN UNIT AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT

Page 24: In the 5th line of the 1st paragraph in Section 39 after "become parties to this Agreement" insert "or have approved this Agreement in writing".

Page 25: At the end of the 1st paragraph in the revised Section 24 add:

"Unit Operator shall not file this Agreement or notice thereof for record, and hence this Agreement shall not become effective, unless within ninety (90) days after the date all other prerequisites for effectiveness of this Agreement have been satisfied, such filing is approved by Working Interest Owners owning a combined Phase III Unit Participation of at least sixty-five percent (65%) as to all Tracts within the Unit Area.

PROPOSED CHANGES IN UNIT OPERATING AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT

Page 1: Add a section in Article I as follows:

"1.2 Additional Definitions. For the purposes of this agreement, the following terms and expressions as used herein shall mean:

(a) "Investment Participation" shall mean the sum of .58 Phase II Unit Participation and .42 Phase III Unit Participation.

(b) "Investment Readjustment Date" shall mean the date of termination of Phase II or January 1, 1991, whichever is the earlier date."

Page 1: Change the first sentence in Section 2.1.2 to read "Exhibit E, attached hereto, is a schedule showing the Tract Participation, the Unit Participation, and the Investment Participation of each Working Interest Owner."

Page 6: After the 1st sentence in Section 7.9 insert "Unit Operator shall furnish to a Working Interest Owner, upon written request, a copy of each authority for expenditure prepared by Unit Operator for its own use."

Page 8: In the 7th line of Section 10.3.1 change "Phase II Unit Participation" to "Investment Participation".

Page 9: Make the following changes in Section 10.3.2:

Beginning in the 1st line in the 1st paragraph, change "as of the end of Phase II" to "as of the Investment Adjustment Date".

Beginning in the 8th line in the 1st paragraph change "during Phase I and Phase II Unit Operations" to "prior to the Investment Readjustment Date".

Beginning in the 2nd line in paragraph (b) change "during Phase I and Phase II Unit Operations" to "prior to the Investment Readjustment Date".

Beginning in the 2nd line in paragraph (c) change "prior to the effective date of Phase III Unit Operations" to "prior to the Investment Readjustment Date".

Page 9: Delete the last sentence in Section 10.4.

PROPOSED CHANGES IN UNIT OPERATING AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES UNIT)

Page 10: Make the following changes in Section 10.5:

In the 5th line change "Phase II Unit Participation" to "Investment Participation."

Beginning in the 5th line change "as and while Phase I and Phase II may be effective" to "during the time prior to the Investment Readjustment Date".

In the 7th line change "from and after the time Phase III may hereafter become effective" to "from and after the Investment Readjustment Date."

Page 10: Change Section 11.1.2 to read as follows:

"11.1.2. Investment Cost. The cost of investment items (as described in Section 10.3.2 (b) above) incurred prior to the Investment Readjustment Date shall be shared and borne by Working Interest Owners in proportion to Investment Participation. The cost of such investment items incurred after the Investment Readjustment Date shall be shared and borne by Working Interest Owners in proportion to Phase III Unit Participation."

Page 12: In the 4th line from the top of the page after "collected from" insert "or otherwise received for the account of".

Page 16: In the 10th line of Section 18.1, after "Working Interest Owners" insert "without regard to plugging and abandonment costs".

Page 17: In the 4th line of Section 20.1.2, after "Working Interest Owners" insert "without regard to plugging and abandonment costs".

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SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

May 8, 1978

Subject: Participation and Cost Allocation
Tabulations
North Hobbs (Grayburg-San Andres) Unit
Lea County, New Mexico

To: Working Interest Owners - North Hobbs
(Grayburg - San Andres) Unit
(Mailing List Attached)

The call to meeting of May 3, 1978, advised that up-dated tabulations of all working interest owners and their respective unit and investment participation would be furnished as soon as completed. Attached are the following listed tabulations:

1. Tract participation and Investment Participation.

2. Tract Participation and Investment Participation - by tract and working interest in each tract.

3. Unit Participation and Investment Participation - by working interest owner and by tract.

4. Summary of Unit and Investment Participation.

The data shown will be used in preparing the exhibits to the unit and unit operating agreements. It is, therefore, requested that if any errors are noted, Shell be so advised as soon as possible.

Since the call to meeting was issued, Cities Service has indicated acceptance of the cost allocation formula. The current response concerning the investment allocation, including the acceptance of Cities Service, is as follows:

Investment Participation

	Working Interest Owners' Participation %	
	Approved	Disapproved
Phase I Oil (Unit Participation)	88.58519	6.93900
Phase II Oil (Unit Participation)	88.99853	6.50456

Investment Participation	Working Interest Owners' Participation %	
	Approved	Disapproved
Phase III Oil (Unit Participation)	89.16650	9.00846
Investment Participation	89.06910	7.5562

Yours very truly,

W. E. Buck
Chairman, Working Interest Owners Committee

WEB:TS

Attachments

SHELL OIL COMPANY

P.O. BOX 991
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JUN - 2 1978

Subject: Minutes - Working Interest Owners' Meeting
of May 18, 1978
Proposed North Hobbs (Grayburg - San Andres)Unit
Lea County, New Mexico

TO: WORKING INTEREST OWNERS
(Mailing List Attached)

A meeting of the Working interest Owners of the proposed North Hobbs (Grayburg-San Andres) Unit was held May 18, 1978 in Midland, Texas. The representatives attending the meeting are shown on the attached attendance list.

Mr. Buck, chairman, opened the meeting by stating that the cost allocation formula submitted for ballot consideration by letter of February 9, 1978, had been accepted by Working Interest Owners totaling approximately 89 percent based on the oil unit participation. He further advised that all parties indicating acceptance of the cost allocation formula had also previously indicated acceptance of the unit participation (oil & gas) formula. He stated that Shell, as Unit Expeditor, believed the affirmative response was sufficient to proceed with the development and the submittal for execution of the unit and unit operating agreements.

Mr. Buck pointed out that drafts of the unit and unit operating agreements had been submitted to the Working Interest Owners with the notice of the meeting of February 2, 1978. Comments from a number of Working Interest Owners have been received and reviewed by Shell. Revisions, suggested by Shell and resulting from the comments received, were attached to the notice of this meeting.

As the first agenda item, the unit and unit operating agreements were reviewed. The unit agreement was reviewed first, page at a time. Comments of the Working Interest Owners were discussed and agreement reached on various revisions or deletions.

The unit operating agreement was then reviewed in the same manner. The major items of discussion were as follows:

Article 4.2	Agreement was reached to revise the provision to include the requirement that any request for monetary approval at a meeting must appear as an agenda item.
Article 7.9	Agreement was reached to include a provision requiring the unit operator to furnish informational AFE's to Working Interest Owners for any single capital expenditures in excess of $5000.

Article 10.2 Agreement was reached to provide for the inventory and pricing of items considered non-controllable as determined by the Working Interest Owners.

Article 10.3.2 In answer to questions, Mr. Buck explained that it was Shell's understanding that if any items of personal property and facilities were replaced by new items, the Investment Account would be reduced by the inventory value or actual installation cost of the item replaced and increased by the actual cost, including installation, of the new item. When given a specific example, Mr. Buck replied that if a treating or separation vessel, included in the original inventory, was replaced by a new vessel, the Investment Account would be reduced by the original inventory value of the replaced vessel and increased by the actual cost, including installation, of the new vessel. When asked about costs to deepen wells, Mr. Buck replied that it was Shell's understanding that such costs, being a part of the development program, would be charged on the basis of the investment participation and included in the adjustment of the Investment Account.

Article 18.1
Article 20.1.2 It was agreed that wells no longer needed for unit operations could be taken over by the Working Interest Owner by payment of net salvage value as estimated by Working Interest Owners.

Exhibit F (Accounting Procedure)

Because of the comments concerning the deletion of the word "direct" (Section I (1)) and the addition of the phrase "and related expenses"(Section II 2, A(1)), Mr. Buck offered the following explanation prior to review.

The revisions do not represent a change in Shell's accounting procedures or in the method of handling joint venture properties. The changes in the form are brought about by the use of the 1974-COPAS form.

Shell refers to their field operating Unit as a Production Unit. The employees and/or contract labor engaged in operating and maintaining the properties included in a Production Unit are supervised by a Production Foreman who is assisted by one or more Maintenance Foremen. The Production Unit is the First Level of Supervision. The salaries and related expenses of Production Unit Supervisors are considered as direct charges, since they were excluded from the calculation of overhead rates. All expenses of supervisory employees assigned to offices above a Production Unit, starting with the Division Production Superintendent, are included in Shell's overhead charges.

The COPAS-1974 Accounting Procedure defines First Level Supervisors as employees whose primary function is the direct supervision of other employees and/or contract labor. Previous COPAS Accounting Procedures did not include such a definition. Bulletin No. 8, associated with COPAS-1968 Accounting Procedure, defines First Level Supervisors as employees and their assistants who supervise other employees and/or contract labor. The COPAS-1968 form was acceptable to Shell. As supervision of Production Unit operating employees and/or contract labor by the Production Foreman may not always be direct, it was felt that the definition of the 1974-COPAS form could not be applied to Shell's organization. To avoid an interpretation that the Maintenance Foreman rather than the Production Unit is the First Level of Supervision, Shell felt it essential to delete the word "direct" when using the COPAS-1974 Accounting Procedure.

Related expenses are the expenses necessary for proper performance of the foreman's function. This would include such expenses as office rent, utilities, communication, answering service, and other miscellaneous expenses directly related to the Production Unit.

Although no formal vote was taken, it appeared that the unit and unit operating agreements, revised as discussed, were generally acceptable to the Working Interest Owners present and that it would not be necessary to submit revised drafts of the agreements. Mr. Buck advised that the agreements would be prepared in final form and submitted to the United States Department of Interior, Geological Survey and to the New Mexico State Land Office for review. If no revisions of substance are required by the governmental agencies, the agreements will be submitted to the working and royalty interests for ratification without further review. Depending on the time required for review by the governmental agencies, Mr. Buck estimated that the agreements would be submitted for ratification at some time between July 15, and August 1, 1978.

It was pointed out that ownership and lease data had been furnished to all Working Interest Owners by Shell's Land Department with the request that Shell be notified of any errors. As there are approximately 1500 royalty interests and 74 working interests, considerable time and effort would be required to correct data after the first printing of the agreements. Therefore, all parties are urged to review the data submitted as soon as possible and to advise Shell of any changes or corrections.

Mr. Buck noted that a unit of this size would require considerable preliminary planning and design work in order that injection operations could be commenced as early as possible after the effective date of unitization. As part of this preliminary work, Shell is proceeding to negotiate a water purchase agreement with the City of Hobbs, to purchase key rights-of-way and plant sites, and to design long delivery equipment and facilities. Shell will advise the Working Interest Owners from time to time of the progress of this work and the status of sign-up of working and royalty interests.

There being no further business, the meeting was adjourned.

Yours very truly

W E Buck

W. E. Buck
Chairman, Working Interests Owners'
Committee

WEB:TS

Attachment

NORTH HOBBS UNIT

MAY 18, 1978

COMPANY	NAME	LOCATION
Amerada-Hess	R. W. Mullins	Tulsa, Ok.
Amoco	S. R. Denton	Houston, Tx.
Atlantic Richfield	Thane Akins	Midland, Tx.
Chevron USA	W. A. Masters	Denver, Co.
Chevron USA	W. A. Goudeau	Midland, Tx.
Chevron USA	D. D. Allen	Midland, Tx.
Citco	M. S. Mabry	Midland, Tx.
Conoco Oil Company	E. L. Oshlo	Hobbs, N. M.
Exxon Oil Company	J. B. Campbell	Midland, Tx.
Exxon Oil Company	W. E. Nolan	Midland, Tx.
First National Bank - Dallas	Gene Thomas	Dallas, Tx.
Getty Oil Company	O. V. Stuckey	Midland, Tx.
Gulf Oil Company	J. D. Mussett	Midland, Tx.
Moranco Oil Company	Ken McPeters	Hobbs, N. M.
Samedan Oil Company	Boyce Perry	Ardmore, Ok.
Shell Oil Company	W. E. Buck	Houston, Tx.
Shell Oil Company	W. L. Campbell	Houston, Tx.
Shell Oil Company	L. A. Kirkpatrick	Houston, Tx.
Shell Oil Company	W. R. Lancaster	Houston, Tx.
Texaco Inc.	Morris Todd	Midland, Tx.
Texas Pacific	Russ Meyers	Dallas, Tx.

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
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ARDMORE, OK 73401

ELLIE SIMS SPEAR
603 EAST SECO DRIVE
HOBBS, NM 88240

SUN OIL COMPANY (DELAWARE)
ATTENTION MR. JOE W. THORNTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTENTION MR. R. K. BEGGS
P.O. BOX 1861
MIDLAND, TX 79702

TEXACO, INC.
ATTENTION DISTRICT ENGINEER
P.O. BOX 728
HOBBS, NM 88240

TEXAS PACIFIC OIL CO., INC.
ATTENTION MR. R. J. WOMACK
P.O. BOX 4067
MIDLAND, TX 79702

TWO STATES-OIL COMPANY
MERCANTILE COMMERCE BUILDING
SUITE 1910
DALLAS, TX 75201

LOYD WHITLEY
2202 WESTERN DRIVE.
MIDLAND, TX 79701

A. T. WILLIAMSON
2210 HARVARD CT.
HOBBS, NM 88240

THE WISER OIL COMPANY
ATTENTION MR. C. P. LaRUE
P.O. BOX 192
SISTERVILLE, WV 26175

S. P. YATES
207 S. 4TH STREET
ARTESIA, NM 88210

DR. HENRY YEAGER, JR.
C/O TRUST OIL DEPARTMENT, TRUST
SERVICES
FIRST NATIONAL BANK IN DALLAS
BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P.O. BOX 6031
DALLAS, TX 75222

MR. BILL L. SWEET
P.O. BOX 51
HOBBS, NM 88240

TEXACO, INC.
ATTENTION ASSISTANT DIVISION MANAGER
P.O. BOX 3109
MIDLAND, TX 79702

TEXAS PACIFIC OIL CO., INC.
ATTENTION MR. L. B. BARRUTH
1700 ONE MAIN PLACE
DALLAS, TX 75250

BETTYE CONRAD TREADAWAY
5215 HAVENWOODS
HOUSTON, TX 77066

WARD INVESTMENT CORPORATION
101 SOUTH FOURTH
ARTESIA, NM 88210

HATTIE C. WILLIAMS
P.O. BOX 3187
LUBBOCK, TX 79410

THE WISER OIL COMPANY
ATTENTION MR. BILL LARSEN
1610 C&I BUILDING
HOUSTON, TX 77002

YATES PETROLEUM CORPORATION
309 CARPER BUILDING
ARTESIA, NM 88210

W. A. YEAGER
BOX 990
MIDLAND, TX 79702

RUTH ANNE YEAGER
3924 GLENWICK LAND
DALLAS, TX 75205

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P.O. BOX 6031
DALLAS, TX 75222

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION FOR THE PURPOSE OF CONSIDERING:

Case No. 6653
Order No. _____

APPLICATION OF SHELL OIL COMPANY FOR A PRESSURE MAINTENANCE PROJECT, LEA COUNTY, NEW MEXICO.

Final Draft
by
Owen Lopez

ORDER OF THE COMMISSION

By The Commission:

This case and cause of action came on for hearing at 9 a.m. on October 3, 1979, at Santa Fe, New Mexico, before Commissioners Joe D. Ramey and Emory C. Arnold.

NOW, on this ____ day of November, 1979, the Commission, a quorum having been present, having considered the testimony and the record, and being otherwise fully advised in the premises,

FINDS:

(1) That due public notice has been given as required by law and the Commission has jurisdiction of this case and cause of action and the subject matter hereof;

(2) That by Commission Order No. R-____ dated November __, 1979, statutory unitization was approved for the North Hobbs Grayburg-San Andres Unit Area, Lea County, New Mexico;

(3) That the applicant herein, Shell Oil Company, seeks authority to institute a pressure maintenance project for the aforesaid North Hobbs Grayburg-San Andres Unit Area within the Hobbs Grayburg-San Andres Pool, Lea County, New Mexico, by the injection of water into the Grayburg-San Andres formation through 70 wells at orthodox and unorthodox locations, 52 of which are producing wells which will be converted to injection wells in 1980;

(4) That during 1980 for the pressure maintenance project, applicant proposes to drill five producing wells and 18 injection wells at orthodox and unorthodox locations as specified below:

Township 18 South, Range 37 East, NMPM

Sec.	Unit Well No.	Unit Letter	Well Location
24	242	N	1220' FSL & 2540' FWL
25	412	A	1220' FNL & 1220' FEL

Township 18 South, Range 38 East, NMPM

Sec.	Unit Well No.	Unit Letter	Well Location
18	242	N	1220' FSL & 2540' FWL
19	142	M	1220' FSL & 100' FWL
19	242	N	1220' FSL & 2540' FWL
28	242	N	990' FSL & 1330' FWL
29	112	D	330' FNL & 1000' FWL
29	142	M	1220' FSL & 100' FWL
29	242	N	1220' FSL & 1650' FWL
30	222	F	2540' FNL & 1420' FWL
31	432	I	2540' FSL & 1220' FEL
31	442	P	100' FSL & 1220' FEL
32	122	E	2310' FNL & 1220' FWL
32	242	N	100' FSL & 1420' FWL
32	412	A	1220' FNL & 1220' FEL
32	432	I	2310' FSL & 1310' FEL
32	442	P	100' FSL & 1220' FEL
33	112	D	1220' FNL & 100' FWL
33	212	C	1220' FNL & 1440' FWL
33	232	K	1420' FSL & 1420' FWL
33	242	N	100' FSL & 1420' FWL
33	332	J	2540' FSL & 2540' FEL
33	342	O	100' FSL & 1420' FEL

(5) That all of the wells referred to in Findings Nos. (3) and (4) above, being the 70 injection wells and the five producing wells, together with wells currently completed in the Grayburg San-Andres formation, will provide a thorough and efficient sweep of hydrocarbons throughout the unit area, and will result in the recovery of otherwise unrecoverable oil and gas, thereby preventing waste;

(6) That the above-described injection and producing wells, some of which will be at unorthodox locations along the unit

boundary in accordance with lease-line agreements with operators of offsetting lands, will not impair but will protect correlative rights;

(7) That the applicant further seeks the designation of a unit area for a pressure maintenance project for the North Hobbs Grayburg-San Andres Unit, and for the promulgation of special rules and regulations governing said project, including special allowable provisions, which is in the interest of conservation and should be approved, subject to certain provisions set forth herein;

(8) That the unit area should consist of all those proration units within the boundary of the North Hobbs Grayburg-San Andres Unit Area as described in Order R_____;

(9) That the unit area allowable should be equal to the sum of the basic unit area allowable plus the water injection credit allowable as hereinafter defined;

(10) That the basic unit area allowable should be equal to 80 barrels of oil per day times the number of developed 40-acre proration units in the North Hobbs Grayburg San-Andres Unit Area;

(11) That the water injection credit allowable should be based upon the following formula:

$$\text{Water Injection Credit Allowable} = \left[\frac{\text{Net Water Injected}}{\text{Basic Unit Area Allowable Reservoir Voidage}} - 1 \right] \times \text{Basic Unit Area Allowable}$$

and should be calculated in accordance with this formula using the formula and data set forth on Exhibits "A" and "B" attached to this Order and incorporated by reference;

(12) That a weighted average unit area reservoir pressure should be determined prior to commencement of injection of water into the reservoir and at least annually thereafter;

(13) That the unit area allowable should be permitted to be produced from the wells within the unit area in any proportion;

(14) That the Division Director should have authority to approve, without notice and hearing, the drilling of wells at unorthodox locations anywhere within the boundary of the

North Hobbs Grayburg-San Andres Unit Area, provided however, no unorthodox location shall be closer than ten feet to any quarter-quarter section line, and provided further, that no such unorthodox location shall be closer than 330 feet to the boundary of the unit area, unless such well is covered by a lease-line agreement with the operator of the lands offsetting such well, and a copy of the lease-line agreement accompanies the application for such unorthodox location, or unless such offset operator has waived objection to the proposed unorthodox location in writing, and his waiver accompanies the application;

(15) Application for approval of additional wells to be used for injection should be filed in accordance with Rule 701 of the Division Rules and Regulations and may be approved administratively by the Division Director without notice and hearing.

(16) That each newly drilled injection or producing well should be equipped as follows:

a. Minimum of 350 feet of surface casing and production casing run to total depth (approximately 4500 feet), or

b. Surface casing cemented below the "red beds" (approximately 1600 ft.) and production casing run to total depth (approximately 4500 feet), or

c. Exceptions to the aforesaid casing programs may be granted by administrative approval of the Division Director;

All casing strings should be cemented to the surface except that in any well in which an intermediate casing string has been run and cemented to the surface, the production string may be cemented back into the base of the intermediate casing;

(17) That injection should be accomplished through tubing installed in a packer set within 100 feet of the uppermost perforation, or in case of an open hole completion, 100 feet above the casing shoe. The injection tubing should be corrosion protected by a non-reactive internal lining or coating. The casing-tubing annulus in each injection well should be filled with an inert fluid and a surface pressure gauge or approved leak detection device should be attached to the annulus;

(18) That the injection wells or system should be equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 0.2 psi per foot of depth to the injection zone. The Division Director may administratively authorize a pressure limitation in excess of the above upon a showing by the Unit Operator that such higher pressure will not result in fracturing of the confining strata;

(19) That all wells within the unit area should be equipped with risers or in some other acceptable manner so as to facilitate the periodic testing of the bradenhead for pressure or fluid production;

(20) That there are a number of wells within the North Hobbs Grayburg-San Andres Unit Area and on lands offsetting the unit area which have previously been plugged and abandoned in a manner which may permit waters injected into the Grayburg-San Andres formation to escape into other formations, including the Salado formation and the shallow fresh water-bearing formations unless remedial action is taken on said wells prior to injection in their near vicinity;

(21) That there are a number of wells within the North Hobbs Grayburg-San Andres Unit Area and on lands offsetting the unit area which penetrate the Hobbs Grayburg-San Andres Pool and are completed in deeper pay zones, but which are cased and cemented in such a manner as may permit the escape of waters injected into the Grayburg-San Andres formation into other formations as described in the preceding paragraph;

(22) That those wells referred to in Findings No. (20) and (21) above which are inadequately plugged and abandoned or are inadequately cased and cemented, or are suspected of being so, include, but are not necessarily limited to, the wells listed in Exhibit "C" attached hereto and incorporated by reference;

(23) That no injection at greater than hydrostatic pressure should be made into the Grayburg-San Andres formation in any well in the North Hobbs Grayburg-San Andres Unit Area within one-half mile of any well listed on Exhibit "C" until remedial action has been taken on such well to ensure that it will not serve as an avenue of escape for injected waters, or until tests have been conducted on such well or until other evidence concerning such well has been presented establishing to the satisfaction of the Supervisor of the Hobbs District Office of the Division that remedial work on such well is unnecessary.

IT IS THEREFORE ORDERED:

(1) That the applicant, Shell Oil Company, is hereby authorized to institute and operate a pressure maintenance project in the North Hobbs Grayburg-San Andres Unit Area within the Hobbs Grayburg-San Andres Pool, Lea County, New Mexico, by the injection of water into the Grayburg-San Andres formation through certain wells which will be administratively approved for water injection by the Division Director;

(2) That said project shall be designated the North Hobbs Grayburg-San Andres Unit Pressure Maintenance Project;

(3) That the following orthodox and unorthodox locations are hereby approved for the drilling of new injection and producing wells:

Township 18 South, Range 37 East, NMPM

Sec.	Unit Well No.	Unit Letter	Well Location
24	242	N	1220' FSL & 2540' FWL
25	412	A	1220' FNL & 1220' FEL

Township 18 South, Range 38 East, NMPM

Sec.	Unit Well No.	Unit Letter	Well Location
18	242	N	1220' FSL & 2540' FWL
19	142	M	1220' FSL & 100' FWL
19	242	N	1220' FSL & 2540' FWL
28	242	N	990' FSL & 1330' FWL
29	112	D	330' FNL & 1000' FWL
29	142	M	1220' FSL & 100' FWL
29	242	N	1220' FSL & 1650' FWL
30	222	F	2540' FNL & 1420' FWL
31	432	I	2540' FSL & 1220' FEL
31	442	P	100' FSL & 1220' FEL
32	122	E	2310' FNL & 1220' FWL
32	242	N	100' FSL & 1420' FWL
32	412	A	1220' FNL & 1220' FEL
32	432	I	2310' FSL & 1310' FEL
32	442	P	100' FSL & 1220' FEL
33	112	D	1220' FNL & 100' FWL
33	212	C	1220' FNL & 1440' FWL
33	232	K	1420' FSL & 1420' FWL
33	242	N	100' FSL & 1420' FWL
33	332	J	2540' FSL & 2540' FEL
33	342	O	100' FSL & 1420' FEL

(4) That Special Rules and Regulations governing the North Hobbs Grayburg-San Andres Unit Pressure Maintenance Project are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
NORTH HOBBS GRAYBURG-SAN ANDRES UNIT
PRESSURE MAINTENANCE PROJECT

RULE 1. That the unit area shall consist of all those proration units within the boundary of the North Hobbs Grayburg-San Andres Unit Area.

RULE 2. The unit area shall receive a unit area allowable, and said unit area allowable shall be the sum of the basic unit area allowable plus the water injection credit allowable.

RULE 3. The basic unit area allowable shall be equal to 80 barrels of oil per day times the number of developed 40-acre proration units in the unit area.

RULE 4. The water injection credit allowable shall be based upon the following formula:

$$\text{Water Injection Credit Allowable} = \left[\frac{\text{Net Water Injected}}{\text{Basic Unit Area Allowable Reservoir Voidage}} - 1 \right] = \text{Basic Unit Area Allowable}$$

The water injection credit allowable shall be calculated in accordance with this formula using the formula and data set forth on Exhibits "A" and "B" attached hereto and incorporated by reference. In no event shall the water injection credit allowable be less than zero. Therefore, negative numbers derived from the application of the above formula shall be ignored.

RULE 5. A weighted average unit area reservoir pressure shall be determined prior to commencement of injection of water into the reservoir and at least annually thereafter.

RULE 6. The unit area allowable may be produced from the wells within the unit area in any proportion.

RULE 7. The Division Director shall have authority to approve, without notice and hearing, the drilling of wells at unorthodox locations anywhere within the boundary of the North Hobbs Grayburg-San Andres Unit Area, provided however, no unorthodox location shall be closer than ten feet to any quarter-quarter section line, and provided further, that no such unorthodox location shall be closer than 330 feet to the boundary of the unit area, unless such well is covered by a lease-line agreement with the operator of the lands offsetting such well, and a copy of the lease-line agreement accompanies the application for such unorthodox location, or unless such offset operator has waived objection to the proposed unorthodox location in writing, and his waiver accompanies the application.

RULE 8. Application for approval of additional wells to be used for injection shall be filed in accordance with Rule 701 of the Division Rules and Regulations and may be approved administratively by the Division Director without notice and hearing.

RULE 9. Each newly drilled injection or producing well shall be equipped as follows:

a. Minimum of 350 feet of surface casing and production casing run to total depth (approximately 4500 feet), or

b. Surface casing cemented below the "red beds" (approximately 1600 ft.) and production casing run to total depth (approximately 4500 feet), or

c. Exceptions to the aforesaid casing programs shall be granted by administrative approval of the Division Director.

All casing strings shall be cemented to the surface except that in any well in which an intermediate casing string has been run and cemented to the surface, the production string may be cemented back into the base of the intermediate casing.

RULE 10. Injection shall be accomplished through tubing installed in a packer set within 100 feet of the uppermost perforation, or in case of an open hole completion, 100 feet above the casing shoe. The injection tubing shall be corrosion protected by a non-reactive internal lining or coating. The casing-tubing annulus in each injection well shall be filled with an inert fluid and a surface gauge or approved leak detection device shall be attached to the annulus.

RULE 11. The injection wells or system shall be equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 0.2 psi per foot of depth to the injection zone. The Division Director may administratively authorize a pressure limitation in excess of the above upon a showing by the Unit Operator that such higher pressure will not result in fracturing of the confining strata.

RULE 12. All wells within the unit area shall be equipped with risers or in some other acceptable manner so as to facilitate the periodic testing of the bradenhead for pressure or fluid production.

RULE 13. The Unit Operator shall immediately notify the Supervisor of the Hobbs District Office of the Division of the failure of the tubing or packer in any of the injection wells, the leakage of water or oil from or around any producing well, the leakage of water or oil from or around any plugged and abandoned well within the unit area, or any other evidence of fluid migration from the injection zone, and shall take such timely steps as may be necessary or required to correct such failure or leakage.

RULE 14. Prior to placing any well on injection, a cement bond log shall be run on said well; also at any time the tubing is pulled from any producing well in the unit area, a cement bond log shall be run on said well. Copies of all cement bond logs shall be sent to the Hobbs District Office of the Division. If any well is found to have an inadequate casing-cement bond, such measures as may be necessary to prevent leakage or migration of fluids within the wellbore shall be taken before placing the well on injection or restoring it to production.

Where multiple casing strings prevent technical interpretation of bonding, the cement bond shall be deemed adequate when the log shows acoustic coupling with the formation. In addition, radioactive tracer surveys, or any other acceptable survey presently available or developed in the future, that show no fluid migration out of the Grayburg-San Andres formation shall be acceptable evidence of bonding.

RULE 15. Each month the Unit Operator shall submit to the Division a Pressure Maintenance Project Operator's Report, on a form prescribed by the Division, outlining thereon the data required and requesting a unit area allowable.

RULE 16. The Division shall, upon review of the report and after any adjustments deemed necessary, calculate the allowable for the unit area for the next succeeding month in accordance with these rules. The allowable so calculated shall be assigned to the unit area and may be produced from the wells in the unit area in any proportion.

IT IS FURTHER ORDERED:

(1) That no injection at greater than hydrostatic pressure shall be made into the Grayburg-San Andres formation in any well in the North Hobbs Grayburg-San Andres Unit Area within one-half mile of any well listed on Exhibit "C" until remedial action has been taken on such well to ensure that it will not serve as an avenue of escape for injected waters, or until tests have been conducted on such well, or until other evidence concerning such well has been presented establishing to the satisfaction of the Supervisor of the Hobbs District Office of the Division that remedial work on such well is unnecessary.

(2) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove described.

NORTH HOBBS GRAYBURG-SAN ANDRES UNIT AREA
PRESSURE MAINTENANCE PROJECT

HOBBS GRAYBURG-SAN ANDRES POOL

LEA COUNTY, NEW MEXICO

Water Injection Credit Allowable Calculation Data

$$\text{Water Injection Credit Allowable} = \left[\frac{W_i - W_p}{BUAA\left(B_o + \frac{R_p - R_s}{1{,}000} B_g \right)} - 1 \right] \times BUAA$$

W_i = Average daily water injection during previous month, barrels per day unit area

W_p = Average daily water produced during previous month, barrels per day unit area

BUAA = Basic unit area allowable, 80 bopd X _____ (number of developed 40-acre proration unit in unit area)

P = Weighted average unit area reservoir pressure, psig, from _____, 19___, survey data

B_o = Oil formation volume factor, reservoir barrels per stock tank barrel (Exhibit B)

R_p = Producing gas-oil ratio, cubic feet per barrel for previous month

R_s = Solution gas-oil ratio, cubic feet per barrel (Exhibit B)

B_g = Gas formation volume factor, reservoir barrels per Mcf (Exhibit B)

Water injection credit allowable for _____, 19___, = _____ barrels of oil per day

EXHIBIT "A"

OIL (B_o) AND GAS (B_g) FORMATION VOLUME FACTORS
AND GAS SOLUBILITY VS RESERVOIR PRESSURE
GRAYBURG–SAN ANDRES RESERVOIR
HOBBS FIELD
LEA COUNTY, NEW MEXICO

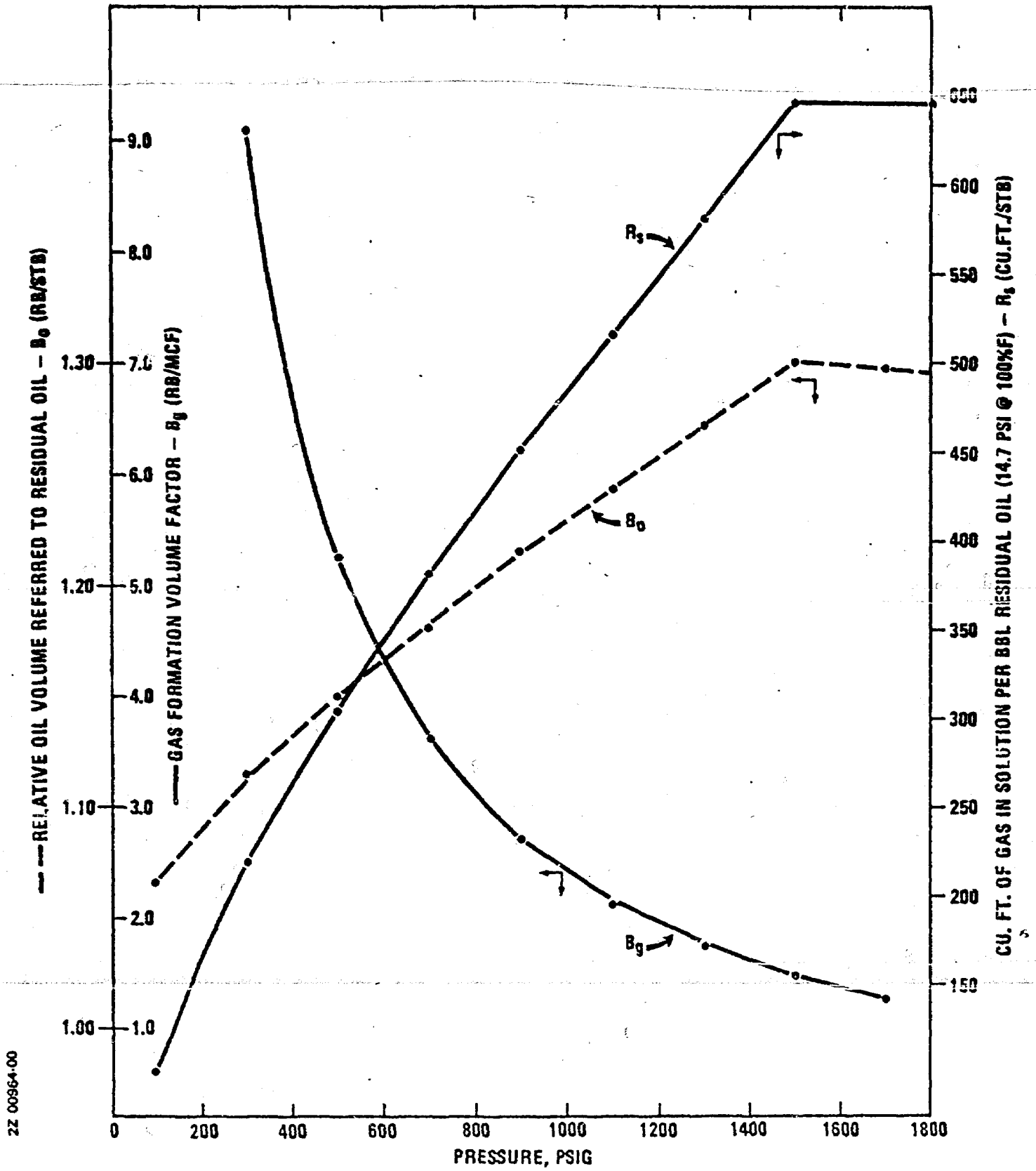

EXHIBIT "B"

WELLS SUSPECTED OF BEING INADEQUATELY
PLUGGED AND ABANDONED OR INADEQUATELY
CASED AND CEMENTED

Operator	Lease	Well No.	Unit	Sec-Twp-Rge
Amoco	"G" State	6	F	33-18S-38E
Chevron	"A" State	5	O	29-18S-38E
Continental	"A-29" State	7	N	29-18S-38E
Continental	"A-29" State	8	K	29-18S-38E
Continental	"A-33" State	12	L	33-18S-38E
Exxon	USA Bowers	28	M	29-18S-38E
Exxon	Boon Hardin	1	E	18-18S-38E
Getty	Grimes	2	H	29-18S-38E
Getty	Grimes	5	H	29-18S-38E
Gulf	Morris	1	B	21-18S-38E
Gulf	North Grimes	4	K	21-18S-38E
Hobbs-High Inc.	Tatums	1	M	35-18S-38E
Landreth Production	State	1A	O	7-18S-38E
Pontotoc	"B" Hobbs State	1	F	29-18S-38E
Pontotoc	"B" Hobbs State	2	G	29-18S-38E
C. H. Sweet	Grimes	1	I	20-18S-38E

EXHIBIT "C"

Draft
10/31/79
8:00 a.m

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION FOR THE PURPOSE OF CONSIDERING:

Case No. 6653
Order No. ___

APPLICATION OF SHELL OIL COMPANY FOR A PRESSURE MAINTENANCE PROJECT, LEA COUNTY, NEW MEXICO.

First draft
by
Owen Lopez

ORDER OF THE COMMISSION

By The Commission:

This cause came on for hearing at 9 a.m. on October 3, 1979, at Santa Fe, New Mexico, before Commissioners Joe D. Ramey and Emory C. Arnold.

NOW, on this ____ day of November, 1979, the Commission, a quorum having been present, having considered the testimony and the record, and being otherwise fully advised in the premises,

FINDS:

(1) That due public notice has been given as required by law and the Commission has jurisdiction of this case and cause of action and the subject matter thereof;

(2) That by Commission Order No. R-____ dated November __, 1979, statutory unitization was approved for the North Hobbs Grayburg-San Andres Unit Area, Lea County, New Mexico;

(3) That the applicant herein, Shell Oil Company, seeks authority to institute a pressure maintenance project for the aforesaid North Hobbs Grayburg-San Andres Unit Area within the Hobbs Grayburg-San Andres Pool, Lea County, New Mexico, by the injection of water into the Grayburg-San Andres formation through 70 wells at orthodox and unorthodox location, 52 of which are producing wells which will be converted to injection wells in 1980;

(4) That during 1980 for the pressure maintenance project, applicant proposes to drill five producing wells and 18 injection wells at orthodox and unorthodox locations as specified below:

Chg well numbers

Sec.	Unit Letter	Unit Well #	Location
24	N	24-242	1220' FSL & 2540' FWL
29	M	29-142	1220' FSL & 100' FWL
33	D	33-112	1220' FNL & 100' FWL
18	N	18-242	1220' FSL & 2540' FWL
19	M	19-142	1220' FSL & 100' FWL
19	N	19-242	1220' FSL & 2540' FWL
25	A	25-412	1220' FNL & 1220' FEL
29	D	29-112	330' FNL & 1000' FWL
29	N	29-242	1220' FSL & 1650' FWL
30	F	30-222	2540' FNL & 1420' FWL
31	I	31-432	2540' FSL & 1220' FEL
31	P	31-442	100' FSL & 1220' FEL
32	A	32-412	1220' FNL & 1220' FEL
32	E	32-122	2310' FNL & 1220' FWL
32	I	32-432	2310' FSL & 1310' FEL
32	N	32-242	100' FSL & 1420' FWL
32	P	32-442	100' FSL & 1220' FEL
33	C	33-212	1220' FNL & 1440' FWL
33	J	33-332	2540' FSL & 2540' FEL
33	K	33-232	1420' FSL & 1420' FWL
33	N	33-242	100' FSL & 1420' FWL
33	O	33-342	100' FSL & 1420' FEL
28	N	28-242	990' FSL & 1330' FWL

Reference these townships

all in Township 18 South, Ranges 37 and 38 East, NMPM, Lea County, New Mexico;

(5) That all of the wells referred to in Findings Nos. (3) and (4) above, being the 70 injection wells and the five producing wells, together with wells currently completed in the Grayburg San-Andres formation, will provide a thorough and efficient sweep of hydrocarbons throughout the unit area, and will result in the recovery of otherwise unrecoverable oil and gas, thereby preventing waste;

(6) That the above-described injection and producing wells, some of which will be at unorthodox locations along the unit boundary in accordance with lease-line agreements with operators of offsetting lands, will not impair but will protect correlative rights;

(7) That the applicant further seeks the designation of a project area for the pressure maintenance project for the North Hobbs Grayburg-San Andres Unit Area, and for the promulgation of special rules and regulations governing said project, including special allowable provisions, is in the interest of conservation and should be approved, subject to certain provisions set forth herein;

(8) That the project area should consist of all those proration units within the boundary of the North Hobbs Grayburg-San Andres Unit Area as described in Order R_____;

(9) That the project area allowable should be equal to the sum of the basic project area allowable plus the water injection credit allowable as hereinafter defined;

(10) That the basic project area allowable should be equal to 80 barrels of oil per day times the number of developed 40-acre proration units in the North Hobbs Grayburg San-Andres Unit Area;

(11) That the water injection credit allowable should be based upon the following formula:

$$\text{Water Injection Credit Allowable} = \left[\frac{\text{Net Water Injected}}{\text{Basic Project Area Allowable Reservoir Voidage}} - 1\right] \times \text{Basic Project Area Allowable}$$

and should be calculated in accordance with this formula using the data set forth shown on Exhibits "A" and "B" attached to this Order and by incorporation or reference;

(12) That a weighted average project area reservoir pressure should be determined prior to commencement of injection of water into the reservoir and at least annually thereafter;

(13) That the project area allowable should be allowed to be produced from the wells within the project area in any proportion;

(14) That the Division Director should have authority to approve, without notice and hearing, the drilling of wells at unorthodox locations anywhere within the area boundary of the North Hobbs Grayburg-San Andres Unit Area, provided however, no unorthodox location shall be closer than ten feet to any quarter-quarter section line, and provided further, that no such unorthodox location shall be closer than 330 feet to the boundary of the unit area, unless such well is covered by a lease-line agreement with the operator of the lands offsetting such well, and a copy of the lease-line agreement accompanies the application for such unorthodox location, or unless such offset operator has waived objection to the proposed unorthodox location in writing, and his waiver accompanies the application;

(15) That no well should be placed on water injection in the project area unless the Division Director has approved such well for injection. Applications for injection approval shall be filed in accordance with Rule 701 of the Division Rules and Regulations;

(16) That each newly drilled injection or producing well should be equipped as follows:

a. Minimum of 350 feet of surface casing and production casing run to total depth (approximately 4500 feet), or

Exceptions to the above assigned procedures may be approved by the

b. Surface casing cemented below the "red beds" (approximately 1600 ft.) and "production" casing run to total depth (approximately 4500 feet), or

c. ~~Other procedures may be used after receiving administrative approval of~~ the Director of the Oil Conservation Division;

All casing strings should be cemented to the surface except that in any well in which an intermediate casing string has been run and cemented to the surface, the "production" string may be cemented back into the base of the intermediate casing;

(17) That injection should be accomplished through tubing installed in a packer set within 100 feet of the uppermost perforation, or in case of an open hole completion, 100 feet above the casing shoe. The injection tubing should be corrosion protected by a non-reactive internal lining or coating. The casing-tubing annulus in each injection well should be filled with an inert fluid and a surface pressure gauge or approved leak detection device should be attached to the annulus;

(18) That the injection wells or system should be equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 0.2 psi per foot of depth to the injection zone. The Division Director may administratively authorize a pressure limitation in excess of the above upon a showing by the Unit Operator that such higher pressure will not result in fracturing of the confining strata;

(19) That all wells within the project area should be equipped with risers or in some other acceptable manner so as to facilitate the periodic testing of the bradenhead for pressure or fluid production;

(20) That there are a number of wells within the North Hobbs Grayburg-San Andres Unit Area and on lands offsetting the unit area which have previously been plugged and abandoned in a manner which may permit waters injected into the Grayburg-San Andres formation to escape into other formations, including the Salado formation and the shallow fresh water-bearing formations unless remedial action is taken on said wells prior to injection in their near vicinity;

(21) That there are a number of wells within the North Hobbs Grayburg-San Andres Unit Area and on lands offsetting the unit area which penetrate the Hobbs Grayburg-San Andres Pool and are completed in deeper pay zones, but which are cased and cemented in such a manner as may permit the escape of waters injected into the Grayburg-San Andres formation into other formations as described in the preceding paragraph;

(22) That those wells referred to in Findings No. (20) and (21) above which are inadequately plugged and abandoned or are inadequately cased and cemented, or are suspected of being so, include, but are not necessarily limited to, the wells listed in Exhibit "C" attached hereto and incorporated by reference;

(23) That no injection at greater than hydrostatic pressure should be made into the Grayburg-San Andres formation in any well

in the North Hobbs Grayburg-San Andres Unit Area within one-half mile of any well listed on Exhibit "C" until remedial action has been taken on such well to ensure that it will not serve as an avenue of escape for injected waters, or until tests have been conducted on such well or until other evidence concerning such well has been presented establishing to the satisfaction of the Supervisor of the Hobbs District Office of the Division that remedial work on such well is unnecessary.

IT IS THEREFORE ORDERED:

(1) That the applicant, Shell Oil Company, is hereby authorized to institute and operate a pressure maintenance project in the North Hobbs Grayburg-San Andres Unit Area within the Hobbs Grayburg-San Andres Pool, Lea County, New Mexico, by the injection of water into the Grayburg-San Andres formation through certain wells which will be administratively approved for water injection by the Division Director;

(2) That said project shall be designated the North Hobbs Grayburg-San Andres Unit Pressure Maintenance Project;

(3) That the following orthodox and unorthodox locations are hereby approved for the drilling of new injection and producing wells:

Sec.	Unit Letter	Unit Well #	Location
24	N	24-242	1220' FSL & 2540' FWL
29	M	29-142	1220' FSL & 100' FWL
33	D	33-112	1220' FNL & 100' FWL
18	N	18-242	1220' FSL & 2540' FWL
19	M	19-142	1220' FSL & 100' FWL
19	N	19-242	1220' FSL & 2540' FWL
25	A	25-412	1220' FNL & 1220' FEL
29	D	29-112	330' FNL & 1000' FWL
29	N	29-242	1220' FSL & 1650' FWL
30	F	30-222	2540' FNL & 1420' FWL
31	I	31-432	2540' FSL & 1220' FEL
31	P	31-442	100' FSL & 1220' FEL
32	A	32-412	1220' FNL & 1220' FEL
32	E	32-122	2310' FNL & 1220' FWL
32	I	32-432	2310' FSL & 1310' FEL
32	N	32-242	100' FSL & 1420' FWL
32	P	32-442	100' FSL & 1220' FEL
33	C	33-212	1220' FNL & 1440' FWL
33	J	33-332	2540' FSL & 2540' FEL
33	K	33-232	1420' FSL & 1420' FWL
33	N	33-242	100' FSL & 1420' FWL
33	O	33-342	100' FSL & 1420' FEL
28	N	28-242	990' FSL & 1330' FWL

all in Township 18 South, Ranges 37 and 38 East, NMPM, Lea County, New Mexico;

(4) That Special Rules and Regulations governing the North Hobbs Grayburg-San Andres Unit Pressure Maintenance Project are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
NORTH HOBBS GRAYBURG-SAN ANDRES UNIT
PRESSURE MAINTENANCE PROJECT

RULE 1. That the project area shall consist of all those proration units within the boundary of the North Hobbs Grayburg-San Andres Unit Area.

RULE 2. The project area shall receive a project area allowable, and said project area allowable shall be the sum of the basic project area allowable plus the water injection credit allowable.

RULE 3. The basic project area allowable shall be equal to 80 barrels of oil per day times the number of developed 40-acre proration units in the project area.

RULE 4. The water injection credit allowable shall be based upon the following formula:

$$\text{Water Injection Credit Allowable} = \left[\frac{\text{Net Water Injected}}{\text{Basic Project Area Allowable Reservoir Voidage}} - 1\right] \times \text{Basic Project Area Allowable}$$

The water injection credit allowable shall be calculated in accordance with this formula using the data shown on Exhibits "A" and "B" attached hereto and incorporated by reference.
In no event shall the water injection credit allowable be less than zero. Therefore, negative numbers derived from the application of the above formula shall be ignored.

RULE 5. A weighted average project area reservoir pressure shall be determined prior to commencement of injection of water into the reservoir and at least annually thereafter.

RULE 6. The project area allowable may be produced from the wells within the project area in any proportion.

RULE 7. The Division Director shall have authority to approve, without notice and hearing, the drilling of wells at unorthodox locations anywhere within the area boundary of the North Hobbs Grayburg-San Andres Unit Area, provided however, no unorthodox location shall be closer than ten feet to any quarter-quarter section line, and provided further, that no such unorthodox location shall be closer than 330 feet to the boundary of the unit area, unless such well is covered by a lease-line agreement with the operator of the lands offsetting such well, and a copy of the lease-line agreement accompanies the application for such unorthodox location, or unless such offset operator has waived objection to the proposed unorthodox location in writing, and his waiver accompanies the application.

RULE 8. No well shall be placed on water injection in the project area unless the Division Director has approved such well for injection. Applications for injection approval shall be filed in accordance with Rule 701 of the Division Rules and Regulations.

RULE 9. Each newly drilled injection or producing well shall be equipped as follows:

a. Minimum of 350 feet of surface casing and production casing run to total depth (approximately 4500 feet), or

b. Surface casing cemented below the "red beds" (approximately 1600 ft.) and "production" casing run to total depth (approximately 4500 feet), or

c. Other procedures may be used after receiving administrative approval of the Director of the Oil Conservation Division.

All casing strings shall be cemented to the surface except that in any well in which an intermediate casing string has been run and cemented to the surface, the "production" string may be cemented back into the base of the intermediate casing.

RULE 10. Injection shall be accomplished through tubing installed in a packer set within 100 feet of the uppermost perforation, or in case of an open hole completion, 100 feet above the casing shoe. The injection tubing shall be corrosion protected by a non-reactive internal lining or coating. The casing-tubing annulus in each injection well shall be filled with an inert fluid and a surface gauge or approved leak detection device shall be attached to the annulus.

RULE 11. The injection wells or system shall be equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 0.2 psi per foot of depth to the injection zone. The Division Director may administratively authorize a pressure limitation in excess of the above upon a showing by the Unit Operator that such higher pressure will not result in fracturing of the confining strata.

RULE 12. All wells within the project area shall be equipped with risers or in some other acceptable manner so as to facilitate the periodic testing of the bradenhead for pressure or fluid production.

RULE 13. The Unit Operator shall immediately notify the Supervisor of the Hobbs District Office of the Division of the failure of the tubing or packer in any of the injection wells, the leakage of water or oil from or around any producing well, the leakage of water or oil from or around any plugged and abandoned well within the project area, or any other evidence of fluid migration from the injection zone, and shall take such timely steps as may be necessary or required to correct such failure or leakage.

RULE 14. Prior to placing any well on injection, other than a newly drilled well drilled under provision of Rule 9, a cement

bond log shall be run on said well. Copies of all cement bond logs shall be sent to the Hobbs District Office of the Division. If any well is found to have an inadequate casing-cement bond, such measures as may be necessary to prevent leakage or migration of fluids from the Grayburg-San Andres formation shall be taken before placing the well on injection.

Where multiple casing strings prevent technical interpretation of bonding, the cement bond shall be deemed adequate when the log shows acoustic coupling with the formation. In addition, radioactive tracer surveys, or any other acceptable survey presently available or developed in the future, that show no fluid migration out of the Grayburg-San Andres formation shall be acceptable evidence of bonding.

RULE 15. Each month the Unit Operator shall submit to the Division a Pressure Maintenance Project Operator's Report, on a form prescribed by the Division, outlining thereon the data required and requesting allowables for each of the several wells in the project area as well as the total project area allowable.

RULE 16. The Division shall, upon review of the report and after any adjustments deemed necessary, calculate the allowable for the wells in the project area for the next succeeding month in accordance with these rules. The sum of the allowables so calculated shall be assigned to the project area and may be produced from the wells in the project area in any proportion.

IT IS FURTHER ORDERED:

(1) That no injection at greater than hydrostatic pressure shall be made into the Grayburg-San Andres formation in any well in the North Hobbs Grayburg-San Andres Unit Area within one-half mile of any well listed on Exhibit "C" until remedial action has been taken on such well to ensure that it will not serve as an avenue of escape for injected waters, or until tests have been conducted on such well, or until other evidence concerning such well has been presented establishing to the satisfaction of the Supervisor of the Hobbs District Office of the Division that remedial work on such well is unnecessary.

(2) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove described.

STATE OF NEW MEXICO OIL
CONSERVATION DIVISION

JOE D. RAMEY
Director

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION FOR THE PURPOSE OF CONSIDERING:

Case No. 6652
Order No. R _____

APPLICATION OF SHELL OIL COMPANY FOR STATUTORY UNITIZATION, LEA COUNTY, NEW MEXICO.

Final Draft
by
Ocie Lopez

ORDER OF THE COMMISSION

By The Commission:

This case and cause of action came on for hearing at 9:00 a.m. on October 3, 1979, at Santa Fe, New Mexico, before Commissioner Joe D. Ramey and Emory C. Arnold.

NOW, on this _____ day of November, 1979, the Commission, a quorum having been present, having considered the testimony and the record and being otherwise fully advised in the premises,

FINDS:

(1) That due public notice has been given as required by law, the Commission has jurisdiction of this case and cause of action and the subject matter hereof;

(2) That the applicant, Shell Oil Company, seeks the statutory unitization, pursuant to the "Statutory Unitization Act," Sections 70-7-1 through 70-7-21, NMSA 1978, of 10,649.53 acres, more or less, being a portion of the Hobbs Grayburg-San Andres Pool, Lea County, New Mexico, said portion to be known as the North Hobbs Grayburg-San Andres Unit Area. The applicant also seeks approval of the Unit Agreement and the Unit Operating Agreement which were submitted in evidence as applicant's Exhibits 3 and 4 and are hereby incorporated by reference;

(3) That the proposed unit area should be designated the North Hobbs Grayburg-San Andres Unit Area; that the vertical limits of said unit area should be the subsurface formation commonly known as the Grayburg-San Andres formation of Permian

Age found in the interval between the stratigraphic depth of 3698 feet (51 feet sub-sea) and the stratigraphic depth of 4500 feet (853 feet sub-sea) beneath the surface as measured on the Borehole Compensated Sonic-Gamma Ray Log run in Shell Oil Company's State A-7 well on July 9, 1969. This well is located 1930 feet from the north line and 660 feet from the east line of Section 32-T18S-R38E, NMPM, Lea County, New Mexico. The upper limit of the unitized formation is the top of the Grayburg-San Andres interval. The lower limit of the unitized formation is 4500 feet beneath the surface. The vertical limits of the unit area should include all the subsurface interval throughout the unit area correlative to the identified interval described above. The unit area should be comprised of the following described lands:

TOWNSHIP 18 SOUTH, RANGE 37 EAST, NMPM
Section 13 SE/4 and W/2
Section 14 All
Section 23 All
Section 24 All
Section 25 All
Section 26 E/2 NE/4 and NW/4 NE/4
Section 36 E/2 NW/4 and E/2

TOWNSHIP 18 SOUTH, RANGE 38 EAST, NMPM
Section 17 S/2 NW/4 and SW/4
Section 18 NE/4 and S/2
Section 19 All
Section 20 All
Section 21 SW/4 and S/2 SE/4 and NW/4 SE/4
Section 27 All
Section 28 All
Section 29 All
Section 30 All
Section 31 All
Section 32 All
Section 33 W/2 and NE/4 and W/2 SE/4 and NE/4 SE/4
Section 34 E/2 NW/4 and E/2

(4) That the portion of the Hobbs Grayburg-San Andres Pool proposed to be included in the aforesaid North Hobbs Grayburg-San Andres Unit Area has been reasonably defined by development;

(5) That the applicant proposes to institute a pressure maintenance project for the secondary recovery of oil, gas, gaseous substances, sulfur contained in gas, condensate, distillate and all associated and constituent liquid or liquifiable hydrocarbons within and to be produced from the proposed unit area;

(6) That the unitized management, operation and further development of the North Hobbs Grayburg-San Andres Unit Area, as proposed, is reasonably necessary to effectively carry on pressure maintenance and secondary recovery operations to substantially increase the ultimate recovery of oil and gas from the unitized portion of the pool;

(7) That the proposed unitized method of operation as applied to the North Hobbs Grayburg-San Andres Unit Area is feasible and will result with reasonable probability in the increased recovery of substantially more oil and gas from the unitized portion of the pool than would otherwise be recovered without unitization;

(8) That the estimated additional investment costs of the proposed supplemental recovery operations are $33 million which include an estimated initial capital investment of $27 million forecast to be spent in 1980 and 1981 and an additional $6 million forecast to be spent during the eight years subsequent to 1981 for construction of facilities necessary to handle the anticipated increasing volumes of oil and water. The evidence was undisputed that the supplemental recovery operations would result in the additional recovery of approximately 55 million barrels of oil. The resultant net profitability on a present value basis with a ten percent discount, before federal income tax, would be $124 million or a 421% profit. Therefore, the estimated additional costs of the proposed operations will not exceed the estimated value of the additional oil and gas plus a reasonable profit;

(9) That unitization and the adoption of the proposed unitized method of operation will benefit the working interest owners and royalty owners of the oil and gas rights within the North Hobbs Grayburg-San Andres Unit Area;

(10) That the applicant, the designated Unit Operator pursuant to the Unit Agreement and the Unit Operating Agreement, has made a good faith effort to secure voluntary unitization within the North Hobbs Grayburg-San Andres Unit Area. Nonetheless, Exxon Company, U.S.A. has declined to voluntarily join the unit and has opposed the application of Shell Oil Company on the basis that the participation formula contained in the Unit Agreement fails to allocate the produced and saved unitized hydrocarbons to the separately owned tracts within the unit area on a fair, reasonable and equitable basis;

(11) That the Technical Report introduced as applicant's Exhibit 16 and incorporated herein by reference, was prepared by a Technical Committee comprised of engineering representatives of all working interest owners involved in the proposed unit. The Technical Committee met over a three and a half year period from September, 1973, to March, 1977. Exxon Company, U.S.A. was represented at each of these meetings and its representative

accepted the values assigned the unitization parameters contained in the Technical Report as well as the use of the cutoff date of January 1, 1975 for well logging data and well test information and the remaining primary oil reserve estimates as of January 1, 1977. The values assigned the parameters are based on sound engineering principles and data. Further, there exists a sound and rational basis for the adoption of the cutoff dates so that a foundation could be laid for the fair and precise allocation of remaining primary and secondary reserves to each of the tracts within the proposed unit area. The objection of Exxon Company, U.S.A. to the application is in large part based on Exxon's contention that the production performance of its Tract No. 47 since January 1, 1977, is not in conformity with the projections made by the computer simulator model used in the Technical Report. Evidence was presented using the oil cutoff reserve relationship with the simulator output for Tract 47 that showed the May 1979 reserves as estimated by the simulation and the May 1979 oil cut for Tract 47 are in agreement, confirming that the simulation predictions are valid, and that the oil reserve estimates for Tract 47 are in order. Therefore, the evidence of Exxon Company, U.S.A. fails to refute the contention of the applicant that the allocations of the produced and saved hydrocarbons as set forth in the Technical Report and Unit Agreement to the separately owned tracts within the unit area are based on fair, reasonable and equitable considerations and calculations;

(12) That a Working Interest Owner Committee comprised of all working interest owners involved in the proposed unit area, including Exxon Company, U.S.A., accepted the Technical Report as a basis for the development of a participation formula, as evidenced by the minutes of the Working Interest Owners Committee meetings of May 26, 1977 and July 12, 1977 as shown in Exhibit 20 and incorporated by reference into this Order. The participation formula finally adopted by the Working Interest Owners Committee provides for participation in three separate phases during the anticipated life of the pressure maintenance project and secondary recovery operations. This participation formula was approved by working interest owners representing 90% of the mineral ownership within the unit area. This participation formula allows each working interest owner within the proposed unit area to recover his allocated remaining primary reserves first before any working interest owner commences to recover his allocated secondary reserves. The formula further provides that the actual cost of the expenditures required by the pressure maintenance project and secondary recovery operations will be ultimately borne by each working interest owner in proportion to his share of his allocated remaining secondary reserves. Therefore, the participation formula contained in the Unit Agreement allocates the costs to be incurred and the benefits to be derived from the supplemental recovery operations to the separately owned tracts within the unit area on a fair, reasonable and equitable basis;

(13) That the granting of the application in this case shall have no adverse effect upon other portions of the Hobbs Grayburg-San Andres Pool;

(14) That applicant's Exhibits Nos. 3 and 4 in this cause, being the Unit Agreement and the Unit Operating Agreement, respectively, should be incorporated by reference into this Order;

(15) That the statutory unitization of the North Hobbs Grayburg-San Andres Unit Area is in conformity with the above findings, and will prevent waste and protect the correlative rights of all owners of interest within the proposed unit area, and should be approved.

IT IS THEREFORE ORDERED:

(1) That the North Hobbs Grayburg-San Andres Unit Area, covering 10,649.53 acres, more or less, in the Hobbs Grayburg-San Andres Pool, Lea County, New Mexico, is hereby approved for statutory unitization pursuant to the Statutory Unitization Act, Sections 70-7-1 through 70-7-21 NMSA 1978;

(2) That the lands included within the North Hobbs Grayburg-San Andres Unit Area shall be comprised of:

TOWNSHIP 18 SOUTH, RANGE 37 EAST, NMPM
Section 13 SE/4 and W/2
Section 14 All
Section 23 All
Section 24 All
Section 25 All
Section 26 E/2 NE/4 and NW/4 NE/4
Section 36 E/2 NW/4 and E/2

TOWNSHIP 18 SOUTH, RANGE 38 EAST, NMPM
Section 17 S/2 NW/4 and SW/4
Section 18 NE/4 and S/2
Section 19 All
Section 20 All
Section 21 SW/4 and S/2 SE/4 and NW/4 SE/4
Section 27 All
Section 28 All
Section 29 All
Section 30 All
Section 31 All
Section 32 All
Section 33 W/2 and NE/4 and W/2 SE/4 and NE/4 SE/4
Section 34 E/2 NW/4 and E/2

and that the above described lands shall be designated as the North Hobbs Grayburg-San Andres Unit Area;

(3) That the vertical limits of the North Hobbs Grayburg-San Andres Unit Area shall be the Grayburg-San Andres formation of Permian Age found in the interval between the stratigraphic depth of 3698 feet (51 feet sub-sea) and the stratigraphic depth of 4500 feet (853 feet sub-sea) beneath the surface as measured on the Borehole Compensated Sonic-Gamma Ray Log run in Shell Oil Company's State A-7 well on July 9, 1969. This well is located 1930 feet from the north line and 660 feet from the east line of Section 32-T18S-R38E, NMPM, Lea County, New Mexico. The upper limit of the unitized formation shall be the top of the Grayburg-San Andres interval. The lower limit of the unitized formation shall be 4500 feet beneath the surface. The vertical limits of said unit area shall include all the subsurface interval throughout the unit area correlative to the identified interval described above;

(4) That the applicant contemplates instituting a pressure maintenance project for the secondary recovery of oil, gas, gaseous substances, sulfur contained in gas, condensate, distillate and all associated and constituent liquid or liquified hydrocarbons within and produced from the unit area;

(5) That the North Hobbs Grayburg-San Andres Unit Agreement and the North Hobbs Grayburg-San Andres Unit Operating Agreement provide for unitization and unit operation of the North Hobbs Grayburg-San Andres Unit Area upon terms and conditions that are fair, reasonable and equitable and which include:

(a) an allocation to the separately owned tracts in the unit area of all oil and gas that is produced from the unit area and which is saved, being the production that is not used in the conduct of unit operations or not unavoidably lost;

(b) a provision for the credits and charges to be made in the adjustment among the owners in the unit area for their respective investments in wells, tanks, pumps, machinery, materials and equipment contributed to the unit operations;

(c) a provision governing how the costs of unit operations including capital investments shall be determined and charged to the separately owned tracts and how said costs shall be paid including a provision providing when, how, and by whom the unit production allocated to an owner who does not pay his share of the costs of unit operations shall be charged to such owner, or the interest of such owner, and how his interest may be sold and the proceeds applied to the payment of his costs;

(d) a provision for carrying any working interest owner on a limited, carried or net-profits basis, payable out of production, upon such terms and conditions which are just and

reasonable, and which allow an appropriate charge for interest for such service payable out of production, upon such terms and conditions determined by the Division Director to be just and reasonable, and allowing an appropriate charge for interest for such service payable out of such owner's share of production, providing that any nonconsenting working interest owner being so carried shall be deemed to have relinquished to the Unit Operator all of his operating rights and working interests in an to the unit until his share of the costs, service charge and interest are repaid to the Unit Operator;

(e) a provision designating the Unit Operator and providing for the supervision and conduct of the unit operations, including the selection, removal or substitution of an operator from among the working interest owners to conduct the unit operations;

(f) a provision for a voting procedure for the decision of matters to be decided by the working interest owners in respect to which each working interest owner shall have a voting interest equal to his unit participation; and

(g) the time when the unit operation shall commence and the manner in which, and the circumstances under which, the operations shall terminate and for the settlement of accounts upon such termination;

and therefore the North Hobbs Grayburg-San Andres Unit Agreement and the North Hobbs Grayburg-San Andres Unit Operating Agreement are approved, adopted and incorporated by reference into this Order subject to the appropriate ratification provisions of Section 70-7-8, NMSA 1978, being complied with;

(6) That when the persons owning the required percentage of interest in the unit area have approved or ratified the Unit Agreement and the Unit Operating Agreement, the interests of all persons within the unit area are unitized whether or not such persons have approved the Unit Agreement or the Unit Operating Agreement in writing;

(7) That the applicant as Unit Operator shall notify in writing the Division Director of any removal or substitution of said Unit Operator by any other working interest owner within the unit area;

(8) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

Draft
10/31/79
8:00 a.m.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION FOR THE PURPOSE OF
CONSIDERING:

Case No. 6652
Order No. R _____

First Draft
by
Buren Lopez

APPLICATION OF SHELL OIL
COMPANY FOR STATUTORY
UNITIZATION, LEA COUNTY,
NEW MEXICO.

ORDER OF THE DIVISION

By The Commission:

This case and cause of action came on for hearing at 9:00 a.m. on October 3, 1979, at Santa Fe, New Mexico, before Commissioner Joe D. Ramey and E. C. Arnold.

NOW, on this _____ day of November, 1979, the Commission, a quorum having been present, having considered the testimony and the record and being otherwise fully advised in the premises,

FINDS:

(1) That due public notice has been given as required by law, the Commission has jurisdiction of this case and cause of action and the subject matter hereof;

(2) That the applicant, Shell Oil Company, seeks the statutory unitization, pursuant to the "Statutory Unitization Act," Sections 70-7-1 through 70-7-21, NMSA 1978, of 10,649.53 acres, more or less, being a portion of the Hobbs Grayburg-San Andres Pool, Lea County, New Mexico, said portion to be known as the North Hobbs Grayburg-San Andres ~~Pool~~ Unit Area. The applicant also seeks approval of the Unit Agreement and the Unit Operating Agreement which were submitted in evidence.

(3) That the proposed unit area is designated the North Hobbs Grayburg-San Andres Unit Area; that the vertical limits of said unit area is the subsurface formation commonly known as the Grayburg-San Andres formation of Permian Age found in the

interval between the stratigraphic depth of 3698 feet (51 feet sub-sea) and the depth of 4500 feet (853 feet sub-sea) beneath the surface as measured on the Borehole Compensated Sonic-Gamma Ray Log run in Shell Oil Company's State A-7 well on July 9, 1969. This well is located 1930 feet from the north line and 660 feet from the east line of Section 32-T18S-R38E, NMPM, Lea County, New Mexico. The upper limit of the unitized formation is the top of the Grayburg-San Andres interval. The lower limit of the unitized formation is 4500 feet beneath the surface. The vertical limits of the unit area is to include all the subsurface interval throughout the unit area correlative to the identified interval described above. The unit area is comprised of the following described lands:

TOWNSHIP 18 SOUTH, RANGE 37 EAST, NMPM
Section 13 SE/4 and W/2
Section 14 All
Section 23 All
Section 24 All
Section 25 All
Section 26 E/2 NE/4 and NW/4 NE/4
Section 36 E/2 NW/4 and E/2

TOWNSHIP 18 SOUTH, RANGE 38 EAST, NMPM
Section 17 S/2 NW/4 and SW/4
Section 18 NE/4 and S/2
Section 19 All
Section 20 All
Section 21 SW/4 and S/2 SE/4 and NW/4 SE/4
Section 27 All
Section 28 All
Section 29 All
Section 30 All
Section 31 All
Section 32 All
Section 33 W/2 and NE/4 and W/2 SE/4 and NE/4 SE/4
Section 34 E/2 NW/4 and E/2

(4) That the portion of the Hobbs Grayburg-San Andres Pool proposed to be included in the aforesaid North Hobbs Grayburg-San Andres Unit Area has been reasonably defined by development;

(5) That the applicant proposes to institute a pressure maintenance project for the secondary recovery of oil, gas, gaseous substances, sulfur contained in gas, condensate, distillate and all associated and constituent liquid or liquifiable hydrocarbons within and produced from the proposed unit area;

(6) That the unitized management, operation and further development of the North Hobbs Grayburg-San Andres Unit Area ~~Pool~~, as proposed, is reasonably necessary in order to effectively carry on pressure maintenance and secondary recovery operations to substantially increase the ultimate recovery of oil and gas from the unitized portion of the pool;

(7) That the proposed unitized method of operation as applied to the North Hobbs Grayburg-San Andres Unit Area is feasible, will prevent waste, and will result with reasonable probability in the increased recovery of substantially more oil and gas from the unitized portion of the pool than would otherwise be recovered without unitization;

Notification of change of Unit Operator

need some dollars and cents and barrels

(8) That the estimated additional costs of the proposed operations will not exceed the estimated value of the additional oil and gas to be recovered plus a reasonable profit;

(9) That unitization and the adoption of the proposed unitized method of operation will benefit the working interest owners and royalty owners of the oil and gas rights within the North Hobbs Grayburg-San Andres Unit Area;

(10) That the applicant, the designated Unit Operator pursuant to the Unit Agreement and the Unit Operating Agreement, has made a good faith effort to secure voluntary unitization within the North Hobbs Grayburg-San Andres Unit Area;

need findings of fact to back up this conclusion

(11) That the participation formula contained in the Unit Agreement allocates the produced and saved unitized hydrocarbons to the separately owned tracts within the unit area on a fair, reasonable and equitable basis;

(12) That the granting of the application in this case shall have no adverse effect upon other portions of the Hobbs Grayburg-San Andres Pool, ~~and shall protect the correlative rights of all owners of interest within said pool;~~

(13) That applicant's Exhibits Nos. 3 and 4 in this cause, being the Unit Agreement and the Unit Operating Agreement, respectively, should be incorporated by reference into this Order.

(14) That the Statutory Unitization of the North Hobbs Grayburg-San Andres Unit Area in conformance with the above findings, will prevent waste and protect correlative rights of all owners of interest in the pool and should be approved.

IT IS THEREFORE ORDERED:

(1) That the North Hobbs Grayburg-San Andrews Unit Area, ent, covering 10,649.53 acres, more or less, in the Hobbs Grayburg-San Andrews Pool, Lea County, New Mexico, is hereby approved for statutory unitization pursuant to the Statutory Unitization Act, Sections 70-7-1 through 70-7-21 NMSA 1978;

(2) That the lands included within the North Hobbs Grayburg-San Andres Unit Area shall be comprised of:

TOWNSHIP 18 SOUTH, RANGE 37 EAST, NMPM
Section 13 SE/4 and W/2
Section 14 All
Section 23 All
Section 24 All
Section 25 All
Section 26 E/2 NE/4 and NW/4 NE/4
Section 36 E/2 NW/4 and E/2

TOWNSHIP 18 SOUTH, RANGE 38 EAST, NMPM
Section 17 S/2 NW/4 and SW/4
Section 18 NE/4 and S/2
Section 19 All
Section 20 All
Section 21 SW/4 and S/2 SE/4 and NW/4 SE/4
Section 27 All
Section 28 All
Section 29 All
Section 30 All
Section 31 All
Section 32 All
Section 33 W/2 and NE/4 and W/2 SE/4 and NE/4 SE/4
Section 34 E/2 NW/4 and E/2

and that the above described lands shall be designated as the North Hobbs Grayburg-San Andres Unit Area;

(3) That the vertical limits of the North Hobbs Grayburg-San Andres Unit Area shall be the Grayburg-San Andres formation of Permian Age found in the interval between the stratigraphic depth of 3698 feet (51 feet sub-sea) and the depth of 4500 feet (853 feet sub-sea) beneath the surface as measured on the Borehole Compensated Sonic-Gamma Ray Log run in Shell Oil Company's State A-7 well on July 9, 1969. This well is located 1930 feet from the north line and 660 feet from the east line of Section 32-T18S-R38E, NMPM, Lea County, New Mexico. The upper limit of the unitized formation shall be the top of the Grayburg-San Andres interval. The lower limit of the unitized formation shall be 4500 feet beneath the surface. The vertical

limits of said unit area shall include all the subsurface intervals throughout the unit area correlative to the identified interval described above;

(4) That applicant's Exhibit No. 3 in this case which is the North Hobbs Grayburg-San Andres Unit Agreement is hereby incorporated by reference into this Order;

(5) That applicant's Exhibit No. 4 in this case which the North Hobbs Grayburg-San Andres Unit Operating Agreement is hereby incorporated by reference into this Order;

(6) That the North Hobbs Grayburg-San Andres Unit Agreement and the North Hobbs Grayburg-San Andres Unit Operating Agreement provide for unitization and unit operation of the North Hobbs Grayburg-San Andres Unit Area upon terms and conditions that are fair, reasonable and equitable and which include:

(a) an allocation to the separately owned tracts in the unit area of all oil and gas that is produced from the unit area and is saved, being the production that is not used in the conduct of operations on the unit area or not unavoidably lost;

(b) a provision for the credits and charges to be made in the adjustment among the owners in the unit area for their respective investments in wells, tanks, pumps, machinery, materials and equipment contributed to the unit operations;

(c) a provision governing how the costs of unit operations including capital investments shall be determined and charged to the separately owned tracts and how said costs shall be paid including a provision providing when, how, and by whom the unit production allocated to an owner who does not pay the share of the costs of unit operations charged to such owner, or the interest of such owner, may be sold and the proceeds applied to the payment of such costs;

(d) a provision for carrying any working interest owner on a limited, carried or net-profits basis, payable out of production, upon such terms and conditions determined by the Division Director to be just and reasonable, and allowing an appropriate charge for interest for such service payable out of such owner's share of production, provided that any nonconsenting working interest owner being so carried shall be deemed to have relinquished to the unit operator all of its operating rights and working interests in an to the unit until his share of the costs, service charge and interest are repaid to the unit operator;

(e) a provision designating the unit operator and providing for the supervision and conduct of the unit operations, including the selection, removal or substitution of an operator

from among the working interest owners to conduct the unit operations;

(f) a provision for a voting procedure for the decision of matters to be decided by the working interest owners in respect to which each working interest owner shall have a voting interest equal to its unit participation; and

(g) the time when the unit operation shall commence and the manner in which, and the circumstances under which, the operations shall terminate and for the settlement of accounts upon such termination;

and are therefore hereby adopted.

(7) That the Unit Agreement and the Unit Operating Agreement are approved and adopted by the Commission subject to the appropriate ratification provisions of Section 70-7-8, NMSA 1978, being complied with;

(8) That when the persons owning the required percentage of interest in the unit area have approved or ratified the Unit Agreement and the Unit Operating Agreement, the interests of all persons within the unit area are unitized whether or not such persons have approved the Unit Agreement or the Unit Operating Agreement in writing;

(9) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

ratification of chg of operator

J. O. SETH (1883-1963)

A. K. MONTGOMERY
FRANK ANDREWS
FRED C. HANNAHS
SETH D. MONTGOMERY
FRANK ANDREWS III
OWEN M. LOPEZ
VICTOR R. ORTEGA
JEFFREY R. BRANNEN
JOHN B. POUND
GARY R. KILPATRIC
THOMAS W. OLSON
WALTER J. MELENDRES
BRUCE L. HERR
MICHAEL W. BRENNAN
ROBERT R WORCESTER
JOHN B. DRAPER
NANCY M. ANDERSON
JOHN K. SILVER
RUDOLPH B. SACKS, JR.
W. CLINT PARSLEY
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November 5, 1979

Mr. Dan Nutter
Oil Conservation Commission
Land Office Building
Santa Fe, New Mexico 87503

Dear Dan:

Please find enclosed a proposed draft of an order for the statutory unitization and pressure maintenance project for the North Hobbs field. I am also enclosing a copy of a memo to the file which I prepared with transcript references for each finding.

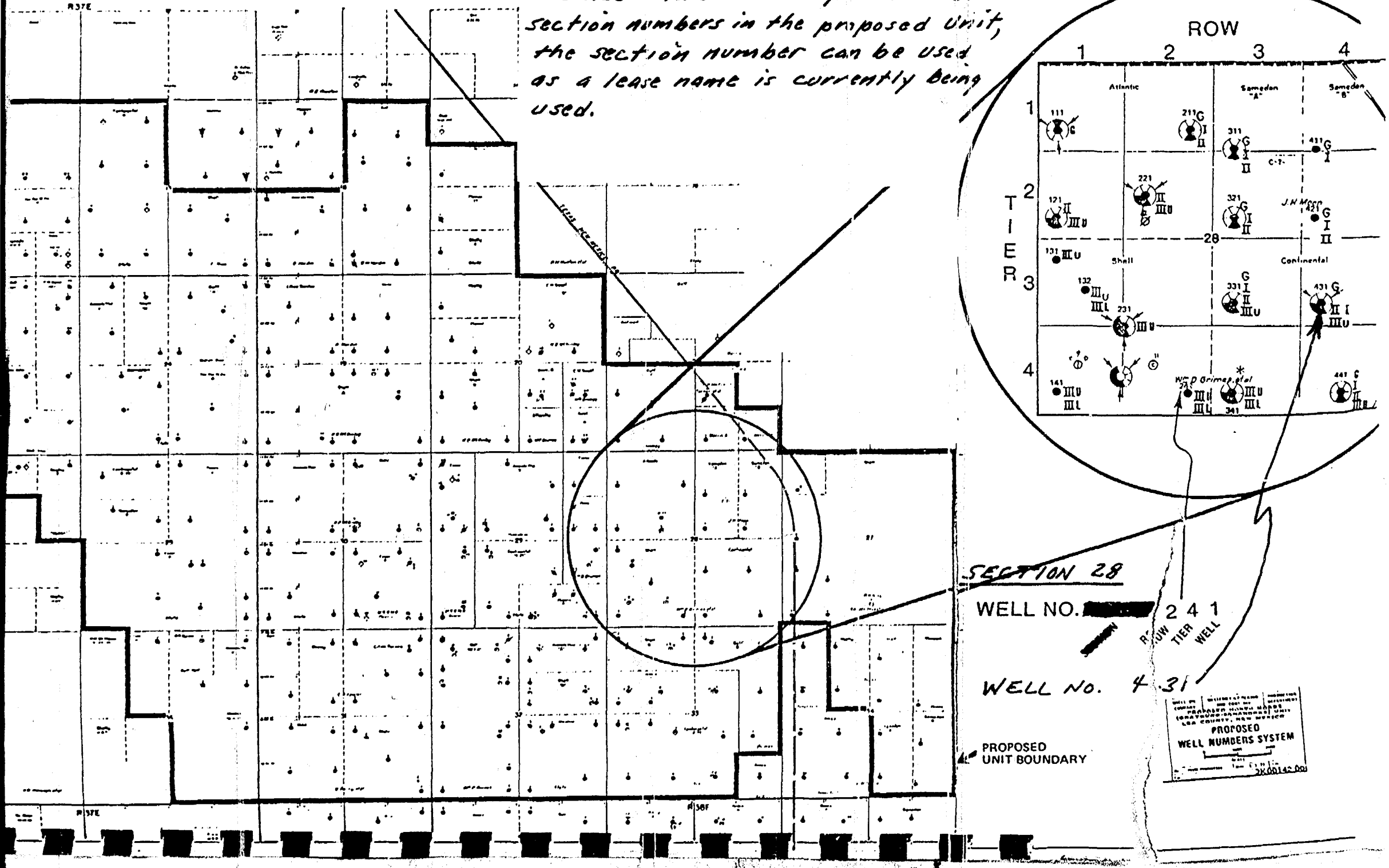
Naturally, if you have any questions, please let me know.

Sincerely,

Owen M. Lopez

OML:to
Enclosures

Since there is no duplication of section numbers in the proposed Unit, the section number can be used as a lease name is currently being used.



MEMORANDUM

November 2, 1979

TO: File

FROM: Owen M. Lopez

RE: Proposed Drafts of Statutory Unitization Order, Case No. 6652 and Pressure Maintenance Project Order, Case No. 6653

Most of the proposed findings are fairly self-obvious.

Finding 3: The information to support Finding 3 is contained in the early portion of Mr. Campbell's testimony, and particularly at pages 13-16 of the transcript.

Finding 4: Is taken from Bill Lancaster's testimony as well as Exhibit 16, the technical report. The fact that the pool has been reasonably defined by development is essentially contained on pages 29 and 30 of the transcript.

Finding 5: Is taken from the Unit Agreement, Section 2(e) under the definitions which is confirmed under Article I of the Unit Operating Agreement.

Findings 6 and 7: Are found in Bill Lancaster's testimony, at pages 31 and 32 of the transcript.

Finding 8: Is supported again by Bill Lancaster's testimony at pages 50 and 51 of the transcript together with the exhibit referred to therein. and Mr. Nolan's testimony @ pages 120-122.

Finding 10: Is supported by Earl Buck's testimony as well as Exxon's witness, Mr. Nolan. pp 71-74 86-89 pp. 123-126

Finding 11: The first portion of Finding 11 is supported by Bill Lancaster's testimony on page 33 of the transcript and by Mr. Nolan's testimony at page 114 of the transcript and at pages 177 and 178 of the transcript. The middle portion of the finding is supported by Mr. Buck's testimony at pages 69, 70 and 71 of the transcript, and page 118 of Mr. Nolan's testimony. The latter portion of the finding is supported by Mr. Nolan's testimony at page 124 et seq. of the transcript, and the final portion of the finding is as a result of Mr. Miller's testimony found at page 217 et seq. of the transcript.

Finding 12: Is essentially covered in Mr. Buck's testimony at pages 71, 73-76, 78-80 and 83 of the transcript.

Finding 13: Is supported by Mr. Phillips' testimony at page 99 of the transcript.

Findings 14 and 15: Are self-evident.

Orders 1 and 2: Conform to Findings 1 and 2 and are contained in Mr. Campbell's testimony at pages 13-16 of the transcript.

Order 4: Goes to Finding 5.

Order 5: Is covered in Mr. Buck's testimony. Subparagraphs (a) to (g) are contained in Mr. Buck's testimony at pages 83-85 of the transcript.

Orders 6, 7 and 8: Go to the Commission and the statute itself.

With respect to the proposed order regarding the pressure maintenance project, support for the findings in the order are contained in Mr. Phillips testimony and exhibits introduced in accordance with his testimony from pages 91-102 of the transcript.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
Oil Conservation Commission
State Land Office Building
Santa Fe, New Mexico
3 October 1979

EXAMINER HEARING

IN THE MATTER OF:

Application of Shell Oil Company for statutory unitization, Lea County, New Mexico, and Application of Shell Oil Company for a pressure maintenance project, Lea County, New Mexico.

CASE 6652

CASE 6653

BEFORE: Commissioner Ramey
Commissioner Arnold

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Commission: Ernest L. Padilla, Esq.
Legal Counsel for the Division and Commission
State Land Office Bldg.
Santa Fe, New Mexico 87501

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For Exxon Company,U.S.A.:

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Albuquerque, New Mexico

and

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MR. RAMEY: The hearing will come to order. We'll call Case Number 6652.

MR. PADILLA: Application of Shell Oil Company for statutory unitization, Lea County, New Mexico.

MR. RAMEY: Does anyone have any opinions about consolidating this case with Case 6653?

MR. ATKINSON: Mr. Commissioner, I represent Exxon Corporation, from the Modrall law firm, my name is Clifford Atkinson, and also with me is Jack Dalious. We're opposing the application of Shell Oil.

MR. RAMEY: Okay. But you have no objection to consolidating the two cases?

MR. ATKINSON: Oh, no, sir.

MR. RAMEY: All right. We'll call Case 6653.

MR. PADILLA: Application of Shell Oil Company for a pressure maintenance project, Lea County, New Mexico.

MR. RAMEY: Ask for appearances at this time, please.

MR. LOPEZ: Mr. Chairman, my name is Owen Lopez with the Montgomery law firm in Santa Fe, New Mexico, appearing on behalf of the applicant in both cases, Shell Oil Company. I have with me, and associated with me on the case, Gary Kilpatric of our law firm, and might as well put

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Clint Parsley on the record, too. He's also a new lawyer with our law firm, and Jim Lore, who's with the Office of General Counsel for Shell Oil Company, Houston, Texas.

I also have with me at counsel table Mr. Earl Buck, Project Manager of the unit, and I have four witnesses to be sworn in the cases.

I should also point out, I think, to accommodate the Commission, that we have marked our exhibits. We have at this time, propose to enter thirty-four exhibits. The first three witnesses' exhibits all pertain to the statutory unitization application and the last witness' exhibits, Mr. Phillips, all pertain to the pressure maintenance project. I have marked the exhibits accordingly.

MR. RAMEY: Thank you. What was the third man's name you mentioned, Clint --

MR. LOPEZ: Parsley, Clint Parsley.

MR. RAMEY: All right.

MR. ATKINSON: Once again I'll enter an appearance for Exxon Corporation. My name is Clifford Atkinson from Modrall law firm. Also appearing, Mr. Jack Dalious, Exxon Corporation, and at the counsel table is Mr. Bill Nolan, also with Exxon.

MR. RAMEY: Do you have any witnesses?

MR. ATKINSON: Yes, sir. Mr. Bill Nolan will be our sole witness.

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MR. RAMEY: I'll ask that all witnesses --- are there any other appearances?

I'll ask all witnesses to stand at this time and be sworn.

(Witnesses sworn.)

You may proceed, Mr. Lopez.

MR. LOPEZ: Thank you, Mr. Chairman.

Perhaps preliminarily I might mention that I have talked to the Chairman and I do understand that there are some working interest owners here who may wish to appear either on behalf or in opposition to our application, but have other commitments and may not want to sit through the whole story. The chairman said it might be possible for those persons to enter their appearances before the recess at lunch time.

Okay, I call our first witness, Mr. Campbell.

LEE CAMPBELL

being called as a witness and having been duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

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BY MR. KILPATRIC:

MR. KILPATRIC: Mr. Chairman, I direct your attention to the prepared testimony of Mr. Campbell in the green booklet. Yes. And before we start I might point out that page nine, there are a couple of number changes. If I give them to you now I think the testimony will flow more smoothly.

MR. RAMEY: Okay.

MR. KILPATRIC: The number 70 on the first complete answer down at the middle of the page, should be 65, and the 65, I think there are three places where there is 70, that number should be changed to 65.

And at the top of page 10 at the very first line those percentages should read 92.21 instead of 92.26 and 95.34 instead of 95.44.

And I refer you back over to page 8 and ask that the first full answer there, the last line should be stricken. There are some ratifications that were received this morning. We probably will receive them this morning but we haven't received them at this time, so that would be premature.

With those corrections we'll start the testimony.

Q. What is your name and where do you reside?

A. Lee Campbell. I reside in Slidell,

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Louisiana.

Q. By whom are you employed and in what capacity?

A. I'm employed by Shell Oil Company as a Senior Landman.

Q. Have you testified previously before the Commission and had your qualifications accepted as a matter of record?

A. No, I have not.

Q. Would you briefly describe your educational and employment background?

A. I graduated with a Bachelor's in Business Administration in Petroleum Land Management from the University of Texas in December, 1972, and in January, 1973, I was employed by Shell Oil Company in their Land Department in Houston.

For the past two years I have been one of those responsible for the land operations of Shell Oil Company in New Mexico and West Texas, and for the last year and a half I have almost entirely devoted my time and energies to the North Hobbs Unitization and Pressure Maintenance Project.

Q. I take it then, that you are familiar with Shell Oil Company's applications in these consolidated cases, Numbers 6652 and6653?

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A. Yes, very familiar.

Q. How was it that you have become familiar with the facts concerning these two applications?

A. I was assigned the task of determining who had the working ownership interests and royalty ownership interests for each tract within the northern portion of the Hobbs Grayburg-San Andres Pool, which I will refer to as the Unit Area.

In this connection I participated in the preparation of the ownership and tract participation exhibits pertaining to the Unit Area.

MR. KILPATRIC: Are the witness' qualifications acceptable, Mr. Chairman?

MR. RAMEY: He's considered qualified.

MR. KILPATRIC: Thank you.

Q. (Mr. Kilpatric continuing.) Now, Mr. Campbell, I direct your attention to what has been marked as Shell's Exhibit Number One, and I ask you to identify it.

A. This is a map of the proposed Unit Area, which is located in Lea County, New Mexico, and which contains approximately 10,649.53 acres. The Unit Area includes the following sections or portions of sections in Township 18 South, Range 37 East, NMPM: The southeast quarter and the west half of Section 13; all of Sections 14, 23, 24, and 25; the east half of the northeast quarter and the northwest

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quarter of the northeast quarter of Section 26; the east half of the northwest quarter and the east half of Section 36.

As regards Township 18 South, Range 38 East, the Unit Area includes the south half of the northwest quarter and the southwest quarter of Section 17; the northeast quarter and the south half of Section 18; all of Sections 19 and 20; the southwest quarter and the south half of the southeast quarter and the northwest quarter of the southeast quarter of Section 21; all of Sections 27, 28, 29, 30, 31, and 32; all of Section 33, except the southeast quarter of the southeast quarter; and the east half of the northwest one-quarter and the east half of Section 34.

The Unit Area consists of 88 separate tracts which were formed according to their common mineral ownership. Each tract is identified on the exhibit by a tract number, lease name, and tract operator. The tract number is denoted with a circle near the center of the tract. The lease name is at the bottom, and the tract operator is shown at the top of each designated tract.

In some instances a tract encompasses an entire lease; however, in certain leases which had diverse mineral ownership within the unitized horizon, we divided into two or more tracts.

You will note that some of the tracts have

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a designation A or B after their particular tract numbers, which, for example, you will see if you look at Tract 10 at the north central portion of the exhibit. This division was made because we discovered after we had assigned the original tract numbers additional divisions of mineral ownership within the unitized formation.

MR. KILPATRIC: Mr. Chairman, I'd like to point out that the exhibits are tabbed for the testimony and you can refer to any during the testimony by the use of tabs.

Q. (Mr. Kilpatric continuing.) Now, Mr. Campbell, please define the unitized formation for the Unit Area, and in this connection I direct your attention to what has been marked for identification as Shell's Exhibit Number Two, and ask you to identify it for the Commission.

A. Exhibit Number Two shows the unitized formation for the Unit Area, which is that subsurface portion of the Unit Area known as the Grayburg-San Andres formation, of Permian age, found in the interval between the stratigraphic depth of 3698 feet and the depth of 4500 feet beneath the surface, as measured on the Borehole Compensated Sonic-Gamma Ray Log run in the Shell Oil Company State A-7 Well on July the 9th, 1969.

This well is located 1930 feet from the north line and 660 feet from the east line of Section 32,

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Township 18 South, Range 38 East, Lea County, New Mexico.

The upper limit of the unitized formation is the top of the Grayburg-San Andres interval.

The lower limit of the unitized formation is 4500 feet beneath the surface, which is approximately 200 feet below the oil/water contact as determined by the technical committee whose function will be described by Mr. Lancaster later on.

Therefore the unitized formation has been limited to only the interval required for unit operations, which would affect the Hobbs Grayburg-San Andres Pool.

Q. Mr. Campbell, I now refer you to Shell's Exhibits Numbers Three and Four, and ask you to identify them.

A. Shell's Exhibit Number Three is a copy of the Unit Agreement, covering the Unit Area.

And Exhibit Number Four is a copy of the Unit Operating Agreement, covering the Unit Area.

These are copies of the agreements that I submitted to the various royalty interest owners and working interest owners in the Unit Area for their consideration and ratification.

Q. How were you able to determine who were the working interest owners and the royalty interest owners?

A. We were able to obtain the names of all

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the operators within the Unit Area from the records of the Oil and Gas Conservation Division of the State of New Mexico.

We then asked and obtained from each operator within the Unit Area a list of all the working interest owners and royalty interest owners within each of their tracts.

Q. What did you do with this information?

A. We compiled a list of all of the working interest owners and royalty interest owners within the Unit Area on a tract-by-tract basis, and we then contacted each working interest owner and attempted to contact all known royalty interest owners.

The Unit Agreement was submitted to the royalty interest owners and both the Unit Agreement and Unit Operating Agreement were submitted to the working interest owners, as well as to the USGS and the State of New Mexico.

It should be noted that Exhibit B contained in Shell's Exhibit Number Three, the Unit Agreement, is a list of each tract within the Unit Area, the area of land located within each tract, and the mineral ownership information for each tract.

Q. I now refer you to what has been marked as Shell's Exhibit Number Five and ask you to identify it.

A. Exhibit Number Five is a computer printout on a tract-by-tract basis listing all the royalty interest

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owners within the Unit Area, their addresses, and their percentage of royalty interest in each tract.

Column One lists the tract numbers. Column Three lists the names and addresses of each royalty interest in the tract. Column Four shows the percentage of each owner's royalty interest within the tract, and Column Five indicates by an "X" that the interest owner has ratified the Unit Agreement.

Q. How many royalty owners are involved in the unit Area and how were they contacted with regard to ratification of the Unit Agreement? And in this connection I direct your attention to what has been marked as Shell's Exhibit Number Six.

A. As the Exhibit shows, approximately 905 royalty interest owners exist within the Unit Area, including the USGS and the State of New Mexico.

As is also shown on the exhibit, on August the 8th, 1978, the Unit Agreement and ratification forms were mailed to all known royalty interest owners. Then on October the 11th, 1978, we sent a follow-up letter to all the then known unsigned royalty interest owners advising them of sign-up status and again requesting their ratification.

During the months of December, 1978, and January and February, 1979, an intense effort was made to contact all unsigned royalty interest owners by phone.

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Then, as further shown on Exhibit Number Six, on February the 22nd, 1979, we sent even another follow-up letter to all of the unsigned royalty interest owners at that time, again advising them of sign-up status with request -- respect to the Unit Agreement, and again requesting their ratification. In this letter we explained as best we could to these persons that we had attempted to contact each of them by phone but had been unable to reach some of them. We asked that they call us collect if they had any questions concerning the Unit Agreement or the project we were undertaking. Additional ratification forms were included with this letter.

Finally, on August the 6th, 1979, again as shown on the exhibit, we sent another and final letter to every known royalty interest owner, advising each of them of the status of ratification and of our plans to proceed with these applications before the Commission today, and again we requested all unsigned royalty interest owners to ratify the Unit Agreement.

Q. How many of the total royalty interest owners have ratified the Unit Agreement?

A. 720 of the total 905 royalty interest owners have ratified the Unit Agreement to date, and this includes the preliminary approval of the USGS and the Commission of Public Lands of the State of New Mexico.

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As Exhibit Six shows, of the 185 who have not yet ratified the Unit Agreement, 41 were unreachable, and 144 were contacted but have not yet ratified the agreement.

Q. Now, Mr. Campbell, you stated that 720 of the total number of 905 royalty interest owners have ratified the Unit Agreement. What does this figure represent as a percentage of the total royalty interests in the unit area?

A. As the exhibit shows, the percentage of sign-up is set forth in six separate percentage figures. The reason for this is twofold.

First, the percentage of ratification is dependent upon the determination of the royalty owners' interest in either the oil or the gas in the pool.

Second, the life of the water injection project has been broken down into three specific phases. The reasons for this will be discussed in later testimony of Mr. Lancaster and Mr. Buck.

Therefore, the royalty owner's interest will be dependent upon his interest during the phase in effect at a given time and whether his interest is in oil or gas.

As a result you will note that the exhibit shows a percentage sign-up ranging from 97.18 percent to 97.42 percent, which exceeds the 75 percent required for statutory unitization by more than 20 percent.

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Less than 3 percent of the royalty interest ownership has not yet ratified the Unit Agreement.

Q. Now I refer you to Exhibit Number Seven and ask you to identify it.

A. Exhibit Number Seven is a computer printout on a tract-by-tract basis listing all working interest owners within the Unit Area, their addresses, and their percentage of working interest in each tract.

Column One lists the tract numbers. Column Three lists the names and addresses of each working interest owner. Column Four is the percentage of each owner's working interest in each tract, and Column Five indicates by an "X" that the interest owner has ratified the unit.

MR. KILPATRIC: Mr. Chairman, I might point out here that since the time that I asked you to strike that latter sentence, it has become true and we have received some more ratifications this morning. So, in fact, we now have 73 out of the total 80 working interest owners and we'll cover that in later testimony.

Q. (Mr. Kilpatric continuing.) How many working interest owners are involved within the Unit Area and how were they contacted with regard to ratification of the Unit Agreement and Unit Operating Agreement? In this connection I refer you to Shell's Exhibit Number Eight.

A. There are 80 working interest owners in the

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Unit, 25 of which are operators. As shown on this exhibit, on August the 7th, 1978, we mailed the Unit Agreement and the Unit Operating Agreement and ratification form to each of the working interest owners.

On November the 20th, 1978, we again wrote a letter to each working interest owner and again requested each unsigned owner to consider the agreements and to ratify them at their earliest convenience..

We wrote a final letter on July 13th, 1979, again to each working interest owner, advising him of the status of ratification and of Shell's plans for proceeding with statutory unitization and for the institution of a pressure maintenance project.

In this connection we made numerous telephone calls in an attempt to obtain ratification from each of the unsigned working interest owners.

Q. How many of the total working interest owners have ratified the Unit Agreement and Unit Operating Agreement?

A. As shown on the Exhibit Number Eight, 63 of the 80 working interest owners have ratified the Unit Agreement and the Unit Operating Agreement; however, since the exhibit was prepared we have received additional commitments to the Unit, and at this point the interest of 73 of the 80 working interest owners are committed to the Unit.

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Q. Now, Mr. Campbell, can you tell the Commission what percentage of the total working interest ownership is represented by the interests of the 73 working interest owners who have committed to the unit?

A. Yes. As I just stated, the interest of 73 of the 80 working interest owners have committed to the unit. This represents in excess of 92.26 percent to an excess of 95.44 percent of the working interest ownership, depending again on which of the three phases of the project is in effect at a given time and whether it involves the working interest ownership's interest in oil or gas.

This percentage of ratification again substantially exceeds the 75 percent required for statutory unitization.

Q. Now I refer you to what have been marked as Shell's Exhibits Numbers 9 and 10 and ask you to identify these.

A. Exhibit Number Nine is a letter dated July 31st, 1978, from James W. Sutherland, Oil and Gas Supervisor of the United Stated Department of the Interior, advising that the USGS has no objection to the revised unit agreement form.

Exhibit Ten is a series of letters dated June 13th, June 21st, and July 6th, 1978, from Ray D. Graham, Direction of the Oil and Gas Division of the Commissioner

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of Public Lands of the State of New Mexico, approving the Unit Agreement as to form and content.

Q. Mr. Campbell, I now refer you to what has been marked as Shell's Exhibits Eleven and Twelve and ask you to identify them for the Commission.

A. Exhibit Eleven is a packet of ratification forms which have been executed by the royalty interest owners.

Exhibit Twelve is a packet of ratification forms which have been executed by the working interest owners.

Q. Were Exhibits One through Twelve prepared by you or under your supervision?

A. With the exception of Exhibits Three and Four all of these exhibits were prepared by me or under my supervision.

Regarding Exhibits Three and Four, which are the Unit Agreement and the Unit Operating Agreement, respectively, although these were actually prepared by Mr. Buck, the Project Manager, in conjunction with Shell's Legal Department, these exhibits are copies of the actual agreement that I submitted to both the working interest owners and the royalty interest owners.

MR. KILPATRIC: Mr. Chairman, I now offer Exhibits One through Twelve into evidence.

If there be no objection to these exhibits, that concludes our examination.

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MR. RAMEY: These Exhibits One through Twelve will be admitted.

MR. KILPATRIC: Thank you. Pass the witness.

MR. RAMEY: Any questions of Mr. Campbell?

MR. ATKINSON: Just a couple of questions, if I may.

CROSS EXAMINATION

BY MR. ATKINSON:

Q. Mr. Campbell, the Shell Exhibit Number One defines the boundaries of the proposed North Hobbs Unit, I believe, is that not correct?

A. That's correct.

Q. But in fact the Unit itself does not entirely comprise the pool within which the Unit lies, does it?

A. Well, there's a South Hobbs Unit.

Q. And the two of them are part of the same pool, are they not?

A. I'm not the engineer.

Q. And the, if I may refer to the lower right-hand corner of the Shell Exhibit Number One, the finger that juts up into the proposed North Hobbs Unit, then, is a portion of the South Hobbs Unit?

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A. That's correct.

MR. ATKINSON: No further questions.

MR. KILPATRIC: No redirect.

MR. LOPEZ: Mr. Chairman, I might point out that I've just been informed that rather than 73 it's 77, so I would like the record to be amended or corrected to reflect that we've exceeded even our wildest expectations.

MR. RAMEY: This, I assume, is the working interest owners --

MR. KILPATRIC: Yes, sir.

MR. RAMEY: -- that have signed?

MR. KILPATRIC: Yes, sir.

MR. ATKINSON: Mr. Chairman, if possible, we'd like to reserve the right to recall him at a later time after the finish of their case.

MR. RAMEY: I would think so. I would think Mr. Campbell would want to stay around and see the whole show.

MR. ATKINSON: Okay.

MR. LOPEZ: I'd like to call Mr. Lancaster.

BILL LANCASTER

being called as a witness and having been duly sworn upon his oath, testified as follows, to-wit:

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DIRECT EXAMINATION

BY MR. LOPEZ:

Q. Would you please state your name, by whom you're employed, and in where you reside?

A. My name is Bill Lancaster. I'm employed by Shell Oil Company and I reside in Houston, Texas.

Q. Have you previosly testified before the Commission and had your qualifications accepted as a matter of record?

A. No, I have not.

Q. Would you then briefly describe your educational background and employment experience?

A. I graduated from Ohio State University in 1954 with a Bachelor of Science in Petroleum Engineering. Upon graduation I spent two years, from 1954 to 1956, in the Air Force. In 1957 I received a Masters of Science in Petroleum Engineering from Texas A & M.

In August of 1957 I was employed by Shell Oil Company. From 1957 to 1968 I worked in Shell's New Orleans office as a Production and Reservoir Engineer. From 1968 until 1977 I worked as a Reservoir Engineer in Shell's Rocky Mountain Division. In 1977 I was assigned to the Reservoir Engineering Section of the Mid-Continent Division, where my responsibilities include reservoir engineering work

for fields in which Shell has an interest in West Texas and New Mexico.

Q. Mr. Lancaster, are you familiar with the history of the Hobbs Grayburg-San Andres Pool?

A. Yes, I am.

Q. How did you become familiar with this pool?

A. I am not Chairman of the Technical Committee which was formed by the Working Interest Owner Committee to investigate the feasibility of initiating a pressure maintenance project for the purpose of recovering additional oil reserves in the Hobbs Grayburg-San Andres Pool.

Q. And I take it you are familiar with the applications in Case Numbers 6652 and 6653?

A. Yes, I am.

MR. LOPEZ: Mr. Chairman, are the witness' qualifications acceptable?

MR. RAMEY: Yes.

Q. (Mr. Lopez continuing.) Mr. Lancaster, I now ask you to briefly describe the history of this pool and in that connection I ask you to refer to what has been marked as Shell Exhibit Number Thirteen.

A. Exhibit Number Thirteen is not on the wall. It is a graph showing the production history of the entire Hobbs Grayburg-San Andres Pool from its inception through 1975.

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As is shown, the pool was discovered in 1928, and by the end of 1930 was producing about one million barrels of oil per month from 135 wells. This high production rate continued until 1935, when the rate was curtailed because of the reduced demand for oil.

Although a number of wells within the pool continued to produce at maximum allowables after 1935, declines in production capacity were observed in most wells as a result of a continuing decline in these wells' bottom hole pressures.

By 1975 bottom hole pressures had declined from an initial 1,515 pounds per square inch absolute in the pool to an approximately 400 pounds per square inch absolute in what I shall refer to as the Grayburg study zones; approximately 950 pounds per square inch absolute in the San Andres study zone I; and to approximately 800 pounds per square inch in the San Andres study zones II and III.

I should mention at this time that the Technical Committee decided it would better describe the past and future performance of any complex reservoir by dividing it into six study zones. In any event, this decline in production and pressure prompted operators to consider ways of supplementing the natural reservoir drive mechanisms so as to achieve greater ultimate recovery from the reservoir.

In 1970 Amoco initiated efforts to unitize

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the entire Hobbs Grayburg-San Andres Pool.

In 1971 Moranco began injecting water into the Grayburg study zones in the northern portion of the pool on the Moranco-operated Rice and Hardin leases.

In 1973 Amoco abandoned its efforts to unitize the entire Hobbs Pool when working interest owners could not reach an agreement on a participation formula. Nevertheless, Amoco continued its unitization efforts and subsequently formed a volunteer unit, which comprised the southern third of the pool. This unit became effective on January 1st, 1975.

When Amoco abandoned its efforts to unitize the entire pool, Shell Oil Company was selected as unit expeditor for the remaining northern portion of the pool by the working interest owners. Shell has continued its unitization efforts to date.

Q. What were the initial unitization efforts undertaken after Shell was selected unit expeditor for the northern portion of the Hobbs Pool?

A. All operators within this northern portion of the Hobbs Pool were asked to invite the working interest owners to a meeting on July 31st, 1973. At this meeting our Technical Committee was formed by the working interest owners.

The Technical Committee was to be comprised of engineering representatives of all working interest owners.

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Q. What instructions, if any, were given to the Technical Committee by the Working Interest Owners Committee, and in this connection I refer you to what has been marked as Shell's Exhibit Number Fourteen?

A. As shown on this exhibit, the Technical Committee was charged by the Working Interest Owners Committee with the task of determining the feasibility and profitability of instituting a pressure maintenance project for the northern portion of the Hobbs Grayburg-San Andres Pool. In addition, our committee was charged with the responsibility of developing values, tract by tract, for the parameters set forth on this exhibit. This was done so that the Working Interest Owners Committee could develop a formula for the equitable sharing of the costs and the revenues to be derived from the pressure maintenance project.

Q. Did the Technical Committee in response to this charge determine whether or not the pressure maintenance project would be feasible and profitable?

A. Yes, it did.

Q. What was the determination and what was the basis for that determination?

A. The Technical Committee made a comprehensive study of the pool, including such parameters as the amount of oil in place, its location, and its primary recovery efficiency, that is, as you know, the expected recovery from

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the pool without the water injection program, and determined that significant volumes of oil would not be recovered under primary operations, and that be initiating a water injection program there was a potential to increase the ultimate recovery by some 55-million barrels of oil.

The committee also determined that a water injection program in this pool was feasible and that such a program would be profitable and beneficial to all the working interest owners and royalty owners.

Q. Would you describe how this Technical Committee functioned in responding to the charges you've just described, and in this connection I refer you to what has been marked for identification as Shell's Exhibits Numbers Fifteen and Sixteen?

A. Since Amoco's prior attempt was abandoned because the working interest owners could not reach an agreement on a method for allocating the unit production, based on the values assigned the parameters, and since Shell's undertaking of the unitization effort for the northern portion of the Hobbs Pool probably represented the last chance to unitize the entire northern portion of this reservoir, the Working Interest Owners Committee instructed the Technical Committee that a simple majority agreement on pertinent matters would not be sufficient and that they were to reach agreement on these matters by a substantial majority, and

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that if they failed in this endeavor, the Technical Committee was to present the issue to the Working Interest Owners Committee for resolution.

To achieve these objectives our committee proceeded in a step-by-step manner so that a substantial majority agreement could be reached on each issue addressed before proceeding to the next. No decisions were reached unless there was a substantial majority concurrence.

In following these guidelines our committee met for twenty-two sessions over a three and a half year period from September, 1973, to March of 1977. Minutes of each meeting were kept and they are compiled in Shell's Exhibit Number Fifteen.

Throughout the meetings there was outstanding cooperation and attendance averaged about 83 percent of the working interest ownership.

The final outcome of this work was the acceptance by the Working Interest Owners Committee of our committee's technical report, entitled Waterflood Feasibility and Unitization Parameters of the North Hobbs Grayburg-San Andres Unit, dated April of 1977.

This technical report is Shell's Exhibit Number Sixteen.

Q. Did your committee develop any information concerning the geology of the northern portion of the Hobbs

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Pool?

A. Yes, we did. The entire Hobbs Grayburg-San Andres Pool is a northwest-southeast trending anticline about eight miles long and three and a half miles wide. Within this pool there exist two recognized geological strata known as the Grayburg and the San Andres. As I previously mentioned, the Technical Committee decided that breaking these strata into six study zones would facilitate the job of describing the reservoir performance.

Now, as is shown on Figure 4 of the Technical Report, this anticline has some 400 feet of structural relief from the crest of the Grayburg at 217 feet subsea, to the top of an oil/water transitional zone at 1614 feet subsea. A large gas cap above 360 feet subsea initially covered the crestal or central portion of this reservoir.

Q. Would you describe for the Commission the six study zones?

A. For the purposes of the technical study, the upper portion of the reservoir was divided into two study zones, referred to as the Upper and Lower Grayburg. The total thickness of these two zones varies from 80 gross feet on the southeast flank to 200 feet on the northwest and southwest flanks of the Unit Area.

Since the Grayburg is overlain by a large gas cap, most of the oil-bearing reservoir is located around

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the flanks of the structure. Maximum pay development for both of these Grayburg study zones is found on the western flank and production is from thinly interbedded sandstone, siltstone, and dolomite layers, with most of the production coming from the sandstone layers.

Again, for the purposes of the technical study, the lower portion of the reservoir was divided into four study zones, referred to as San Andres Zones I, II, III Upper, and III Lower.

San Andres Zone I is a crystalline dolomite that is separated from the overlying productive interval by 10 to 80 feet of impermeable dolomite. This zone usually consists of two to three very porous layers, some of which are reported to be cavernous. This is the only study zone known to have experienced significant edge water influx.

San Andres Zone II is a dolomite layer 50 to 90 feet thick, which is normally separated from Zone I by a thin shaley bed.

San Andres Zone III is separated from Zone II by a sandy break consisting of 10 to 20 feet of dense sandy carbonate. Zone III is generally more thin-bedded than Zones I and II, but like Zone II, is best developed on the crest of the structure. Based on core and petrophysical studies, this zone was further divided into an upper and

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lower study zone.

Q. In connection with its technical study, did the Technical Committee make any determinations with respect to the oil and gas in place within the Unit Area?

A. Yes, the Committee did.

Q. How were these determinations made?

A. Most of the wells completed in the Grayburg study zones were drilled in the 1930's and their logging surveys were not suitable for calculating porosity values; therefore, to determine the oil in place for these particular zones the Technical Committee developed net pay maps and used an average porosity value of 14 percent that had been determined from analyzing available log and core data. These oil and gas net pay maps are based on a gas/oil contact at 360 feet subsea and are included in the Technical Report as Figures 8, 9, 10, and 11.

With respect to the San Andres study zones, there did exist sufficient core and log data in the San Andres intervals to enable the Technical Committee to prepare porosity feet maps for each of the four San Andres study zones. Table 6 in the Technical Report is a summation of the petrophysical analysis used in constructing the net porosity feet maps for each of the San Andres study zones.

The resulting porosity feet maps are included in the Technical Report as Figures 23, 24, 25, and 26.

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These porosity feet maps were utilized by the Technical Committee to calculate initial oil in place on a tract-by-tract basis within the Unit Area.

Q. What other kinds of data did the Technical Committee develop with respect to their study?

A. The Committee developed a water-cut map for the San Andres Zone I, and gas/oil ratio maps for San Andres Zones II, III Upper, and III Lower, all of which are included in the Technical Report as Figures 27 through 30, respectively.

Q. How was the data used in meeting the charge of the Working Interest Owners Committee?

A. The data was used as input in determining the remaining primary and secondary reserves, and in determining the economic profitability of instituting a program of water injection in this northern portion of the Hobbs Grayburg-San Andres Pool.

This data would also provide a basis upon which the Working Interest Owners Committee could develop a fair and reasonable participation formula for all the working interest owners and royalty interest owners.

Q. How did the Technical Committee finally determine an estimate of primary reserves?

A. The Hobbs Grayburg-San Andres Pool is one of the last major Grayburg-San Andres reservoirs in the

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New Mexico-West Texas area to be unitized. Two factors that have contributed to this delay in forming the North Hobbs Unit are the complexity of the reservoir and the influx of water into the upper portion of the San Andres, both of which made estimating primary reserves very difficult.

In forecasting the remaining primary performance of the North Hobbs Unit wells, the Technical Committee decided to determine the reserves on a well-by-well basis, separating the producers into two groups.

The first group consisted of those wells with only Grayburg production. The second group consisted of those wells with San Andres production.

Production from wells completed only in the Grayburg study zone is characterized by marginal oil rates, high gas/oil ratios, and little or no water. Since these study zones were in the latter stages of depletion, the Technical Committee determined that the remaining reserves could be estimated by extrapolating recent production trends; however, due to the complex reservoir performance observed in the San Andres study zones, production plots, such as decline curves or oil cut cumulative curves, were not suitable for forecasting the reserve potential of the San Andres wells.

After considering several proposed methods of determining primary reserves for these study zones, the

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Technical Committee elected to us a computerized reservoir simulation model because it is the most precise means of describing a complex reservoir performance of this type, and because it is able to utilize detailed well, production, reservoir, and geological data effectively.

Figure 31 of the Technical Report is a map of the North Hobbs Unit showing which of these two methods, extrapolation or computer simulation, was used in determining each well's primary reserves.

Q. What was your committee's final conclusion as the remaining primary Grayburg reserves within the northern portion of the Hobbs Pool?

A. At the time the Technical Report was finalized there were 78 wells completed in only the Grayburg study zones. The primary oil reserves from these wells were determined by extrapolating the 5-year production trends between January 1st, 1972, and January 1st, 1977, to an economic limit of one barrel of oil per day per well.

The well reserves were then summed by tract and the tract reserves are shown on Table 14 of the Technical Report. Using this method the total Grayburg primary oil reserves were estimated to be 1.5 million barrels of oil as of January 1st, 1977.

Q. How did you calculate the remaining primary reserves with respect to the San Andres study zones?

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A. As I explained earlier, the analysis and the data necessary to make the computations with respect to the remaining primary reserves within the San Andres study zones were considerably more complex than those required for the Grayburg study zones.

Figure Number 32 of the Technical Report shows the gid overlay that was used for the computer simulation model work in describing the San Andres Zones I, II, and III.

The model consisted of three layers of 200 blocks each, with each layer describing one of the San Andres study zones. Each of the blocks within the model was assigned particular reservoir characteristics, including zonal thickness, porosity, permeability, and initial oil, gas, and water saturations. In addition, the simulation included an aquifer for the upper layer of the model to represent the water influx experienced in the San Andres Zone I.

Within the simulator program, oil, gas, and water were withdrawn from each San Andres well located within the entire Hobbs Pool, based on each well's reported production history. This, of course, included wells located in that southern portion of the pool that Amoco unitized.

The object was to construct a model so that the reservoir performance as calculated by the computer simulation would match the actual performance evidenced by the

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historical reservoir data. Once a match was obtained a prediction of future performance was made, starting in September of 1976.

The results of the simulation model study indicated the San Andres primary reserves for the North Hobbs wells would be 36.6 million barrels of oil as of January 1st, 1977.

These well reserves estimates were then summed up by study zone, by tract, and by working interest owner, and are presented in the Technical Report as Tables 16 and 23, A and B.

Q How were the recoverable secondary reserves estimated?

A Because of differences in reservoir quality, the secondary potential of the Grayburg and San Andres study zones was evaluated separately. Evaluation of the Grayburg secondary recovery potential was done using another reservoir simulation model. In a depleted reservoir with a relatively low permeability, as exists in this Grayburg reservoir, the injection rates will be low, and it can take a long time to reach maximum response.

Although there are numerous technical procedures for estimating recoveries and response times, we believe the use of a simulation model, especially in this case, offers the most precise estimate performance. This

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simulation model consisted of 153 blocks on a 9x17 grid in a single layer, with wells located within the model to duplicate the results of installing an 80-acre 5-spot water injection program. The reservoir input data was based on the average reservoir characteristics typical of the Grayburg study zones on the north and west flanks of the pool.

The significant conclusions derived from this study were the following:

Number one, because of the low permeability of 5 millidarcies, more or less, injection pressures on the order of 1500 pounds per square inch will be required to inject sufficient water to obtain a successful secondary recovery operation.

Ultimate primary recovery will be 18.7 percent of the original oil in place and secondary recovery will be 14.4 percent of the original oil in place, using a symmetrical closed 80-acre 5-spot injection pattern.

Number three, an 80-acre 5-spot pattern using existing wells is economically attractive and will have a long life of approximately 36 years.

Applying the calculated secondary recovery percentage factor to the oil in place in the patterns surrounding the Grayburg injectors, as shown on Figures 35 and 36 of the Technical Report, resulted in a secondary recovery estimate of 6.6 million barrels of oil for the Grayburg study

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zones. This is equivalent to a secondary to primary recovery ratio of .57. The estimated primary and secondary oil recoveries are again listed by zone on Table 16 and by tract and working interest owner on Tables 24, A and B, of the Technical Report.

Based on the simulator results, the anticipated average water injection rates will be 260 barrels of oil per day per well into 40 injectors during fill-up, and 125 barrels of water per day per injector afterwards.

This Grayburg water injection program will require approximately 90 million barrels of injection water over a 36-year life, including 35 million barrels of makeup water, which will be obtained through contract with the City of Hobbs.

Peak Grayburg production averaging 30 barrels of oil per day per producing well, or about 1000 barrels of oil per day, will occur ten years after the water injection program begins.

Q. What methods were used to evaluate the secondary potential of the San Andres study zones?

A. First, no secondary recovery potential was attributed to the San Andres Study Zone I, because the reservoir analysis of its primary performance indicated a high recovery efficiency due to the strong natural water influx.

With respect to San Andres Zones II and

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III, two methods were used to evaluate their secondary potential. These methods were, number one, to use nearby water injection projects in the same San Andres strata as an analogy to determine what could be expected from the northern portion of the Hobbs Pool. And number two, to use a third computer simulation model to forecast the results of a water injection program.

With respect to the analogy with other existing San Andres water injection programs, the performance data on eight such projects were reviewed and volumetrically averaged on the basis of the original oil in place, and this study reflected an average ultimate recovery efficiency of 35 percent with a secondary to primary recovery ratio of .85. The water injection programs included in this study were mature projects that had already recovered in excess of 60 percent of the estimated ultimate secondary oil reserve.

In analyzing these analogous water injection programs it was noted that the higher the permeability within the reservoir, the higher the anticipated secondary recovery efficiency. Only two of the project studies had average permeabilities as high as the 28 millidarcies encountered in the San Andres portion of the HObbs Pool and their ultimate recoveries were predicted to be 39.4 and 46.4 percent of the original oil in place.

In addition to the study of these analo-

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gous projects, the secondary potential and performance of the Hobbs Grayburg-San Andres Pool was evaluated using a third reservoir simulation model. The results of this model study confirmed the floodability of the San Andres and indicated that the ultimate recovery with a water injection program would be 44 percent of the original oil in place. Consequently, based on the results of these two studies, the Technical Committee determined that the ultimate oil recovery efficiency with a water injection program for the San Andres Zones II and III would be 40 percent of the oil in place.

Q. Did the Technical Committee adopt any recommendation with respect to the injection patterns for San Andres Zones II and III?

A. Yes. The recommended water injection patterns for these zones was an inverted 9-spot injection pattern with approximately 160-acre spacing, as shown on pages 37 through 39 of the Technical Report. The injection wells were selected on the basis of both location and evidence of non-communication behind pipe with the San Andres Zone I.

Q. Did the Technical Committee come to any conclusions with respect to the amount of secondary recovery potential based on recommended injection patterns?

A. The Technical Committee determined that by installing 160-acre inverted 9-spot patterns in the San Andres Zones II and III the recovery efficiency would be

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increased to about 24 to 40 percent and that the ultimate oil recovery would be increased by 48.6 million barrels of oil. A breakdown of the secondary recovery by study zone is listed on Table 16 and by tract and working interest owner on Tables 24, A and B, of the Technical Report.

Based on the simulation study it was determined that the San Andres production response will reach a peak of 9000 barrels of oil per day some eight years after injection begins. This constitutes an average of about 80 barrels of oil per day per producing well. This production forecast is based on an average water injection rate of 2000 barrels of water per day per well into 30 injectors during fill-up, which will take approximately 160 million barrels of water.

The total injection requirement is estimated to be 550 million barrels, of which 80 million barrels will constitute makeup volume, and again, will be obtained from the City of Hobbs. The cumulative produced water/oil ratio is expected to be 5 to 1.

Q. Mr. Lancaster, did the Technical Committee estimate remaining gas reserves?

A. Yes. The Technical Committee made estimates of both the volumes of the original gas cap gas in place and the remaining gas reserves. Gas cap volumetrics were calculated from the Grayburg net pay Isopach maps and

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the San Andres porosity feet maps, included in the Technical Report as Figures 8, 10, and 12.

For the Grayburg, the calculations included an average porosity of 14 percent, based on log and core data, and a water saturation of 30 percent, which was derived from analyzing the available technical data.

For the San Andres our committee used a water saturation of 22 percent, again based on the analysis of available technical data. The distribution of the calculated 54.2 billion cubic feet of gas by tract and by working interest owner, is given on Tables 21, A and B, of the Technical Report.

In estimating the remaining gas reserves for the Grayburg, our committee used the remaining Grayburg primary oil reserves for each tract as of January 1st, 1977 and multiplied that figure by the producing gas/oil ratio for each tract during the year 1976.

For the San Andres, our committee agreed to use the gas reserves as predicted by the reservoir computer simulator that predicted the San Andres primary recovery.

The well-by-well estimates of the San Andres gas reserves were then summed up on a tract-by-tract basis. The remaining gas reserves for the Grayburg and San Andres thus determined by the Technical Committee were 8.9

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and 98.3 billion cubic feet respectively. The distribution of the gas reserves by tract and by working interest owner is given on Tables 25A and 25B, respectively, in the Technical Report.

Q. Mr. Lancaster, I now refer you to what has been marked Shell's Exhibit Number Seventeen and ask you to identify it.

A. Exhibit Seventeen, as shown on the wall, is a summary of the capital requirements to install the North Hobbs Water Injection Program in the event Shell's applications are granted. This tabulation is based on Table 17 of the Technical Report, which has been revised using updated cost estimates. The exhibit is fairly self-explanatory and identifies the various capital requirements allocated to various parts of the project.

I might point out that the exhibit reflects the ultimate capital investment to be $33 million which takes into account future capital requirements that will be necessary through the life of the project.

Q. Now, Mr. Lancaster, I refer you to what has been marked as Shell's Exhibit Number Eighteen and ask you to identify it.

A. Exhibit Number Eighteen, as shown on the wall, is a production schedule for the North Hobbs Grayburg-San Andres Unit. In this exhibit there are two production

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forecasts. The lower curve represents the predicted primary production performance of the North Hobbs wells without the water injection project. The upper curve represents the unit performance that we anticipate with the water injection program.

It may be noted that the unit production is anticipated to increase to more than 10,000 barrels of oil per day. It is of interest to further note that the projected life of the unit is on the order of 44 years, or approximately 10 years more than the projected life without unitization. As I have already mentioned, we anticipate that this program of water injection would provide an additional 55 million barrels of oil over the life of the project, which would not otherwise be recovered.

Q. Mr. Lancaster, I now refer you to Shell's Exhibit Number Nineteen and ask you to identify it.

A. As shown on the wall, Exhibit Nineteen is a tabulation demonstrating the difference in reserves and profitability with and without unitization of the northern portion of the North -- of the Hobbs Grayburg-San Andres Pool.

The first column on the exhibit shows the reserves and profitability without unitization. The second column shows the same thing with unitization. The third column shows the difference between the first two

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columns.

You will note that the estimated remaining primary reserves as of January 1st of 1980 are 33.3 million barrels of oil. This was obtained by subtracting estimated production between January 1st, 1977, and January 1st, 1980, of 7.8 million barrels from the primary reserve estimate given in the Technical Report of 38.1 million barrels as of January 1st, 1977. The reserves of 85.5 million barrels of oil estimated to be recovered through unitized water injection operations includes the remaining primary of 30.3 million barrels plus the 55 million barrels of secondary reserves.

The next line on the exhibit shows the initial and ultimate investment requirement anticipated for the water injection project. Of the total anticipated capital investment of $33 million, $27 million is forecast to be spent during 1980 and '81 and an additional $6 million is forecast to be spent during the following 8 years to handle increasing volumes of oil and water.

The third line on this exhibit shows the difference in profitability with and without unitization. The profitability was broken down into two calculations.

The first sub-category shows profitability as undiscounted, or without any consideration for the time value of revenue.

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COMMISSION HEARING

SANTA FE, NEW MEXICO

Hearing Date OCTOBER 3, 1979 Time: 9:00 A.M.

NAME	REPRESENTING	LOCATION
Owen Hopper	Montgomery Law Firm	Santa Fe
A. L. Cole	Amoco Production Co.	Houston
J. C. Allen	" " "	"
W R LANCASTER	Shell Oil Co	Houston
Daryl R Kilpatrick	Montgomery Law Firm	Santa Fe
Lee Campbell	Shell Oil Co.	New Orleans
Georgia Stanley	Shell Oil	Houston
Hans M MATTHESON	Shell Oil	Houston
G. A. NAERT	Marathon Oil Co	Midland
S. B. MATHUR	SHELL OIL	HOUSTON
R. L. EASTERWOOD	Shell Oil Co	Houston
B. G. McCorkle	Shell Oil Co	Houston
R. W. Phillips	Shell oil co.	Houston
H. T. Swanta	Shell Oil Co	Houston
W. E. Buck	Shell Oil Co	Houston
J. A. LORE	Shell Oil Co.	Houston
Tom C. Miller	Shell Oil Co	Houston
Clint Pauley	Montgomery Law Firm	Santa Fe
W Wise	Amerada Hess	Seminole Tx

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COMMISSION HEARING

SANTA FE, NEW MEXICO

Hearing Date OCTOBER 3, 1979 Time: 9:00 A.M.

NAME	REPRESENTING	LOCATION
V.T. LYON	CONOCO INC.	HOUSTON.
J.W. LAW	STATE LAND OFFICE	SANTA FE
Bob Huber	Capitol observer	Santa Fe
Hugh Ingram	Conoco Inc.	HOBBS
Boyce Perry	Samedan Oil Corp	Ardmore Ok.
Gary Feist	SAMEDAN OIL CORP	MIDLAND, TX
Ronald Marquez	ARCO Oil & Gas	Midland, Tx
Ken McPeter	Morano	Hobbs NM.
J.L. Pickerill	Amerada Hess Corp	Tulsa, Okk
Jim Hefley	"	"
W.E. NOLAN	EXXON	Midland, TEXAS
Jack A. Dalious	Exxon	" "
Jeffrey K. Adams	Exxon - Modrall law Firm	Abq. NM

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NAME	REPRESENTING	LOCATION

The second sub-category shows the profitability on a present value basis with a ten percent discount, which is a more common approach shoing the effects of deferring income over an extended period of time. Consequently, as may be seen, the expected profit on an undiscounted basis for continued primary production is $405 million without unitization; $917 million with unitization; resulting in a net profit for the water injection project of $512 million.

Using this approach of calculating profitability on a discounted basis you can again see that the profit without unitization is $178 million; with unitization it's $302 million, resulting in an additional profit of $124 million, which reflects a 412 percent profit for the water injection project.

As shown on the exhibit, all profits listed do not include the payment of Federal income tax.

Q. What factors were used in these calculations?

A. The reserve estimates were taken from the Technical Report with the primary reserves adjusted for estimated production from January 1st, 1977 to January 1st, 1980. The income schedule for these reserves was based on the production schedule shown in Exhibit Nineteen. In addition to the $33 million capital expenditure, the operating costs of unit operations was estimated to be an additional

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$100 million more than the primary operating costs without unitization.

Revenue and expenditures were based on current unit values and no adjustments were made for future inflationary factors. In developing the profits to be derived from unit and non-unit operations, the following crude prices were used: $6.25 per barrel of oil for lower tier production; $14.98 per barrel of oil for upper tier production; and $26.00 per barrel of oil for stripper production.

Q. Mr. Lancaster, realizing that the cost of operations, as well as the price of crude oil, can change, what is your opinion as to the profit values listed on Exhibit Number Nineteen?

A. In my opinion the profitabilities given on Exhibit Nineteen are conservative.

Q. Is it your opinion that the unitized management, operation, and development of the North Hobbs Grayburg-San Andres Unit is feasible and will result in a reasonable profit?

A. Yes, that is my opinion.

Q. Why is the unitized management of the North Hobbs Grayburg-San Andres Unit necessary?

A. With the water injection program, oil is forced to move from one property to another. In view of this movement, it is necessary to unitize all interests in

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order for the owners to receive their fair share of the income from all of the oil produced within the unit. This type of arrangement benefits both the royalty and the working interest owners and protects their correlative rights, which is especially difficult to achieve in a multi-layered, heterogeneous reservoir.

In addition, the elimination of lease line barriers allows flexibility in the use of existing wells and allows variation in the injection and withdrawal rates as will be required by the reservoir's actual performance. This flexibility will result in a maximum efficiency of recovery and the elimination of waste.

Q. In addition to determining the feasibility of the project and its profitability, what other charges were directed to the Technical Committee to answer?

A. The Committee was charged with developing values of certain specified parameters, or characteristics by tract, in order to permit the working interest owners to develop an equitable method for sharing of expenses and revenue from that tract.

Q. What were these parameters or characteristics which the Technical Committee was charged to develop values for?

A. The list of parameters is included on Exhibit Fourteen under the sub-heading "F". Of the ten

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parameters listed specifically, we were unable to obtain two. The first was the value of the oil and gas production and the second was the floodable net acre feet. We were unable to obtain the value for the oil production parameter with sufficient accuracy because of the wide variations of income per barrel of oil under the Federal price control regulations. We were unable to obtain the floodable net acre feet because of the poor quality of logs that exist as a result of the pool being very old; however, our committee did develop two additional parameters, which were, one, the primary gas reserves, and two, the gas cap volumetrics.

Q. Is this information located in the Technical Committee Report?

A. Yes, it is, on Tables 21 through 25. It might be noted that there are two tables for each set of parameters. On Table A the parameters are listed by tract and on Table B, listed by working interest owner. In each of these tables the parameters are listed as to the magnitude and the percent of the total for each tract and for each working interest owner.

Q. Mr. Lancaster, you have described for us how the Technical Committee was charged with certain tasks by the Working Interest Owners Committee and how your committee determined the feasibility and profitability of the pressure maintenance project. What, if anything, was to be

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done with the Technical Committee's Report?

A. As I've indicated, the Technical Committee prepared the Technical Report, dated April, 1977. In this report the Committee described the history and geology of the northern portion of the Hobbs Grayburg-San Andres Pool, calculated the primary and secondary reserves, demonstrated the feasibility and profitability of this pressure maintenance project, made recommendations as to a plan of secondary recovery, based on a water injection, and provided the working interest owners with calculated values of certain parameters as a basis upon which to negotiate an equitable formula for the sharing of the expense and income of the project.

With the data from this report the Working Interest Owners Committee would be able to determine an equitable method of sharing costs and expenses of the project and to prepare a unit agreement and unit operating agreement for ratification.

Q. Based upon your technical expertise and your knowledge of the facts concerning the two applications being heard here today, is it your opinion that the granting of the applications in these consolidated cases, Number 6652 and 6653, will result in the prevention of waste and the protection of correlative rights?

A. Yes, that is my opinion.

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Q. And is it also your opinion that the granting of these applications is reasonably necessary to carry on supplemental recovery operations so as to substantially increase the ultimate recovery of oil and gas from the Hobbs Grayburg-San Andres Pool?

A. Yes. That is also my opinion.

Q. Were Exhibits Thirteen through Nineteen prepared by you or under your supervision?

A. Yes, they were.

MR. LOPEZ: Mr. Chairman, I offer Exhibits -- Shell's Exhibits Thirteen through Nineteen into evidence.

MR. RAMEY: Shell's Exhibits Thirteen through Nineteen will be admitted.

Any questions of the witness?

MR. ATKINSON: Yes.

CROSS EXAMINATION

BY MR. ATKINSON:

Q. I do have a question for you, Mr. Lancaster. In direct examination you stated that the primary reserve, that was calculated on a well-by-well basis. Was done by extrapolation, largely by extrapolation from recent production trends.

A. For the Grayburg only wells.

Q. And the San Andres as well, I take it.

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A. No. The San Andres, in the San Andres we used the simulation, computer simulation.

Q. All right. Now, the computer simulation itself was based on recent production trends, though, was it not?

A. No, it was based on the complete history of each well in the total field.

Q. The -- what was the effect of the recent production trends, then, on your simulation model for the San Andres?

A. Well, the model used the production trend to match the history, so that what you -- and then it was agreed to in the simulation that when the simulation was done, that what it was going to forecast would be the primary reserve under the existing conditions of the field at that time.

Q. All right, so that in fact the simulation model, then, was created in such a way as to match the actual performance of the well, or the life of the well, up to January 1, 1977.

A. Really January -- well, really September of '76.

Q. September of '76, so in fact had the actual performance of the well differed, then the simulation model would have been altered as well to fit that perfor-

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mance, is that correct?

A. It might have, depending upon the alteration.

Q. Now you mentioned something earlier about protection of correlative rights, I believe, and about protection of the unit. Shell Exhibit Number One is no longer on the wall.

MR. LOPEZ: Yes, it is. It's way in the back. We're going to fill up the room.

Q. Okay, well, that's fine. I'll ask you this, first of all, I asked your landman this question.

The San Andres -- excuse me, the North Hobbs Unit is part of the same pool then as the South Hobbs Unit, is that correct?

A. I think basically, yes.

Q. All right. Now what are the plans for protection of the South Hobbs Unit?

A. For the protection of the South Hobbs Unit?

Q. Across the lease line between the South Hobbs Unit and the North Hobbs Unit, what are the plans for the protection of that?

A. Well, there will have to be a lease line agreement drawn up.

Q. All right, now how about with regard to --

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once again it's hard to see, but do you know where the Moranco waterflood project is?

A. Right.

Q. Now what is being done to protect the Moranco?

A. We'll have to have a lease line agreement there, too.

Q. One more question, then. In your formula, your oil allocation formula, which is based, I believe, on -- in Phase I on 20 percent of 1976 production, 80 percent of remaining primary oil reserves, is that correct?

A. That's correct.

MR. LOPEZ: Mr. Chairman, I might assist all of this. Mr. Buck is going to be our witness to explain the --

MR. ATKINSON: I see.

MR. LOPEZ: -- participation formulas. Mr. Lancaster is here just to explain what the Technical Committee did in meeting the charge from the Working Interest Owners Committee, and therefore is the reservoir engineer who is prepared to discuss the values assigned those parameters put forth on this exhibit, but Mr. Buck will be the man who is the chairman of the Working Interest Owners Committee who can discuss the participation formulas.

MR. ATKINSON: Okay.

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Q. (Mr. Atkinson continuing.) I just have a couple more questions, then.

On the -- what assumptions were made regarding the completion intervals in calculating primary reserves?

A. You mean in setting up and forecasting the simulation model?

Q. Yes.

A. It was agreed to in the Technical Committee that everybody had had sufficient time to get their zones in shape so that the zones that were open and the conditions that existed at the time the simulation model went into the forecast would be -- would be maintained.

Q. All right. Now, in determining the economic limits for a particular well, then I take it that the position of the well in the unit is a consideration also, is that not true?

A. Well, no, not necessarily. The economic limit was determined upon when your production is no longer profitable. Now, in the case of, I think, of the simulation model, it was shut off at about 2024, because frankly, it was considered the value of any barrel of oil recovered after that would be very hard to -- to equate to the formula, or equate to the recovery.

MR. ATKINSON: We have no further questions

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for the witness. We would like to reserve the right to recall Mr. Lancaster.

MR. RAMEY: Okay, Mr. Lancaster also will probably be around, won't you?

Any other questions? Mr. Nutter.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Mr. Lancaster, now, what patterns will you be using for the two Grayburg zones? An 80-acre 5-spot, is that it?

A. That's right, yes.

Q. And then your San Andres flooding would be on a converted 9-spot.

A. That's right.

Q. Now, you won't be flooding Zone I of the San Andres at all, is that correct?

A. We do not intend to, no.

Q. Now, what is Amoco flooding in the unit to the south of your proposed unit? Are they flooding the two zones in the Grayburg?

A. They are, yes. They have tried.

Q. Are they using the same pattern that you would be using, the 80-acre 5-spots there?

A. They don't really have very many injectors

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in the Grayburg at the moment, but that is their basic pattern.

Q. And how about the San Andres injection pattern?

A. They're using a 5-spot. We have a bit of a problem because a good part of the south unit was developed by Amoco and the wells are located in the center part of each tract, or each 140-acre section. But in the North Hobbs it was developed, and we have diagrams we can show later, it was developed on a competitive basis and you may have four wells in 160-acre tract, all within 660 feet of each other, literally, in the corner of each of the sections. So it's a little bit more difficult.

We intend to start off with an inverted 9-spot.

Q. And is it feasible that some day you might have to go to a similar pattern of whatever Amoco would be using along that line, due to a lease line agreement, then. If they're using a 5-spot in the San Andres, you might have to go to a 5-spot rather than an inverted 9-spot along the southern border of the unit.

A. Now this is something we'd have to look at when the time came.

Q. Now what is Moranco drilling up in that little plug to the north there, to the Grayburg only?

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A. To the Grayburg; to the Grayburg only.

Q. And they are using an 80-acre 5-spot there?

A. Yes.

Q. And you have a compatible arrangement of injection wells to their flood?

A. Yes.

Q. Now you mentioned that it would take approximately ten years to assume maximum production -- to achieve maximum production from the Grayburg and eight years from the San Andres. Is that assuming that you would be placing all of the injection wells on injection more or less simultaneously?

A. Yes.

Q. And that it will take the -- all of the producing wells that long to have their fill-up and to achieve their maximum --

A. Well, certain wells might respond earlier than others, but as a whole, this is what we've figured, that the reservoir as a whole would be slow to respond. You've got quite a bit of gas that has to be compressed, quite a bit of void space to be filled up.

Q. I see. Now you also mentioned that you had studied eight analogous San Andres reservoirs to make this -- some of these predictions for this one.

Could you name those reservoirs, please?

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A. I can't name all of them right offhand, but I can get the list for you.

Q. Okay, would you --

A. Seminole was one, Jordan was another. There was, I believe -- well, I'd have to check the list.

Q. You could furnish us with that list of reservoirs, though?

A. Yes.

MR. NUTTER: Okay, I believe that's all.

A. Now, in the -- they were not included in the report because the operators did not want that information published.

Q. But we'd like to know the names of them.

A. The names we can give you.

Q. Was the Vacuum Pool included in that study?

A. I think it was.

MR. RAMEY: Any other questions of the witness? He may be excused.

MR. RAMEY: We'll take a fifteen minute recess.

(Thereupon a recess was taken.)

MR. RAMEY: The hearing will come to order. Mr. Lopez, you may proceed.

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MR. LOPEZ: Yes, sir, Mr. Chairman. I'd like to correct about three littls gliches in Mr. Lancaster's testimony.

When he was talking about the water recovered -- required for the Grayburg injection, I think he said oil, but it's pretty obvious that he meant water.

The second thing is, I think he talked about eleven parameters on the exhibit. He mentioned ten but there are actually eleven parameters.

And the third item is that when he was talking about the income schedule for the reserves for the profitability study, he referred to Exhibit Number Nineteen but it's pretty obvious that he should have referred to Exhibit Number Eighteen.

MR. NUTTER: As long as you're making corrections, Owen, also I think it was where some monies were involved on total income for -- or something --

MR. LOPEZ: Yeah, this 412 --

MR. NUTTER: He said $412 million and it's $421 million.

MR. LOPEZ: Or 421 percent profit --

MR. NUTTER: Rather than 412.

MR. LOPEZ: Thank you, Dan. Okay.

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W. E. BUCK

being called as a witness and having been duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. LOPEZ:

Q. Will you please state your name and where you reside?

A. W. E. Buck. I reside in Houston, Texas.

Q. Where are you employed and in what capacity?

A. I'm employed by Shell Oil Company in Houston, Texas, as a Staff Engineer in the business coordination group.

Q. Have you previously testified before this Commission and had your qualifications accepted as a matter of record?

A. No, I have not.

Q. Would you briefly describe your educational background and employment experience?

A. I graduated from the University of Oklahoma, February of 1941, with a BS degree in Petroleum Engineering. I performed military service from March, 1941, to February of 1946, and was employed by Shell Oil Company as an exploitation engineer in February of 1946.

My assignment with Shell Oil Company has

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included various engineering and supervisory postions directly associated with the development and production of oil and gas reserves.

During the past nine years I have directed and have been responsible for Shell's efforts to unitize properties for supplemental recovery purposes. During this period I have also represented Shell and other operators' efforts to unitize properties for supplemental recovery purposes.

I have been registered as a professional engineer in the State of Texas since July 29th, 1958.

Q. Are you familiar with the applications of Shell Oil Company in Cases Numbers 6652 and 6653?

A. Yes, I am, as I have represented Shell and acted as Chairman of the Working Interest Owners Committee during the negotiations in connection with the unitization of the proposed North Hobbs Grayburg-San Andres Unit.

MR. LOPEZ: Mr. Chairman, are the witness' qualifications acceptable?

MR. RAMEY: Yes, they are.

Q. (Mr. Lopez continuing.) Mr. Buck, did the Working Interest Owners Committee hold meetings during your chairmanship?

A. Yes, they did.

Q. Were minutes taken at those meetings?

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A. Yes.

Q. Let me refer you to what has been marked as Shell's Exhibit Number Twenty and ask you to identify it?

A. Exhibit Twenty is a bound series of copies of the minutes of the Working Interest Owners Committee meetings and related correspondence. These minutes and this correspondence were prepared by me in my role as chairman of the committee.

Q. Have you reviewed these minutes?

A. Yes, I have.

Q. Do they accurately report the actions of the Working Interest Owners Committee in those respective meetings?

A. Yes, they do.

Q. How were efforts to form the North Hobbs Unit initiated and how was the program for unitization and water injection development?

A. As Mr. Lancaster previously stated, Amoco Production Company initiated an effort in 1970 to form a pool wide unit of the Hobbs Grayburg-San Andres Pool, for the purpose of supplemental recovery operations. It became apparent that agreement could not be reached on a pool wide basis because the working interest owners could not reach agreement on the method of allocating the unit production based on the values assigned the parameters.

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At a meeting held by Amoco in July -- on July the 12th, 1973, all of the working interest owners in the Hobbs Pool decided to abandon efforts to form a pool wide unit and to divide the pool into two parts for future unitization efforts. Amoco undertook a program of unitization of the south portion of the pool and was successful in forming the South Hobbs Unit on January 1, 1975.

Shell called a meeting of all operators on July 31st, 1973, to determine what interest, if any, all of them had in undertaking a program for the unitization and water injection for the northern portion of the -- part of the pool. The operators attending this meeting actually represented a major portion of the working interest in the northern portion of the pool. They agreed to proceed with a program of unitization and water injection, and to participate in an effort to form a North Hobbs Grayburg-San Andres Unit, with Shell Oil Company acting as unit expeditor and unit operator if the efforts toward unitization were successful.

As Mr. Lancaster discussed, the operators in attendance at this meeting charged the Technical Committee with the task of developing a Technical Study for the proposed North Hobbs Grayburg-San Andres Unit.

The operators instructed the Technical Committee to obtain general agreement on all items considered.

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The Technical Committee was instructed to bring any matters upon which general agreement could not be reached to the Working Interest Owners Committee for direction or decision.

This Technical Committee consisted of representatives of all working interest owners who wished to participate and Shell's representative acted as chairman of the committee.

Q What actions were taken by the Working Interest Owners Committee during the time the study was being developed by the Technical Committee?

A No further meetings of the Working Interest Owners Committee was held until May 26th, 1977; however, in the meantime the Technical Committee asked our committee to act on two of its recommendations.

Our first action was to approve the recommendation of the Technical Committee to adopt a cutoff date of January 1, 1975, for all well logging data and well test information which they were going to consider in completing their charge. The need to adopt a cutoff date is fairly self-evident. As was stated in the ballot submitted to the working interest owners, a cutoff date was necessary in order to bring certain facets of the Technical Committee's work to a conclusion so that it could proceed with answering their charge. Our approval of this recommendation was arrived at by a written ballot vote on September the 26th, 1974.

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The second action our committee took was to adopt the Technical Committee's recommendation to approve a computer analysis of certain study zones using Shell's three dimensional, compressible fluid reservoir simulation program. This recommendation was approved by 88.5 percent of the working interest owners involved in the northern portion of the Hobbs Pool, again by written ballot on March 15th, 1975. The percentage approval was based on each working interest owner's respective percentage of oil production from the northern portion of the Pool during the year -- there's an error in that date and I'll have to check my minutes for that date. I apologize. That should be a portion of 1973.

MR. LOPEZ: Okay, sorry for the hitch. When did the Technical Committee complete their charge and what action was then taken by the Working Interest Owners Committee?

A. The Technical Report which has been previously introduced as Shell's Exhibit Number Sixteen, was formally submitted to the Working Interest Owners Committee at a meeting on May 26th, 1977. This Technical Report was accepted by the Working Interest Owners Committee as the completion of their charge.

76.6 percent of the working interest owners, again based on 1976 oil production, accepted the study as a

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basis for unitization negotiations.

Q. Excuse me, Mr. Buck, should that also be 1973? It should not be '76?

A. I'm sure that that is correct, '76 there.

Q. This is '76.

A. Exxon's acceptance was qualified because Exxon was not yet ready to accept the gas reserve parameters. Exxon later accepted without qualification the Technical Report as a basis for unit negotiations. Ultimately, not one working interest owner objected to the use of the Technical Report as the basis for unit negotiations.

Q. Was a method developed for allocating all of the oil and gas to be produced from the Unit Area, and if so, in what manner was it developed?

A. At a meeting of the Working Interest Owners Committee on July the 12th, 1977, efforts were initiated to develop a participation formula or method of allocating the oil and gas to the various tracts within the Unit Area. The meeting was attended by working interest owners representing more than 92 percent of the unit participation based on the lowest participation of any of the formulas considered at that meeting.

At this meeting a total of twelve different participation formulas were proposed by ten different working interest owners. Each proposal was considered and a roll-

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call vote was taken of the working interest owners in attendance. None of the twelve formulas received more than 50 percent approval of the working interest owners in attendance.

In the absence of agreement, the meeting of the Working Interest Owners Committee was adjourned with the intent of renewing efforts at a later date after all parties had time to review the efforts to date.

The Working Interest Owners Committee again met on September the 20th, 1977, in its continuing effort to develop an acceptable participation formula. Five additional formulas or methods of allocation were proposed at this meeting. Each new method -- formula was considered by the committee and a roll-call vote of the working interest owners present was taken on each formula.

Continental Oil Company presented the fifth formula considered at this meeting and the seventeenth proposal in all. Continental's formula received in excess of 83 percent approval of the working interest owners on a roll-call vote.

At the request of the working interest owners, a written ballot on this formula was submitted and returned by mail. This formula provided for participation by the working interest owners during three specified phases of the life of the project and based on each working interest owner's respective oil participation in each phase, the re-

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sults of the ballot were: Phase I, 92.01 percent working interest owners' approval, with only 1.46 percent disapproval Phase II, 92.58 percent approval, with only 1.30 percent disapproval; and Phase III, 89.76 percent approval, with only 1.27 percent disapproval.

Q Would you state what is the participation formula which received the percentage approval you've just described, and also tell the Commission how it works, and in this connection I refer you to what has been marked as Shell's Exhibit Number Twenty-one.

And preliminarily, let me suggest, Mr. Chairman, the date was shown on the exhibit as 9. We've changed it to 7 on the wall exhibit and we've also corrected the Commission exhibit, but all the other exhibits that are floating around have the wrong date.

So we're clear, this Exhibit Twenty-one, the date shown in the phase allocation should read January 1, 1977, throughout. Okay.

A. Actually, participation was made up of two formulas, one for oil and one for gas, each divided into three parts or phases.

As shown on the exhibit, the formula for oil allocation in Phase I participation was based on 20 percent of the ratio of the quantity of 1976 oil production from each tract to the total quantity of 1976 oil production from

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all tracts within the Unit Area, plus 80 percent of the ratio of the quantity of remaining primary oil reserves of each tract within the Unit Area as of January 1, 1977, as set forth in the Technical Report to the total quantity of remaining primary oil reserves of all tracts within the Unit Area as of the same date.

In Phase II the participation was based on 100 percent of the ratio of the quantity of remaining primary oil reserves for each tract within the Unit Area, again as of January 1, 1977, to the total quantity of remaining primary oil reserves of all tracts within the Unit Area as of the same date.

In Phase III participation was based on 100 percent of the ratio of the quantity of secondary oil reserves for each tract within the Unit Area as set forth in the Technical Report, to the total quantity of secondary oil reserves of all tracts within the Unit Area.

The gas participation formula is the same in principle as the formula for oil participation.

In Phase I participation was based on 20 percent of the ratio of the volume of 1976 gas production from each tract within the Unit Area to the total volume of 1976 gas production from all tracts within the Unit Area, plus 80 percent of the ratio of the volume of remaining primary gas reserves of each tract within the Unit Area as

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of January 1, 1977, as set forth in the Technical Report, to the total volume remaining primary gas reserves of all the tracts within the Unit Area as of the same date.

In Phase II participation was based on 100 percent of the ratio of the volume of remaining primary gas reserves for each tract within the Unit Area, again as of January, 1977, to the total volume of remaining primary gas reserves of all the tracts within the Unit Area as of the same date.

In Phase III participation was based on 100 percent of the ratio of each tract's quantity of secondary oil reserves within the Unit Area as set forth in the Technical Report, to the total quantity of secondary oil reserves of all tracts within the Unit Area.

Q. Mr. Buck, now that you've described how unit oil and gas production will be allocated to each tract during three phases, would you explain the duration of each phase?

A. With respect to the duration of each phase, Phase I is to start on the effective date of unitization and continue until the first day of the month following the month in which the total number of barrels of oil produced from all tracts within the Unit Area after the effective date of unitization equalf four million barrels.

Phase II starts at the termination of

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Phase I and continues until the first day of the month following the month in which the total number of barrels of oil produced after January 1, 1977, from all tracts within the Unit Area equals 38,071,683 barrels, which is the quantity of remaining primary oil reserves of the Unit Area, as of January 1, 1977, as set forth in the Technical Report.

Phase III begins with the termination of Phase II and continues to the remainder of the term of unitization or life of the project.

Q. Is then the oil and gas that is produced from the Unit Area less that used in the conduct of unit operations or unavoidably lost, to be allocated to the separately owned tracts within the Unit Area on the basis of the participation formula just stated?

A. Yes. This method of allocation is set forth in Section 13, page 9, of the Unit Agreement for the North Hobbs Grayburg-San Andres Unit, which has been introduced as Shell's Exhibit Number Three.

Q. Why is there a split formula with respect to Phase I of the unit operations?

A. The relationship of a tract's production to the production of other tracts, or to the total of all tracts, at a given time, or for a relatively short period, is not necessarily the same as the relationship of the remaining primary reserves of such a tract to the total of

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all tracts; therefore, a rate of production for a fixed period was used as a parameter in Phase I to provide some adjustment. Phase I is for only a short period of time, the time it takes to produce four million barrels of oil. By the time four million barrels of oil are produced it is anticipated that the rate of production of the unit will begin to increase so that soon thereafter all tracts will be allocated oil at a rate greater than they enjoyed prior to unit operations.

Q. Do you have an opinion as to whether or not the participation formula contained in the Unit Agreement allocating the produced and saved unitized hydrocarbons to the separately owned tracts in the Unit Area does so on a fair, reasonable, and equitable basis?

A. Yes, I believe it does.

As may be noted, the first two phases are based fundamentally on the remaining primary reserves of each tract as determined by the Technical Committee, a committee on which all working interest owners were invited to be represented. By using this factor as the basis for the allocation of oil and gas produced under the proposed Unit Agreement, each tract would receive first from the Unit's operation an amount of oil and an amount of gas equal to the amounts each would have received if primary operations had continued without unitization.

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Phase III, being based entirely on a given tract's secondary recovery potential, allows each tract to recover its contributed share of the added reserves. This condition is very desirable in that it places any risk of recovery upon the supplemental oil, or that additional oil that is made possible by unit operation. With the amount of oil involved in the North Hobbs Unit, royalty interest owners, working interest owners, and the State of New Mexico, can all feel quite certain that they will receive at least as much oil and gas from unit operations as they would have received from continued operations without unitization, and know they all stand to benefit from the additional oil recovered by water injection.

Placing the risk of recovery on the anticipated secondary potential is quite reasonable and fair when one considers the fact that the tracts differ in their share of primary and secondary reserves contributed to the unit. Some tracts have a smaller share of the remaining primary recovery than their share of the secondary or supplemental oil, and by the same token, some tracts have a higher share of the remaining primary than their share of the secondary reserves.

For example, two tracts might be allocated the same total amount of oil from unit operations. Assume one of these tracts receives most of its oil by reasons of

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its primary contribution and very little from its secondary contribution, and that the other tract receives its oil allocation based upon the opposite mix of its primary and secondary contribution. It is therefore reasonable that the first tract with possibly less incentive for unitization and water injection, should bear only that risk of recovery which is in proportion to its incentive or secondary potential. Conversely, the second tract which has a greater incentive for unitization and water injection by virtue of the greater secondary recovery potential, should bear the risk related to that potential benefit. The participation formula achieves this desirable and necessary result.

Q. How were procedures developed for allocating unit expenses to the various separately owned tracts?

A. The percentages for allocating unit expenses were developed in a manner similar to that involved in the developing of the participation formula; that is, by the working interest owners.

Unit expenses were considered as two separate items, operating expense, which is comprised of the costs associated with the actual unit operations and investment cost, which is comprised of the cost of the facilities, including the construction costs required for the water injection program.

At a metting of the Working Interest Owners

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Committee on February the 2nd, 1978, consideration was given to the methods to be used for allocating the unit expenses. Six methods were proposed and considered at the meeting. A roll-call vote was taken on each method proposed. The sixth proposal considered received in excess of 76 percent approval of the working interest owners on a roll-call vote. The working interest owners then agreed to submit by mail the sixth proposal for ballot vote.

The results of the written ballot, again based on each working interest owner's respective oil participation in each phase were: Phase 1, 85.3 percent approval, with only 10.2 percent disapproval; Phase II, 85.8 percent approval, with only 9.7 percent disapproval; Phase III, 83.6 percent approval, with only 14.6 percent disapproval.

In addition, based on their initial share of the investment cost, this formula received 84.9 percent approval with only 11.7 percent disapproval.

Q. What was the method developed for the sharing of unit expenses, and in this connection I refer you to Shell's Exhibit Number Twenty-two?

A. The method of allocating unit expenses finally agreed upon is shown on this exhibit. The unit operating expenses, which are referred to in Article 11 of the Unit Operating Agreement, are to be shared by the working interest owners in proportion to their Phase I,

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Phase II, or Phase III, unit participation based on oil, depending on which phase is in effect at the time a particular expense is incurred.

The cost of investment items incurred prior to the Investment Readjustment Date, which is defined in Article 1.2 of the Unit Operating Agreement as the termination of Phase II, or January 1, 1991, whichever occurs first, is to be shared by working interest owners in proportion to their investment participation, which again is defined in the Unit Operating Agreement as .58 of Phase II unit participation, plus .42 of Phase III unit participation. The cost of investment items incurred after the Investment Readjustment Date will be shared by working interest owners in proportion to their Phase III unit participation.

At the time of the Investment Readjustment Date, all investment costs incurred prior to such time are to be adjusted among all the working interest owners in accordance with their respective Phase III unit participation.

Q. Is this the method stated in the Unit Operating Agreement for allocating unit expenses to the working interest owners?

A. Yes. Article 11 of the Unit Operating Agreement, which is Shell's Exhibit Four, sets forth the method of allocating the costs of unit operations, including capital investments in the manner I've just described.

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Q. Do you consider these methods of allocating unit expenses to be fair, reasonable, and equitable?

A. Yes. The proposed water injection program in conjunction with the participation formula results in the accelerated recovery of an amount of oil equivalent to each tract's remaining primary reserve, as well as allowing for the recovery of supplemental reserves. In view of the fact that benefits will result from the accelerated recovery, it is fair and reasonable that this accelerated recovery should be considered in the allocation of unit expenses. Therefore, the allocation of operating costs on the basis of the phase in effect at the time the costs are incurred, and the weighting between primary and secondary reserves in the initial allocation of investment costs, as well as the provisions for the readjustment of Phase III unit participation, allocates the expense burdens in proportion to the benefits to be derived from the project.

Q. How are credits or charges to be made for such items as wells, tanks, pumps, machinery, and equipment contributed to unit operations?

A. Consideration was given to such items by the Working Interest Owners Committee at the same time and in association with the development of a method for allocating unit expenses. As noted in Article 10 of the Unit Operating Agreement, all items contributed to unit operations

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by the working interest owners are to be inventoried and a value assigned immediately after the effective date of initization. The value of the inventoried items will be adjusted initially among the working interest owners in proportion to their investment participation, just as for investment costs.

At the Investment Readjustment Date the value of the inventoried items, less the value of any items retired, is to be readjusted among all working interest owners in accordance with their respective Phase III unit participation.

Q. Does the Unit Operating Agreement provide for the situation where a working interest owner does not pay his share of the unit expense?

A. Yes. Article 11.5 of the Agreement provides that in this case the unit operator shall hve a lien on the unit oil and gas owned by that working interest owner and the unit operator shall have the right to collect the proceeds from the sale of that oil and gas until the reimbursable amount owed, plus interest, has been paid.

Q. Does the Unit Agreement and the Unit Operating Agreement provide for the designation and removal of the Unit Operator?

A. Section 6 of the Unit Agreement and Article 6.1 of the Unit Operating Agreement designate Shell as the

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unit operator.

Article 6.2 of the Unit Operating Agreement and Sections 7 and 8 of the Unit Agreement provide a procedure for the removal of the Unit Operator and the selection of a successor.

Q. Does the Unit Operating Agreement provide a method for voting on unit matters?

A. Yes. Article 4 of the Unit Operating Agreement sets forth the voting procedures for voting on matters to be decided by the working interest owners.

Q. Does the Unit Agreement provide for putting the unit into effect and terminating it?

A. Yes. The unit is to become effective as provided by Section 39 of the Unit Agreement. The Unit Agreement may be terminated as provided in Section 24 of the Unit Agreement.

I might further add that this section of the Unit Agreement to which I have just referred provides by its own terms for its own ipso facto expiration on January 1, 1980, if the unit does not become effective by that date.

Q. Is it your opinion that the granting of these applications is in the interests of prevention of waste and protection of correlative rights?

A. Absolutely.

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Q. And is it also your opinion that the granting of these applications is reasonably necessary to carry on the supplemental recovery operations so as to substantially increase the ultimate recovery of oil and gas from the Hobbs Grayburg-San Andres Pool?

A. Yes, that is my opinion.

Q. Mr. Buck, one final question.

Based on your very intense and extensive involvement in the unitization effort you have just described, do you have an opinion as to whether unitization would be undertaken again in the forseeable future if the application for unitization is not approved as presented?

A. Naturally I hope this question will be moot, but I might comment that our efforts to date have all been to form the North Hobbs Unit, and in view of the overwhelming response we have had from the working -- from the 80 working interest owners, and the 905 royalty interest owners, it just hasn't seemed appropriate or necessary, nor was time available, to develop a "what if" program.

Nevertheless, I think that when one considers that Amoco was unable to reach agreement and form a unit in spite of the tremendous time and effort they expended in their attempts to include the northern portion of the pool in the unit; two, the complexity and history of the reservoir; three, the methods, the time, and the expense

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required to evaluate the reservoir, remembering that the Technical Committee spent nearly four years in gathering data, developing a method of evaluation and obtaining acceptance of their report by the Working Interest Owners Committee; four, that a unit expeditor is not compensated for its time, engineers, lawyers, accountants, clerks, landmen, et cetera, when a unit is not formed, but only by his share of added oil when a unit is formed; five, when I think of the number of interested parties involved, 80 working interest owners, 905 royalty interest owners, and think about what it takes to get all or most to agree on anything, much less a method of sharing over 85 million barrels of oil, of which over 55 million barrels constitute oil that would not otherwise be recovered; six, that the incentive for a water injection program decreases with time, both from a reservoir recovery standpoint and from an actual construction and operational standpoint -- for example, part of the unit area is within the city limits of Hobbs, and the growth of the city's residential areas makes it increasingly difficult to do the necessary construction and drilling work; and seven, the fact that this effort has had an excellent response, ratification or acceptance by more than 92 percent of the working interest owners and 97 percent of the royalty interest owners, and in my judgment there is little or no assurance of improving upon this level of acceptance, if unitization is not

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brought about by such an effort and response, then the risk of another attempt to unitize would be extremely high, too high, maybe.

Considering all these things, Shell, or any other operator, would have to think long and hard before again undertaking such a monumental task when there is no reason to believe that the commitment of additional time, money, and professional talent would produce a better result than we have achieved to date.

Q. Were Exhibits Twenty through Twenty-two prepared by you or under your supervision?

A. Yes, they were.

MR. LOPEZ: Mr. Chairman, I offer Shell's Exhibits Twenty through Twenty-two into evidence.

MR. RAMEY: Shell's Exhibits Twenty through Twenty-two will be accepted.

Any questions of the witness?

CROSS EXAMINATION

BY MR. ATKINSON:

Q. Mr. Buck, I just have a couple of questions for you.

How much of the $33 million capital investment will be subject to readjustment at the end of Phase II?

A. Of the $33 million?

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Q. Yes, sir.

A. As now estimated, as I recall, the -- the total of the $33 million, which I believe is to be the capital investment required for installation, would be adjusted to the Phase III participation at the end of Phase II.

Q. The entire $33 million?

A. That is correct.

Q. Also now can the ipso facto termination be extended from six months by agreement of the working interest owners?

A. It can be by the approval of the working interest owners who have ratified the agreement.

MR. ATKINSON: We have no further questions

MR. RAMEY: Any other questions of the witness? He may be excused.

MR. LOPEZ: Maybe, if we could just take about a three minute break, we've got a lot of exhibits to hang up.

(Thereupon a short recess was taken.)

MR. KILPATRIC: Mr. Chairman, we're ready any time you are.

MR. RAMEY: All right, please proceed.

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R. W. PHILLIPS

being called as a witness and having been duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KILPATRIC:

Q. Would you please state your name, where you reside, and by whom you are employed, and in what capacity?

A. My name is R. W. Phillips. I live in Houston, and I am employed by Shell Oil Company as a Staff Production Engineer.

Q. Have you previously testified before the Commission and had your qualifications accepted as a matter of record?

A. No, I have not.

Q. Would you briefly describe your educational background and employment experience?

A. I received a BS in Mechanical Engineering and a BS in Petroleum Engineering from Texas A & M University in 1949. I joined Shell in August of 1949. I have had production engineering type assignments for Shell in Elk City, Oklahoma; Wichita,Kansas; Ardmore, Oklahoma; Oklahoma City,

Denver, New Orleans, and Houston. I am a Registered Professional Engineer in the States of Colorado and Louisiana.

Q. Do your duties as Production Engineer for Shell include responsibilities for Shell's operations in New Mexico, specifically the North Hobbs Unit under discussion today?

A. Yes, they do.

Q. Are you familiar with Shell Oil Company's application in Cases Numbers 6652 and 6653?

A. Yes, I am.

I have been charged by Shell with the job of coordinator of engineering with responsibility for coordinating the project planning in connection with unitization efforts. In this capacity I have reviewed the wells to be included in the North Hobbs Unit Area as to their current completion and their proposed utilization in the unit operation. I also coordinated engineering efforts toward the implementation of this water injection project.

MR. KILPATRIC: Mr. Chairman, are the witness' qualifications acceptable?

MR. RAMEY: Yes, they're acceptable.

Q. (Mr. Kilpatric continuing.) I refer you now to what has been marked as Shell's Exhibit Number Twenty-three and ask you to identify it.

A. Exhibit Number Twenty-three is a location

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plat which shows the following:

The location of the proposed injection wells in the unit area;

The location of all other wells within a radius of two miles from the proposed injection wells;

The formation from which these wells are producing or have produced; and

The lessees within a radius of two miles from the proposed injection wells.

At the bottom of this exhibit there exists a legend which shows the status of all wells shown on the plat, for example, whether a well is a proposed injector, or is plugged and abandoned, or what have you. You will also note that on the exhibit on the wall we have outlined the Hobbs City Limits in red.

Q. Now I refer you to what has been marked as Shell's Exhibit Number Twenty-four and ask you to identify it.

A. Exhibit Number Twenty-four is the well numbering system proposed for the North Hobbs Grayburg-San Andres Unit.

This exhibit has two parts. The first part is a plat showing the method for numbering the unit wells. For example, there are no sections in the Unit that have the same number; therefore, the base unit number is the

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section's number, as shown in the enlargement of Section 28. The individual wells within the section are identified by rows and tiers which match the established 40-acre proration units in which the well or wells are located.

The enlargement identifies Well No. 28-241. The well is located in Section 28, Row 2, Tier 4, and is the only well located in this proration unit. If there was another well in the same proration unit, it would be identified as Well No. 28-242.

The second part of this exhibit is a tabulation showing the unit wells identified both by the proposed numbering system and also by the operator.

Q. I now refer you to what has been marked as Shell's Exhibits Numbers Twenty-five and Twenty-six and ask you to identify them.

A. Exhibit Number Twenty-five is a diagrammatic sketch of all wells to be converted to injection wells. These sketches show all casing string diameters, setting depths, quantities of cement used and tops of cement, completion intervals, and total depth of each well. A tabular summary of all wells to be converted to injection is attached as part of this exhibit and shows the current operator and well number and the proposed unit well number.

Exhibit Number Twenty-six is a series of three different diagrammatic sketches which illustrate the

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three types of typical completions of producers which we anticipate converting to injectors. These sketches show tubing diameters and packer setting depths. In addition, these sketches show that these injectors will have corrosion inhibited inert fluid in the tubing-casing annulus and that the tubing will be internally lined with a non-reactive corrosion preventing coating. Provisions will be made for monitoring injection pressure and tubing-casing annulus pressures in order to detect any leaks that might occur.

Q. Now I refer you to what has been marked for identification as Shell's Exhibit Number Twenty-seven and ask you to identify that.

A. Exhibit Number Twenty-seven is a tabulation of wells to be drilled and their proposed location including the unit well number of each of these wells and the proposed use of these wells.

Q. Now I refer you to what has been marked for identification as Shell's Exhibit Number Twenty-eight and ask you to explain it.

A. Exhibit Number Twenty-eight is a series of four diagrammatic sketches showing how the newly drilled injectors and producers will be completed. In addition, these sketches show that the injectors will have non-reactive internally lined corrosion protected tubing with a packer set 100 feet above the uppermost perforation. The sketches

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further show that the tubing-casing annulus will be filled with a corrosion inhibited inert fluid and provision will be made for monitoring injection pressure and tubing-casing annulus pressure.

Both producers and injectors will have a minimum of 350 feet of surface casing and all casing strings will be cemented to the surface.

Q. Were all available logs with respect to wells proposed for conversion to injection within the Unit previously given to the Commission?

A. Yes, they were under the original application of August 15, 1979.

MR. KILPATRIC: At this time, Mr. Chairman, I request that the Commission take administrative notice that all these logs were submitted with Shell's application in Case Number 6653 and that the Commission make them a part of the record in these cases.

MR. RAMEY: So done.

MR. KILPATRIC: Thank you.

Q. (Mr. Kilpatric continuing.) Are there any wells proposed for conversion to injection for which no logs were available and in this connection I refer you to what has been marked for identification as Shell's Exhibit Number Twenty-nine.

A. Yes, there are six such wells and Exhibit

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Twenty-nine is a tabulation of these six producers proposed to be converted to injectors for which no logs are available.

Q. I now refer you to what has been marked for identification as Shell's Exhibit Number Thirty and ask you to identify it.

A. Exhibit Number Thirty is a tabular summary for all wells which penetrate the injection zone and which are located within one half mile of the proposed injection wells. The tabulation consists of four parts:

Part One is a tabulation of all proposed unit wells.

Part Two is a tabulation of all active wells completed below the Grayburg-San Andres interval and within the Unit boundary.

And Part Three shows all active wells outside the Unit boundary.

And Part Four shows all plugged wells.

The tabular summary shows all casing strings, setting depths, amount of cement used, cement tops, total depth, producing interval, and well identification and location.

Q. I now refer you to what has been marked for identification as Shell's Exhibit Number Thirty-one and ask you to identify it.

A. Exhibit Number Thirty-one is a series of

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diagrammatic sketches of each plugged and abandoned well which penetrates the injection zone and is located within one half mile radius of the proposed injectors.

These sketches show the position of all cement plugs placed in the wellbore during abandonment work.

Q. Now I refer you to what has been marked as Shell's Exhibit Number Thirty-two and ask you to describe it.

A. Exhibit Number Thirty-two is a copy of the water contract that Shell successfully negotiated with the City of Hobbs, New Mexico. The contract provides for the purchase of treated waste water which will be used for injection water in the Pressure Maintenance Project.

Our initial term contract with the City of Hobbs provides for the purchase of 50,000 barrels of water per day at a cent and a half per barrel and means an annual income to the City of Hobbs of $274,000.

Q. Do you plan to use any other water source for injection in your pressure maintenance project?

A. Yes. We plan to use water produced by unit operations. We will have about 20,000 barrels of water per day available from this production and therefore will plan to use a total of 70,000 barrels of water per day initially for injection.

Q. I now refer you to what has been marked for

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identification as Shell's Exhibit Number Thirty-three and ask you to identify it.

A. Exhibit Number Thirty-three is a list of the proposed special rules and regulations for the North Hobbs Grayburg-San Andres Unit Pressure Maintenance Project. The proposed rules encompass the method for allowable calculations, establishing drilling well locations, completion of newly drilled and converted wells, restrictions on water injection, monitoring wells for problems, and investigation of formation isolation integrity in injection wells.

Q. It is apparent that the proposed Unit Area for the North Hobbs Grayburg-San Andres Unit does not encompass the entire Hobbs Grayburg-San Andres Pool in Lea County, New Mexico, but only a part thereof. Have there been any negotiations regarding the development of line agreements with owners or operators of other properties within the pool, but outside the proposed Unit Area?

A. Yes. There are only two water injection projects which offset the proposed Unit Area. One of them is the Moranco Rice-Hardin Waterflood Project to the north, and the other is the Amoco Operated South Hobbs Grayburg-San Andres Unit on the south. We are in the process of negotiating line agreements with both Moranco and Amoco.

In the case of Moranco -- of the Moranco Rice-Hardin Waterflood Project, we propose to convert to

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water injection the following wells in the North Hobbs Unit: Well No. 18-131 -- I'm sorry. Well No. 13-331, which is currently Shell-Rice No. 4; Well No. 18-131, the current Amerada-Hardin 3; Well No. 18-311, the current Gulf-Hardin 7; and Well No. 13-221, the current Conoco State "B4". Two of these wells are not included in our current application. We will need to obtain the unit working interest owners' approval for the conversion of these two additional wells, and upon securing that approval we will apply to the Division for administrative approval for these additional injectors.

Q. Do you have an opinion as to whether the North Hobbs Unit operations will have an adverse affect upon other portions of the Hobbs Grayburg-San Andres Pool?

A. With the completion of the North Hobbs Unit there will be three water injection programs within the Hobbs Pool, which will provide proper protection for all parties. In addition, either the Special Rules and Regulations for the North Hobbs Unit or line agreements will further assure that there will be no adverse effect upon other portions of the Hobbs Pool.

Q. I now refer you to what has been marked for identification as Shell's Exhibit Number Thirty-four and ask you to explain it.

A. Exhibit Number Thirty-four is a diagram depicting the history of the efforts that have gone into

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developing the project and the projected schedule for implementation of the project.

The top portion of the diagram depicts the work of the Technical Committee and negotiations of the working interest owners since initial efforts began in July, 1973. This top portion of the diagram also shows the time allocated for planning the unit implementation and the anticipated effective date of unitization.

The second line from the top of the diagram represents the time involved in searching, locating, negotiating, and securing a source of make-up water. As I've already indicated, the make-up water will be otained from the City of Hobbs.

The third line from the top reflects time and effort spent in the planning involved in the design of the production, injection, and water source systems, and the acquisition of sites and rights-of-way to accomodate these plans.

The bottom line of the diagram represents the planning and effort involved in developing the details of the drilling and well workover programs necessary for the implementation of the Pressure Maintenance Project.

This exhibit graphically illustrates what the testimony which you've heard today clearly shows, that the magnitude and complexity of this project have been nothing

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less than monumental.

Mr. Campbell has explained what efforts were involved in determining who had ownership interests in the proposed unit area and what efforts were involved in locating, contacting, and obtaining the consent of the incredibly numerous royalty owners and working interest owners involved.

Mr. Lancaster has described the Technical Committee's arduous four-year task of gathering the necessary technical data with accuracy, developing a method of evaluating that data, and in turn compiling that data into the Technical Report, which was accepted by all the working interest owners as a basis for their negotiations in reaching agreement as to the fair and equitable distribution of the burdens and benefits to be obtained from the production of over 55 million additional barrels of oil.

Finally, as Mr. Buck has explained, the working interest owners sat down, rolled up their sleeves, and hammered away until they were able to reach fair and equitable formulas for the sharing of these burdens and benefits.

The exhibit also shows that the efforts just described have only set the stage for the actual implementation of the project. If our efforts here today are successful, there remains much to be done to finally realize

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the very significant and important gains that the project holds.

Q. Were Exhibits Twenty-three through Thirty-four prepared by you or under your supervision?

A. Yes, all these exhibits, with the exception of the Exhibit Number Thirty-two, which -- were prepared by me or under my supervision.

With respect to Exhibit Thirty-two, this represents a copy of the actual agreement that was submitted to and executed by the City of Hobbs.

MR. KILPATRIC: Mr. Chairman, I offer Exhibits -- Shell's Exhibits Numbers Twenty-three through Thirty-four into evidence.

MR. RAMEY: Exhibits Twenty-three through Thirty-four will be accepted.

I think before we submit Mr. Phillips to cross examination, it might be wise to take statements from the other people who wish to make them.

MR. NAERT: Mr. Chairman, my name is Gilbert A. Naert, N-A-E-R-T, with Marathon Oil Company, and I'm a Senior Petroleum Engineer and I'd like to state before I read this statement that I've been directly involved in the attempted efforts to unitize the Hobbs Field since its inception in 1969 and 1970, when, as you know, we tried to unitize the entire field with PanAmerican, or Amoco, as oper-

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ator.

Marathon Oil Company is a working interest owner with leases included in the North Hobbs Grayburg-San Andres Unit in Lea County, New Mexico, and we make this statement in support of Shell Oil Company's application in Case Number 6652 and 6653 before the Oil Conservation Commission for approval of said unit.

Marathon has been participating in discussions concerning possible unitization and water flooding of these producing zones in the Hobbs Field for the past ten years. This is the first time that a substantial majority of the working interest owners in the proposed unit have been able to agree upon participation in a unitized waterflood operation.

Marathon, in executing the Unit Agreement and supporting the application believes that the proposal is essentially a fair one to all parties concerned and if adopted and implemented will result in increased production of much needed additional oil and consequently will prevent waste that might occur under continued competitive operation.

We urge approval of the unit proposal of Shell Oil Company.

Thank you.

MR. INGRAM: I'm Hugh Ingram. I'm Conservation Coordinator for Conoco, Inc., Hobbs, New Mexico.

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Conoco, Inc. is a working interest owner in the proposed North Hobbs Grayburg-San Andres Unit and supports Shell's application for statutory unitization of the proposed North Hobbs Unit. We believe that the formation of this unit is in the best interests of conservation, the prevention of waste, and the protection of correlative rights of all parties concerned.

MR. RAMEY: Anyone else?

MR. PERRY: Mr. Commissioner, my name is Boyce Perry. I'm the manager of secondary recovery for Samedan Oil Corporation.

I would like to read this statement into the record of this hearing.

Samedan Oil Corporation is a working interest owner in the North Hobbs Unit and has been involved in the proceedings of the unitization of the North Hobbs Unit since its concept; have taken on the feasibility study, compilation of the Technical Committee Report, and negotiations for participation in investment formulas.

We stand in support of all aspects of unitization efforts and believe and accept unitization of the North Hobbs Field under the proposals submitted at this hearing by Shell Oil Company.

MR. ALLEN: Mr. Chairman, I'm James Allen with Amoco Production Company, Houston, Texas. I'm a Senior

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Petroleum Engineering Supervisor.

Amoco Production Company is an operator in the proposed North Hobbs Grayburg-San Andres Unit. We have ratified both the Unit Agreement and the Unit Operating Agreement.

Amoco hereby recommends that the Commission approve the proposed unit and pressure maintenance project as proposed by Shell Oil Company in Cases Numbers 6652 and 6653.

MR. MORAN: I'm R. M. Moran, President of Moranco, Hobbs, New Mexico. I'm both the lease line operator and in the unit and Shell invited me out and we support it all.

MR. RAMEY: Anyone else?

MR. HEFLEY: I'm Jim Hefley, Unitization Manager for Amerada Hess Corporation, Tulsa, Oklahoma.

Amerade Hess Corporation is a working operator within the unit boundary and we have ratified Shell's Unitization Agreement and support the proposal here.

MR. NUTTER: What was your last name again, please, sir?

MR. HEFLEY: Hefley, H-E-F-L-E-Y.

MR. NUTTER: Thank you.

MR. RAMEY: Any other statements? We'll recess until 1:30.

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(Thereupon the noon recess was taken.

Thereafter at the hour of 1:30 p.m. on the 3rd day of October, 1979, the hearing was again called to order and the following proceedings were had, to-wit:)

MR. RAMEY: The hearing will come to order.

Were you through with Mr. Phillips?

MR. KILPATRIC: Yes, Mr. Chairman, Shell has completed the direct examination.

MR. RAMEY: Are there any questions of this witness?

MR. ATKINSON: I have no questions, thank you.

MR. RAMEY: Mr. Stamets?

CROSS EXAMINATION

BY MR. STAMETS:

Q. Mr. Phillips, Figures 35 through 39 of the Waterflood Feasibility Unitization Parameters show the injection and production patterns for the various zones to be flooded, and those are certainly some odd looking patterns

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in there. Has any consideration been given to infill drilling in this proposed unitization project?

A. Mr. Stamets, I'm going to have to refer you to the Technical Committee people for that question because I was not involved in developing the plan, and right now we're sticking to that plan.

Q. Okay, nonetheless, I would wish you would put someone on, back on to answer the question, whoever it should be.

MR. LOPEZ: Yes, we will.

MR. KILPATRIC: We will.

MR. LOPEZ: We'll be glad to.

MR. RAMEY: Any other questions of Mr. Phillips? He may be excused.

MR. LOPEZ: Mr. Chairman, that concludes Shell's direct testimony. I would of course request to be allowed to make a closing statement at the conclusion of the evidence.

MR. RAMEY: I think that can be arranged, Mr. Lopez.

Let's see, who did you want to put back on to answer your question?

MR. LOPEZ: I'll be glad to put Mr. Lancaster on for that particular question.

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BILL LANCASTER

being recalled as a witness and being still sworn upon his oath, testified as follows, to-wit:

CROSS EXAMINATION

BY MR. STAMETS:

Q. The question refers to the injection patterns that are shown on Figures, I believe, Thirty-five through Thirty-nine of the Technical Report, and my question was, has consideration been given to infill drilling within this project to make those patterns a little more uniform?

A. At this point it hasn't. At this point we are -- since we haven't really gotten the unit together, and we haven't talked to the working interest owners, we more or less feel that what's in the -- what's in the Technical Report is the way we will start off. At least this is how we initially will proceed.

Now, it may be that before we go very far, we might want to make some changes.

Q. Do you feel that that should be looked at?

A. Yes.

Q. An infill program in this project?

A. Well, now when you say an infill program, I don't quite -- we've got a -- it's a 9-spot. I admit that

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it's not a complete pattern across the unit, but there is in essence a 9-spot that's in there now with some drilling wells.

Now it may be that when we get together, especially after we get done on our final agreements with Amoco, that we may have a slightly different pattern, or we may have a slightly different configuration to the wells, but we have not sat down and gone through a redevelopment, no.

Q. Do you feel that this should be done within a reasonable period after the project is started?

A. After they're approved, yes.

Q. How long is a reasonable period of time?

A. I would think that within the first year when we see how things are -- how our injection is going to proceed.

And we also, as we go into this, what we will find, I think, we'll find some wells that we can't use, and moving -- then as you move one well that maybe moves another, and these are things that we can't foresee at this time.

MR. STAMETS: I believe that's all the questions I have.

MR. ATKINSON: I have another question, Mr. Chairman, as a result of this questioning of him.

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RECROSS EXAMINATION

BY MR. ATKINSON:

Q. In the event that additional infill drilling is necessary, what will that do to the projected capital investment?

A. The investment would go up slightly.

Q. Do you have any feeling at all what the additional investment would be for these?

A. Well, it depends on how many wells we're talking about, but the wells, when we talk about a well costing maybe $150,00, maybe $175,000, you could drill twenty wells and you'd go up maybe a couple million dollars, but when you talk about the profit that that offsets, you're talking about four hundred million profit and you're talking only going up about five million dollars or so on your expenditures.

So as a percentage of your profit it's really very small.

MR. ATKINSON: Okay, thank you.

RECROSS EXAMINATION

BY MR. STAMETS:

Q. I presume, Mr. Lancaster, that you would

not propose drilling any additional wells in the project unless you could see that those additional wells would recover more oil than in your current projections that you have

A. Well, the concept is that each additional expenditure or what we did would pretty much have to stand on its own in our presentation to the working interest owners

Q. So that would not have any effect on the overall economics of the project as you've put it forth here today.

A. Spending the additional money or -- I wouldn't think so.

Q. Thank you.

MR. RAMEY: Any other questions?

MR. PADILLA: Mr. Chairman, I have one question I think it is properly -- would be properly addressed to Mr. Buck, and I think he could answer that question from there.

Section 7 of the proposed Unit Agreement indicates that upon removal of the operator -- or the removal of the operator would be effective upon notice to the Land Commissioner. Do you have any objection to the inclusion of that notice to the Oil Conservation Division, as well?

MR. BUCK: I don't believe we'd have any objection whatsoever.

MR. LOPEZ: I might add, Ernie, that I'm

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sure no one would have any objection. That's certainly fine. It's just not in the agreement now. When you're talking about getting 700 and how many royalty owners and 77 working interest owners signed up, that takes a little bit of negotiation.

MR. PADILLA: That Section 7 just lists the procedure by which an operator may be removed.

MR. RAMEY: The witness may be excused.

Mr. Atkinson, are you ready?

MR. ATKINSON; Yes, sir. Exxon calls Mr. William Nolan.

WILLIAM E. NOLAN

being called as a witness and having been duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. ATKINSON:

Q. Will you please state your name and residence for the record?

A. William E. Nolan and I live in Midland, Texas.

Q. Mr. Nolan, how are you employed?

A. Employed by Exxon as a Senior Staff Engineer.

Q. Have you previously appeared before the

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Commission and had your qualifications accepted as a matter of record?

A. No, sir, not before this Commission.

Q. What is your educational background?

A. I graduated from the University of Kentucky in 1943 with a Bachelor of Science in Civil Engineering.

Q. After graduation, as an undergraduate, what was your employment experience?

A. For the first two years after I graduated I worked for Sohio Petroleum Company and during my last couple of years I was District Engineer for the West Edmond Hunton Lime Unit, which was the first large unit formed in the State of Oklahoma.

After that work experience I joined Monterey Oil Company as Chief Engineer of the Fullerton Clear Fork Unit, another large unit in West Texas.

After Exxon bought Monterey out, I went to work for Exxon in 1961. Since that period of time I've done various types of unitization work for Exxon.

Q. And what has your contact with technical committees been with regard to unitization?

A. I have attended quite a number of technical committees and I am at the present time a member of six or seven technical committees, working on unitization studies.

Q. What technical committees have you been

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involved with in New Mexico?

A. With the recently formed East Vacuum Unit I was Exxon's representative. I was also a representative for Exxon on the Double L Queen Unit, which I believe was the first statutory unit in the state. I also served on several others.

Q. Now with regard to the Technical Committee relating to Shell's applications, what has your involvement been with that, please?

A. Since 1973 I have been Exxon's technical representative on that committee.

Q. And have you had extensive involvement as a member of the Technical Committee with its workings?

A. Yes. I was trying to figure out, I think I attended every technical session of the twenty or so that was held while Mr. Swartz was the coordinator and I believe I attended them all.

MR ATKINSON: Will the Commission accept Mr. Nolan's qualifications?

MR. RAMEY: Yes, we've heard of Mr. Nolan over the years.

Q. (Mr. Atkinson continuing.) Mr. Nolan, I refer you to what's been marked for identification as Exxon's Exhibit Number One. Could you please briefly describe what this is?

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A. Well, this is a map which Shell has also sort of presented some background data on, but this shows the whole of the Hobbs Pool, and the map was actually prepared by Amoco as an exhibit when they were working on the full field unitization effort.

It shows the boundary line between the Amoco operated South Hobbs Unit and the proposed boundary line -- proposed boundary of the North Hobbs Unit Area, along with that little peninsula that sort of sticks up there on the east side along the township between 18 South and 19 South.

Q. The dark hatched lines, I take it, outline the boundaries of the North Hobbs Unit?

A. That's correct.

Q. Now, I notice in the south portion, in the Amoco South Unit, there are two -- there's a hatch marked rectangle and a dotten rectangle. Will you explain what those are?

A. Those show two 80-acre tracts which are not a part of the Amoco South Unit, which are -- this unit, as was earlier stated, was a voluntary unit and all the tracts were not put into the unit when it was initially formed. There are a number of other tracts that did not join the unit initially on its formation in early 1975. Those, several of those, have subsequently joined the unit

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but these two, the Conoco State A-5 and the Getty Mexico 4, are at the present time, or at least the last time I looked at the records in June, were not a -- were not part of the South Unit.

Q. All right. Now there are three areas overlined in yellow. Will you please explain what those are?

A. Those three areas show the tracts which Exxon owns.

Q. Thank you. I now refer you to what has been marked for identification as Exxon --

A. I might point out that that Moranco Flood also is shown on here at the top of the Area.

Q. All right. I now refer you to what is marked for identification as Exxon Exhibit Two.

A. This shows again the same exhibit that Shell has presented but we'll give it a little more detail on Exxon's ownership in this unit.

On the lefthand side you see the 320-acre tract 43, which is Exxon's State "A" Lease. It has six wells on it.

Tracts 47 and 48 in the middle of the lease are the Exxon Bowers "A" Federal tracts. This is the largest Federal lease in the unit. It's 320 acres of a total of 400 acres of Federal leases in the unit.

The reason it's divided into two tracts

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is a division of royalty interest between the Tract 47 and Tract 48. It has the same base lease.

Exxon also has a 50 percent interest in the W. D. Grimes, the 40-acre tract to the right.

Q. All right, thank you.

A. I guess Exxon's total there is 660 acres out of roughly 10,000 acres in the total unit, about 6 percent, a little over 6 percent of the total surface area.

Q. I'm sorry, what --

A. I say Exxon's total is about 6 percent of, a little over 6 percent of the total surface area of the unit.

Q. All right. I now refer you to what has been marked for identification as Exxon Exhibit Number Three.

A. Again, this exhibit is very similar to Shell's Exhibit Eighteen, excepting that when Shell plotted the production rate versus time they used a semilog plot which gives a -- quite a different character to the look of the production.

This is plotted on Cartesian -- or directly plotted such that the production rate in barrels per day plotted to the left between 2000 and 4000 and 4000 and 6000 is an equal space, and that makes the difference in the look of the graph. But in essence this is the same

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graph. You remember that -- that Shell testified the remaining primary recovery was 30.3 million barrels. That's a slight difference in estimate. Our estimate here is 30.2 million barrels, a very slight difference in estimate as to the cumulative recovery that will occur to the beginning of 1980.

That 30.2 million barrels is a direct calculation made by the Technical Committee. It started as on 1-1-77 as Mr. Buck testified, being 38.1 million barrels. Since that period of time some 7.8 or .9 million barrels would have been produced, leaving a remaining primary of 30.2 million barrels by our estimate on January the 1st of 1980.

Q. How is the remaining primary exhibited on this Exhibit Number Three?

A. The remaining primary is shown by the dashed line. It starts with slightly over 6000 barrels a day in January of 1980 and gradually declines across the graph, goes on off the 30-year to the year 2025, or for 45 years thereafter, and contains under that line the oil reserve,under that dashed line would accumulate to 30.2 million barrels after a production time of 45 years.

Q. All right. Now, the 45-year period is when the economic limit will be reached?

A. Yes. The economic limit of 3 barrels per

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day per well on quite a few of the wells will be reached in the year of 2025.

Q. Would you please explain what the dark line is?

A. The dark line shows the total forecast, the Unit production with waterflooding, and that would be the sum of the remaining primary plus the secondary, and you'll recall that Shell testified the secondary as being 55.2 million barrels and we agree precisely with that determination. We have no problem with that. It was what the Technical Committee determined.

And the sum, then, of the secondary being 55.2 and the primary being 30.2, gives a total recovery under the curve of 85.4 million barrels.

You'll notice, again as Shell's graph has shown, that the secondary, or bold, the black line crosses the primary line after a couple of years of production and then graudally increases on up to a rate slightly over 12,000 barrels a day, remains relatively flat for about 7 years, and then begins to decline. The reserves, by the Technical Committee, were estimated to be -- to have been produced in about 35 years from secondary recovery program, a shorter period of time than was estimated for the primary.

Also, this graph is basically, and I believe this probably was testified to by Shell, but this is a result

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of waterflooding in the Grayburg on a 5-spot pattern and in the San Andres on an inverted 9-spot pattern. Any change of that would probably change these rates.

Q. I now refer you to Exxon's Exhibit Number Four, which is in some ways very similar to the Exxon Exhibit Number Three. I notice that there are two formulas addressed in the upper lefthand corner. The first one is titled Unit Agreement Formula (Revenue Participation), and it is divided into three phases. Would you please explain that?

A. Yes. And this will be very similar to Mr. Buck's testimony.

Phase One lasts for a period of 4 million barrels. Phase Two lasts for a period of from January 1st, 1977, for 38 million barrels, and that relates down to 26.2 million barrels from the end of Phase I to the beginning of Phase III. Those are the same numbers subtracting out the cumulative production prior, and the Phase I production leaves you with 26.2 million barrels from the end of Phase I to the beginring of Phase III.

Then, of course, Phase III is 55.2 million barrels, as we've indicated with the secondary recovery for the Unit.

Q. These formulas presented here, again, are the same, are they not, as those presented by Shell this morning?

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A. Yes, as near as we can estimate.

Q. All right. Now, the second formula is entitled Unit Agreement Formula (For Payment of Investment.) Could you please explain what that is?

A. Well, for the first two phases, Phase I and Phase II investments, over the first about 10 years of production is shown by the arrows, show the extent of time we estimate the phase will last; about 2 years in Phase I and an additional 8 years in Phase II. During that period of time 58 percent of the investment would be paid on the basis of primary reserves and 42 percent on the basis of secondary reserves.

Q. Do you have an opinion as to what effect the use of these two formulas would have on a producer with higher secondary oil?

A. Yes. It causes him during the earlier phase of the Unit to invest money for something that he gets no revenue for. During Phases I and II there is no revenue dedicated for secondary production, so that if an owner owned only secondary, he would get no revenue during the first 10 years of operations and he'd pay 42 percent of the secondary oil investment.

Now, you will notice that at the end of Phase II there is a 100 percent adjustment to the Phase III investment, such that at that time whatever investment in

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secondary, secondary recovery owners have not paid, they will at that time pay in cash to those owners who have a lower secondary oil recovery. It's not a question of paying this, it's the timing under which it is paid. It would be paid under the investment adjustment, of which Mr. Buck testified that the entire 33 million barrels of secondary would be adjusted at the end of Phase II to secondary ownership, or Phase III ownership.

Q. I see, you said 33 million barrels?

A. I'm sorry, 33 million dollars of investment would be adjusted at that time.

Q. Now, for a producer of higher secondary oil, you stated that he would be at a disadvantageous situation for several years. Approximately how long would it be?

A. Around -- a little over 10 years is the way this production forecast goes before it produces the entire remaining primary of 30.2 million barrels.

Q. Mr. Nolan, I now refer you to what has been marked for identification as Exxon Exhibit Number Five. Could you please explain what that is?

A. Yes. This is the same type of graph that shows the production rate on Cartesian coordinates up the lefthand side, showing the production rate in barrels per day against the time. These are years after the unitization,

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after the Unit starts; didn't put the years on, just put the years after starting time, which we believe a reasonable estimate might be 1-1-80.

This shows Exxon's producing rate over the period of time of the three phases of the formula.

Q. This is Exxon's producing rate under the formula proposed by --

A. Under the formula proposed by Shell.

During Phase I Exxon's participation is 4.688 percent, and for that first couple of years period you would multiply Exxon's 4.688 percent by the total Unit producing rate shown on the prior exhibit.

During Phase II Exxon's participation is 4.396 percent. During that period of time you would multiply the 4.396 percent times the production rate shown on the previous exhibit.

And after the end of Phase II, the secondary oil participation becomes in effect and you would multiply 7.639 percent by the production rate shown on the prior graph.

Q. Those percentages you're talking about are not on this exhibit.

A. They are not on that exhibit. They will be shown on a later exhibit.

Q. Now, you may recall this morning Mr. Buck,

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I believe, testified that within a short period of time after Phase I, that the individual tract owners would be producing at a rate equal to or greater than what they had produced prior to unitization.

A. That's right.

Q. In the event that unitization is permitted. Do you have an opinion as to whether that is true in view of this exhibit?

A. Well, Exxon's production rate for the first five months of 1979 averaged 535 barrels per day, as shown by the arrow on that graph.

Exxon's production allocated at 4.688 percent times the estimated Unit production rate would be in the order of 300 barrels per day compared to the actual production rate we are now achieving of 535 barrels per day for Exxon's leases.

This graph shows that as the production rate for the Unit increases, and with a constant percentage of 4.396 for Phase II, that Exxon's production rate increases from 300 barrels a day to the tenth year, where I estimated it was 545 barrels per day, which is slightly more than we are today making on those leases.

Q. That would be a 10-year lag before you would achieve what you're presently --

A. Before it gets back where we are today, yes,

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sir.

Q. All right. Now, not only as to Exxon's working interest, but in your opinion what effect will this have on the royalty payments to royalty holders in these tracts?

A. Well, of course, the main problem with this lease is that the Bowers "A" Federal Tract, and this big difference occurs on that very tract, it affects the tracts and, of course, the royalty owners in direct proportion.

Q. Do you have an opinion as to the percentage production of royalties to royalty interest holders in the event that the Unit were allowed and Exxon's production was increased?

A. Please state that again. Why didn't you ask me that last night?

Q. Well, can you approximate what percentage of royalties the royalty owners would receive as compared to what they are receiving now?

A. Yes. This lease is burdened by royalty, excess royalty payment. The Bowers "A" Federal Tract has a 12-1/2 basic royalty on a sliding scale, plus 7-1/2 percent of additional override, so it's some 20 percent of the revenue from that lease is -- goes to royalty owners.

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VOIR DIRE EXAMINATION

BY MR. DALIOUS:

Q. Mr. Nolan, according to this exhibit you show Exxon's Unit formula participation at about 300 barrels and its actual rate of production as 535 barrels.

A. That -- during the first five months of 1979 that was the actual average production, yes.

Q. Now assuming royalties are paid royalty owners on the basis of the Unit formula for the first four or five years, would the royalty owners under the Unit formula for the Exxon leases receive less royalty?

A. Yes, I believe --

Q. Than would be paid under our actual production rate?

A. We actually calculated that they would receive some 44 percent less.

Q. All right.

DIRECT EXAMINATION

BY MR. ATKINSON:

Q. Mr. Nolan, I now refer you to what has been marked for identification as Exxon Exhibit Five-A. Would you please explain for the Commission what this is?

A. Exxon Exhibit Five-A shows again a plot

of Exxon's production in the bold line. This is the actual production from January of 1976 on up through August, or to August of 1979.

It shows that Exxon's actual production started out at about 500 barrels a day in 1976 and declined in December to about a little less than 400 barrels a day, and then began to go back up and for the past two years has averaged over 500 barrels per day.

Q. All right. Now, Exxon's share that is demonstrated by the dashed line, what -- what does that represent?

A. The dashed line represents Exxon's Phase I share of Unit production. You recall that during Phase I Exxon's share is 4.688 percent of the Unit total under the Agreement formula proposed here.

If you take 4.688 percent of the actual field production starting in 1977, that's what this plot shows. The field production has been relatively constant during that period of a little over 7000 barrels per day, which would then result in, had the Unit been in effect in early 1977, Exxon's share of production would have been a little over 300 barrels a day, and would have remained relatively constant during that 2-year period.

Q. What is the difference between the -- or the space between the two lines, the dashed line and the

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solid line, represent?

A. Well, of course, you can see, it's about 200 barrels a day, all during that period, and the cumulative difference is shown by the bold line that goes across the curve and has an arrow on the end of it, starting at zero at the beginning of 1977. At the end of the first year it shows a 50,000 barrel difference; end of the second year, 170,000 barrel difference; and say at the end of this year we would estimate that cumulative difference at almost 200,000 barrels, which Exxon would have been paid, that they would have received 200,000 barrels less under the unitized formula than they actually produced during this period of time and the royalty owners would have been likewise treated.

Q. Now, both of these lines are based on actual production data taken from field production, is that correct?

A. That's correct. It's simply a multiplication in the case of the dashed line of the actual production of the field during that case, and an addition of Exxon's lease production during the -- for the bold line.

Q. All right. I now refer you to what has been marked for identification as Exxon Exhibit Five-B, very similar to Five-A. Could you please explain what this is?

A. This is an attempt to just show the position of some of the other operators under this formula.

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The first one we picked on was Shell. There, had the Unit formed there early in 1977, and with Shell's 24.123 percent, they would have been credited with about 1750 barrels a day of Unit production.

At that time they were producing about 1880 barrels of production. Since that time Shell's actual production has declined and today their producing rate is some -- a little less than 1700 barrels per day.

Q. All right, now, if I understand you correctly, then, in the beginning of 1977 through approximately the middle of 1978, had the Unit Agreement been in effect, Shell would in essence have been reduced in the amount it could have produced, is that correct?

A. Well, it would have been reduced in the amount they would receive under the formula as compared to what their leases actually would have contributed to the Unit.

Q. Now what is their position now as of -- well, as of June, 1979, what was their position?

A. Very close to the same line. They would have received just about, almost exactly what they are producing from their leases under the Unit formula. The dashed line and the solid line cross each other for the first four or five months of 1979, pretty closely.

Q. If you will, I'd like briefly to turn you

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back to Exhibit Five-A and compare it with Exhibit Five-B, then. Could you compare the difference in effect to Exxon and Shell in the event that the Unit Agreement is approved by the Commission, as to what increase or decrease in production would result to the -- to Exxon and Shell?

A. Well, of course, if the Unit formula is approved, Exxon's trend is pretty level and the Unit's production -- the field production trend is pretty level. Exxon would take a 200 and some barrel a day loss, whereas Shell, with perhaps a little deline as this bold line shows, their production rate is declining, they may have a slight gain if the Unit goes into effect.

Q. Thank you. I now refer you to Exxon Exhibit Five-C. Would you please explain what that is?

A. Well, if Exxon loses somebody else has to gain, and this shows one of those parties that gain.

Chevron's share of Phase I production is 3.125 percent. Under the Unit formula their production rate would be slightly over 200 barrels a day, or would have been had the Unit been in effect since 1977.

The bold line shows Chevron's actual production as being some 150 barrels a day less all during the period -- the last two years.

Q. So that in the event that the Unit Agreement were in effect, what would happen to Chevron's production?

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A. Chevron's production would more than double if the Unit goes into effect.

Q. Okay, now referring to what has been marked for identification as Exxon Exhibit Five-D, would you identify that, please?

A. Five-D is the performance graph for Texas Pacific Company. Their share of Unit production, Phase I, their share of Phase I, is 4.682 percent, very close to what Exxon's is.

Their actual production, shown by the bold line, held pretty close, very close, to the unitized share until February of 1978, when a rapid decline took place on their leases, and today they're producing at a rate of about 180 barrels per day, compared to their unitized share of about 340 barrels per day.

Q. Do you have an opinion as to what these four graphs indicate as to changing conditions within the proposed unit?

A. These graphs show that there have been substantial distortions since the study was made, that leases are not performing, certain leases are not performing as predicted by the Technical Study; in particular, of course, the Texas Pacific and Chevron leases. Obviously they've declined at a faster rate than the Technical Study. The Exxon leases have not declined as fast as the Technical Study

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would have shown. Shell's apparently pretty close on balance.

Q. Do you have an opinion as to what may have caused these changes?

A. Of course, the Technical Study had several limitations to it. As it was testified by Shell, this was an extremely complicated study because of the complicated nature of the reservoir, and we feel that at the time the study, the way it was done, was the best that could be done with the data then existing.

We took no exceptions to those decline curves, to those rates, at the time they were done.

Q. Do you have an opinion now as to the viability of the data that was relied upon by Shell, or by the Technical Committee, in formulating these performance --

A. Well, that data is over three years old now, and certainly, with one particular limitation that was placed on the study, and it was a necessary limitation, it was testified by Bill Lancaster, that it was necessary to assume that the producing interval of each well was not changed for the entire 45-year future primary life. Of course, to do differently would have been an impossible task. So that was agreed that we would do it that way, but it did not give a unique solution for the remaining primary, and with the reliance of the formula almost 100 percent on remaining primary, it made it an extremely important deter-

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mination using only that for the first 10 years of production, and causes Exxon this problem.

Q. Now, when you talk of the reliance of the formula almost 100 percent on remaining primary, are you talking about during Phases I and II?

A. During Phases I and II alone. We have no problem with Phase III.

Q. And referring once again to the formula that Shell set out this morning and as set out on Exxon Exhibit Four?

A. That's correct. There is some weighting of current production rate that amounts to 20 percent during the first 4 million barrels. That is only 3 percent of the total production during Phases I and II, such that 97 percent, then, relies altogether on remaining primary production for each lease.

Q. All right. Mr. Nolan, I now refer you to what has been marked for identification as Exxon Exhibit Number Six, the colored graph.

A. Right. Now, this graph shows the hairy details of one of the estimates made by the Technical Committee during 1976.

Q. All right. Now, could you please explain what the blue line is?

A. The line highlighted in blue, starting in

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1969, shows the actual production rate of Exxon's Bowers "A" Federal tract.

On the lefthand side you'll see that that rate was about 500 barrels a day for a period of four or five years and then it declined quite rapidly.

Starting at the beginning of 1964 when the Technical Study was made, the lease had declined to a producing rate of around 300 barrels per day.

Q. All right. Now, we're talking, just to clarify this, we're talking about the Exxon Bowers "A" Federal which is Tract 47. That is the same tract which is identified as Tract 47 on Exxon Exhibit Two, right, is that correct?

A. Correct; that is correct. It is a 7-well lease.

Q. Now, taking the actual production from the tract up until the end of 1975, what did the Technical Committee do with it?

A. Well, the initial simulation study was made using data up to the end of 1975. The line that is labeled "A" shows the simulation study forecast of production decline which was made with data up to the end of 1975. That matched the decline and so on, and shows a couple of changes in decline rate.

Q. That is the line which lies above the blue

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line then, is that correct?

A. That's correct, yes.

Q. All right. Now, could you explain -- first of all, when was the "A" line generated by the simulator model?

A. Well, sometime in early 1976. It took a considerable amount of time to set the model up and get it going. The results were furnished to the Technical Committee members on October the 27th, 1976.

Q. All right. Now, would you please explain what the straight blue line is, which is designated as Line B?

A. Line B shows the forecast for the Bowers "A" Federal lease determined by the simulation study, starting September the 1st, 1976, and declining on out through the end of 1989. Now this line was the one which depicts the reserves which are included in the Technical Study, which are included in the formula, and which this lease is credited with.

Q. All right. Now, I notice that it is lower than Line A is, and that at the beginning of 1976 there is a pink blob there.

A. Yes.

Q. Would you please explain what the relationship with those two facts are?

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A. The pink blob shows the 8-months production which was accumulated after the 1975 one, or one A, was made. That data was introduced into the model and the reserves were recalculated, and the effective date then was September the 1st, as related by Shell. This is the final calculation which was made. This includes data through August of 1976. The addition of the little, red blob caused a reduction in the reserves assigned to this tract from a value of 1,485,868 barrels, as shown in the lower righthand side of that graph, Original Computation, (Run B).

Run B signified that 3 barrels a day economic limit was used. Another run was made using a 5 barrel a day economic limit, but Run B was decided to be the best by the Technical Committee, and that's the one we were looking at at the time, but in any case, the reserves determined under the line A were 1,485,000. The reserves determined under line B, and effective 9-1-76, where you would have to subtract the production from the beginning of the -- from 1-1-75 to 9-1-75 to make those comparable numbers, but that production rate was only 30 or 40,000 barrels. So it shows a very substantial reduction in the reserves assigned to this lease by the addition of the six months under the red blob of some 200,000 barrels.

Q. All right. Now, did you perform, or have performed for you, a computer run relating to the B line?

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A. Yes. We were not -- we could not or can not duplicate that study made by Shell with and for the Technical Committee, but by observing all of the leases, they have come pretty close to decline curves; ordinary semilog decline curves plotted against time, an exponential function.

And what we did was fit an exponential decline to the actual calculation made under this -- by this Technical Study, because we were given the starting rates and the time under the curve, and the total reserves, we could then take 1,273,139 -- that's shown on the righthand side as SR76, that is the simulator reserves determined in 1976, and that is what is used in the formula and in the report, 1,273, 139 barrels.

Q. You're referring now to the numbers in the -- the first two numbers on the righthand side of the page?

A. Yes, sir, the top -- the top one of those, 1,273,139 barrels was the simulator reserve, which is in the Technical Study for this lease.

At the time this information was furnished to the Technical Committee members the rates for 1976 were also furnished. This lease, the rates shown for September 1st rate for this lease, was 316 barrels a day. That's shown in the second line of that tabulation. That's simulator 76 rate of 316 barrels per day.

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Also furnished was the rate on January 1st of 1980. Now this was done so that the Technical Committee members could view their leases and see how a visual graph would compare to the complicated calculations that none of us really understood that were made by this simulation study.

So this shows that the lease declined from 316 barrels a day in September 1st of 1976, to 206 barrels a day at the beginning of 1980, and further declined to 102 barrels a day at the beginning of 1990, and since the Technical Committee agreed that the economic limit would be 3 barrels per well per day, this lease reached its economic limit at a calculated time in the year 2012.469, as shown in the bottom part of that first group of tabulations.

The final year, the simulation study final year, SFYR, that is the year in which this lease would reach its economic limit if a decline curve match was made with the Technical Committee determined reserves.

This lease would then have three slopes to it. The decline curve would have three slopes.

Starting out, the slope would be 12.04 percent per year, and you can see that it's fairly sharp the first -- between the period of 1976 and 1980, it's fairly sharp, and it's 12 percent a year.

From the period of 1980 to 1990 the lease

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declined at 6.787684 and so on percent per year, and then it declined at 6.79206 from the period ending from 1990 to the economic limit, and that, if you use those slopes, you use those rates, you'll calculate precisely a 1,273,139 barrels under the curve.

Q. This is the reserve calculated --

A. By the Technical Committee and these calculations were made to match a decline so we could estimate what might happen under changed conditions. We couldn't duplicate the study. We tried to make as a close an estimate as possible using a conventional decline curve approach and utilizing the data calculated in the simulation study to maximum effect.

Q. And have conditions changed in the Exxon lease? Or Exxon tract?

A. Yes, and with the Exxon tract performance, which -- now this data was not available, of course, to the Technical Committee because this study was done in 1976. But starting at the beginning of 1977 this particular lease, production started to increase from 280 barrels a day at the beginning of 1977 to around 400 barrels a day, as you can see on that plot, at the end of 1977, and since that time it has been above and below 400 barrels a day, and it's fairly level at about 400 barrels a day, currently producing at about 400 barrels a day.

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It can be noted --

Q. Excuse me, go ahead.

A. No, you go ahead.

Q. All right, I will.

Now, based on the production data since the time the Technical Committee Report was prepared, what did Exxon do with the information as to attempting to calculate reserves?

A. Well, Exxon took the updated production, utilized the end point determined by the Technical Study, increasing the starting point to the average production rate occurring during the first 5 months of 1979, and declining it to the economic limit as determined under the Technical Study.

Q. All right. Now, could you explain briefly how that end point was arrived at once again --

A. Well, we calculated that the lease reached its economic limit in the year of 2012. The decline curve estimate here simply takes the starting rate at 409 barrels a day, the A79 is 409 barrels per day, the actual production for that lease for the first five months of 1979. It declines it in a straight semilog decline to the economic limit in the year 2012.

Q. All right. Could you please explain how your ultimate reserve calculation was arrived at by the gen-

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eration of numbers in the lower righthand corner?

A. Right. Now these are the numbers which the -- which the attempt at matching generated. This shows that the -- an actual number was calculated for the producing rate first five months of 409 barrels a day.

The line slopes to the first of 19 -- for the first five months average of 19 -- pardon me. It slopes at 8.54 percent per year from the beginning of 1979 to the economic limit.

The producing rate at the beginning of 1980 is calculated to be 381 barrels per day under the curve. 226 barrels per day is what the simulation study, the S79 shows to be the producing rate at the beginning of 1980.

Q. That's where the blue line correlates right --

A. That's where the blue line is in 1980. So that means that the blue line is -- actually, it's 226 barrels per day and the -- under the yellow line the rate would be 381 barrels a day at that time.

At the end of 1990 the producing rate, calculated by the yellow line, is 156 barrels per day, and at that point you can see that the blue line is 102 barrels per day, as shown in the upper tabulation.

And they both reach the economic limit at

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the same point in time.

The reserves calculated under the yellow line from a point in 1980 are 1,472,492 barrels for this lease.

From the same point in time on the blue line, this calculation is 960,377 barrels per day, a difference of 512,000 barrels, a very substantial difference, which is what our estimate is of the increase in reserves that would be indicated by the increased producing rate of some 200 barrels per day.

Q. Now by a difference, what do you mean? The difference between the formula and using the 1976 parameters and Unit formula using the updated parameters?

A. No, no. This is simply the calculated reserves from a point of 1-1-80, using the yellow line ER80, a 1,472,000 barrels and using the simulation reserve, which corresponds to that same point in time of 960,377, that is the reserve calculated by the Technical Study from and after January 1st, 1980, the 963,877. So the difference between those two is the increase in reserves this lease would enjoy if the calculation is correct, of 512,000 barrels.

Q. How could that be accomplished under the present Unit formula?

A. Of course, we could develop this into a parameter for remaining primary and utilize the changed per-

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centages in the same formula, and that would, of course, give this lease additional participation.

Q. All right. I now refer you to Exxon Exhibit Number Seven.

A. Yeah, this is the same type of calculation for the 40-acre portion of the Bowers"A" Federal Com Tract 48. It's the upper part of the Bowers "A" Federal Lease that we think we showed on Exhibit Two. It's a single well lease, and it is the same type of calculation. The purpose of putting this in is to show the similarities between what happened with the updating, what happens with the -- adding the additional data, and that in general the slope, or pretty similar, the -- it is a two-part slope, sloping a little more drastically for the first four or five years after 1976 to the point, the beginning of 1980, and then flattening out from that point at a rate of about 6 or 7 percent per year.

The same calculations, identical calculations, were made for this lease.

The Technical Report determined a reserve of 231,139 barrels from September of 1976. That's shown by the SR76. The same type of calculation would indicate this lease reached its economic limit in the year 2027. Drawing a straight line, then, from the first five months of 1979 to that economic limit,as shown by line C, would result in a calculation of a reserve of 247,000, as shown in the ER80.

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The Shell -- the simulation reserve from that same point is 183,000 barrels, for an increase in reserve for this tract of 63,874 barrels.

Q. Once again, by the increase you mean --

A. The increase from and after January 1st, 1980.

Q. In the event that the updated parameters were employed --

A. In the event the updated parameters were employed, you would determine a minimum reserve for this lease of 247,000 barrels, and if it was put into the formula, we relate that as Shell has described, to the total of all leases; take that percentage and determine the parameter that would be substituted in the formula.

Q. Now, for what tracts did you perform these calculations?

A. I did this for each and every tract in the Unit. As a conincidental number, and these are given later in these tables, the reserves were fairly close. The reserve calculated by the Technical Study from and after 1-1-80, as we've previously shown, is about 30.2 million barrels.

The sum of all the leases going through this same calculation procedure, was 33 million barrels; some 10 percent change on the overall basis.

Many leases are up and many leases are down.

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The earlier exhibits show which operators are particularly affected, just a few selected ones, and we have, of course, these same graphs for each and every tract, the same calculations for each tract; if anybody wants to go through them, we'll go through them.

Q. Is Exxon willing to make these available to the Commission in the event the Commission wished to view them?

A. The Commission, or anyone else. Yes.

Q. All right. Now I'll refer you to what has been marked for identification as Exxon Exhibit Eight. Would you tell briefly what this is, please?

A. Well, this shows the comparison of the 1976 and the updated parameters as determined by Exxon, using the methods that we've tried to describe.

First off, it's pretty easy to update the production rate. We know what these leases produced for any period of time you want to talk about. We have selected as did the operators, a full year of production, being the last full year of production, to compare to the 1976 production rate, which is utilized in the formula.

Just to start out with Exxon's share, in 1976 Exxon's oil production rate from all of its tracts was 160,433 barrels, as shown under 1976 Oil Producing Rate, and that amounted to 5.854 percent of the total production,

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which is shown down at the bottom the Unit Total of 2,740,636. If you divide 160,433 by 2,740,636 you get 5.854 percent. That's Exxon's parameter share of production in 1976.

Now, we --

Q. To clarify that, that is the parameter which is presently employed in the proposed Unit formula in Phase I, is that correct?

A. That's correct. That's Exxon's share of the 1976 oil production rate, which weights 20 percent in Phase I of the Unit formula.

Now, if we redevelop that parameter, that same parameter, for the year of 1978, Exxon's tracts produced, coincidentally, around 180,000 barrels during 1978. The total production from all the tracts was 2,631,234, and that develops a parameter of 7.143 percent, which says that the Exxon share of unit production, based on the producing rate, was 5.854 percent in 1976, and that has now increased to 7.143 percent, demonstrating a disparity in reserve calculation and in use of a parameter that's three years old for production rate.

Q. So that in the event that the Commission were to apply the 1978 actual production data to develop the parameter, this would be the parameter that would be employed in the present formula, then, is that correct?

A. That's correct. Near as we can calculate

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it, Exxon's share would be 7.143 percent for the year of 1978.

Now, Shell's numbers, just as a comparison, we though we'd pick somebody to compare Exxon to, during 1976 Shell produced 699,966 barrels out of a total 2,740,636 for a total of 25.540 percent.

During 1978 Shell produced 638,905 barrels of the 2,731,000 produced by the Unit, for a total percentage of 24.282 percent, a reduction of about 1.3 percent where Exxon's has increased some 1.3 percent.

Q. Now would you please explain what the oil reserves calculations are in part B of Exhibit Eight?

A. Right. Part B, like I say, shows the oil reserves, and for the 1976 primary oil reserves -- these numbers were taken directly from the Technical Study-- Exxon's reserves were 1,673,668 barrels out of a total reserve of 38,071,683 from a date of 1-1-77. That percentage for Exxon is 4.396 percent. And that is the parameter that is used 100 percent in Phase II of the formula.

Q. And used 80 percent, I believe, in Phase I.

A. And used 80 percent in Phase I, correct.

Now, going through the decline curve method that we have described, for each and every tract in the Unit, we determined that the future oil recovery from

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a period of 1-1-80, which is perhaps close to the date this Unit may go into effect, was 33,205,631 barrels.

Going through each tract for Exxon, we determined that the reserve for Exxon is 1,875,393 barrels, for a percentage of 5.468, an increase from 4.396 to 5.468 percent.

Now, doing the same thing for Shell, Shell's 1976 primary reserve from 1-1-77, was 9,048,999 barrels out of a total 38,000,000 for a total of 23.769 percent. The redetermined reserves by Exxon, 7,776,948 out of 33.2 million for a total percentage of 23.421, a reduction of some .3 of a percent.

Q. All right, now how about secondary oil reserves?

A. Secondary oil reserves are just shown for reference. That is the number directly out of the Technical Report and we didn't see any reason for changing it. Exxon's share is 4,216,642 out of the 55.2 million; a total of 7.639.

Shell's is 10,419,216 out of the 55.2, a percentage of 18.875.

Q. All right. Now, if we will be using many of the same numbers in what has been marked for identification as Exxon Exhibit Nine, would you please explain how that works?

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A. Well, Exxon's participation under the Agreement formula, under the formula proposed by Conoco and which is now included in the agreement, first this shows a development of Exxon's share; A, using the 1976 Parameters, and B, using the updated parameters.

Q. So A represents what will be Exxon's share in Phase I and Phase II under what is proposed by Shell presently.

A. That is correct. If you recall, the formula is composed of 20 percent 1976 oil producing rate , from the former graph, former exhibit, you see that that would amount to 20 percent of the value 5.854 percent, or 1.171 percent of the total.

Q. Now 5.584 is taken off of Exhibit Eight --

A. That's correct. Exxon's share of the parameter 1976 oil producing rate, and if you multiply that 1.171 percent, which is the rating, all that percentage in the formula, multiply that by the 4 million barrels in Phase I, you determine that that portion of the formula allocates to Exxon during Phase I, 47,000 barrels of oil. Because 1.171 percent times 4 million is 47,000, roughly.

For the remainder of -- for the other part of Phase I, you recall that the formula is 80 percent 1976 primary oil reserves. We take 80 percent of the primary oil reserves determined under the Technical Report,

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that's a percentage of 3.517. Applying that 3.517 again to the 4 million barrels, we come up with 140,000 barrels, for a total during Phase I of 4.688 percent and a share in barrels of the 4 million barrels, 187,000 barrels.

For Phase II where the oil is allocated 100 percent on primary oil reserves, using the 4.396 percent in the Technical Report, Exxon's share of the 26.2 million barrels produced during Phase II, is 1,154,000 barrels. That would give a total production during Phase I and Phase II of 1,341,000 barrels.

Q. Just to emphasize once again, this is what Exxon would be able to produce under the present --

A. This is what Exxon would be allocated under the formula. This is Exxon's allocation of the first 30.2 million barrels produced during Phase I and Phase II. It's a precise number. When the Unit produces 30.2 million barrels, Exxon's percent is going to be 4.688, or 187,000 barrels, regardless of when it's produced or how it's produced.

Q. All right. Now, what happens when you use updated parameter based on actual production data?

A. Using the updated parameters, of course, helps that some.

The 20 percent 1978 oil producing rate, as you recall from the previous exhibit, was 7.145 percent.

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Taking 20 percent of that, 1.429 percent, multiplying that by the 4 million barrels gives you 57,000 barrels, which is 10,000 more than that parameter gave the -- would give us under the '76 parameter.

The 80 percent share of primary reserves in Phase I is 5.648 percent as we've determined it. Its percentage is 4.518 weighed in the formula, multiplying that by the 4 million gives you 181,000, a total during Phase I of 238,000 barrels.

You'll notice that under the old parameters we would have gotten 187,000 barrels; under the new parameter, 238,000.

Under Phase II, using the updated parameter of 5.648 percent and multiplying that by 26,200,000 barrels gives Exxon 1,480,000 barrels for a total during Phase I and Phase II of 1,718,000 barrels, a difference of 377,000 barrels in Phase I and Phase II.

Q. Which is to say, then, that in the event the updated parameters were employed, Exxon would benefit by 377,000 barrels of oil.

A. According to our estimates, which we feel are close to what a Technical Committee would determine if that were done over on a more precise basis, we feel that's a reasonable estimate of the difference on the Exxon leases, is 377,000 barrels.

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Q. Now referring you to --

VOIR DIRE EXAMINATION

BY MR. DALIOUS:

Q. Mr. Nolan, you just mentioned that Exxon would receive an extra 377,000 barrels of oil if the updated parameters were used.

Would it not be true that we'd lose 377,000 barrels of oil if the proposed parameters were used as appears in the Unit Agreement?

A. That's a direct corollary. If we'd get --

Q. At $10 a barrel --

A. Yes, sir.

Q. -- how much money would that loss represent?

A. Well, at $10 a barrel, that loss would be $10,770,000. I can do that without my calculator.

DIRECT EXAMINATION

BY MR. ATKINSON:

Q. I now refer you to what has been marked for identification as Exxon Exhibit Ten. Could you explain what this is?

A. Now, this exhibit shows the same type of calculation using the same -- using numbers from Exhibit --

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Q. Exhibit Eight, I believe.

A. It is from Exhibit Eight, thank you, for Shell's participation, doing the same thing, taking 20 percent of the 1976 oil producing rate would allocate Shell 204,000 barrels for that part of the formula; using 80 percent of the 1976 primary oil reserve would give Shell 19 percent, or 760,000 barrels for the remainder of Phase I; this being a total of 964,000 barrels.

During Phase II, applying Shell's 23.768 percent, as determined by the Technical Committee, for 100 percent of the 1976 primary oil reserve, applying that to the 26 million barrels, would give 6,227,000 barrels during Phase II.

So that the total during Phase I and Phase II is 7,191,000 barrels, which Shell will be allocated under the parameters in the Technical Report and utilizing the formula in the Technical Report.

Q. All right, now what happens when you use the updated parameters with Shell?

A. When you use the updated parameter, you do again the same thing, 20 percent updated 1978 producing rate parameter is 24.282 percent. This gives 194,000 barrels compared to the 204,000 barrels, slight reduction. The 80 percent of the updated 1979 primary oil reserve, effective 1-1-80, is 23.421 percent times 8.8; 18.737 percent,

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multiplying that by your 4 million barrels gives 749,000 barrels. Under those circumstances during Phase I Shell's allocation of production from the Unit would be 943,000 barrels.

During Phase II, with the revised or updated 1979 primary oil reserve of 23.421, Shell's share would be 6,136,000 barrels. This is a total, then, for the two phases of 7,079,000 barrels.

Q. Okay, what is the difference between those two using the 1976 parameters and the parameters based on production since '76?

A. This shows a difference of 112,000 barrels.

Q. Now, what does this mean with regard to how Shell will come out if the present Unit Agreement goes through?

A. This -- this means that using the 1976 parameters, the older parameters, Shell would be allocated 112,000 barrels more oil than it would if the parameters were updated on the basis of Exxon's estimate.

Q. Now, in your opinion as an engineer, is it good engineering practice to base parameters and formula on the most up-to-date data available?

A. Certainly that's one of the things that in all the Technical Committee work we try to use all the

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updated parameters, and all of us are faced with attending these Technical Committee meetings with having to update at least two or three times during the course of a study.

As we described earlier in this study, it was updated once for -- to get an additional eight months of production included in the -- in the determination.

Q. Is it your opinion that it would be appropriate and good engineering practice in view of the length of time that has elapsed since 1977, 1976, to so update the present formula?

A. Yes, this is an inordinately long time to use these outdated parameters. It's over three -- about a three-year period and it would seem to me to give a better, closer, determination for each lease to redetermine the reserves based on the additional data that's now available.

Q. Now you mentioned a previous update that was performed by the Technical Committee. What did that consist of?

A. Well, as I said, we added the -- the production from a period January 1st of 1976 through August of 1976, and that caused the differences we looked at on Exhibits Six and Seven.

Q. To the best of your knowledge, then, what was the length of time involved in rerunning the formula with the updated production parameters?

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A. That's a good point. The initial Technical Committee information was furnished in October of 1976, and less than a month later the -- the updated information was furnished to the Technical Committee members, so it took Shell some several weeks to rerun that data including to include the eight months additional data.

Q. And is it your opinion that from your knowledge of what is involved in rerunning the simulator model, do you have any idea what amount of time would be involved in this case to rerun the formula?

A. No, I don't, really. I don't know what shape that's in as far as Shell's preserving the data or how long it would take to redo it. We'd have to just ask Shell what it would take if that's appropriate. I don't know.

Q. Now I refer you to what has been marked for identification as Exxon Exhibit Number Eleven, dealing with required investment of the Exxon share of the Unit Agreement formula using 1976 parameters. Would you please explain what this is and what we're doing here?

A. Well, Exxon, I guess, has objected to the payment for investments,for secondary investments during the long Phase I and Phase II period. That's what makes this one rather unique, is the long 10-year period, Exxon having a higher Phase III percentage must pay additional in-

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vestments during Phase I and Phase II over and above its revenue participation during this long period of time.

Q. Now the investment formula you're talking about, the revenue participation formula, are those set out by Shell this morning, being set forth in Exxon Exhibit Number Four, is that correct?

A. That's correct. Whereas we show down here towards the middle of this graph that in Phase I Exxon's revenue share is 4.688 percent. That's sort of along the middle line.

The investment share is 5.758 percent during that period.

Q. Now specifically how is that investment share calculated?

A. It was calculated based on 32 percent Phase III participation; 58 percent Phase II participation. That percentage -- that's the way that percentage was arrived at.

Q. I'm sorry, I think we have a little bit of confusion here. Right now you are speaking of the numbers which are sort of in the middle of the page under oil production share and investment share in thousands of dollars.

A. Yes, I am.

If we look at the top of this -- the top

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of this exhibit, we see that for an estimated range of total unit investment between $31 million and $106 million, a calculation is made as to what Exxon's cost would be on a per barrel basis during Phases I and II.

Now, $31 million is less than Shell showed would be the investment for this Unit. This was an outdated number that we used in earlier -- they've updated their number somewhat for inflation, and so on. This $106.4 million is entirely Exxon's estimate of what the investment might be in this Unit. We must admit that if that investment is made, there are going to be considerable improvements to the production performance of the Unit, and additional reserves that will be perhaps generated by the additional investment.

Q. Is initial investment --

A. But we strongly feel that the investment of $31 million is less than will be spent. It's been our experience in this type of unit for -- in the San Andres, and even in units operated by Shell, that these investments are much higher than the initial anticipation.

Of course, there will be benefits that will accrue, so we have just looked at what the range of investments would be and what the cost to Exxon would be, for the investment share compared to the production which would be allocated under the production side of the -- of

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the agreement.

Q. All right. Now the additional investment you're talking about could come about from things such as infill drilling that has been spoken about here today --

A. Yes, that's particularly what may be required as the Unit starts. It would be justified. It would certainly be justified by increased reserves, higher rates, and this and that, but nevertheless, during Phase I and Phase II Exxon's share will still be the same.

Q. Now would you please explain what happens with these numbers here?

A. Okay. On previous graphs we showed that Exxon's production allocated during Phase I and Phase II is 1,341,000 barrels. We're going to calculate -- we're going to show how we develop Exxon's share of investment, which in the case of $31 million total investment, would be $2.371 million dollars if the investment is $31 million.

If the investment is the higher number, $106 million, Exxon's investment would be $8.1 million.

If we divide the investment by the production, we find that under the first case Exxon's cost is $1.77 a barrel.

Under th second case, it's $6.06 a barrel, and these are just numbers to demonstrate how tough it can get on investment if they are this high, and I want to also

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compare that to some other numbers as we go through here.

Now the bottom part of this graph, repeats what Exxon's oil production share is at a 1,341,000 barrels during Phases I and II, and we've described how we got that by applying the percentage of the formula by the production in the various phases. Exxon's share of production for the first ten years is 1,341,000 barrels.

On the righthand side of the lower part, under the investment share in thousands of dollars, shows what Exxon's calculated investment share under the two investment schemes that we have established, $31 million and $106 million, we would pay -- Exxon would pay 5.758 percent and at the end of Phase II, if we just jump down to that line, Exxon would have paid $1,787,000. That's multiplying 5.758 times $31 million.

In the case of the $106 million investment, that number is $6,129,000.

Now then, this number, the next line shows the adjustment that is made at the end of Phase I. All investments at the end of Phase I are adjusted to Phase III percentage. Exxon's percentage in Phase III is 7.639 percent. So that amounts to an adjustment of 1.881 percent from Exxon's earlier share of investment to its share of investment at the beginning of Phase III. Exxon would have to pay in cash investment adjustment, 1.881 percent. In

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case of the $31 million, that's $584,000. In the case of the $106 million, that's $2 million.

Exxon would pay to others as the investment adjustment for all the investments which we made from the beginning of Phase I and through to the beginning of Phase III, for that 10-year period.

And when we add the investment adjustment and amounts paid during Phases I and II, we find that Exxon's total production -- total share of investment, in the $31 million case, is $2,371, which is shown at the top of the graph, and for the $106 million case, as shown at the top of the graph, it is $8,131,000, which includes investment paid during Phases I and II and the additional investment for the investment adjustment.

Now then, Exxon's oil production share, you'll recall, is 4.440 percent during those two phases.

If Exxon had been paying on the basis of Phase in effect, or on the same share as its revenue, its investment would be as shown here: 4.440 percent of $31 million is $1,378,000. This means that Exxon during that period paid $993,000 for an investment in excess of its revenue share of participation.

Q. This represents what Exxon actually paid under the Unit formula with the 1976 parameters.

A. That's right on the basis of the 1976 para-

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meters it would be paid in excess of its production share, $993.000 and this number would jump to $3,405,000 if the investment is as high as $106, which we feel it could get that high.

Q All right. Now referring to what has been marked for identification as Exxon Exhibit Twelve, going through the same types of calculation for Shell under the Unit Agreement formula with 1976 parameters, what do you come up with?

A. Well, we showed Shell and we're not picking on Shell, we just showed it because their Phase III is lower than their Phase II, and this demonstrates what happens under this type of investment scheme where operators have big differences in primary and secondary and pay more during Phase I than they do in Phase III -- Phase I and II than they do in Phase III.

This shows that Exxon's -- or Shell's investment share for the $31 million deal at the top of the page, is $5,859,000. Shell's production during that period is $7,191,000 developed as we have on previous exhibits for a cost of $.81 a barrel. Now you recall that on the previous exhibit Exxon's cost was $1.77 a barrel during Phase I and Phase II.

Under the $106 million investment, if it does go that high, Exxon's investment -- or Shell's invest-

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ment is $20 million; Shell's production, again, is exactly the same, 7,191,000. That's a cost of $2.79 a barrel or compared to Exxon's cost of $606,000, and this results in considerable difference in the economics of this project, as to the rate of return which Shell would receive and the rate of return which Exxon would receive.

Q. All right, now would you please explain to the Commission what the meaning of numbers is in the second group of calculations?

A. Well, again, we calculated Shell's oil production share as being 7,191,000 barrels. This is simply multiplying their percentages times the barrels in each phase, and come on down here where their average production is 23.811 percent during Phases I and II. They've received as an oil production share 7.191,000 barrels.

Now, Shell is on the receiving side of this investment adjustment. Shell puts up more money during Phase I and Phase II, but it receives it back at the end of Phase -- some of that money back when the adjustment takes place, due to the fact that their Phase III is lower than their investment share during Phases I and II.

The percentage which they will receive, their Phase III is 18.875 percent. Their investment share is 21.713 percent. The difference between those two percentages is 2.838 percent. Multiplying that 2.838 percent

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times the investment of $31 million gives Shell a credit at the end of Phase II of $881,000. That's a little more than Exxon pays, $584.

The investment share based on the higher investment numbers, Shell would receive $3,021,000 compared to Exxon's payment of $2,002,000.

Again, Shell's oil production share, being 23. -- the bottom, second to the bottom line, now, Shell's oil production share is 23.811 percent. If that were applied to the investment, their oil production share of those investments is $7,391,000 for the $31 million investment. Their investment share is $25,344 for the $106 million investment. They have received some million and a half dollars -- or they have not received, I'm sorry. I want to rephrase that.

The investment paid by others for Shell's production share of investment is a more proper way to put it, is $1,500,000. That results because their oil production share is higher than their investment share. Others have then had to pay that difference, and in the case of the $106 million, that difference is 5.2 million dollars.

Q. Would you explain in somewhat more detail exactly what you mean by investment paid by others?

A. Well, the total investment must be paid by all parties. If Shell's oil production share is, for

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instance, $7.4 million, if they would have had to pay $7.4 million of these $31 million total investment, which is 23.8 percent. That is their -- that is their revenue share. Had they been forced to pay that, they would have had to pay a million and a half dollars more than they actually paid; therefore, other people must -- somebody had to pay that, and that is paid for by people who have a higher Phase III than Phase II.

Q. One of which is Exxon?

A. One of which is Exxon.

Q. I refer to you what has been marked for identification as Exxon Exhibits Thirteen and Fourteen. These examine required investment under the Unit Agreement formula using the updated parameters, based on production since 1976, first for Exxon and then for Shell.

Would you please explain the results on these two exhibits?

A. Well, these exhibits were prepared now instead of using the parameters that were in the Technical Study and are in the Unit Agreement. These were for using the updated 1978 oil production rate and the updated remaining primary parameters, and the same calculation procedure was used.

For instance, Exxon's share of production increases from 1,341,000 barrels, as shown on Exhibit Eleven,

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up to 1,718,000 under this type of -- during Phases I and II. If the parameters are updated, Exxon's production increased.

Its investment share remains the same, exactly the same. Now that results because the investment share is really determined by your Phase III percentage. Once the investment adjustment is applied, your total investment is exactly whatever your Phase III is.

So this does not change the total investment but it increases Exxon's production, and therefore, reduces the cost per barrel from $1.77 to $1.38, and under the high investment scheme it reduces it from $6.06 per barrel to $4.73 per barrel.

It takes some of the sting out.

And again we can show that, going through this bottom part, that the amount paid by Exxon in excess of Exxon's share of production is, in the case of $31 million, it's $607,000; and it's $2 million in the event that the investment is at the higher rate, and you'll see that those numbers are both lower than Exhibit Eleven, 993 compared to 607 for the $31 million case, 2 million 4 instead of 2 million 878 for the $106 million case.

Q. With regard to Exhibit Fourteen, which deals with Shell, would you please compare that with Exhibit Twelve?

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A. This is the same calculation procedure, using the updated parameters in the formula proposed here, but only changing it to insert the updated parameters determined by Exxon.

It shows the effect on Shell's production, where Shell's production is reduced from 7,191,000 down to 7,079,000. Shell's share of investment is exactly the same because its Phase III doesn't change, 5,859,000. That's 83 cents a barrel where before they only paid 81 cents a barrel. Two cents a barrel.

On the $106 million scheme, a little more -- a little more of an increase. It increases their cost per barrel from $2.79 to $2.84.

And again, the investment paid by others for Shell's production share, doing it the same way, comparing the production percentage share applied to the investments, against the actual percentage paid by Shell, results in the fact of $1,307,000 is paid for by others; for the $106 million case, $4.8 million is paid for by others, during the Phase I and Phase II period.

Q. All right. Now will you -- we now come to Exhibit Fifteen. Would you explain briefly what Exhibit Fifteen presents?

A. Exhibit Fifteen shows the tract parameters for the oil production rate for three periods of time. It

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shows the 1976 oil production rate used in the Agreement formula. It shows the 1978 oil production rate which we have used to update the formula, and also shows for reference the first -- it says 1979 oil production rate, but it's actually the first five months of 1979 oil production rate, and if you would, please, note your exhibits. That is the first five months. This is all that was available to us at the time this calculation was made from the State records.

But this just shows, then, for each lease in the Unit, there are 83 tracts, for each of those tracts it shows the value of the production during that period. It shows the fraction that each tract bears to the total, or the parameter, which is developed for 1976 oil production, 1978 oil production, and more updated, 1979. You'll notice that Exxon -- well, no, I don't show it on that.

The next part of that exhibit shows the oil reserves laid out in the same way, from the 1976 Primary Oil Reserves, as included in the Technical Study, to 1979 Primary Oil Reserves, which actually start on 1-1-80; and just for reference, the Secondary Oil Reserves, which is identical to the Technical Study and the percentages are the same as shown in Shell's Exhibit.

This is the -- each tract's percentage of the primary oil reserves for '76, as determined in 1976, the primary oil reserves as determined in 1979, and the secondary

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oil reserves as determined in 1979 -- as determined by the Technical Study.

We have also determined these parameters for the gas reserves in a manner similar for that used by the Technical Study. We did not think we wanted to burden everybody with another six tables. We have them available if anybody wants to look at them. We're not going to make any point of that, I guess.

Q. No.

A. The next exhibit shows the working interest owner and tract identification and the ownership of each tract. This is taken from the Unit Agreement; one correction for Exxon's tract.

This shows what each -- who owns each tract and in what proportions they own each tract.

When you apply these fractions to the tract parameters, you then determine -- and then apply that to the formula, you then determine the participation under the two formulas and the two participation schemes that we've talked about.

The next page shows Phase I, Phase II, and Phase III percentage and the investment percentage under the Agreement formula and using the 1976 parameter values for each operator in the Unit. There are 74 numbered operators. I think maybe there are only 73 operators; some number is

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missing. But in any case, the working interest owners are shown on the left; their participation during Phase I is the first column; their participation during Phase II is the second column; the third column is their participation during Phase III, and the investment participation is shown on the right.

Highlighted are Exxon's percentages, which should agree with a few more decimal points, with the numbers we've earlier presented on all exhibits; 4.867 in Phase I, 4.396 percent in Phase II, 7.629 percent in Phase III, and 5.758 percent for the investment share.

Shell's are also highlighted, since we've used their numbers. They should agree with the earlier numbers.

And last exhibit shows the same numbers for each working interest owner, using the updated parameters which Exxon has developed for 1978 oil production rate and what we call 1979 primary oil reserves.

And these show the change in percentage which occurs for each working interest owner if updated parameters are substituted into the formula proposed in the Unit Agreement presented here today.

Q. All right. Now, for what purpose is the Exhibit Fifteen being submitted to the Commission?

A. If anybody's curious about how this af-

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fects their interest and their tracts, it's information, of course, that can be used to find out, and we believe this -- should the Commission, I guess, decide that they like this updating better than the other deal, they could take these percentages and do whatever they want to with them.

MR. ATKINSON: Mr. Chairman, I'm just about at the end of my direct examination, and I wonder if we might take a short recess?

MR. RAMEY: We'll take a fifteen minute recess.

(Thereupon a recess was taken.)

MR. RAMEY: The hearing will come to order. Are there any questions of the witness?

MR. DALIOUS: Mr. Chairman, we have two or three more.

MR. RAMEY: Okay.

MR. ATKINSON: First, Mr. Chairman, we'd like to notify you of a typographic error in our Exxon Exhibit Eight. Under 1978 oil production rate, barrels, instead of 180,000 for Exxon, it should read 188,000.

MR. RAMEY: On Exhibit Eight?

MR. ATKINSON: Under 1978 oil production

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rate, barrels for Exxon should be 188,000.

MR. RAMEY: Okay.

VOIR DIRE EXAMINATION

BY MR. DALIOUS:

Q. Mr. Nolan, referring back to Exxon's Five-A, Five-C, Five-D, did I understand you to say that Five-A reflected that under the proposed formula, that Exxon would lose approximately 200 barrels a day as opposed to its actual production rate?

That on Five-C Chevron, by the same process, would more than double, and that TP, by the same process, would increase substantially, perhaps 85 to 90 percent?

A. Yes, sir, that was my statement.

Q. Would you please state again why this would exist?

A. Well, this is due to the drastic changes, rather drastic changes that have occurred in the production parameters and the remaining primary recovery parameters which are used during the early phases of the formula, since the obsolete parameters determined in 1976 were determined.

The fact that the production rate has changed on these leases and the calculated reserve would no doubt change if it were recalculated, that has resulted in this rather remarkable difference.

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Q. Would you describe the 1976 production data as being current?

A. No, sir, I would not.

Q. If not, how would you categorize that data?

A. Obsolete. Out of date.

Q. In your opinion, based on such data, and applying Exhibits Five-A, C, and D, in your opinion is the old Shell formula fair and equitable and a reasonable distribution of hydrocarbons?

A. Not based on what the leases are now doing, it is not.

Q. I now refer you back to Exxon Eleven and Twelve. I want to be certain I understand what your testimony was with regard to both of those exhibits.

If I understood you correctly, on Exxon Number Eleven, the top line, using the total investment of $31 million, that the cost per barrel to Exxon would be $1.77.

A. Yes, sir, if we take the production that is allocated to Exxon during Phases I and II, 1,341,000 barrels is the calculated oil allocated to Exxon under the formula, with a $2,371,000 investment obligation, as shown below. That results in a cost to Exxon of $1.77 per barrel.

Q. All right, and on Exxon Number Twelve,

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that same number for Shell is 81 cents.

A. That's correct.

Q. Now that is a difference of 96 cents per barrel for oil, is that correct?

A. Well, that's a difference in investment cost; a cost of 96, yes, sir, 96 cents.

Q. All right. In your opinion, is that variance in investment cost under a formula using obsolete 1976 data a fair, reasonable, and equitable distribution of the payments of investment cost?

A. I think it is not. It just complicates an already bad situation.

Q. Now referring to Exxon Thirteen and Fourteen, there is a variance between Exxon's cost, investment cost of $1.38 a barrel, and Shell's of 84 cents a barrel.

A. Yes, sir.

Q. Now that difference is not so great. Did you not use the expression, the using of updated parameters would take some of the sting out of that?

A. Yes, sir, I -- it would reduce that discrepancy because it increases the oil production allocated to Exxon during Phases I and II.

Q. All right, I'll refer you back to one other question that was asked to you by Mr. Atkinson.

I believe he inquired into your opinion as

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to the length of time that it would take to recompute this data using updated parameters as opposed to 1976 parameters, and I believe you did not express your opinion at that time.

And I would like to re-ask that question in this manner: Assuming that the basic data has not been destroyed and is still available, what, in your opinion, would be the time necessary to recalculate on the basis of updated, current, 1978 or 1979 numbers?

A. Well, now on that basis, if the data is available, and could be updated as was done in 1976 when we talked about the additional eight months production, which was added, that work was done between the period of October 22nd, 1976, and November the 10th, 1976, because on October the 22nd certain decisions were made as to how those calculations would be made and Shell furnished the data then to the Technical Committee on November the 10th, a period of about three weeks.

And I don't see any reason why it would take much longer than that to recalculate, if the data is available and that stuff is still preserved.

Q. Okay. If updated parameters, in your opinion, would take some of the sting out of Exxon, as you stated, would you consider even that still somewhat inequitable?

A. Well, we --

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Q. Even that.

A. We felt that the reliance entirely on remaining primary for the long period of time, ten years, to recover the entire primary, was not equitable because this is after all a secondary recovery program. When you go into it you are willing to take some of the risk or you don't want to go. There is secondary recovery even attributable to those owners who have a high percentage of primary.

MR. ATKINSON: Mr. Chairman, at this time Exxon moves to introduce in evidence Exxon Exhibits One through Fifteen.

MR. RAMEY: Exxon's Exhibits One through Fifteen will be admitted.

MR. ATKINSON: We pass the witness.

MR. LOPEZ: Mr. Chairman, at this time on behalf of Shell Oil I'd like to request a recess until tomorrow morning, whereby we can put on our cross examination and also a brief rebuttal witness.

MR. RAMEY: Any objections to the recess?

MR. ATKINSON: No objection.

MR. RAMEY: The hearing will be recessed until 8:00 a. m. tomorrow morning at this same place.

(Thereupon the evening recess was taken.)

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(Thereafter at the hour of 8:00 o'clock a. m. on the 4th day of October, 1979, the hearing was reconvened, with the same appearances and the same Commission members in attendance, at which time the following proceedings were had, to-wit:)

MR. RAMEY: The hearing will come to order, please.

Are you ready with questions for Mr. Nolan?

MR. LOPEZ: Yes, sir, Mr. Chairman, thank you. Good morning.

MR. NOLAN: Good morning.

WILLIAM E. NOLAN

resuming the witness stand, and being previously sworn upon his oath, testified as follows, to-wit:

CROSS EXAMINATION

BY MR. LOPEZ:

Q. Mr. Nolan, yesterday I believe you initially stated that you were very much involved in participating in the activities of the Technical Committee. As

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a matter of fact, I think you mentioned that you probably never missed a meeting of that Technical Committee, is that correct?

A. As I recall, yes.

Q. And would you also agree with me that there were twenty-two sessions that were fairly intense over a three and a half year period between July, 1973 and March of 1977?

A. I didn't count them but I'm sure there were that many meetings.

Q. And would you agree with me that the Technical Committee should be complimented for the excellent job performed with a very difficult situation?

A. Yes, sir, I do.

Q. Mr. Nolan, I'm going to hand you a couple letters, and I've marked an area in yellow on these letters. And first of all, I'd like you to identify the letter, if you would, for the Commission, and then I'd like you to read the language that I've marked in yellow.

A. This is a letter from Mr. J. M. Shepherd of Exxon Company to the United States Department of Interior, Geological Survey, dated June 9th, 1978.

And the highlighted area reads: "The proposed North Hobbs Grayburg-San Andres Unit Area was studied extensively for more than four years by technical

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personnel broadly representing area ownership. This study reasonably projects when and in what relative proportions remaining primary and secondary reserves will be produced under unitized waterflood operations. The graph and tabulated data developed from the study reflects this performance forecast."

Q. Thank you. Now I'd like to hand you another letter and ask you to identify it and read the same highlighted language.

A. This is a second letter from Mr. J. M. Shepherd of Exxon Company to Shell Oil Company, to the attention of Mr. W. E. Buck, dated February 16th, 1978. The highlighted area reads: "The North Hobbs Grayburg-San Andres Field was studied extensively for more than four years by technical personnel broadly representing the field ownership. This study reasonably projects when and in what relative proportions remaining primary and secondary reserves will be produced."

Q. It's essentially the same language, if not identical, to the earlier letter, is it not?

A. That is correct.

Q. And that was about six months later.

A. Yes, sir.

Q. Why is it, Mr. Nolan, that not until the time of this hearing have we been advised that the values as-

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signed the parameters on the Technical Report, to which Exxon apparently agreed, are not correct values?

A. The parameter values determined at the time the study was made are the best values which could be determined at that time and with the data existing to that point.

Earlier, Exxon did not take exception to the parameter values. On re-evaluation, based on more recent data, as opposed to the obsolete data, we have come to the conclusion that this data should now be updated and proper values assigned to the -- each tract.

Q. Why should we stop now five years -- five months into 1979? Aren't these values going to constantly change? Won't they be changing by December of this year or by the end of next year?

A. I would say they will change, but there is some limiting time under which you dedicate a lease to a unit forever; some limiting period where the more updated data should be used. You cannot go back five years and ten years ago and use data developed then to unitize now.

Q. Well, wouldn't you agree with me, and it's pretty significant, that over 90 percent of the people involved in this deal have agreed to the picture taken as of January 1, 1975?

A. Certainly your -- your ownership informa-

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tion presented earlier indicates some 90 percent have signed. What their various reasons were and what their situation is, I do not know.

Q. Okay. Let's go into the reasons why you believe the parameters changed. And in that connection I would refer you to your Exhibit Two, and ask you if you wouldn't agree with me that the increased production that you have described actually comes from Tracts 47 and 48 within the Unit Area?

A. Yes, sir, Tracts 47 and 48 have shown increase in production in access of that predicted by the Technical Study.

Q. I'd like for you to explain to me why this increased production has occurred. Did you go in and rework the wells or set new pumps? I'd just like to -- for you to explain to me what you did to these wells that got them to do what none of us thought they were going to do.

A. Submersible pumps were installed on two of the wells.

That increased the volume of artificial lift; increased the volume produced from the wells.

Q. Is that all you did to increase the volume?

A. Yes.

Q. And were there no pumps existing before that?

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A. There were sucker rod pumps, which did not have the capacity of the submersible pumps.

Q. How much was the capacity increased by the pumps?

A. The initial installation, the pump produced between 6 and 700 barrels of fluid a day. Prior to that time the producing rate was approximately 100-150 barrels of fluid per day. I'm guessing at that. I believe it was a very substantial increase in -- in fluid production.

Q. I see. When you talk about substantial increase in fluid production, isn't it true that after you installed these submersible pumps that you increased the volume of water about four times, too?

A. The volume of water increased about in direct proportion with the total fluid of the wells.

Q. And cannot this reflect the fact that all you are doing is accelerating your primary recovery by increasing your lift?

A. You are withdrawing at a more competitive, at a faster rate, from a given volume in the reservoir, and you will therefore produce more ultimate recovery from a well that produces at a higher rate. That's the name of the game.

Q. This is a fairly common practice in oil field management and operation, isn't it?

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A. Oil companies are quite competitive.

Q. And we're talking in this particular pool about a fairly lengthy primary life, wouldn't you agree? 35 or 40 years?

A. 45 years, yes, sir. If that volume is sustained for that period of time, there'll be a great amount of recovery made by that well as opposed to some other well on an offsetting lease.

Q. Okay. Now, I would like for you to refer to your Exhibit Five-A, and I must say that yesterday you left me with the impression that if unitization becomes a reality, Exxon would have to pay back all that additional oil production that's reflected between the solid line and the hatched line, or about 200 barrels a day, but that's not the case, is it?

A. No, sir, I did not mean to give anyone that impression. That merely represents what would have been the difference in production had the unit been formed earlier.

Q. But by increasing your lift volume, you have actually increased or accelerated your primary and those additional 200 barrels a day reflect money in the bank to Exxon even if unitization becomes a reality, isn't that so?

A. What Exxon's production has been in the past certainly is Exxon's.

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And the Feds, as well.

Q. Goes without saying.

A. Yes, sir.

Q. Now, Mr. Nolan, you'd agree with me that there has been water injection in the Amoco Unit for about four years, would you not?

A. I believe their injection started in early 1976, yes, sir.

Q. All right. And do you know whether or not the wells in that unit have responded favorably to water injection?

A. I have examined the overall production. There has been a substantial production increase. That production increase is due to several things. One is the change in allowable treatment. That has a very substantial affect. The early production increases were undoubtedly due to production changes. There may be response. The gas/oil ratios are leveling out and perhaps going down. I believe it will be a successful flood, if that's the point.

Q. What has been your experience with the gas/oil ratio in your Tract 47?

Has it stayed the same or --

A. Gone down.

Q. -- gone down? It has gone down? Have you had an opportunity to examine any of the wells along the

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northern perimeter of the Amoco waterflood and found out whether or not they responded favorably or whether or not their gas/oil ratio has gone down?

A. No, sir, I have not. I have had the opportunity. I have not taken advantage of it.

Q. Well, would you agree with me that once a waterflood project is undertaken that it's pretty difficult at that point to go back to the drawing board and determine what the remaining primary reserves would be?

A. On the leases that will respond to waterflood it would be difficult.

Q. Mr. Nolan, yesterday I believe you explained that the unit participation formula, that was based on values assigned parameters that are no longer valid.

A. Yes, sir.

Q. And that in your analysis these could be updated fairly simply, by -- and I'm not quite sure how you came to your own calculations, but it seemed to be a combination of a decline curve analysis meshed with the computer simulation model, is that not correct?

A. That is correct, yes, sir.

Q. And this was to pertain to estimating the reserves in the San Andres formation, is that not so?

A. That is correct, yes, sir.

Q. Well, why didn't the Technical Committee

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in its deliberations agree to some kind of decline curve analysis rather than as we've discussed rely and insist upon the computer simulation model?

A. The San Andres portion of this reservoir has water influx. Decline curve analysis, straight decline curve analysis, as normally used, simply doesn't reflect what a well's reserves are. So the Committee was forced to use some method which provided for the movement of oil in the reservoir. As the water expands from the edges, it pushes the oil various areas in the reservoir. That was why we used a combined -- or I used a combination of the two methods I have no way of doing this. This is only an approximation. It is fairly close, based on my experience, to what would happen if the simulation model were run. I do not claim, certainly, that this is an improved method. It is an approximation using only the data that we now have, and if the model were rerun, it would give results somewhat similar. The higher producing wells now would obtain greater reserves.

It was to show approximately where the oil would be produced under the updated and more recent conditions.

Q. But you would agree with me, though, that to use a decline curve analysis in a water-drive reservoir would have been laughable for -- to the Technical Committee.

A. They would not use a straight decline curve method for the San Andres, that's correct.

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Q. Now, Mr. Nolan, I'd like to talk about the participation formula which has been presented to the Commission and that's contained in the Unit Agreement and Unit Operating Agreement.

You don't have any problem, do you, with Mr. Buck's explanation that it seems fairly reasonable that this kind of participation formula that allows those with primary reserves to recover those primary reserves first and put the risk of any loss or gain on those that have secondary benefits to be realized?

A. Yes, I do.

Q. Well, why don't you tell me what your problem is?

A. Personally, it is my opinion that relying entirely on the single parameter, remaining parameter, for a period of ten years, when in fact over fifty percent of the oil produced during that period is developed because of the secondary flood, it is not an equitable way to distribute the oil production to each and every lease in the tract.

Now, that problem has been wrestled for many meetings and the majority of the owners did not agree with me and did not agree with Exxon on that point. And Exxon, in my opinion now, may defer to the majority.

Q. Now let's turn to a discussion of the investment participation formula. First in this regard, I'd

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like you to explain why you think we seem to be so many miles apart. We've put up exhibits and calculations showing the initial capital investment to be $33 million, and Exxon's estimate is $100 million.

Could you explain why this big difference is there?

A. It has been our experience in San Andres waterfloods in West Texas and New Mexico that infill drilling is needed to get the maximum recovery. 40-acre spacing is not as effective. We believe that infill drilling will be required in this unit.

Now, we also believe that when we infill drill additional recovery will occur, and it certainly will be an investment that will be beneficial to all parties.

Q. Okay, but you'll have to agree with me here today, won't you, that what we've discussed with the Commission thus far does not provide for infill drilling, and what we've put before the Commission is the fact that this unitization project will be feasibly and profitable based on the data we've submitted to the Commission, and that does not include infill drilling?

A. That is correct. In that event, then all you will want to look at is our $31 million case and you would not want to look, or you would not want to believe, the $106 million case. That's your privilege.

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Q. And I believe yesterday's testimony showed that if infill drilling is indicated, it's going to have to stand on its own merit above and beyond what we have here today, right?

A. We have no -- no quarrel with that.

Q. But let's say even assuming that I agree with your $100 million figure without infill drilling, based on what we've done, Exxon still stands to realize a pretty substantial profit from unitization, wouldn't you agree?

A. Certainly, but however, we would like to also point out that the difference, the $1.71 per barrel paid by Exxon, still compares with the 84 cents per barrel paid by other companies.

Therefore their rate of return on the initial part of this thing is much higher.

That's the only point we wanted to make. It's simply that the investment formula is inconsistent with the allocation of reserves.

Q. You've brought up the next point I wanted to get into. Very good.

In that connection, I'd like you to refer to your Exhibit Eleven.

A. Yes, sir.

Q. Pardon me for standing up, but I think if I work closely with you on this deal, we might get to the

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bottom of my problem.

A. All right, sir.

Q. First of all, we are in agreement and do understand, don't we, that the unit agreement formula for capital investments in this project will ultimately be shared on the Phase III participation, or that which is actually the secondary oil, or added oil, made possible by this unitization, is that not so?

A. Yes, sir, that is correct.

Q. Okay. Well, if you -- if you'll look at your exhibit, and I'll just -- I first point to you that your -- Exxon's share of the total investment, of the $31 million, is $2.3 million.

A. Yes, sir.

Q. Right?

A. That's correct.

Q. Okay. And that, in order to get at that cost to Exxon of $1.77 per barrel, we divided the 2.3 million by the production of 1.3 million, isn't that right?

A. That is right.

Q. Okay. Then we go down here to the percent of the total investment share, or 7.3 percent, and if we multiply that figure, 7.6, I mean.

A. Yes, sir, 7.6 percent, right.

Q. Okay, and we multiply that times the total

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estimated recovery of 55.2 million barrels, we get a total estimated secondary recovery for Exxon of 4.2 million barrels, isn't that correct?

I'll be glad to supply a calculator.

A. I believe your number is approximately correct, that the future recovery after the end of Phase II, and during Phase III, when secondary operations, or secondary recovery factors become effective, after that point, Exxon's investment is -- or Exxon's recovery is some 4.2 million barrels.

Q. Okay. We're in agreement.

Now, let's see what it costs Exxon to have this secondary recovery. In order to do that, then, we would go back to your 2.3 million dollar investment, right?

A. Yes, sir.

Q. And we would divide that by the 4.2 million that you expect to get, and I've done the calculation so I want to know if you agree with me, that comes out to 56 cents per barrel, I think.

A. I believe that that would be correct and the point you're making there is that each and every party who has secondary recovery pays then exactly the same, 56 cents per barrel.

Now, during Phase I and Phase II, the parties don't pay on the same basis. After Phase III starts

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everybody pays the same. We have no complaint about that. We're not complaining about Phase III.

Q. Well, we have the readjustment date and we readjust everybody to the Phase III deal, don't we?

A. Everybody becomes whole at the beginning of Phase III.

Q. Well, what's wrong with that?

A. No problem with that. The problem is during Phase I and Phase II, when we're paying twice as much.

Q. Well. I can see your problem to a point but I don't think, Mr. Nolan, you're really fairly giving credit to those guys with more primary reserves who are being benefitted by this accelerated primary recovery made possible by the waterflood.

A. Of course, they're benefiting by the accelerated primary and they're paying nothing, only the interest on the money which they put up on the 58 percent during Phase I and Phase II. They're paying practically nothing to get that benefit, so they should share in some way in the cost. Which is my opinion.

They're also getting the benefit of the two-phase upper tier oil price and that type of thing, which is a benefit.

Q. A few final questions, Mr. Nolan.

You know, I'm -- I'm fairly amazed at what

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I have to consider is a fairly reckless approach by Exxon.

MR. ATKINSON: Mr. Chairman, excuse me. If Mr. Lopez wants to cross examine the witness I think that is perfectly permissible, but if he's going to use this as an opportunity for argument, then we would object.

MR. RAMEY: Would you like to rephrase that question?

MR. LOPEZ: I'd be glad to rephrase that.

MR. RAMEY: It appears you may be bordering on testimony and you're not sworn.

MR. LOPEZ: And I -- that's true.

Q. (Mr. Lopez continuing.) Let me refer you to your Exhibit Nine, Mr. Nolan.

A. Yes, sir.

Q. And I -- if I understand that exhibit, it reflects that Exxon feels that they will lose 377,000 barrels of oil, is that right?

A. Yes, sir, that's correct.

Q. Now, if you compare that amount of oil to the total estimated recovery of 55.2 million barrels of oil, which you agree can be recovered by secondary operations, that figure represents less than 1 percent, or .68 percent, of the oil we can get out of this project.

A. Yes, sir; however, that's 100 percent of Exxon's loss.

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Q. Well, I'm not so sure it is. Let me understand why you think that's so, because if I compared the same figure, 377,000 barrels of oil, to the 4.2 million additional barrels of oil that you stand to gain from the project, that seems to be less than 9 percent of what you can get, and it seems to me you're risking 11-to-1 odds to forego this 377,000 barrels of oil if the project isn't put into effect.

Q. Those numbers are not mutually exclusive. We believe that the project should proceed and that the secondary recovery is a benefit to everyone. We do not believe that Exxon's position will stop the project. If we believed that, then, perhaps there would be some different approach taken.

Q. Well, I don't know what else is happening here today.

No more questions.

MR. RAMEY: Any other questions?

MR. ATKINSON: Mr. Chairman, I've got a brief redirect, if I may.

MR. RAMEY: Let me ask a couple of questions first, Mr. Atkinson.

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CROSS EXAMINATION

BY MR. RAMEY:

Q. Mr. Nolan, you have, as I see on your Exhibit Fifteen, you have four leases.

A. Yes, sir.

Q. Tract 43.

A. Yes, that's the Exxon State "A" Lease.

Q. All right, what's the affect of your proposal to that lease?

A. I believe that lease drops in participation under the updated parameters, sir. It has not performed as well as predicted by the Technical Committee compared to the other leases.

Q. So if we went to the '78 production figure, that lease would not --

A. Fare as well, no, sir.

Q. -- fare as well.

And then the next two are your Bowers Leases?

A. Yes, sir, the 47, Exxon Bowers "A" Federal, Tract 48, Exxon Bowers Federal Communitized.

Q. And those two, their participation would be increased?

A. Yes, sir, their participation would increase.

Q. And then the fourth one, which is your

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Grimes Lease, what's the effect on that?

A. Well, now that is a stripper lease, and the production has dropped substantially since the Technical Report was made, and under that -- under our estimate of future production, that lease drops very substantially in participation.

Q. So Mr. Grimes would suffer considerably.

A. I'm afraid so, but Mr. Grimes -- that's his -- I mean we're protecting him as best we can.

Q. So two of your leases you would get an increase in participation and two of your leases you would get a decrease in participation.

A. That's correct.

Q. And you're concerned about the Federal government.

A. We're concerned about them all, sir. We just want to give them all fair treatment.

Q. You seemed to emphasize yesterday that this was a big Federal lease and most of the Federal participation in the unit.

A. That's correct. There are a total of 400 acres Federal leases. This is 320 of them.

Q. I just made a quick addition here. I took Conoco's leases in the Unit. I think they have five leases, and under the proposed participation they would have 9.3

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percent, and under your proposal they would have 12.8 percent.

A. Yes, the Conoco leases have in general shown production much in excess of the Technical Report prediction since made in 1976.

Q. And yet they're supporting the proposed formula.

A. Conoco proposed this formula and I suppose they're proposing it. I don't know whether Conoco's looked at those numbers.

Q. But they would -- their participation would increase.

A. Very substantially, yes, sir.

Q. And still they are willing to take their knocks to get the unit together, I assume.

A. If they overlooked it, I presume they are.

MR. RAMEY: Thank you. Any other questions of Mr. Nolan? Mr. Nutter?

CROSS EXAMINATION

BY MR. NUTTER:

Q. Mr. Nolan, when you're putting a unit together that has as many interest owners as this one does, isn't it logical that at some point that you have to arrive at a cutoff point and start your circulation of the petitions

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or the circulation of the ratifications to the operators, based on information that you've had up to that time.

A. Yes, Mr. Nutter, that's correct. There must be a --

Q. Well now, isn't it also true, Mr. Nolan, that by the time you have circulated 905 royalty owners and 90 working interest owners, that a certain passage of time would have gone by, and by then someone will always pick up some new statistics and come up with some new parameters that would change what you just finished circulating.

A. Certainly that is right. There has to be some period, some reasonable period of time, but beyond some reasonable period the updating may be needed.

Q. But you always have to cut it off at some point.

A. At some point, yes, sir.

Q. So you'll have the numbers that you can send out to people so they can look at it and sign it.

A. That is certainly -- that is certainly right.

Q. Now, on your Bowers lease there, the production took a dramatic increase back in 197 --

A. Yes, that's Exhibit Six.

Q. In took a dramatic increase back in 1977, to what is that increase attributed, Mr. Nolan?

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A. There were two REDA pumps installed on the Bowers Lease on Well No. 2 and Well No. 3.

Q. And are those the only wells that have shown increase in production?

A. Those are the principal ones; others have shown slight increases, but those -- that is where the principal increase comes, is from those two leases which both produce from Zone 1, which is the main production interval, primary production interval, and withdrawing at the higher rate just has made this lease much more competitive.

Too bad Exxon didn't do it earlier.

Q. Now those are -- those are producing up to top allowable, I presume.

A. Yes, sir, those are both --

Q. Allowable --

A. Those are both producing up to top allowable and one of those leases is only able to produce five days a month, and it makes its allowable. It produces at a rate in excess of 500 barrels per day with the REDA pump.

Q. Well now you have also on your Exhibit Six shown the reflection of that in the production as the yellow line, and you've also shown it as an increase in reserves. Now, isn't it often true that when you put in new equipment in a well, that you have a temporary increase in production and then the production declines back to the original decline

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curve, and that you won't have the production decline curve going out there ad infinitum that high above the original decline curve?

A. Well, we can only look at what's happened in the past two years. That's a little more than just a short period of time. This lease has held -- these wells have held this production for the two-year period, from the middle of 1977 on. They show no signs of declining.

Q. And those two wells are producing from Zone 1 of the San Andres?

A. Yes, sir.

Q. So the production from those two wells is not going to affect the secondary recovery from the lease?

A. No, sir. That is not secondary recovery. All of that is primary, remaining primary oil, from the main primary zone.

Q. I see.

And you feel that you're increasing the reserves under the lease by installing these two pumps?

A. We're increasing the reserve from those two wells at the expense of some offsetting leases, yes, sir. It's just becoming more competitive. It's which wells get the oil. The reservoir production of the total reservoir will not be increased; the reserves should not be increased

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by this.

MR. NUTTER: I believe that's all. Thank you.

A. Yes, sir.

REDIRECT EXAMINATION

BY MR. ATKINSON:

Q. Mr. Nolan, I have a couple more questions on redirect.

First of all, I'd like to clarify something. Exxon is not suggesting that the decline curve method you employed to approximate the simulation model should be used by the Commission or by the Technical Committee to re-evaluate reserves, are they?

A. No, I am not. I just said it is an approximation, and I think I was very conservative, using an 8 percent decline, 8-1/2 percent decline on it. This lease is in the dead center of the reservoir; the best producing area in that reservoir. And we assigned an 8-1/2 percent decline to it when the overall production decline is 6 percent. There's no reason to believe it shouldn't decline at a rate even slower because of its central location in the reservoir.

Q. What I want to get at, though, is that Exxon is not suggesting that the simulation model is not

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correct?

A. No, the simulation model we feel would be the better method of doing it.

Q. So that what you're proposing is that the new data be input into the simulation model and see what it generates, is that correct?

A. Well that, we would certainly agree to that type of thing, but we can't force anybody to do that.

Q. Now, Mr. Lopez, sort of inferred that somehow that Exxon's installation of artificial lift in 1977 and the corresponding increase in production is some how unusual, and that wells won't change like that, ordinarily, unless you do something special.

Now do you know other wells in the proposed unit that have had -- demonstrated sharp increases over short periods of time?

A. There have been quite a number of cases through the years where there've been dramatic changes from one month to the next and then those changes were sustained for periods of -- long periods of time and this type of reservoir, where you have a large hunting ground, you have Zone 1, Zone 2, Zone 3 Upper, Zone 3 Lower, all of which will produce top allowable in some parts of the reservoir.

You have open only parts of those zones, so that you have opportunities to work over wells, get into

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new zones, put on artificial lift, stimulate wells, all those good things that oil companies are supposed to do.

Q. All right. Well, now I'd like to refer you to what has been marked for identification as Exxon Exhibit Number Sixteen.

MR. ATKINSON: Mr. Chairman we only have one copy of this, so I'd like to circulate it to opposing counsel and then to the witness and the Commission, if I may.

Q. (Mr. Atkinson continuing.) Mr. Nolan, looking at Exhibit Sixteen, could you please identify that and explain what that is?

A. This is a data graph showing the producing history of the Shell "D" Lease, located in Section 24, Tract 29.

It shows the production rate in barrels per day versus plotted against time from a period 1960 through April, May, of 1979, and then it also shows an extrapolation made by the Technical Committee as to the future reserves on this lease.

Q. Now is there anything unusual about that curve or anything that meets the eye?

A. Well, there is a dramatic increase in production on this lease from a rate of about 20 barrels per day in 1973 to a rate of 120 or 30 barrels per day in 1974.

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That lease has shown a decline since that time of 16.6744 percent per year from the period -- I'll take that back. It's not that accurate. About 16 percent from 1976 to the present time.

Q. Now, in your expert opinion had the Technical Committee formulated the formula that's presently proposed and put it into effect using the same parameters, current production, et cetera, in 1973 before that dramatic increase was shown, would Shell's allocation of reserves have been substantially less?

A. Very substantially less, yes, sir.

Q. So it's really just a question of where you end up at the time that the data is cut off then, isn't it?

A. That's the unfortunate part of it, yes, sir.

Q. But your feeling is that it must be cut off at some point.

A. Yes, and Mr. Nutter's perfectly right. You must cut it off sometime.

Q. Now, I have one other question for you regarding the investment formula.

Mr. Lopez has suggested that the 100 million dollar figure may be a little bit preposterous. Have you had any experience or knowledge at all of the Wasson Field? (sic)

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A. Yes, I have.

Q. And who is the operator?

A. Shell.

Q. And realizing that you have no exact figures in front of you, could you give us some idea of what additional costs have been incurred, investment costs, by the use of infill drilling in that field?

A. Well, as you say, I don't have the data, but as I recall, initially that waterflood was designed as a peripheral flood with a very modest investment as it started out. I'd say perhaps less than the investment that is predicted -- is estimated for this field, for this Unit.

Q. Less than $33 million?

A. Yes, I would say so, because it is peripheral with just converting the initial wells which wasn't a great deal of investment.

Now that was quite a few years ago.

Q. What has happened to the total investment to this date, to the best of your knowledge?

A. This always appears on Exxon's budget as one of our large items. Shell has drilled down to 10-acre spacing in many parts of that field, all being justified and all being profitable and all yielding additional recovery. I'd say that we've drilled 4 or 500 wells at least in that field. Investments have been in excess of $100 million.

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Q. I'd also like to clarify one other point, which I believe you stated in your cross examination, but Exxon's problem with the formula, with the investment formula and the participation formula, really is not Phase III at all. It's only in Phase I and II then, is that correct?

A. Yes, that's where the problem lies.

Q. And also, as to the purportedly insignificant loss to Exxon of 377,000 barrels, just to clarify this once again, approximately what percentage is that of the total projected Exxon recovery?

A. The total projected Exxon recovery, both primary and secondary, is 5 million barrels, so that is only 6 or 7 percent of the total projected.

Q. Would you consider 377,000 barrels to be insignificant in your opinion?

A. No, sir, not in my opinion. 377,000 barrels is 377,000 barrels regardless of what your total is.

MR. ATKINSON: We have no further questions Mr. Chairman.

MR. RAMEY: Any other questions of the witness? He may be excused.

MR. NOLAN: Thank you.

MR. RAMEY: Do you have anything further, Mr. Atkinson?

MR. ATKINSON: No, sir, we don't have any

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further witnesses.

MR. RAMEY: Do you have anything further, Mr. Lopez?

MR. LOPEZ: Yes, sir, Mr. Chairman. I have a couple or three rebuttal witnesses.

I'd like to call Mr. Miller. If you could give us a second, we'd like to put up a couple of exhibits.

MR. RAMEY: Are we ready? Please proceed.

WILLIAM C. MILLER

being called as a witness and having been duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. LOPEZ:

Q. Would you please state your name and where you reside?

A. My name is Bill Miller and I reside in Houston, Texas.

Q. Mr. Miller, by whom are you employed and in what capacity?

A. I'm employed by Shell Oil Company as a Senior Staff Reservoir Engineer in the Mid-Continent Division.

Q. Have you previously testified before this

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Commission and had your qualifications made a matter of record?

A. No, I have not.

Q. Would then you briefly describe your educational and employment background?

A. I graduated from Stanford University in 1950 with a Bachelor of Science degree in petroleum engineering. In that year I was employed by Shell Oil Company in Los Angeles, and I worked as a Division Reservoir Engineer in Bakersfield and Farmington, New Mexico, until 1960.

I then had special assignment in Shell's Production Research Laboratory in Houston, and with Shell in the Hague in the Netherlands until 1965.

This was followed by four years Area Engineer, responsible for Shell's California Supplemental Recovery Engineering. This included thermal, miscible (sic) and waterflood projects.

During the Hobbs Primary Reserve Study, discussed in this hearing, I was the supervisor of miscible flooding and reservoir simulation research at Shell's laboratory in Houston.

In collaboration with Shell's representative on the Technical Committee my staff and I analyzed the excellent data compiled by the Committee and made the computer runs.

I attended several Committee meetings in

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Midland and Houston to explain the nature of the math model, the key factors that were bound to affect the final answer, and to inform them of our progress.

During the past two and a half years I have been responsible for Shell Oil's engineering and pilot testing of enhanced oil recovery in the huge Denver Unit in the Wasson Field, West Texas. The productive measures there are also the San Andres formation.

More recently, in cooperation with Mr. Lancaster, I've analyzed the past two and a half years production performance for the Hobbs Grayburg-San Andres Pool, and related it to the previous reservoir simulation study results.

Q. Then I take it you are fairly familiar with Shell's application in these cases, 6652 and 6653?

A. Yes, sir.

MR. LOPEZ: Mr. Chairman, are the witness' qualifications acceptable?

MR. RAMEY: He is considered qualified, Mr. Lopez.

Q. (Mr. Lopez continuing.) Mr. Miller, could you explain why you became involved in the North Hobbs Unitization Project?

A. The Technical Committee contacted me at the -- Shell's Laboratory and informed me that other methods

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to determine the important parameter of primary reserves had failed, and they wanted to know if it could be done by means of the math model.

I examined the -- all the data that the Technical Committee had compiled, thought about the nature of the problem, and concluded that indeed the math model would be suitable for this purpose.

Q. Would you briefly describe what was involved in the study you did for the Technical Committee?

A. Well, the complete summary is set forth in the Technical Report on pages 26 to 30; however -- which was introduced as an exhibit in this hearing.

Briefly, we represented the entire Hobbs Grayburg-San Andres Pool, north and south, with a grid system consisting of 600 distinct blocks. Based on the Technical Committee's data, we assigned properties to each one of those blocks, the thickness, the porosity, the structure that was involved, the gas/oil contacts, and the water levels.

We likewise assigned pertinent properties to each one of the individual wells in the pool, such as what zone it had been completed in, reconditioning data, and of course, the oil production.

Q. And then what did the computer do?

A. Well, the computer then automatically cal-

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culated the performance of each zone, the water influx, finally getting to the answer, which amounted to each well's individual pressure, its water cut, its gas/oil ratio, and its productivity.

The values I mentioned then were matched to the actual data as reported. Adjustments were made to the model to match these parameters ever more closely.

For instance, the location and strength of the water influx was an important adjustment parameter in Zone 1 production. The water drive was an important part of the performance of those wells.

When a close match was obtained, we then in the Committee felt confident in using that model for predicting the future reservoir performance.

Q. And it was accepted as the method of going about it, wasn't it? At any rate --

A. Yes, indeed.

Q. Did the Technical Committee establish any specifications for predicting oil and gas reserves?

A. Yes, they did, and most importantly, we decided that each well in the prediction would retain its existing completion interval. There was to be no credit given for possible future acid stimulation, for instance. There was no credit to be given for possible future completions of oil that was currently behind pipe and had never

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been opened up. There was no credit to be given to installation of high volume equipment, et cetera, a change in the productivity of the well.

In addition, we decided that to get the purely primary reserve estimate we would have to ignore the anticipated influence of the water injection of Amoco's waterflood in the south, and so indeed the primary reserves in the absence of waterflood were also calculated for all the south at the same time, in the absence of waterflood.

We recognized that there was excess capacity in the top allowable wells; that there were wells that only had to produce for a fraction of a month to make their oil production, and this was included, and the difference between those wells and the wells that were producing to capacity was recognized.

A well economic limit of 3 barrels per day was adopted or a 99 percent water cut, whichever came first, and the prediction was terminated way out in the future at the beginning of year 2025.

Q. What efforts were made to insure that the Technical Committee members fully understood the computer simulator program?

A. Very early in the game, at the January, '75 meeting of the Technical Committee in Midland, I attended and informed them of the type of model that was to be used,

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the grid system and the approach that was going to be used and the progress we had made at that time.

I met with them several times leading up to a meeting in October, 1976, in which in the call for the meeting the chairman of the Technical Committee asked especially that the people attending that meeting the representatives of the working interest owners, bring along a computer expert who could delve more deeply into the workings of the model.

We received numerous -- during all this, we received numerous suggestions, some corrections to our data, and all these were incorporated into the study, and finally, after the study was done, we specifically invited, if people wanted and still had questions, that they could come to the Belair Laboratory there in Houston and interrogate us personally and look at the output in detail.

Conoco and Skelly, now the Getty wells, took advantage of that and we met with them in our laboratory.

Q. Today, looking back, what is your opinion as to the success of your computer simulation model?

A. Well first, I do think we took into account all of the important factors that exist in the actual production of that big field.

More recently I compared the projection of the simulated oil production with the actual production to

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date of the many tracts in the -- in the North Hobbs Unit, and in general, the overall agreement is good.

Now these are the tracts that have San Andres production. You recall the San Andres alone was the target of the simulation study.

There were tracts where operational changes showed deviations from the simulator prediction. Now, this certainly would not have surprised anyone in the Technical Committee, because this was all discussed when we set the restrictions on the fact that, as I mentioned before, that we would use existing completions and -- and degree of stimulation in making the prediction.

So in any case where additional work was done, why indeed it would not be surprising to me or to any other member of the Technical Committee that the oil production may be above the predicted trend.

Q. Did you have the opportunity in evaluating the performance of your computer simulation to study the Exxon tracts?

A. Yes, I did.

There are four tracts involved, as we talked about just a little while ago. The first is a Grayburg Well tract, which was not involved in the simulation.

The next two are single 40-acre tracts, and indeed one is above prediction and one is below.

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The fourth tract has San Andres production from seven wells and indeed, substantially deviates from the computer prediction.

Q. Was this last tract that you just mentioned Tract 47, and in that connection I refer you to Exhibit Number 35, and ask you to explain it?

A. On Exhibit 35 I've plotted the barrels of oil production from Tract 47 on one axis versus the time on the other one, starting at the beginning of 1975 and with data, actual data, up till and including May of 1979.

The actual production is shown as the jagged line. The computer history match and projection and prediction of reserves of the oil rate is shown here as the smooth line.

In making the original history match Tract 47 indeed was always a problem. Back in the history match period the production, oil production decline, of this tract over two and a half years preceding, was at a rate of 25 percent per year, and indeed, looking at the other tracts in the Unit, the top allowable tracts had no decline, and the majority of the other tracts typically would have a decline that was three or four times as small as the 25 percent that was being experienced on the Exxon tract.

The productivity was declining precipitously. If someone had indeed projected that decline rate at 25

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percent, they would have drawn in a line as I've shown in green here, which as you can see, would have been far below the computer projection.

The actual match of the gas/oil ratio and the oil cut at the time of the history match, actually was quite good. What was unexplained was the rapid productivity decline in that period.

Well, indeed, as brought out, Mr. Nolan suggested using 25 percent or any other decline curve for these tracts. We did it with the computer. And this was the projection that the computer gave us under the constraints that I've mentioned earlier.

Now, as you can see, starting here in the middle of 1977 the actual production has exceeded what was projected. Now, in looking at the production figure, not only of oil but also of water during this time, you find that the water production has risen from about 250 barrels a day at the time we made the history match to nearly 1000 barrels a day now. The water production from this tract has been increased nearly four times.

Now it's obvious from looking at this that the increase in oil production has by no means been the factor of four. The increase in oil production has been considerably less. This means that the oil cut of this tract is considerably less than it was, so that the rise in oil and

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the rise in water have not been proportionate. A lot more water proportionately taken out than there was oil.

Q. Have you analyzed this decline in the oil cut, and in that connection I refer you to Shell's Exhibit Number 36, and ask you to explain it?

A. Exhibit 36 is a plot of Exxon's Tract Number 47. Primary reserves, as predicted by the simulator. To get a handle on this, we plotted the remaining reserves in barrels along the bottom axis here, starting as the simulator indicated for this tract, at over 1.2 million barrels for the Exxon's Tract Number 47.

On the other axis I've plotted here the percent oil cut. Now this is the percent of the total gross production that is oil, the remainder being water. I then plotted from the simulator three points: The water cut that was predicted was actually measured, on which we made our history match, in August of 1976. I plotted what the simulator predicted would be the oil cut at the first of 1980.

Q. Those points are marked on the exhibit?

A. It's marked in red. The first one is marked with a yellow square; the second with a red circle.

And finally, we have a yellow circle around what the simulator predicted would be the oil cut and the amount of oil that would be remaining as a primary reserve at the beginning of 1990.

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The dashed line then connects these three points and is the simulator's prediction back in 1976 of what the oil cut performance should be as we withdraw oil from the Tract 47.

The next thing I did was to superimpose the actual data, and in this case the yellow square which lies on top of the line is the actual oil cut that was experienced at the end of the history match, the beginning of the prediction.

At the present time there has been 475,000 barrels of oil produced out of Tract 47 in the two and a half years since the prediction, so against that point I have plotted the actual made 1979 oil cut of Tract Number 47, and outlined it in a blue square.

Now the first thing you notice is that the blue square falls on the prediction that was made by the simulator, so for this amount of remaining reserves the oil cut is just what the computer simulator would have expected.

The second thing you notice is that it, this point, May, 1979, is further from here than we thought we would be in 1980, based on the productivity of the well, as demonstrated by the actual data at the end of the history match.

So what we have here is an acceleration

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of the remaining primary reserves, which has led us down further on the oil cut, and so it's completely consistent with what the simulator had expected and predicted.

The comparable points are shown over here on this graph.

Q. On Exhibit 35?

A. On Exhibit 35.

Q. Would you then dispute Exxon's contention that the computer simulator does not accurately project Exxon's remaining primary reserves in Tract 47?

A. Yes, I would. To me, this analysis indicates that what we are looking at in the case of Tract 47 is a classic case of pure acceleration of oil reserves, and by acceleration, I mean the fact that where you are getting to the same oil reserves, but you're running faster to get there; in this case producing four times the volume of water in terms of barrels per day than we would of otherwise.

Q. Finally, Mr. Miller, you have heard Mr. Nolan's testimony that in his opinion it would be possible to update the parameters by plugging in new production data. What is your opinion?

A. I don't think that this would be practical or worthwhile. To be consistent with the definition of primary reserves it was agreed by the Technical Committee

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that the simulator forecast for all the San Andres wells in all the reservoirs would not include the influence of a water injection project being installed in the south by Amoco.

Under this contraint Amoco's Unit's San Andres primary reserves without the waterflood at the end of 1976 were determined by the computer to be about 9 million barrels. This was about 1/4 of the corresponding primary reserves in the northern portion. Water injection since that time by Amoco has definitely mobilized secondary recovery oil, benefiting not only the Amoco Unit producers, but also numerous wells within the proposed North Unit.

As a consequence, the oil production on Amoco-operated properties in the Hobbs Pool has steadily increased from the purely primary recovery rate of 1700 barrels a day in 1976 to nearly 5000 barrels per day by water injection now.

It's tripled.

The map labeled Exhibit 37 shows the location of the responding wells on the North Unit. Also shown is a portion of Amoco's South Unit. The tier of 40-acre tracts that lies just to the south of the North Unit. At the time that we made the history match, there were 52 oil wells in this area that were capable of making 65 barrels a day or more. Now, as expected after two-and-a-half years

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of primary production, 40 percent of these, or 21 wells, can no longer make this good oil rate, and I've indicated those and highlighted them with yellow as the minuses on the map.

This leaves 31 wells that were good oil producers that are still good oil producers, and those I have indicated by the symbol "OK". Now, I should point out that some of the "OK's" at the time of the simulator study were top allowable 80-barrel a day wells. Those, for instance, this one located here on the South Unit that juts into the North Unit is now making 300 barrels a day, due to transfer of allowable.

The next feature of the graph are 24 wells indicated by the red plus, that were not making 65 barrels a day at the time we made the projection that are making 65 barrels per day now, and over, and indeed, some of them make as much as 400 barrels a day.

Now I would point out that the concentration of these wells adjacent to the next line down here, which is the water injection, where the water injection begins in the Amoco South Unit. Now, we have previously emphasized that the clear-cut nature of the rules that were adopted 2-1/2 years ago by the Technical Committee in the simulator estimation of each well's primary reserve. Now, due to the above-mentioned response to water injection, and the high

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withdrawals in some wells adjacent to the North Unit Wells, a fresh redetermination of primary reserves in a portion of the North Unit is no longer feasible. All the portion of the North Unit affected by these, you can no longer determine primary reserve, and the portion of that North Unit that is so affected, and where you cannot determine primary reserves, is increasing every day.

In a new study it would be necessary to somehow separate many wells recent oil production into a primary fraction and a secondary recovery contraction. Then it would be necessary to obtain the Technical Committee's agreement to the admittedly arbitrary split that would be involved in each well. Furthermore, the increasing water cut would also have to be apportioned. Part of the water now could originate in the aquifer, part of it can originate from the water being injected in the South Unit, and part of it is affected by the re-adjustment of the flow lines from the aquifer due to repressuring of the South Unit.

And finally, although the field-wide and multi-zone model was well suited for estimating strictly primary recovery from the entire San Andres, it's not suitable for analyzing pattern water injection. As we testified earlier, for evaluating supplementary recovery, we made a separate simulation study, using a much more detailed grid system but covering a smaller area, only the San Andres Zone

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III Lower. This productive area covers only about three square miles.

It's evident that the 1976 time period in which primary reserves were determined and agreed upon by the Technical Committee have unique advantages. Production trends were well established and the response to water injection had not yet occurred. Any re-evaluation at this time, in my opinion, would necessarily be less definite, it would be less consistent, and it would probably be less universally acceptable to the working interest owners.

MR. LOPEZ: No further questions.

MR. RAMEY: Any questions for Mr. Miller?

MR. ATKINSON: Mr. Chairman, could we ask for a short recess to consult with my expert here?

MR. RAMEY: Certainly. We'll take a fifteen minute recess.

(Thereupon a recess was taken.)

MR. RAMEY: The hearing will come to order. Any questions?

MR. LOPEZ: Mr. Chairman, before we get into cross examination, I'd like to tender on behalf of Shell Oil Company Exhibits Thirty-five, Thirty-six, and

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Thirty-seven into evidence.

MR. RAMEY: Sholl Exhibits Thirty-five through Thirty-seven will be admitted.

MR. ATKINSON: As long as we're at it, I'd also like to tender Exhibit Sixteen for Exxon.

MR. RAMEY: Exxon Exhibit Sixteen will be admitted.

Now, are there any questions for Mr. Miller?

CROSS EXAMINATION

BY MR. ATKINSON:

Q. Mr. Miller, I just have a very few questions for you.

First of all, with regard to the rules, as you called them, adopted by the Technical Committee that acidizing of wells and reworking of wells were -- that it was assumed that the completion intervals remained the same, I think is the way you put it, by the Technical Committee.

A. Yes. Yes, sir.

Q. Okay. Now, those rules were for purposes of simplifying the model, were they not?

A. No, sir. They were -- the purpose of them was to get a uniform and across-the-board fair way of -- of making extrapolations of future reserves, based on, you

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know, firm data, not on what someone might have in the back of their mind some years later.

Q. But there's no prohibition against reworking wells, for example, was there?

A. No. It was recognized that there be all sorts of that going on.

Q. In fact, Shell reworked some of its wells during the same period, did it not?

A. Yes, after the -- after the study period.

Q. After the study period?

A. Yes.

Q. There was no prohibition anywhere in the rules adopted by the Technical Committee which would have prohibited installing artificial lift on wells, either, was there?

A. No, sir. The purpose was to get a percentage that would be fair and then would be applied to whatever future acceleration or increases were made.

Q. All right. Now, with regard to -- with specific regard to the Exxon Bowers Tract 47, or the Exxon Tract 47, you spoke about the waterflood in the Amoco Unit to the south. Now you're not suggesting that the increased production from the Exxon Tract 47 was as a result of a waterflood in the south, are you?

A. Not yet.

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Q. I'm sorry?

A. No, not yet.

Q. Now you also stated, I believe, -- I'm going to refer you to what has been marked for identification as Exxon Exhibits Five-B, Five-C, and Five-D. I'm sorry they're not marked. Do you have those with you?

A. Yes, sir, I have.

Q. Oh, okay, good. Have you reviewed these?

A. Yes, sir.

Q. All right. Now, you stated in your direct examination that you did not think it would be worthwhile to update the information available through the -- now available, in order to update the parameters, and the basis of your statement, I take it, is that based on the exhibits that you presented through your direct examination.

Now, in view of the great discrepancy between the performance that was forecast for Texas Pacific and for Chevron, and in view of the great discrepancy that did exist for Shell up until 1978, between what was projected and the actual production, isn't it a rather strange statement that it is not worthwhile to update the information?

A. No, I don't think so. There are leases; in my review I found that are producing below prediction. As far as the other people's leases, I can only infer that this looks very typical of a case where the operators are looking

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forward to unitization, where they have wells that they intend to use as key wells in the waterflood in the deeper zones, II and III, and where they do not, therefore, intend to make major investments and to jeopardize that well by doing work on it prior to the unitization; in their judgment that they're not looking to accelerate the primary reserve. The reason I infer that is that certainly has been Shell's case. With impending unitization, that we've not taken steps to try and accelerate this 45 years of dwindling reserves. We've concentrated on getting ready for the waterflood.

Q. Now, with regard to Shell, however, I notice that as far as actual production, you see Shell is essentially gearing down now in preparation for unitization, yet up until 1978 Shell's actual production was exceeding what it was to be permitted under the unitized formula.

A. We are not gearing down. I say there are opportunities for doing well work that we have not taken, and indeed, as you point out, with the long term projection of reserves, to take into account 45 years, that it's misleading to look at a few, you know, 2-1/2 years production and compare our 24.123 percent that covers the whole 45 years and compare it to what we've actually done.

Q. Now with regard to the possibility of updating, something that was not clear yesterday and is

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still not clear in my mind, at least, Shell does have the simulator program available, does it not?

A. Yes, it does, and all the data is still intact.

MR. ATKINSON: We have no further questions Mr. Chairman.

MR. RAMEY: Any other questions of Mr. Miller? He may be excused.

MR. KILPATRIC: We'd like to recall Mr. Buck to the stand. It will be very brief.

W. E. BUCK

being recalled as a witness and having been previously sworn upon his oath, testified as follows, to-wit:

REDIRECT EXAMINATION

BY MR. KILPATRIC:

Q. Mr. Buck, you have heard Exxon state that the method of allocating Investment Expenditures was not fair and reasonable, haven't you?

A. Yes.

Q. Why do you believe the allocation formula adopted in the Unit Agreement is fair and reasonable?

A. As previously stated, there exist considerable differences between the tracts and their relation-

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ship to the amount of remaining primary oil reserves and the amount of secondary oil reserves contributed to the unit. Some tracts have a high primary share and a low secondary. Others are just in the reverse, but all tracts are benefited by an acceleration and assurance of the primary reserves contributed and the recovery of secondary reserves.

To relate these benefits and to compare the benefits among parties, the actual profit to be earned by each party must be considered.

Total profit to be received is the added profit made possible by unit operations and the program of water injection. That is, if the profit a part would realize from continued primary operation without a water injection program is subtracted from the total profit to be derived from unit operations and a program of water injection, the difference would represent the added profit made possible by the unit and a program of water injection.

If the added profit should provide all parties with about the same return on their added investment, then the method of allocating costs would be in line with the benefits and would be considered fair and reasonable, in my opinion.

Such a method of relating or comparing the profit positions of the working interest owners was submitted by letter of January 24, 1978, to the working interest

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owners.

Q Would you explain the method of comparison that you just referred to, and in this connection I refer you to Shell's Exhibit Number 38?

A. Most companies analyze their investment prospects and potential profits on a present value basis. That is to say that all income and expenditures are valued at their present worth, or discounted at a fixed percentage rate.

By discounting all monies, income and expenses, and expenses including capital, profit is determined on a present value basis. Now, on Exhibit 19, which has previously been submitted, we showed a discount rate of 10 percent, and that is the same discount rate we have used in this exhibit.

The first graph here of the exhibit, as presented on the wall, is a plot of the percent rate of return of all working interest owners that would have received from Unit operations had operating expenses been based on the phase-in-effect Unit participation -- that again is operating expenses -- and the capital expenses were allocated initially on the basis of their Phase II, or primary participation, and then adjusted to Phase III secondary participation at the INvestment Readjustment Date. This, as I said, is a plot of their added profit. The vertical scale is the percent present

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value added profit due to the water injection project or the present value of the added profit divided by the present value of added investments.

For the purpose of this comparison all parties are assumed to receive the same price for oil sold. This may not be true as oil is priced by the Department of Energy, but it is the only way the sensitivity to the method of investment can be compared.

The horizontal scale on the exhibit is the ratio of a party's Phase II, or primary participation, to his Phase III, or secondary participation.

In order to get a reasonable scale on the bottom, this is plotted, the ratio is plotted, or expressed, I mean, as a logarithmic function, but it's still the same, being a ratio.

What the exhibit shows is that the percent profit of a party with a low Phase II primary reserve and a high Phase III reserve would be -- now this is plotted to the left of the zero line. I'm not sure you can see, the zero line runs up here. The plots I'm talking about now are here. Whereas the percent profit of a party with a high Phase II, or primary, and a low Phase III reserve is plotted to the right of zero.

As you will note, the parties to the left of zero would receive a relatively high rate of return on

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their money; whereas those parties to the right would receive a considerably lower rate.

Now, if the investments are shared completely on Phase III from the beginning, as shown here by this second overlay, this procedure has been followed, I believe, Exxon might be familiar with their Robertson Field Unit, Gage County, Texas, this procedure is that, the percent profit or rate of return reverses; that is, the parties on the left now receive a relatively low rate of return, and the parties on the right enjoy considerably higher rate of return.

The last overlay is based on the method of cost sharing as stated in the Unit Agreement. That is, the investments are based on a weight of 42 percent primary and 58 percent secondary participation. Here you will note that all parties receive about the same rate of return, not exactly the same, but within a reasonable range.

As this is a rate of return for added profit, and it takes all parties to make the added profit possible, it seems fair and reasonable that all should receive about the same rate of return from the added recovery, and the formula proposed provides such a condition.

Q. Thank you, Mr. Buck. Was Shell's Exhibit Number Thirty-eight prepared by you or under your supervision?

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A. It was, yes.

Q. Thank you.

MR. KILPATRIC: Mr. Chairman, we'll offer Shell's Exhibit Thirty-eight into evidence at this time.

MR. RAMEY: Exhibit Number Thirty-eight will be admitted.

MR. KILPATRIC: Thank you. No further questions.

MR. RAMEY: Any questions of Mr. Buck?

MR. ATKINSON: We have no questions.

MR. RAMEY: He may be excused.

MR. LOPEZ: Mr. Chairman, that concludes our rebuttal.

MR. ATKINSON: Mr. Chairman I would like to -- I realize it's a bit irregular, but if possible, I would like to recall Mr. Lancaster.

BILL LANCASTER

being recalled as a witness and having been previously sworn upon his oath, testified as follows, to-wit:

RECROSS EXAMINATION

BY MR. ATKINSON:

Q. Mr. Lancaster, yesterday I believe you testified that you were and are the Chairman of the Technical

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Committee, is that correct?

A. That's correct.

Q. And I believe you also testified that in your opinion the Unit Agreement proposed by Shell allocates hydrocarbons to various tract owners in a fair and reasonable method or manner, also, did you not?

A. I don't remember, but I agree with that.

Q. All right. Now, the distribution of hydrocarbons to the various tracts as reserves on the simulation model was accomplished prior to November 17th and 18th 1976, I think you will agree.

A. Correct.

Q. And the reserves that are presently allocated to the various tract owners in the simulation model are the same reserves that were allocated prior to November 17th and 18th, 1976, is that correct?

A. The reserves, the primary reserves, or --

Q. Yes.

A. -- both?

Q. Primary reserves.

A. Well, they're what came out as the result of the second simulation model, the one they reran, right.

Q. Now it is true, is it not, that a meeting of the Technical Committee on November 17th and 18th, the

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reserve allocation as to Skelly Oil for their Turner Wells, which had been calculated by the Shell computer run allocating 319,000 and 321,000 barrels respectively to the two Skelly Turner Wells were adjusted.

A. That's correct.

Q. And they were adjusted by taking the arithmetic average of three Shell wells, the Shell Sanger 2, 27 North, the Shell Turner 2, 34-B, and the Shell Turner 1, 34-G Wells, taking their production that was allocated under the computer run and arithmetically averaging that with the allocations to the Skelly Wells, is that not true?

A. That's correct.

Q. And this was done without a computer calculation. It was simply a decision on the part of Shell Oil to arithmetically average, is that correct?

A. No, this was an agreement of the Technical Committee.

Q. All right. Now, I would like to refer you, or I will ask you, whether you recall that there were seven parties in favor of this, among whom were Amerada, Amoco, Gulf, Mobil, Sun, Texas Pacific, and Shell.

Opposed to this were Cities Service, Conoco, Exxon, and Skelly.

Do you recall that?

A. Well, I'm going to have to get my minutes,

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because I think you're -- we're out of -- can I get my minutes now?

Q. I refer you to page two of the minutes of that Committee on November 17th and 18th, 1976.

A. Okay, just a minute, though.

Well, no, that was an initial vote. There was a subsequent vote taken, and that was on March 2nd, 1977. And at that time basically the same thing, in essence, was offered, and there Exxon agreed.

If you go to your minutes for March 2nd, 1977, and go to the bottom of the page.

Q. The point is that there was an adjustment, though, was there not?

A. Yes.

Q. And it was not a function of the computer simulation model.

A. That's true.

Q. All right.

MR. ATKINSON: I have no further questions.

MR. LOPEZ: Mr. Chairman, in light of this, I'd like to kind of go out of order again and call Mr. Miller back to the stand just for a brief question.

MR. RAMEY: Okay. Does anybody have any questions of Mr. Lancaster? He may be excused.

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MR. LOPEZ: Mr. Chairman, I might also mention that I don't believe Mr. Miller was ever sworn, and I would like him to be sworn and to swear that the testimony he's given today has been the truth.

(Thereupon Mr. Miller was duly sworn upon his oath.)

WILLIAM C. MILLER

being recalled as a witness, testified as follows, to-wit:

REDIRECT EXAMINATION

BY MR. LOPEZ:

Q. Mr. Miller, you have just heard the questions put to Mr. Lancaster. Would you explain the reason why this adjustment was made and what Shell's role was in it?

A. Yes, sir. In the Technical Report there is the -- you will see a picture of the grid system. The grid blocks in this particular case at the intersection of four of them was located a Skelly well, much like the Four Corners Monument.

In the simulator, therefore, it was possible to put that particular well into any one of the four

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blocks.

The first attempt we made, we found that indeed, what appeared to be very comparable wells in this area, three Shell wells and two Skelly wells, that at least one of the Skelly wells looked as though, indeed, its reserves were low compared to the neighbor. This was one of the changes that we made in that intervening three-week period that was spoken. We thought that by merely moving that well to another block that we could bring it into line with its neighbors.

When we did it, we actually ended up concentrating production out of that new block and the well actually made somewhat less.

At the meeting that's being referred to, this was to accept and finalize the percentages for -- I'm sorry, to finalize the oil production reserves that we had derived, and therefore, indeed, Shell suggested that rather than making additional runs and consuming additional time, that it would be fair and reasonable to start with the computer reserves for those five wells, totally 416,000 barrels on the average for each one of those five.

We then suggested that each of these wells be given that average, which meant that some wells went up some; some wells went down some. The net result was that we subtracted from the Shell wells the total of 192,000

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barrels of oil. We added to the Skelly wells 192,000 barrels of oil, and no other operator was involved in those changes.

Q. Why did Shell sacrifice 192,000 barrels of oil?

A. Basically, we were determined to -- to do anything necessary to get on with the water injection project.

MR. LOPEZ: No further questions.

MR. ATKINSON: We have no questions.

MR. RAMEY: The witness may be excused. Do you have anything further, Mr. Lopez.

MR. LOPEZ: No, Mr. Chairman.

MR. RAMEY: Mr. Atkinson?

MR. ATKINSON: Only to ask Mr. Nolan, without taking the witness stand, whether Exhibits One through Sixteen were prepared by you or under your supervision?

MR. NOLAN: Yes, they were.

MR. ATKINSON: We have nothing further.

MR. RAMEY: Do you have any statement?

MR. ATKINSON: Yes, sir, we do.

Shell has come before the Commission seeking a statutory unitization. It is their burden to show, as the Commission well knows, that the Unit Agreement and unitization will protect correlative rights and that hydrocarbons will be allocated to the separately owned tracts, is statutory language, on a fair, reasonable, and equitable basis.

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That is not to say some of the tracts, or most of the tracts, or Shell's tracts. It's all the tracts we're talking about.

Now, as has been brought out in our case, we do not feel that the present parameters being employed in the proposed formula, Unit formula, are fair. They are not based on production data since 1976.

I think to a certain extent the real issue has been clouded this morning. The -- Exxon is not taking issue with the effort that Shell's made to unitize this -- this North Hobbs Unit. They aren't taking issue with the accuracy of the study in 1976. They are not taking issue with anything at all as proposed by Shell, except that the parameters are simply not correct, and the reason they're not correct is because they are based on outdated, outmoded, obsolete data.

It is no more appropriate for this Commission to accept the parameters proposed by Shell in this formula with 1976 data than it would have been if Shell had brought this thing before the Commission in 1976 and suggested that 1973 data should be used.

Now I realize that it may not be an easy matter to rerun the program; however, as has been testified to this morning, the program does exist and it can be done. Exxon is more than willing to cooperate in any way to rerun

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the program as far as making their information and personnel available.

There is only one way under this present formula that the hydrocarbons can be allocated to the tract owners, the individual tract owners, all of them, on a fair and equitable basis, and that is to update the parameters. If the parameters are not updated, then Exxon's position is that, as Mr. Dalious will state in a moment, that Exxon should be left out of the Unit Agreement, and there's a precedent for this in the same pool, the Amoco -- the Amoco Unit in the south has -- I've forgotten who the operators are -- there are two windows in that pool, or in that Unit. There is also substantial precedent in view of the Moranco Waterflood Unit, which apparently can be operated by the use of lease line wells and offset wells, and as was testified to yesterday, there's no problem with projecting a finger that sticks into the proposed unit. It's certainly possible that the Exxon Tract 47 will be protected to the same extent that the peninsula that juts into the northern unit of Amoco is protected, or proposed to be protected.

So Mr. Dalious is going to set forth Exxon's official position as representative of Exxon, but I want to re-emphasize that Exxon is not quarreling with the tremendous efforts that the Technical Committee has made

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in formulating a formula that they believe to be fair and equitable, and if the parameters are revised and updated, Exxon is agreeable to proceeding with that formula and getting on with the unitization.

Thank you. Mr. Dalious will now address Exxon's formal position.

MR. DALIOUS: Mr. Chairman, in this hearing Exxon has entered its objection to approval of the proposed North Hobbs Grayburg-San Andres Unit on the basis of applicant, Shell Oil Company.

In considering the application, Exxon respectfully requests serious consideration be given to its principal objection, namely, that the proposed formula is neither fair nor equitable because of now obsolete 1976 production numbers being used for the calculation of participation percentages as they now appear in the proposed Unit and Unit Agreement.

In the instant case Exxon suggests that the passage of time since 1976 numbers has been unusually long, considerably more than is normal.

Accordingly, Exxon respectfully requests the selection of one of the following three alternatives with regard to the present application:

First of Exxon's proposed alternatives is that the Commission approve the application provided the

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applicant be required to recalculate tract participation percentages by using updated, current production and remaining primary production figures, as opposed to the 1976 figures now applied to the formula.

As a means of expediting the recalculation, the updated numbers, already available from Exxon's exhibits, could be used, and I refer to its Exhibit Number Fifteen.

With regard to authority for the issuing of an order in conformity with this alternative, Exxon submits that New Mexico Statute 70-2-6, 70-2-11, 70-7-6, and 70-7-7 contain adequate authority for such action by the Commission. Exxon suggests that the words "as prescribed" as they appear in 70-7-7 provide ample discretionary authority for the entry of an order in conformity with alternative one. Exxon submits that in so doing the applicant need not obtain a re-approval of all parties who heretofore have ratified Unit or the Unit Operating Agreement, or both. Exxon submits that if the cited articles, and in particular, 70-7-7, do not provide such authority that the word "Prescribed" is meaningless with the result that the only authority of the Commission would be either to approve or disapprove the application precisely as submitted.

Such an interpretation would appear to be contrary to the clear legislative intent in the enactment of this statute.

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Exxon further submits that if alternative number one be adopted, that applicant has ample time to effect the recomputation prior to the ipso facto termination date which is 1-1-80.

Exxon directs the attention of the Commission to a precedent for such an alternative. In the Double L Queen Unit in Eddy County, one Jack L. McClellan protested the application of Bert Royalty Company on essentially the same basis as Exxon now protests Shell's application. In that cause the Commission entered an order requiring a recalculation based on newer data. Further, we understand that no additional re-signup was required.

The second of Exxon's proposed alternatives is that the Commission approve the application subject, however, to excluding Tracts 43, 47, and 48 from the Unit Area.

Mr. Lancaster and Mr. Phillips have assured the Commission that the Unit would have no -- this would have no effect on the Unit and that these tracts could adequately be protected by the use of a cooperative agreement, and in this respect we would agree to entering into a cooperative agreement.

As a part of this alternative, Exxon would be willing to accept deletion only of its federal tracts, Numbers 47 and 48 in the proposed Unit.

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Exxon's third alternative would simply be disapproval of the Unit.

With regard to the application for field rules, Exxon has no objection to such application -- approval of such application, provided either alternative one or alternative three be selected. HOwever, should the Commission elect to follow alternative two, respondent, Exxon herein enters its objection to Rules 1, 6, and 7, as proposed for the reason that as presently written exclusion of any tract would delete that tract from the application of the proposed rules.

These rules clearly were written as relating to the entire Unit as it was set forth in exterior boundaries and the presence of a window in the Unit would eliminate those tracts from the new rules, as proposed. We suggest that if this alternative be -- I said suggest -- we request if this alternative be selected by the Commission for its order that minor changes in the wording of the rules could be entered so that the window tracts would have the same application of the rules as they would have to the entire Unit Area.

We wish to state we appreciate the attention of the Commission and respectfully request that one of our three alternatives be entered in the order.

MR. RAMEY: Mr. Lopez?

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MR. LOPEZ: Mr. Chairman, I'm not even going to dignify the suggestion of Exxon to its second alternative by responding to it. If Exxon wanted to discuss cooperative waterflooding, the time was before now. We've had a day and a half of testimony. I would have been glad to hear it and I would have been glad to put on witnesses to respond to it as to why is just simply won't work and no one will agree to it.

Therefore, I'm not even going to respond to that.

Mr. Chairman, Mr. Commissioner, Members of the Staff, Ladies and Gentlemen.

Never in my experience before this Commission have I participated in a case more important as regards the human endeavor that has gone into it. In this connection, I want to introduce you to Hank Swartz, who was the author of the Technical Committee, and who flew directly from Cameroon to Santa Fe, New Mexico, to attend this hearing.

Mr. Hank, I want you to stand up. You did a helluve job on that Technical Report.

What we've tried to do here in the last day and a half is tell a story, and I think we've told a helluve story. I'd just like to highlight some of those events that have occurred.

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Mr. Lancaster, who is now the chairman of the Technical Committee, has described to you the mammoth undertaking that the Technical Committee did to try and get one of the most important historic pools in New Mexico into a posture for secondary recovery. The magnitude of the undertaking with respect to the assembly of data, to establishing parameters, and assigning values to those parameters, to establishing a cutoff date, and the fact that they could come to a conclusion that the secondary recovery operation of this unit would be both feasible and profitable. He's described the wonderful participation of all the working interest owners in the unit and their amazing efforts to come to almost unanimous agreement on a step-by-step basis so that the working owners could find some way to allocate the production, the benefits as well as the burdens, that would be undertaken if unitization became a reality.

Mr. Buck, my good friend Mr. Buck, who was Chairman of the Working Interest Owners Committee, he has also described the relentless and unbelieveable undertaking that the working owners did in trying to achieve a fair, reasonable, and equitable formula.

He's explained, and I won't go and bore you with the details of why the participation formula with respect to the allocation of oil reserves and with respect to the allocation of investment are fair and reasonable.

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I could never say it better myself.

Third, you've heard from Mr. Campbell, who once the Unit Agreement and the Unit Operating Agreement were put into a form that could be submitted to the people involved, went out and found out who they all were. I don't what Exxon expects or how long they think it's going to take to find out where 905 royalty interest owners are, or how they're going to get 80 working owners to agree to the thing, but that's what he did. In fact, he's also testified that he couldn't even find 44 royalty interests. They're still unknown where they are; they were unreachable.

But that was a mammoth undertaking in itself.

Next, you heard from Mr. Phillips, and he's already to go with the thing, and he's told you how big a project it is and what kind of complexities are involved in trying to deal with this particular reservoir.

And finally, Mr. Chairman, today you heard from Mr. Computer Simulator himself, Mr. Miller, and he's explained the best he could how that thing worked and why everybody agreed to it.

What we've attempted to do, and if I may, and I think what the testimony reflects in a nutshell, and if I may analogize it, I think if you picture a train leaving Kansas City, and it's arrived in Albuquerque, and it's going

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to have to stop in Winslow unless everybody can get together and see that it gets to San Francisco. So all these guys on this train took a picture and agreed to take a picture in Albuquerque, that if they could take a picture and get this train together, that they wouldn't have to stop in Winslow; that they could get all the way to San Francisco.

And this is essentially what we're trying to do here today, and what Exxon would have us to do is to erase the picture we took in Albuquerque, and I suppose stop in Winslow. That's not what we want to do. We all want to get to San Francisco.

If you would just indulge me a little more, this case has been very important to me and I'd like to talk about how I feel about it and how I perceive my role.

When Mr. Buck first called me to Houston, and I went down to find out what the deal was all about, he kind of suggested to me that if I thought I was going to be able to understand the magnitude of the complexity of the project, I was biting off more than I could chew.

Well, we worked on the deal. We tried to put it together. I came home, filed an application, went back down, tried to get the testimony together, see that we were all in order, and I kind of got a little confident. I thought I was getting a pretty good handle on the deal.

Last week when I went down to Houston and

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I sat down with these gentlemen, I said to them, "You know, there's one thing. I think I've got a handle on your deal but I don't really understand the computer simulator. Would you try to explain that to me?"

And you ought to have seen the expressions on their faces. You know, they were fairly stunned, and they said, well, Owen, if we tried to describe to you the number of years, the talent involved, the amount of money that went in to developing this computer simulation program, it would take us a helluve a long time, and that's when I was humbled, Mr. Chairman. I knew, and Mr. Buck was right when he first told me, I was going to bite off more than I can chew.

You know, 55 million barrels of oil is a lot of oil, especially when you consider that only 83 million barrels of oil were produced in 1978 in New Mexico, and when you consider that we're trying to get away from our dependence on foreign oil sources, but that's not what makes this project so awesome to me. When you talk about the millions of dollars of profits, that's a lot of money, but that's not what really has gotten to me, either.

What has made my -- what has made me realize that my undertaking in trying to direct the story we've put on here in the last day and a half, what made me realize that this undertaking was fairly awesome, is when

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I finally realized the commitment of human resource to this project; the commitment of the talent, the genius, the human sacrifice, that went in to this project over the last seven years to make this thing a reality. That's when it really got to me. That's when I understood that this is a fairly awesome responsibility.

And now, Mr. Chairman, we've told our story. The curtain rang up yesterday morning at 9:00 o'clock and now it's with a great deal of relief that I am able to share with you this awesome responsibility, and I have great confidence that there will be a wise and expeditious resolution and decision to these cases and that you gentlemen up there will be able to ring down the curtain.

Thank you.

MR. RAMEY: Thank you, Mr. Lopez. Anybody else have a statement to make?

MR. ATKINSON: Mr. Chairman, I would just like to set one thing straight. Shell was not taken unawares as to Exxon's possible desire to be let out of the Unit. Exxon has talked to Shell about this previously and as recently as two months ago Shell responded and said they would not agree to that.

MR. RAMEY: The Commission will take the two cases under advisement.

MR. LAW: Mr. Chairman.

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MR. RAMEY: Yes, do you want to make a statement?

MR. LAW: My name is J. W. Law. I'm a petroleum engineer and I work for the Commissioner of Public Lands of the State of New Mexico.

The Commissioner has granted preliminary approval to the participation factor and formula set out in the proposed Unit Agreement titled the North Hobbs Grayburg-San Andres Unit, Lea County, New Mexico.

We feel at this point that if there are any changes in the participation formula or the participation percentages, it would reduce the equity of the State Land Office; that could jeopardize the preliminary approval granted.

MR. RAMEY: Thank you. Any other statements?

The Commission will take the cases under advisement.

(Hearing concluded.)

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REPORTER'S CERTIFICATE

I, SALLY W. BOYD, a Certified Shorthand Reporter, DO HEREBY CERTIFY that the foregoing and attached Transcript of Hearing before the Oil Conservation Commission was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability from my notes taken at the time of the hearing.

Sally W. Boyd C.S.R.

Sally W. Boyd, C.S.R.

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BEFORE THE OIL CONSERVATION DIVISION
OF THE STATE OF NEW MEXICO

APPLICATION OF SHELL OIL COMPANY FOR AUTHORITY TO INSTITUTE A PRESSURE MAINTENANCE PROJECT FOR THE NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT, LEA COUNTY, NEW MEXICO.

Case No. 6653

Read 8/15/79

APPLICATION

Shell Oil Company hereby applies to the New Mexico Oil Conservation Division for an order authorizing it to institute a pressure maintenance project for the North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico, and in support of its application states:

1. Shell Oil Company (Shell) is a Delaware corporation authorized to transact business in the State of New Mexico, and is engaged in the business of, among other things, producing and selling oil and gas.

2. The Project Area for which application is made consists of 10,649.53 acres, more or less, in Lea County, New Mexico, and is more particularly described in Exhibit "1" attached hereto and incorporated herein by reference. Shell proposes to seek an order pursuant to the New Mexico Statutory Unitization Act providing for the unitized management, operation and further development of the Project Area.

3. By converting certain presently producing wells, by shutting-in other producing wells and by drilling new wells, Shell proposes to inject fluids into the producing horizon known as the Grayburg-San Andres formation in the North Hobbs Unit, the vertical limits thereof being located between the depth of 3,698 feet and the depth of 4,500 feet beneath the surface as measured

on the Borehole Compensated Sonic-Gamma Ray Log run in the Shell Oil Company--State A-7 Well on July 9, 1969, said well being located 1,930 feet FNL and 660 feet FEL of Section 32, Township 18 South, Range 38 East, Lea County, New Mexico as shown on Exhibit "2" attached hereto and incorporated by reference. Also attached hereto and incorporated by reference as Exhibit "3" is a plat showing the location of all wells located within the Project Area which are proposed to be used as producing wells or, injection wells and those wells which are plugged and abandoned. In addition, said Exhibit "3" also shows all wells and lessees that are located within a two-mile radius of the proposed injection wells. Also attached hereto and incorporated by reference is Exhibit "4" which shows the proposed well numbering system, and the unit well number to be assigned existing wells in the event this application is granted. A diagrammatic sketch of the proposed injection wells showing all casing strings, including diameters and setting depths, quantities used and tops of cement, perforated or open hole intervals, and a diagrammatic sketch showing the manner in which the wells will be equipped for injection are attached hereto and incorporated by reference as Exhibits "5" and "6". Also attached hereto and incorporated by reference as Exhibit "7" is a tabulation showing all wells to be drilled and the location thereof, and the unit number within the Project Area. Additionally, attached hereto and incorporated by reference as Exhibit "8" are diagrammatic sketches showing how the proposed injectors and producers will be completed. Submitted to the Division with this application are all the logs of the proposed injection wells that are available, and attached hereto as Exhibit "9" is a list of those wells for which logs are not available.

4. A tabular summary of all wells located within one-half mile of the proposed injection wells and which penetrate the injection zone showing all casing strings, setting depths, sacks of cement used, cement tops, total depth, producing interval, well identification, and location is attached hereto and incorporated herein by reference as Exhibit "10". A schematic of all plugged and abandoned wells located within a one-half mile radius of the proposed injection wells which have penetrated the producing horizon with the size and location of all plugs and the date of abandonment is attached hereto as Exhibit "11".

5. The water to be used for injection for the pressure maintenance project shall be industrial process water from wastewater discharge to be purchased from the City of Hobbs, New Mexico, and water associated with the production of unitized substances. A copy of the Resolution authorizing the City of Hobbs to enter into an Agreement for water supply and a copy of the Agreement itself is attached hereto and incorporated herein by reference as Exhibit "12". It is projected that 115 million barrels of water from the City of Hobbs and 525 million barrels of produced water will be injected throughout the life of the pressure maintenance project.

6. Water is to be injected at a surface pressure not to exceed 0.2 psi per foot of depth to top of injection zone provided that surface pressure in excess of 0.2 psi per foot of depth to injection zone may be applied upon administrative approval of Secretary/Director of the Division after showing that such higher pressure will not result in fracturing of the confining strata.

7. Approval of this application and the adoption of special rules and regulations for the North Hobbs (Grayburg-San Andres) pressure maintenance project will substantially increase

recoverable reserves to be produced within the useful life of production facilities, thereby preventing waste and protecting correlative rights. A copy of proposed special rules and regulations is attached hereto as Exhibit "13".

WHEREFORE, Shell respectfully requests that this application be set for hearing before the Division at the earliest practicable date and that the Division enter its order approving the pressure maintenance project for the North Hobbs (Grayburg-San Andres) Unit, and that it also enter its order approving the proposed special unit rules and regulations.

MONTGOMERY, ANDREWS & HANNAHS, P.A.

BY _____
Owen M. Lopez
P. O. Box 2307
Santa Fe, New Mexico 87501

Attorneys for Shell Oil Company

PROPOSED UNIT AREA
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

Township 18 South, Range 37 East, NMPM

Section 13: SE/4 and W/2
Section 14: All
Section 23: All
Section 24: All
Section 25: All
Section 26: E/2 NE/4 and NW/4 NE/4
Section 36: E/2 NW/4 and E/2

Township 18 South, Range 38 East, NMPM

Section 17: S/2 NW/4 and SW/4
Section 18: NE/4 and S/2
Section 19: All
Section 20: All
Section 21: SW/4 and S/2 SE/4 and NW/4 SE/4
Section 27: All
Section 28: All
Section 29: All
Section 30: All
Section 31: All
Section 32: All
Section 33: N/2 and SW/4 and W/2 SE/4 and NE/4 SE/4
Section 34: E/2 NW/4 and E/2

"Unitized Formation" shall mean that subsurface portion of the Unit Area Known as the Grayburg-San Andres formation of Permian Age found in the interval between the stratigraphic depth of 3698 feet as measured on the Borehole Compensated Sonic-Gamma Ray Log run in the Shell Oil Company - State A-7 well on July 9, 1969, said well being located 1930 feet FNL and 660 feet FEL of Section 32-T18S-R38E, Lea County, New Mexico, and the depth of 4500 feet beneath the surface.

PRESSURE MAINTENANCE PROJECT
EXHIBIT "1"

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
Oil Conservation Division
State Land Office Building
Santa Fe, New Mexico
5 September 1979

EXAMINER HEARING

IN THE MATTER OF:

Application of Shell Oil Company for statutory unitization, Lea County, New Mexico. CASE 6652

and

Application of Shell Oil Company for a pressure maintenance project, Lea County, New Mexico. CASE 6653

BEFORE: Richard L. Stamets

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel for the Division
State Land Office Bldg.
Santa Fe, New Mexico 87503

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MR. STAMETS: Call next Case 6652.

MR. PADILLA: Application of Shell Oil Company for statutory unitization, Lea County, New Mexico.

MR. STAMETS: Let's also call the companion case to that, Case 6653.

MR. PADILLA: Application of Shell Oil Company for a pressure maintenance project, Lea County, New Mexico.

MR. STAMETS: These cases are shown on the docket to be continued until September the 19th hearing, 1979; however, at that time they will further be continued until the Commission Hearing now scheduled for the October the 3rd, 1979.

(Hearing concluded.)

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REPORTER'S CERTIFICATE

I, SALLY W. BOYD, a court reporter, DO HEREBY CERTIFY that the foregoing and attached Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability, from my notes taken at the time of the hearing.

Sally W. Boyd, C.S.R.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. _____, heard by me on _____ 19__.

_____, Examiner
Oil Conservation Division

Dockets Nos. 38-79 and 39-79 are tentatively set for October 2 and October 17, 1979. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: COMMISSION HEARING - TUESDAY - SEPTEMBER 25, 1979

9 A.M. - OIL CONSERVATION DIVISION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

CASE 6495: (DE NOVO) (Continued from August 24, 1979, Commission Hearing)

Application of Amax Chemical Corporation for the amendment of Order No. R-111-A, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-111-A to extend the boundaries of the Potash-Oil Area by the inclusion of certain lands in Sections 23 and 24, Township 19 South, Range 29 East, Sections 1, 4, 5, 6, 7, 11, 12, 13, 14, 19, 20, 23, 24, and 29, Township 19 South, Range 30 East, and Sections 7, 8, 17, 18, and 19, Township 19 South, Range 31 East, all in Eddy County, New Mexico.

Upon application of Amax Chemical Corporation this case will be heard De Novo pursuant to the provisions of Rule 1220.

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Docket No. 36-79

DOCKET: EXAMINER HEARING - WEDNESDAY - SEPTEMBER 19, 1979

9 A.M. - OIL CONSERVATION DIVISION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

The following cases will be heard before Daniel S. Nutter, Examiner, or Richard L. Stamets, Alternate Examiner:

CASE 6656: In the matter of the hearing called by the Oil Conservation Division on its own motion to permit Energy Oil & Gas Corp., The Travelers Indemnity Co., and all other interested parties to appear and show cause why the Sadler Well No. 1 located in Unit I of Section 3, Township 24 North, Range 29 East, Union County, New Mexico, should not be plugged and abandoned in accordance with a Division-approved plugging program.

CASE 6652: (Continued from September 5, 1979, Examiner Hearing)

Application of Shell Oil Company for statutory unitization, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order unitizing, for the purpose of a pressure maintenance project, all mineral interests in the North Hobbs Grayburg-San Andres Unit encompassing 10,650 acres, more or less, underlying all or portions of the following lands in Lea County, New Mexico: Sections 13, 14, 23, 24, 25, 26, and 36, Township 18 South, Range 37 East; Sections 17 through 21 and 27 through 34, Township 18 South, Range 38 East.

The unitized interval would be the Grayburg-San Andres Formation between the depths of 3,698 feet and 4,500 feet in Shell's State A Well No. 7, located in Unit H of Section 32, Township 18 South, Range 38 East.

Among the matters to be considered at the hearing will be the necessity of unit operations; the designation of a unit operator; the determination of the horizontal and vertical limits of the unit area; the determination of a fair, reasonable, and equitable allocation of production and costs of production, including capital investment, to each of the various tracts in the unit area; the determination of credits and charges to be made among the various owners in the unit area for their investment in wells and equipment; and such other matters as may be necessary and appropriate for carrying on efficient unit operations, including, but not necessarily limited to, unit voting procedures, selection, removal, or substitution of unit operator, and time of commencement and termination of unit operations. (This case will be continued to the October 3, 1979, Commission Hearing.)

CASE 6653: (Continued from September 5, 1979, Examiner Hearing)

Application of Shell Oil Company for a pressure maintenance project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pressure maintenance project on its North Hobbs Grayburg-San Andres Unit, by the injection of water through 70 wells into the Grayburg-San Andres formation, and the adoption of special rules governing said project. (This case will be continued to the October 3, 1979, Commission Hearing.)

CASE 6657: Application of Petroleum Development Corporation for the rescission of special pool rules, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the rescission of the special pool rules for the South Hope-Pennsylvanian Gas Pool to provide for 320-acre spacing rather than 640 acres. In the absence of objection, the pool rules will be rescinded and the pool placed on standard 320-acre spacing for Pennsylvanian gas pools rather than the present 640-acre spacing.

CASE 6658: Application of Texas Pacific Oil Company, Inc. for an unorthodox well location and a non-standard proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 160-acre non-standard gas proration unit comprising the S/2 NE/4 and N/2 SE/4 of Section 14, Township 24 South, Range 36 East, Jalmat Gas Pool, to be dedicated to its J. W. Cooper Well No. 8 at an unorthodox location 2010 feet from the North line and 2310 feet from the East line of said Section 14.

CASE 6659: Application of Amoco Production Company for an exception to Order No. R-3221, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221 to permit disposal of produced brine in several unlined surface pits located in Sections 27, 34 and 35, Township 18 South, Range 31 East.

CASE 6660: Application of B. & W. Oil Reclaiming for an oil treating plant permit, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority for the construction and operation of an oil treating plant for the purpose of treating and reclaiming sediment oil at a site in the NE/4 NE/4 NE/4 of Section 34, Township 18 South, Range 26 East.

CASE 6661: Application of LaRue and Muncy for an exception to R-111-A, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to the casing-cementing rules of Order R-111-A to permit a well to be drilled in Unit C of Section 22, Township 18 South, Range 30 East, Leo Queen-Grayburg Pool, to be cased by setting surface casing at the top of the salt, circulating cement on the oil string, and omitting the intermediate casing required by R-111-A; applicant further requests special rules to apply to all of Sections 15 and 22 of said township to permit additional wells to be completed in the same manner.

CASE 6662: Application of Supron Energy Corporation for a dual completion and downhole commingling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion of its Jicarilla "A" Well No. 22Y located in Unit K of Section 24, Township 26 North, Range 4 West, to produce gas from the Blanco Mesaverde Pool through tubing and to commingle and produce the Wildhorse Gallup and Basin-Dakota zones through a parallel tubing string.

CASE 6663: Application of Doyle Hartman for an unorthodox well location and approval of infill drilling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks a waiver of existing well spacing requirements and a finding that the drilling of a well at an unorthodox location 330 feet from the South line and 2310 feet from the West line of Section 36, Township 23 South, Range 36 East, Jalmat Gas Pool, is necessary to effectively and efficiently drain that portion of the existing proration unit which cannot be so drained by the existing well.

CASE 6664: Application of Doyle Hartman for an unorthodox well location, two non-standard proration units and approval of infill drilling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 40-acre non-standard proration unit comprising the NW/4 SW/4 of Section 27, Township 25 South, Range 37 East, Jalmat Pool, to be dedicated to El Paso Natural Gas Company's Harrison Well No. 1, and also a 120-acre unit comprising the E/2 SW/4 and SW/4 SW/4 of said Section 27 to be dedicated to a well to be drilled at an unorthodox location 330 feet from the South and West lines of the section; applicant further seeks a waiver of existing well spacing requirements and a finding that the drilling of said well is necessary to effectively and efficiently drain that portion of an existing proration unit which cannot be so drained by the existing well.

CASE 6647: (Continued from September 5, 1979, Examiner Hearing)

Application of O. H. Berry for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a Seven Rivers well to be located 1650 feet from the North line and 330 feet from the East line of Section 15, Township 24 South, Range 36 East, Jalmat Gas Pool, the NE/4 of said Section 15 to be dedicated to the well.

CASE 6665: Application of Amax Chemical Corporation for the amendment of Order No. R-111-A, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-111-A to extend the boundaries of the Potash-Oil Area by the inclusion of certain lands in Sections 22 and 23, Township 19 South, Range 29 East, and Section 19, Township 19 South, Range 30 East.

CASE 6666: Application of Exxon Corporation for a non-standard proration unit, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 377.57-acre non-standard gas proration unit comprising Lots 1, 2, 3, and 4 and the N/2 N/2 of Section 36, Township 26 South, Range 25 East, and Lots 3 and 4 and the N/2 NW/4 of Section 31, Township 26 South, Range 26 East, to be dedicated to a Morrow test well to be located in Unit A of said Section 36.

CASE 6667: Application of Exxon Corporation for a non-standard proration unit, an unorthodox well location, and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the approval of a 320-acre non-standard gas proration unit comprising the W/2 of Section 10, Township 21 South, Range 36 East, Eumont Pool, to be simultaneously dedicated to its A. J. Adkins Com Well No. 1 located in Unit L, and to its Well No. 2, at an unorthodox location 1650 feet from the North and West lines of said Section 10.

CASE 6668: Application of Delta Drilling Company for pool creation and special pool rules, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new oil pool for Bone Spring production for its SCB Unit Well No. 3 in Unit G of Section 23, Township 23 South, Range 28 East, and special rules therefor, including 80-acre spacing.

CASE 6669: Application of Mesa Petroleum Company for the amendment of Order No. R-6078, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-6078 to cover the Wolfcamp and Pennsylvanian formations in the compulsory pooling of the E/2 of Section 10, Township 16 South, Range 27 East, rather than the Morrow formation only.

CASE 6644: (Continued from September 5, 1979, Examiner Hearing)

Application of Tenneco Oil Corporation for downhole commingling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Fruitland and Pictured Cliffs production in the wellbores of its State K Com Well No. 12 located in Unit E of Section 16, Township 30 North, Range 9 West, and its Florence Well No. 60R in Unit L of Section 1, Township 29 North, Range 9 West.

CASE 6670: Application of BTA Oil Producers for pool creation and special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new Devonian gas pool for its 7811 JV-P Rojo Well No. 1 located in Unit D of Section 27, Township 25 South, Range 33 East, and special rules therefor, including 640-acre gas well spacing.

CASE 6671: Application of Chapman and Schneider for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water in the Seven Rivers Reef formation in the open-hole interval from 3422 feet to 3504 feet in its I. B. Ogg "A" Well No. 3 located in Unit E of Section 35, Township 24 South, Range 36 East, Jalmat Pool.

CASE 6672: Application of Coquina Oil Corporation for an exception to Rule 303C, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an exception to the Division's Rule 303C to permit its Vivian Well No. 1 located in Unit F of Section 30, Township 22 South, Range 38 East, in which Drinkard and Granite Wash production is commingled in the wellbore, to produce in excess of the 50-barrel limit imposed by said rule.

CASE 6673: Application of Conoco Inc. for a non-standard proration unit, unorthodox well locations, and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 440-acre non-standard gas proration unit comprising the SW/4 and S/2 NW/4 of Section 17 and the N/2 NE/4, SE/4 NE/4, and N/2 SE/4 of Section 18, all in Township 21 South, Range 36 East, Eumont Pool, to be simultaneously dedicated to the following wells at unorthodox locations: Meyer A-1 Wells Nos. 11 in Unit K of Section 17 and 6 and 14 in Units B and J of Section 18.

CASE 6580: (Continued from August 22, 1979, Examiner Hearing)

Application of Continental Oil Company for a carbon dioxide injection project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to initiate a pilot carbon dioxide injection project in the Grayburg-San Andres formation in Units H and I of Section 20, Township 17 South, Range 32 East, Maljamar Pool, for tertiary recovery purposes.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 6653
Order No. R-6199

APPLICATION OF SHELL OIL COMPANY
FOR A PRESSURE MAINTENANCE PROJECT,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This case and cause of action came on for hearing at 9 a.m. on October 3, 1979, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 30th day of November, 1979, the Commission, a quorum having been present, having considered the testimony and the record, and being otherwise fully advised in the premises,

FINDS:

(1) That due public notice has been given as required by law and the Commission has jurisdiction of this case and cause of action and the subject matter hereof.

(2) That by Commission Order No. R-6198 dated November 1979, statutory unitization was approved for the North Hobbs Grayburg-San Andres Unit Area, Lea County, New Mexico.

(3) That the applicant herein, Shell Oil Company, seeks authority to institute a pressure maintenance project for the aforesaid North Hobbs Grayburg-San Andres Unit Area within the Hobbs Grayburg-San Andres Pool, Lea County, New Mexico, by the injection of water into the Grayburg-San Andres formation through 70 wells at orthodox and unorthodox locations, 52 of which are producing wells which will be converted to injection wells in 1980.

(4) That during 1980 for the pressure maintenance project, applicant proposes to drill five producing wells and 18 injection wells at orthodox and unorthodox locations as specified below:

Township 18 South, Range 37 East, NMPM

Sec.	Unit Well No.	Unit Letter	Well Location
24	242	N	1220' FSL & 2540' FWL
25	412	A	1220' FNL & 1220' FEL

Township 18 South, Range 38 East, NMPM

Sec.	Unit Well No.	Unit Letter	Well Location
18	242	N	1220' FSL & 2540' FWL
19	142	M	1220' FSL & 100' FWL
19	242	N	1220' FSL & 2540' FWL
28	242	N	990' FSL & 1330' FWL
29	112	D	330' FNL & 1000' FWL
29	142	M	1220' FSL & 100' FWL
29	242	N	1220' FSL & 1650' FWL
30	222	F	2540' FNL & 1420' FWL
31	432	I	2540' FSL & 1220' FEL
31	442	P	100' FSL & 1220' FEL
32	122	E	2310' FNL & 1220' FWL
32	242	N	100' FSL & 1420' FWL
32	412	A	1220' FNL & 1220' FEL
32	432	I	2310' FSL & 1310' FEL
32	442	P	100' FSL & 1220' FEL
33	112	D	1220' FNL & 100' FWL
33	212	C	1220' FNL & 1440' FWL
33	232	K	1420' FSL & 1420' FWL
33	242	N	100' FSL & 1420' FWL
33	332	J	2540' FSL & 2540' FEL
33	342	O	100' FSL & 1420' FEL

(5) That all of the wells referred to in Findings Nos. (3) and (4) above, being the 70 injection wells and the five producing wells, together with wells currently completed in the Grayburg-San Andres formation, will provide a thorough and efficient sweep of hydrocarbons throughout the unit area, and will result in the recovery of otherwise unrecoverable oil and gas, thereby preventing waste.

(6) That the above-described injection and producing wells, some of which will be at unorthodox locations along the unit boundary in accordance with lease-line agreements with operators of offsetting lands, will not impair but will protect correlative rights.

(7) That the applicant further seeks the designation of a project area for said pressure maintenance project for the North Hobbs Grayburg-San Andres Unit, and for the promulgation of special rules and regulations governing said project, including special allowable provisions, which is in the interest of conservation and should be approved, subject to certain provisions set forth herein.

(8) That the project area should consist of all those proration units within the boundary of the North Hobbs Grayburg-San Andres Unit Area as described in Order R-6198 upon which are located wells completed in the Hobbs Grayburg-San Andres Pool.

(9) That the project area allowable should be equal to the sum of the basic project area allowable plus the water injection credit allowable as hereinafter defined.

(10) That the basic project area allowable should be equal to 80 barrels of oil per day times the number of 40-acre proration units in the North Hobbs Grayburg-San Andres Unit Area upon which are located wells completed in the Hobbs Grayburg-San Andres Pool.

(11) That the water injection credit allowable should be based upon the following formula:

$$\text{Water Injection Credit Allowable} = \left[\frac{\text{Net Water Injected}}{\text{Basic Project Area Allowable Reservoir Voidage}} - 1 \right] \times \text{Basic Project Area Allowable}$$

and should be calculated in accordance with this formula using the formula and data set forth on Exhibits "A" and "B" attached hereto.

(12) That a weighted average project area reservoir pressure should be determined prior to commencement of injection of water into the reservoir and at least annually thereafter.

(13) That the project area allowable should be permitted to be produced from the wells within the project area in any proportion.

(14) That the Director of the Oil Conservation Division should have authority to approve, without notice and hearing, the drilling of wells at unorthodox locations anywhere within the boundary of the North Hobbs Grayburg-San Andres Unit Area, provided however, no unorthodox location shall be closer than

ten feet to any quarter-quarter section line, and provided further, that no such unorthodox location shall be closer than 330 feet to the boundary of the unit area, unless such well is covered by a lease-line agreement with the operator of the lands offsetting such well, and a copy of the lease-line agreement accompanies the application for such unorthodox location, or unless such offset operator has waived objection to the proposed unorthodox location in writing, and his waiver accompanies the application.

(15) Application for approval of additional wells to be used for injection should be filed in accordance with Rule 701 of the Division Rules and Regulations and provision should be made whereby the same could be approved administratively by the Division Director without notice and hearing.

(16) That each newly drilled injection or producing well should be equipped as follows:

a. Minimum of 350 feet of surface casing and production casing run to total depth (approximately 4500 feet), or

b. Surface casing cemented below the "red beds" (approximately 1600 feet) and production casing run to total depth (approximately 4500 feet).

c. The Division Director should have authority to approve exceptions to the aforesaid casing programs for good cause shown.

All casing strings should be cemented to the surface except that in any well in which an intermediate casing string has been run and cemented to the surface, the production string may be cemented back into the base of the intermediate casing.

(17) That injection should be accomplished through tubing installed in a packer set within 100 feet of the uppermost perforation, or in the case of an open hole completion, 100 feet above the casing shoe. The injection tubing should be corrosion protected by a non-reactive internal lining or coating. The casing-tubing annulus in each injection well should be filled with an inert fluid and a surface pressure gauge or approved leak detection device should be attached to the annulus.

(18) That the injection wells or system should be equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 0.2 psi per foot of depth to the injection zone. The Division Director should have authority to administratively authorize a pressure

limitation in excess of the above upon a showing by the Unit Operator that such higher pressure will not result in fracturing of the confining strata.

(19) That all wells within the unit area should be equipped with risers or in some other acceptable manner so as to facilitate the periodic testing of the bradenhead for pressure or fluid production.

(20) That there are a number of wells within the North Hobbs Grayburg-San Andres Unit Area and on lands offsetting the unit area which have previously been plugged and abandoned in a manner which may permit waters injected into the Grayburg-San Andres formation to escape into other formations, including the Salado formation and threaten the shallow fresh water-bearing formations unless remedial action is taken on said wells prior to injection in their near vicinity.

(21) That there are a number of wells within the North Hobbs Grayburg-San Andres Unit Area and on lands offsetting the unit area which penetrate the Hobbs Grayburg-San Andres Pool and are completed in deeper pay zones, but which are cased and cemented in such a manner as may permit the escape of waters injected into the Grayburg-San Andres formation into other formations as described in the preceding paragraph.

(22) That those wells referred to in Findings Nos. (20) and (21) above which are inadequately plugged and abandoned or are inadequately cased and cemented, or are suspected of being so, include, but are not necessarily limited to, the wells listed in Exhibit "C" attached hereto.

(23) That no injection at greater than hydrostatic pressure should be made into the Grayburg-San Andres formation in any well in the North Hobbs Grayburg-San Andres Unit Area within one-half mile of any well listed on Exhibit "C" until remedial action has been taken on such well to ensure that it will not serve as an avenue of escape for injected waters, or until tests have been conducted on such well or until other evidence concerning such well has been presented establishing to the satisfaction of the Supervisor of the Hobbs District Office of the Division that remedial work on such well is unnecessary.

IT IS THEREFORE ORDERED:

(1) That the applicant, Shell Oil Company, is hereby authorized to institute and operate a pressure maintenance project in the North Hobbs Grayburg-San Andres Unit Area within

the Hobbs Grayburg-San Andres Pool, Lea County, New Mexico, by the injection of water into the Grayburg-San Andres formation through certain wells which will be administratively approved for water injection by the Division Director.

(2) That said project shall be designated the North Hobbs Grayburg-San Andres Unit Pressure Maintenance Project.

(3) That the following orthodox and unorthodox locations are hereby approved for the drilling of new injection and producing wells:

Township 18 South, Range 37 East, NMPM

Sec.	Unit Well No.	Unit Letter	Well Location
24	242	N	1220' FSL & 2540' FWL
25	412	A	1220' FNL & 1220' FEL

Township 18 South, Range 38 East, NMPM

Sec.	Unit Well No.	Unit Letter	Well Location
18	242	N	1220' FSL & 2540' FWL
19	142	M	1220' FSL & 100' FWL
19	242	N	1220' FSL & 2540' FWL
28	242	N	990' FSL & 1330' FWL
29	112	D	330' FNL & 1000' FWL
29	142	M	1220' FSL & 100' FWL
29	242	N	1220' FSL & 1650' FWL
30	222	F	2540' FNL & 1420' FWL
31	432	I	2540' FSL & 1220' FEL
31	442	P	100' FSL & 1220' FEL
32	122	E	2310' FNL & 1220' FWL
32	242	N	100' FSL & 1420' FWL
32	412	A	1220' FNL & 1220' FEL
32	432	I	2310' FSL & 1310' FEL
32	442	P	100' FSL & 1220' FEL
33	112	D	1220' FNL & 100' FWL
33	212	C	1220' FNL & 1440' FWL
33	232	K	1420' FSL & 1420' FWL
33	242	N	100' FSL & 1420' FWL
33	332	J	2540' FSL & 2540' FEL
33	342	O	100' FSL & 1420' FEL

(4) That Special Rules and Regulations governing the North Hobbs Grayburg-San Andres Unit Pressure Maintenance Project are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
NORTH HOBBS GRAYBURG-SAN ANDRES UNIT
PRESSURE MAINTENANCE PROJECT

RULE 1. That the project area shall consist of all those proration units within the boundary of the North Hobbs Grayburg-San Andres Unit Area upon which is completed a well in the Hobbs Grayburg-San Andres Pool.

RULE 2. The project area shall receive a project area allowable, and said project area allowable shall be the sum of the basic project area allowable plus the water injection credit allowable.

RULE 3. The basic project area allowable shall be equal to 80 barrels of oil per day times the number of developed 40-acre proration units in the project area.

RULE 4. The water injection credit allowable shall be based upon the following formula:

$$\text{Water Injection Credit Allowable} = \left[\frac{\text{Net Water Injected}}{\text{Basic Project Area Allowable Reservoir Voidage}} - 1 \right] \times \text{Basic Project Area Allowable}$$

The water injection credit allowable shall be calculated in accordance with this formula using the formula and data set forth on Exhibits "A" and "B" attached hereto and incorporated herein by reference. In no event shall the water injection credit allowable be less than zero. Therefore, negative numbers derived from the application of the above formula shall be ignored.

RULE 5. A weighted average project area reservoir pressure shall be determined prior to commencement of injection of water into the reservoir and at least annually thereafter.

RULE 6. The project area allowable may be produced from the wells within the project area in any proportion.

RULE 7. The Director of the Oil Conservation Division shall have authority to approve, without notice and hearing, the drilling of wells at unorthodox locations anywhere within

the boundary of the North Hobbs Grayburg-San Andres Unit Area, provided however, no unorthodox location shall be closer than ten feet to any quarter-quarter section line, and provided further, that no such unorthodox location shall be closer than 330 feet to the boundary of the unit area, unless such well is covered by a lease-line agreement with the operator of the lands offsetting such well, and a copy of the lease-line agreement accompanies the application for such unorthodox location, or unless such offset operator has waived objection to the proposed unorthodox location in writing, and his waiver accompanies the application.

RULE 8. Application for approval of additional wells to be used for injection shall be filed in accordance with Rule 701 of the Division Rules and Regulations and may be approved administratively by the Division Director without notice and hearing.

RULE 9. Each newly drilled injection or producing well shall be equipped as follows:

a. Minimum of 350 feet of surface casing and production casing run to total depth (approximately 4500 feet), or

b. Surface casing cemented below the "red beds" (approximately 1600 feet) and production casing run to total depth (approximately 4500 feet).

c. Exceptions to the aforesaid casing programs may be granted by administrative approval of the Division Director upon good cause shown.

All casing strings shall be cemented to the surface except that in any well in which an intermediate casing string has been run and cemented to the surface, the production string may be cemented back into the base of the intermediate casing.

RULE 10. Injection shall be accomplished through tubing installed in a packer set within 100 feet of the uppermost perforation, or in case of an open hole completion, 100 feet above the casing shoe. The injection tubing shall be corrosion protected by a non-reactive internal lining or coating. The casing-tubing annulus in each injection well shall be filled with an inert fluid and a surface gauge or approved leak detection device shall be attached to the annulus.

RULE 11. The injection wells or system shall be equipped with a pressure control device or acceptable substitute which

will limit the surface injection pressure to no more than 0.2 psi per foot of depth to the injection zone. The Division Director may administratively authorize a pressure limitation in excess of the above upon a showing by the Unit Operator that such higher pressure will not result in fracturing of the confining strata.

RULE 12. All wells within the unit area shall be equipped with risers or in some other acceptable manner so as to facilitate the periodic testing of the bradenhead for pressure or fluid production.

RULE 13. The Unit Operator shall immediately notify the Supervisor of the Hobbs District Office of the Division of the failure of the tubing or packer in any of the injection wells, the leakage of water or oil from or around any producing well, the leakage of water or oil from or around any plugged and abandoned well within the unit area, or any other evidence of fluid migration from the injection zone, and shall take such timely steps as may be necessary or required to correct such failure or leakage.

RULE 14. Prior to placing any well on injection, a cement bond log shall be run on said well; also at any time the tubing is pulled from any producing well in the unit area, a cement bond log shall be run on said well. Copies of all cement bond logs shall be sent to the Hobbs District Office of the Division. If any well is found to have an inadequate casing-cement bond, such measures as may be necessary to prevent leakage or migration of fluids within the wellbore shall be taken before placing the well on injection or restoring it to production.

Where multiple casing strings prevent technical interpretation of bonding, the cement bond shall be deemed adequate when the log shows acoustic coupling with the formation. In addition, radioactive tracer surveys, or any other acceptable survey presently available or developed in the future, that show no fluid migration out of the Grayburg-San Andres formation shall be acceptable evidence of bonding.

RULE 15. Each month the Unit Operator shall submit to the Division a Pressure Maintenance Project Operator's Report, on a form prescribed by the Division, outlining thereon the data required and requesting a project area allowable.

RULE 16. The Division shall, upon review of the report and after any adjustments deemed necessary, calculate the allowable for the project area for the next succeeding month in accordance

with these rules. The allowable so calculated shall be assigned to the unit area and may be produced from the wells in the project area in any proportion.

IT IS FURTHER ORDERED:

(1) That no injection at greater than hydrostatic pressure shall be made into the Grayburg-San Andres formation in any well in the North Hobbs Grayburg-San Andres Unit Area within one-half mile of any well listed on Exhibit "C" attached hereto and by reference herein incorporated, until remedial action has been taken on such well to ensure that it will not serve as an avenue of escape for injected waters, or until tests have been conducted on such well, or until other evidence concerning such well has been presented establishing to the satisfaction of the Supervisor of the Hobbs District Office of the Division that remedial work on such well is unnecessary.

(2) That the rules in this order concerning project allowables and the transfer thereof shall not be applicable until actual water injection begins in the North Hobbs Grayburg-San Andres Unit Area, provided however, that pending commencement of water injection activities, those wells in said unit area which directly or diagonally offset injection wells in any other water injection project in the Hobbs Pool or which directly or diagonally offset producing wells in any other water injection project in the Hobbs Pool, which producing wells are receiving transferred allowable and are producing at a rate in excess of top unit allowable for the pool, shall be eligible to receive and produce transferred allowable.

(3) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

ALEX J. ARMIJO, Member

EMERY C. ARNOLD, Member

JOE D. RAMEY, Member & Secretary

S E A L
fd/

NORTH HOBBS GRAYBURG-SAN ANDRES UNIT AREA
PRESSURE MAINTENANCE PROJECT

HOBBS GRAYBURG-SAN ANDRES POOL

LEA COUNTY, NEW MEXICO

Water Injection Credit Allowable Calculation Data

$$\text{Water Injection Credit Allowable} = \left[\frac{W_i - W_p}{\text{BPAA}\left(B_o + \frac{R_p - R_s}{1{,}000}\, B_g\right)} \right] -1 \text{ X BPAA}$$

W_i = Average daily water injection during previous month, barrels per day unit area

W_p = Average daily water produced during previous month, barrels per day unit area

BPAA = Basic project area allowable, 80 bopd x _____(number of developed 40-acre proration units in unit area)

P = Weighted average unit area reservoir pressure, psig, from _____, 19___, survey data

B_o = Oil formation volume factor, reservoir barrels per stock tank barrel (Exhibit B)

R_p = Producing gas-oil ratio, cubic feet per barrel for previous month

R_s = Solution gas-oil ratio, cubic feet per barrel (Exhibit B)

B_g = Gas formation volume factor, reservoir barrels per Mcf (Exhibit B)

Water injection credit allowable for _____, 19___, = _____ barrels of oil per day

EXHIBIT "A"

OIL (B_o) AND GAS (B_g) FORMATION VOLUME FACTORS
AND GAS SOLUBILITY VS RESERVOIR PRESSURE

GRAYBURG–SAN ANDRES RESERVOIR
HOBBS FIELD
LEA COUNTY, NEW MEXICO

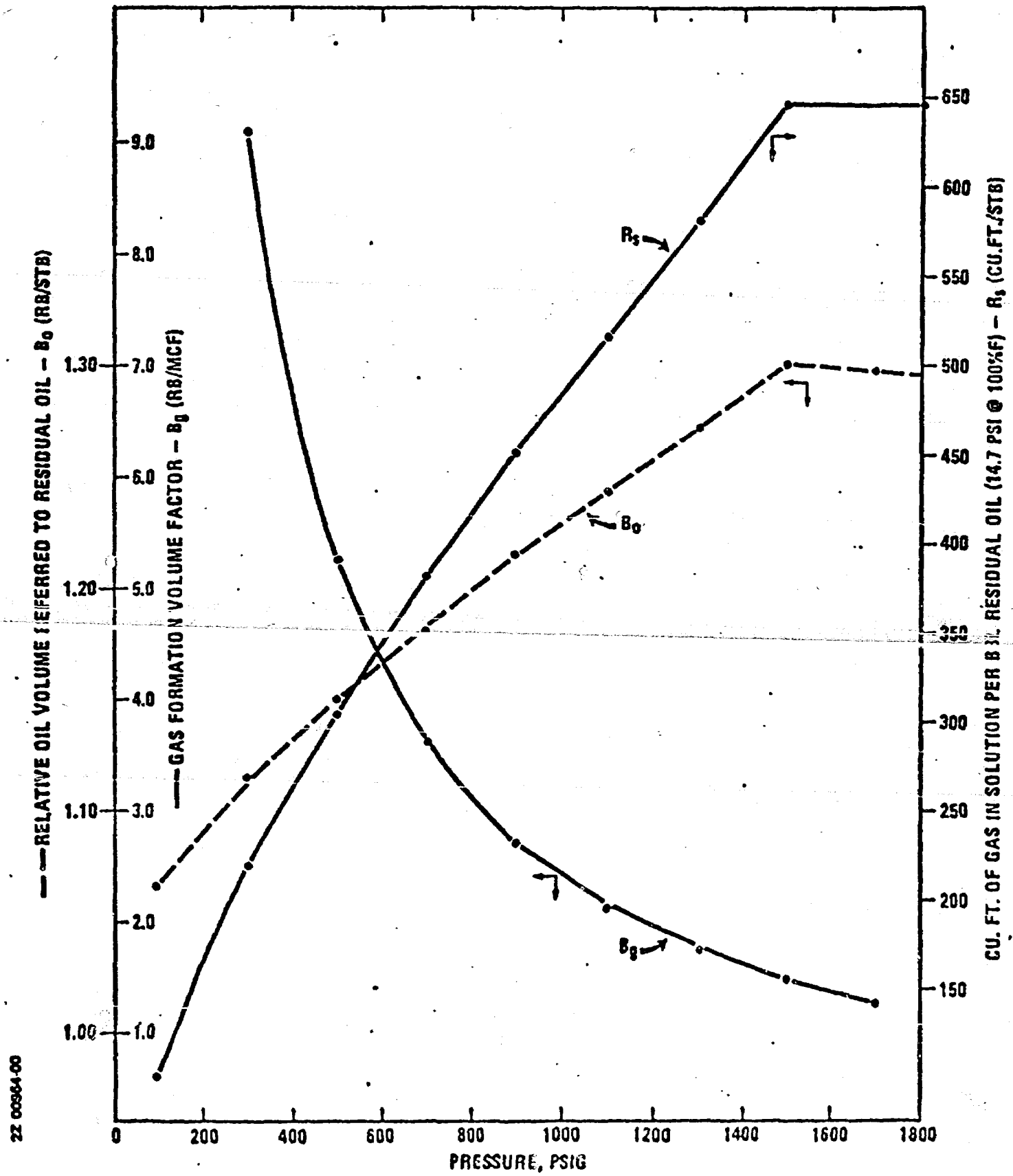


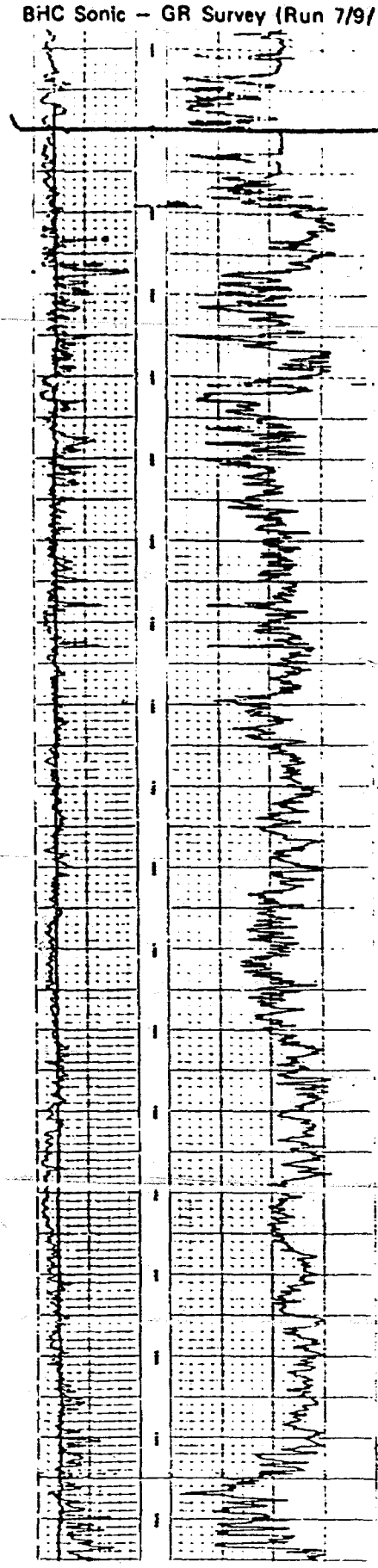
EXHIBIT "B"

WELLS SUSPECTED OF BEING INADEQUATELY
PLUGGED AND ABANDONED OR INADEQUATELY
CASED AND CEMENTED

Operator	Lease	Well No.	Unit	Sec-Twp-Rge
Amoco	"G" State	6	F	33-18S-38E
Chevron	"A" State	5	O	29-18S-38E
Continental	"A-29" State	7	N	29-18S-38E
Continental	"A-29" State	8	K	29-18S-38E
Continental	"A-33" State	12	L	33-18S-38E
Exxon	USA Bowers	28	M	29-18S-38E
Exxon	Boon Hardin	1	E	18-18S-38E
Getty	Grimes	2	H	29-18S-38E
Getty	Grimes	5	H	29-18S-38E
Gulf	Morris	1	B	21-18S-38E
Gulf	North Grimes	4	K	21-18S-38E
Hobbs-High Inc.	Tatums	1	M	35-18S-38E
Landreth Production	State	1A	O	7-18S-38E
Pontotoc	"B" Hobbs State	1	F	29-18S-38E
Pontotoc	"B" Hobbs State	2	G	29-18S-38E
C. H. Sweet	Grimes	1	I	20-18S-38E

EXHIBIT "C"

SHELL, STATE A–7
KB ELEV. 3647'
(1930' FNL & 660' FEL Sec. 32, T18S, R38E)
BHC Sonic – GR Survey (Run 7/9/1969)



3698' (–51') TOP OF UNITIZED INTERVAL

4500' BOTTOM OF UNITIZED INERVAL

ZM–2057

Ex 2

UNIT AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 5562 Exhibit No. 3
Submitted by: ~~Campbell~~ Shell
Hearing Date 10-3-79

UNIT AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

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UNIT AGREEMENT
NORTH HOBBS (GRAYBURGSAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

THIS AGREEMENT, entered into as of the 1st day of July, 1978, by and between the parties subscribing, ratifying or consenting hereto, and herein referred to as "parties hereto";

WITNESSETH:

WHEREAS, the parties hereto are the owners of working, royalty or other oil or gas interests in the Unit Area subject to this Agreement; and

WHEREAS, the Commissioner of Public Lands of the State of New Mexico is authorized by an Act of the Legislature (Sec. 1, Chap. 88, Laws 1943 as amended by Sec. 1, Chap. 176, Laws 1961; Chap. 7, Art. 11, Sec. 39, N.M.S. 1953 Ann.) to consent to or approve this agreement on behalf of the State of New Mexico, insofar as it covers and includes lands and mineral interests of the State of New Mexico; and

WHEREAS, the Commissioner of Public Lands of the State of New Mexico is authorized by an Act of the Legislature (Sec. 3, Chap. 88, Laws 1943 as amended by Sec. 1, Chap. 162, Laws 1951; Chap. 7, Art. 11, Sec. 41, N.M.S. 1953 Ann.) to amend with the approval of the lessee, any oil and gas lease embracing State lands so that the length of the term of said lease may coincide with the term of such unitized development and operation of State lands; and

WHEREAS, the Oil Conservation Division of the Energy and Minerals Department of the State of New Mexico is authorized by law (Chap. 65, Art. 3 and Art. 14, N.M.S. 1953 Ann.) to approve this agreement and the conservation provisions hereof; and

WHEREAS, the parties hereto hold sufficient interests in the North Hobbs (Grayburg-San Andres) Unit covering the land hereinafter described to give reasonably effective control of operations therein; and

WHEREAS, it is the purpose of the parties hereto to conserve natural resources, to prevent waste and secure the other benefits obtainable through development and operation of the area subject to this Agreement under the terms, conditions and limitations herein set forth.

NOW, THEREFORE, in consideration of the premises and the promises herein contained, the parties hereto commit to this Agreement their respective interests in the unitized formation of the below defined Unit Area, and agree severally among themselves as follows:

SECTION 1. ENABLING ACT AND REGULATIONS. The Mineral Leasing Act of February 25, 1920, as amended, supra, and all valid pertinent regulations, including operating and unit plan regulations, heretofore issued thereunder and valid, pertinent and reasonable regulations hereafter issued thereunder are accepted and made a part of this Agreement as to Federal lands, provided such regulations are not inconsistent with the terms of this Agreement; and as to non-Federal lands, the oil and gas operating regulations in effect as of the effective date hereof governing drilling and producing operations, not inconsistent with the terms hereof or the laws of the State in which the non-Federal land is located, are hereby accepted and made a part of this Agreement.

SECTION 2. UNIT AREA AND DEFINITIONS. For the purpose of this Agreement, the following terms and expressions as used herein shall mean:

(a) "Unit Area" is defined as those lands described in Exhibit B and depicted on Exhibit A hereof, and such land is hereby designated and recognized as constituting the Unit Area, containing 10,649.53 acres, more or less, in Lea County, New Mexico.

(b) "Land Commissioner" is defined as the Commissioner of Public Lands of the State of New Mexico.

(c) "Division" is defined as the Oil Conservation Division of the Energy and Minerals Department of the State of New Mexico.

(d) "Unitized Formation" shall mean that subsurface portion of the Unit Area known as the Grayburg-San Andres formation of Permian Age found in the interval between the stratigraphic depth of 3698 feet as measured on the Borehole Compensated Sonic-Gamma Ray Log run in the Shell Oil Company - State A-7 well on July 9, 1969, said well being located 1930 feet FNL and 660 feet FEL of Section 32-T18S-R38E, Lea County, New Mexico, and the depth of 4500 feet beneath the surface.

(e) "Unitized Substances" are all oil, gas, gaseous substances, sulphur contained in gas, condensate, distillate and all associated and constituent liquid or liquefiable hydrocarbons within and produced from the Unitized Formation of the Unitized Land.

(f) "Tract" is each parcel of land described as such and given a Tract number in Exhibit B.

(g) "Tract Participation" is defined as the percentage of participation shown on Exhibit C for allocating Unitized Substances to a Tract under this Agreement, such percentages or participation being shown separately as to oil and as to gas.

(h) "Unit Participation" is the sum of the percentages obtained by multiplying the Working Interest of a Working Interest Owner in each Tract by the Tract Participation of such Tract as to oil.

(i) "Working Interest" is the right to search for, produce and acquire Unitized Substances whether held as an incident of ownership of mineral fee simple title, under an oil and gas lease, or otherwise held, which interest is chargeable with and obligated to pay or bear, either in cash or out of production, or otherwise, all or a portion of the cost of drilling, developing and producing the Unitized Substances from the Unitized Formation and operations thereof hereunder. Provided that any Royalty Interest created out of a Working Interest subsequent to the execution of this Agreement by the owner of the working interest shall continue to be subject to such Working Interest burdens and obligations.

(j) "Working Interest Owner" is any party hereto owning a Working Interest, including a carried working interest owner, holding an interest in Unitized Substances by virtue of a lease, operating agreement, fee title or otherwise. The owner of Oil and Gas Rights that are free of lease or other instrument creating a Working Interest in another shall be regarded as a Working Interest Owner to the extent of seven-eighths (7/8) of his interest in Unitized Substances, and as a Royalty Owner with respect to his remaining one-eighth (1/8) interest therein.

(k) "Royalty Interest" or "Royalty" is an interest, other than a Working Interest, having the right to receive a portion of the Unitized Substances or the proceeds thereof and includes the royalty interest reserved by the lessor by an oil and gas lease and any overriding royalty interest, oil payment interest, net profit contract, or any other payment or burden which does not carry with it the right to search for and produce Unitized Substances.

(l) "Royalty Owner" is the owner of a Royalty Interest.

(m) "Unit Operating Agreement" is the agreement entered into by and between the Unit Operator and the Working Interest Owners as provided in Section 9, infra, and shall be styled "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico".

(n) "Oil and Gas Rights" is the right to explore, develop and operate lands within the Unit Area for the production of Unitized Substances, or to share in the production so obtained or the proceeds thereof.

(o) "Outside Substances" are any substances obtained from any source other than the Unitized Formation and injected into the Unitized Formation.

(p) "Unit Manager" is any person or corporation appointed by Working Interest Owners to perform the duties of Unit Operator until the selection and qualification of a successor Unit Operator as provided for in Section 7 hereof.

(q) "Unit Operator" is the party designated by Working Interest Owners under the Unit Operating Agreement to conduct Unit Operations.

(r) "Unit Operations" are any operations conducted pursuant to this Agreement and the Unit Operating Agreement.

(s) "Unit Equipment" is all personal property, lease and well equipment, plants, and other facilities and equipment taken over or otherwise acquired for the joint account for use in Unit Operations.

(t) "Unit Expense" is all cost, expense, or indebtedness incurred pursuant to this Agreement and the Unit Operating Agreement for or on account of Unit Operations.

(u) "Effective Date" is the date this Agreement becomes effective as provided in Section 24.

SECTION 3. EXHIBITS. Exhibit A attached hereto is a map showing the Unit Area and the boundaries and identity of tracts and leases in said Unit Area to the extent known to the Unit Operator. Exhibit B attached hereto is a schedule showing, to the extent known to the Unit Operator, the acreage comprising each Tract, percentages and kind of ownership of oil and gas interests in all land in the Unit Area. Exhibit C attached hereto shows the Tract Participation of each Tract in the Unit Area. However, nothing herein or in said schedule or map shall be construed as a representation by any party hereto as to the ownership of any interest other than such interest or interests as are shown in said map or schedule as owned by such party. Exhibit D attached hereto is an appendix setting out certain federal contract provisions. Exhibits, A, B, and C shall be revised by the Unit Operator whenever changes in the Unit Area render such revision necessary and copies of such revision shall be filed with the Land Commissioner.

SECTION 4. EXPANSION. The above described Unit Area may when practicable be expanded to include therein any additional lands regarded as reasonably necessary or advisable for the purposes of this Agreement. Such expansion shall be effected in the following manner:

(a) The working interest owner or owners of lands desiring to bring such lands into this unit, shall file an application therefor with Unit Operator requesting such admission.

(b) Unit Operator shall circulate a notice of the proposed expansion to each Working Interest Owner in the Unit Area and to each working interest owner in the lands proposed to be included in the unit, setting out the basis for admission, the Tract Participation to be assigned to each Tract in the enlarged Unit Area and other pertinent data. After negotiation (at Working Interest Owner's meeting or through correspondence) if at least three Working Interest Owners having in the aggregate seventy-five percent (75%) Unit Participation then in effect have agreed to inclusion of such lands in the Unit Area, the Unit Operator shall:

(1) After obtaining preliminary concurrence by the Land Commissioner and the Division, prepare a notice of proposed expansion describing the contemplated changes in the boundaries of the Unit Area, the reason therefor, the basis for admission of the additional lands, the Tract Participation to be assigned thereto and the proposed effective date thereof; and

(2) Mail or deliver copies of said notice to the Land Commissioner, each Working Interest Owner and Royalty Owner, and to the lessee and lessor whose interests are affected, advising such parties that thirty (30) days will be allowed for submission to the Unit Operator of any objection to such proposed expansion; and

(3) File, upon the expiration of said thirty (30) day period as set out in (2) immediately above, with the Land Commissioner: (a) Evidence of mailing or delivering copies of said notice of expansion; (b) An application for approval of such expansion; (c) An instrument containing the appropriate joinders in compliance with the participation requirements of Section 14, and Section 33, infra; and (d) A copy of all objections received along with the Unit Operator's response thereto.

The expansion shall, after due consideration of all pertinent information and approval by the Land Commissioner, become effective as of the date prescribed in the notice thereof, preferably as of 7:00 a.m. of the first day of a month subsequent to the date of notice. The revised Tract Participation of the respective Tracts included within the Unit Area prior to such enlargement shall remain in the same ratio one to another.

SECTION 5. UNITIZED LAND. All land committed to this Agreement as to the Unitized Formation shall constitute land referred to herein as "Unitized Land" or "Land subject to this Agreement". Nothing herein shall be construed to unitize, pool, or in any way affect the oil, gas and other minerals contained in or that may be produced from any formation other than the Unitized Formation as defined in Section 2 (d) of this Agreement.

SECTION 6. UNIT OPERATOR. Shell Oil Company is hereby designated the Unit Operator, and by signing this instrument as Unit Operator agrees and consents to accept the duties and obligations of Unit Operator for the operation, development and production of Unitized Substances as herein provided. Whenever reference is made herein to the Unit Operator, such reference means the Unit Operator acting in that capacity and not as an owner of interests in Unitized Substances, when such interests are owned by it, and the term "Working Interest Owner" when used herein shall include or refer to the Unit Operator as the owner of a Working Interest when such an interest is owned by it.

The interests of Working Interest Owners and the Unit Operator in the Unit Area shall be subject to a reciprocal lien and security interest to the extent provided in the Unit Operating Agreement.

SECTION 7. RESIGNATION OR REMOVAL OF UNIT OPERATOR. Unit Operator shall have the right to resign at any time, but such resignation shall not become effective so as to release Unit Operator from the duties and obligations of Unit Operator and terminate Unit Operator's rights as such for a period of six (6) months after written notice of intention to resign has been given by Unit Operator to all Working Interest Owners and the Land Commissioner unless a new Unit Operator shall have taken over and assumed the duties and obligations of Unit Operator prior to the expiration of said period. The resignation or removal of Unit Operator shall not release Unit Operator from any liability for any default by it hereunder occurring prior to the effective date of its resignation or removal.

The Unit Operator shall be subject to removal by Working Interest Owners having in the aggregate eighty percent (80%) or more Unit Participation then in effect exclusive of the Working Interest Owner who is the Unit Operator. Such removal shall be effective upon notice thereof to the Land Commissioner.

In all such instances of effective resignation or removal, until a successor to Unit Operator is selected and approved as hereinafter provided, the Working Interest Owners shall be jointly responsible for the performance of the duties of the Unit Operator and shall, not later than thirty (30) days before such resignation or removal become effective, appoint a Unit Manager to represent them in any action to be taken hereunder.

The resignation or removal of Unit Operator under this Agreement shall not terminate its right, title or interest as the owner of a Working Interest or other interest in Unitized Substances, but upon the resignation or removal of Unit Operator becoming effective, such Unit Operator shall deliver possession of all wells, equipment, books and records, materials, appurtenances and any other assets used in connection with the Unit Operations

and owned by the Working Interest Owners to the new duly qualified successor Unit Operator or to the Unit Manager if no such new Unit Operator is elected, to be used for the purpose of conducting Unit Operations hereunder. Nothing herein shall be construed as authorizing the removal of any material, equipment or appurtenances needed for the preservation of any wells. Nothing herein contained shall be construed to relieve or discharge any Unit Operator or Unit Manager who resigns or is removed hereunder from any liability or duties accruing or performable by it prior to the effective date of such resignation or removal.

SECTION 8. SUCCESSOR UNIT OPERATOR. Whenever the Unit Operator shall tender its resignation as Unit Operator or shall be removed as hereinabove provided, the Working Interest Owners shall select a successor Unit Operator as herein provided. Such selection shall not become effective until (a) a Unit Operator so selected shall accept in writing the duties and responsibilities of Unit Operator, and (b) the selection shall have been approved by the Land Commissioner. If no successor Unit Operator or Unit Manager is selected and qualified as herein provided, the Land Commissioner, at his election, may declare this Agreement terminated.

In selecting a successor Unit Operator the affirmative vote of three or more Working Interest Owners having a total of sixty-five percent (65%) or more of the total Unit Participation then in effect shall prevail; provided that if any one Working Interest Owner has a Unit Participation of more than thirty-five percent (35%), its negative vote or failure to vote shall not be regarded as sufficient unless supported by the vote of one or more other Working Interest Owners having a total Unit Participation of at least five percent (5%). If the Unit Operator who is removed votes only to succeed itself or fails to vote, the successor Unit Operator may be selected by the affirmative vote of the owners of at least seventy-five percent (75%) of the Unit Participation remaining after excluding the Unit Participation of Unit Operator so removed.

SECTION 9. ACCOUNTING PROVISIONS AND UNIT AGREEMENT. Costs and expenses incurred by Unit Operator in conducting Unit Operations hereunder shall be paid, apportioned among and borne by the Working Interest Owners in accordance with the Unit Operating Agreement. Such Unit Operating Agreement shall also provide the manner in which the Working Interest Owners shall be entitled to receive their respective proportionate and allocated share of the benefits accruing hereto in conformity with their underlying operating agreements, leases or other contracts and such other rights and obligations as between Unit Operator and the Working Interest Owners as may be agreed upon by the Unit Operator and the Working Interest Owners; however, no such Unit Operating Agreement shall be deemed either to modify any of the terms and conditions of this Agreement or to relieve the

Unit Operator of any right or obligation established under this Agreement, and in case of any inconsistency or conflict between this Agreement and the Unit Operating Agreement, this Agreement shall prevail. Copies of any Unit Operating Agreement executed pursuant to this Section shall be filed with the Land Commissioner.

SECTION 10. RIGHTS AND OBLIGATIONS OF UNIT OPERATOR. Except as otherwise specifically provided herein the exclusive right, privilege and duty of exercising any and all rights of the parties hereto which are necessary or convenient for prospecting for, producing, storing, allocating and distributing the Unitized Substances or for conducting other Unit Operations are hereby delegated to and shall be exercised by the Unit Operator as herein provided. Upon request, acceptable evidence of title to said rights shall be deposited with said Unit Operator, and together with this Agreement, shall constitute and define the rights, privileges and obligations of Unit Operator. Nothing herein, however, shall be construed to transfer title to any land or to any lease or operating agreement, it being understood that under this Agreement the Unit Operator, in its capacity as Unit Operator, shall exercise the rights of possession and use vested in the parties hereto only for the purposes herein specified.

SECTION 11. PLAN OF OPERATIONS. It is recognized and agreed by the parties hereto that all of the land subject to this Agreement is reasonably proved to be productive of Unitized Substances and that the object and purpose of this Agreement is to formulate and to put into effect an enhanced recovery project in order to effect additional recovery of Unitized Substances, prevent waste and conserve natural resources. The parties hereto agree that the Unit Operator may, subject to the consent and approval of a Plan of Operation by the Working Interest Owners, the Land Commissioner and the Division, inject into the Unitized Formation, through any well or wells completed therein, brine, water, air, gas, oil, liquefied petroleum gases and any one or more other substances or combination of substances whether produced from the Unitized Land or not, and that the location of input wells and the rates of injection therein shall be governed by standards of good geologic and petroleum engineering practices and conservation methods. Subject to like approval the Plan of Operation may be revised as conditions may warrant.

The initial Plan of Operation shall be filed with the Land Commissioner and the Division concurrently with the filing of this Agreement for final approval. Said initial Plan of Operation and all revisions thereof shall be as complete and adequate as the Land Commissioner and the Division may determine to be necessary for timely operation consistent herewith. Upon approval of this Agreement and the initial plan by the Land Commissioner, said plan, and all subsequently approved plans shall constitute

the operating obligations of the Unit Operator under this Agreement for the period specified therein. Thereafter, from time to time before the expiration of any existing plan, the Unit Operator shall submit for like approval a plan for an additional specified period of operation. After such operations are commenced, reasonable diligence shall be exercised by the Unit Operator in complying with the obligations of the approved Plan of Operation.

Notwithstanding anything to the contrary herein contained, should the Unit Operator fail to commence operation of an enhanced recovery project incorporating the injection of water within eighteen (18) months after the Effective Date of this Agreement, or any extension thereof approved by the Land Commissioner, this Agreement shall terminate automatically as of the date of default.

SECTION 12. USE OF SURFACE AND USE OF WATER. The parties, to the extent of their rights and interests, hereby grant to Unit Operator the right to use as much of the surface of the Unitized Land as may reasonably be necessary for Unit Operations; provided that nothing herein shall be construed as leasing or otherwise conveying to the Unit Operator a site for water injection plants, gas injection plants or other plants or camp site.

Unit Operator shall have free use of water or brine or both from the Unitized Land for Unit Operations, except water from any well, lake, pond or irrigation ditch of a surface owner, unless approval for such use is granted by the surface owner.

Unit Operator shall pay the party or parties entitled thereto for damages to growing crops, timber, fences, improvements and structures on the Unitized Land that result from Unit Operations.

SECTION 13. TRACT PARTICIPATION. In Exhibit C attached hereto there are listed and numbered the various Tracts within the Unit Area, and set forth opposite each Tract are figures which represent the Tract Participation, shown separately as to oil and as to gas, during Phase I, Phase II and Phase III of Unit Operations if all Tracts in the Unit Area qualify as provided herein. The Phase I, Phase II and Phase III Tract Participations of each Tract as shown in Exhibit C were determined in accordance with the following formulas, using data heretofore approved by Working Interest Owners:

TRACT PARTICIPATION:

During Phase I:	As to oil:	20% A / 80% B
	As to gas:	20% C / 80% D

During Phase II:	As to oil:	100% B
	As to gas:	100% D
During Phase III:	As to oil:	100% E
	As to gas:	100% E

Where: A = Ratio of the quantity of 1976 oil production from each Tract to the total quantity of 1976 oil production from all Tracts within the Unit Area.

B = Ratio of the quantity of remaining primary oil reserves (as of 1/1/77) of each Tract to the total quantity of remaining primary oil reserves (as of 1/1/77) of all Tracts within the Unit Area.

C = Ratio of the volume of 1976 gas production from each Tract to the total volume of 1976 gas production from all Tracts within the Unit Area.

D = Ratio of the volume of remaining primary gas reserves (as of 1/1/77) of each Tract to the total volume of remaining primary gas reserves (as of 1/1/77) of all Tracts within the Unit Area.

E = Ratio of the quantity of secondary oil reserves of each Tract to the total quantity of secondary oil reserves of all Tracts within the Unit Area.

Phase I shall begin on the Effective Date of this Agreement and continue until the first day of the calendar month next following the date on which the total number of barrels of oil produced after said Effective Date from the Unitized Formation underlying all Tracts described in the original Exhibit B hereof equals 4,000,000 barrels as determined from the official production reports (currently known as C-115 reports) filed with the New Mexico Oil Conservation Commission or its successor. Phase II shall begin with the termination of Phase I and continue until the first day of the calendar month next following the date on which the total number of barrels of oil produced after January 1, 1977, from the Unitized Formation underlying all Tracts described in the original Exhibit B hereof equals 38,071,683 barrels determined in the same manner as aforesaid. Phase III shall begin with the termination of Phase II and continue for the remainder of the term of this Agreement. Unit Operator shall notify the Land Commissioner and all Working Interest Owners as to the date each phase change occurs.

In the event less than all Tracts are qualified on the Effective Date hereof, the Tract Participations shall be calculated on the basis of all such qualified Tracts rather than all Tracts in the Unit Area. The total

number of barrels of oil that shall determine the duration of Phase I shall remain at 4,000,000 barrels, and the total number of barrels of oil that shall determine the duration of Phase II shall remain at 38,071,683 barrels; however, oil produced from all Tracts within the Unit Area, non-qualified Tracts as well as qualified Tracts, shall be counted for purposes of determining the production of said totals of 4,000,000 barrels as to Phase I and 38,071,683 barrels as to Phase II.

SECTION 14. TRACTS QUALIFIED FOR PARTICIPATION. On and after the Effective Date hereof the Tracts within the Unit Area which shall be entitled to participation in the production of Unitized Substances shall be those Tracts more particularly described in Exhibit B that corner or have a common boundary (Tracts separated only by a public highway or a railroad right of way shall be considered to have a common boundary), and that otherwise qualify as follows:

(a) Each Tract as to which Working Interest Owners owning one hundred percent (100%) of the Working Interest have become parties to this Agreement, and as to which Royalty Owners owning seventy-five percent (75%) or more of the Royalty Interest have become parties to this Agreement.

(b) Each Tract as to which Working Interest Owners owning one hundred percent (100%) of the Working Interest have become parties to this Agreement, and as to which Royalty Owners owning less than seventy-five percent (75%) of the Royalty Interest have become parties to this Agreement, and as to which (1) Working Interest Owners, including the Working Interest Owner who operates the Tract, owning a total of seventy-five percent (75%) or more of the Working Interest in such Tract that is committed to this agreement have joined in a request for qualification of such Tract, and as to which (2) Working Interest Owners having seventy-five percent (75%) or more of the combined Phase III Unit Participation in all Tracts that meet the requirements of Section 14 (a) above have voted in favor of the qualification of such Tract.

(c) Each Tract as to which Working Interest Owners owning less than one hundred percent (100%) of the Working Interest have become parties to this Agreement, regardless of the percentage of Royalty Interest therein that is committed hereto; and as to which (1) one or more of the Working Interest Owners in such Tract who have become parties to this Agreement, one of which must be the operator of such Tract, have joined in a request for qualification of such Tract, and have executed and delivered, or obligated themselves to execute and deliver, an indemnity agreement identical in form to the agreement attached to the Unit Operating Agreement as Exhibit H indemnifying and agreeing to hold harmless the other Working Interest Owners in the Unit Area, their successors and assigns, against all claims and demands that may be made by the owners of Working Interest in such

Tract who are not parties to this Agreement, and which arise out of the qualification of such Tract; and as to which (2) Working Interest Owners having seventy-five percent (75%) or more of the Phase III Unit Participation in all Tracts that meet the requirements of Section 14 (a) and 14(b) have voted in favor of the qualification of such Tract and to accept the indemnity agreement. Upon the qualification of such a Tract, the Tract Participations which would have been attributed to the non-subscribing owners of Working Interest in such Tract, had they become parties to this Agreement and the Unit Operating Agreement, shall be attributed to the Working Interest Owners in such Tract who have become parties to such agreements, and joined in the indemnity agreement, in proportion to their respective Working Interests in the Tract.

If on the Effective Date of this Agreement there is any Tract or Tracts which have not been effectively committed to or made subject to this Agreement by qualifying as above provided, then such Tract or Tracts shall not be entitled to participate hereunder. Unit Operator shall, when submitting this Agreement for final approval by the Land Commissioner, file therewith a schedule of those Tracts which have been committed and made subject to this Agreement and are entitled to participate in Unitized Substances. Said schedule shall set forth opposite each such committed Tract the lease number or assignment number, the owner of record of the lease, and the percentage participation of such Tract which shall be computed according to the participation formula set out in Section 13 (Tract Participation) above. This schedule of participation shall be Revised Exhibit C and upon approval thereof by the Land Commissioner shall become a part of this Agreement and shall govern the allocation of production of Unitized Substances until a new schedule is approved by the Land Commissioner.

SECTION 15. ALLOCATION OF UNITIZED SUBSTANCES. All Unitized Substances produced and saved (less, save and except any part of such Unitized Substances used in conformity with good operating practices on Unitized Land for drilling, operating, camp and other production or development purposes and for injection or unavoidable loss in accordance with a Plan of Operation approved by the Land Commissioner) shall be apportioned among and allocated to the qualified Tracts in accordance with the respective Tract Participations effective hereunder during the respective periods such Unitized Substances were produced, as set forth in the schedule of participation in Exhibit C. The amount of Unitized Substances so allocated to each Tract, and only that amount, (regardless of whether it be more or less than the amount of the actual production of Unitized Substances from the well or wells, if any, on such Tract) shall, for all intents, uses and purposes, be deemed to have been produced from such Tract.

The Unitized Substances allocated to each Tract shall be distributed among, or accounted for, to the parties entitled to share in the production from such Tract in the same manner, in the same proportions, and

upon the same conditions, as they would have participated and shared in the production from such Tracts, or in the proceeds thereof, had this Agreement not been entered into; and with the same legal force and effect.

No Tract committed to this Agreement and qualified for participation as above provided shall be subsequently excluded from participation hereunder on account of depletion of Unitized Substances.

If the Working Interest and/or the Royalty Interest in any Tract are divided with respect to separate parcels or portions of such Tract and owned now or hereafter in severalty by different persons, the Tract Participation during Phase I, Phase II and Phase III shall, in the absence of a recordable instrument executed by all owners and furnished to Unit Operator fixing the divisions of ownership, be divided among such parcels or portions in proportion to the number of surface acres in each.

The Unitized Substances allocated to each Tract shall be delivered in kind to the respective Working Interest Owners and parties entitled thereto by virtue of the ownership of Oil and Gas Rights therein. Each Working Interest Owner and the parties entitled thereto shall have the continuing right to receive such production in kind at a common point within the Unit Area and to sell or dispose of the same as it sees fit. Each such party shall have the right to construct, maintain and operate all necessary facilities for that purpose on Unitized Land, provided the same are so constructed, maintained and operated as not to interfere with operations carried on pursuant hereto. Subject to Section 18 hereof, any extra expenditure incurred by Unit Operator by reason of the delivery in kind of any portion of the Unitized Substances shall be borne by the party responsible therefor under the controlling lease or contract. In the event any Working Interest Owner shall fail to take or otherwise adequately dispose of its proportionate share of the production from the Unitized Formation currently as and when produced, then so long as such condition continues, Unit Operator, for the account and at the expense of the Working Interest Owner of the Tract or Tracts concerned, and in order to avoid curtailing the operation of the Unit Area, may, but shall not be required to, sell or otherwise dispose of such production to itself or to others on a day-to-day basis, provided that all contracts of sale by the Unit Operator of any other party's share of Unitized Substances shall be only for such reasonable periods of time as are consistent with the minimum needs of the industry under the circumstances, but in no event shall any such contract be for a period in excess of one year, and at not less than the prevailing market price in the area for like production, and the account of such Working Interest Owner shall be charged therewith as having received such production. The net proceeds, if any, of the Unitized Substances so disposed of by Unit Operator shall be paid to the Working Interest Owner of the Tract or Tracts concerned. Notwithstanding the foregoing, Unit Operator shall not make a sale into interstate commerce of any Working Interest Owner's share of gas production without first giving such Working Interest Owner sixty (60) days notice of such intended sale.

Any Working Interest Owner receiving in kind or separately disposing of all or any part of the Unitized Substances allocated to any Tract, or receiving the proceeds therefrom if the same is sold or purchased by Unit Operator, shall be responsible for the payment of all Royalty, overriding royalty and production payments due thereon, and each such party shall hold each other Working Interest Owner harmless against all claims, demands and causes of action by owners of such Royalty, overriding royalty and production payments.

If, after the Effective Date of this Agreement, there is any Tract or Tracts that are subsequently committed hereto, as provided in Section 4 (Expansion) hereof, or any Tract or Tracts within the Unit Area not committed hereto as of the Effective Date hereof but which are subsequently committed hereto under the provisions of Section 14 (Tracts Qualified for Participation) and Section 33 (Nonjoinder and Subsequent Joinder), or if any Tract is excluded from this Agreement as provided for in Section 32 (Loss of Title), the schedule of participation as shown in Exhibit C, shall be revised by the Unit Operator; and the revised Exhibit C, upon approval by the Land Commissioner, shall govern the allocation of production on and after the effective date thereof until a revised schedule is approved as hereinabove provided. In any such revised Exhibit C, pursuant to this paragraph, the Tract Participation of the previously qualified Tracts shall remain in the same ratio one to the other.

SECTION 16. FEA PRICING. It is anticipated that at the Effective Date hereof, crude oil produced, saved and sold from the North Hobbs (Grayburg-San Andres) Unit will be subject to the rules and regulations of the Federal Energy Administration or its successor, herein referred to as "FEA". Such rules and regulations provide for the classification of crude oil for pricing purposes as (a) Stripper Well Crude Oil, (b) Old Oil, and (c) Upper Tier Crude Oil. It is further anticipated that Unit Operator will, in compliance with applicable FEA rules and regulations, prepare a unit-wide certification covering monthly crude oil production from the unit, in which event it will be necessary for Unit Operator to implement a method for the allocation of the unit certification among the Tracts comprising the unit. It is the intention of the parties to this agreement that the interest owners in each Tract shall retain the regulatory benefits attributable to that Tract to the extent that the unit is legally permitted to retain such benefits. Under the FEA rules and regulations as of October 1976, a unit certification is allowed each month to include in the Upper Tier Crude Oil portion thereof, a constant number of barrels described by FEA rules and regulations as Imputed Upper Tier Crude Oil. The unit certification is further allowed each month to include in the Stripper Well Crude Oil portion thereof, a constant number of barrels described by FEA rules and regulations as Imputed Stripper Well Crude Oil. In view of the foregoing, and notwithstanding the provisions of Section 15 hereof, crude oil produced, saved and sold from the unit shall be allocated as follows:

(a) Imputed Stripper Well Crude Oil. The first oil produced, saved and sold each month up to a quantity equal to the unit's Imputed Stripper Well Crude Oil shall be allocated to Tracts contributing Imputed Stripper Well Crude Oil to the unit certification in proportion to their contributions of such Imputed Stripper Well Crude Oil. Should any Tract in any month be allocated out of unit production in accordance with its Tract Participation as set forth in this agreement, a total number of barrels of oil that is less than the Imputed Stripper Well Crude Oil that such Tract has contributed to the unit certification, then such Tract's allocation of Imputed Stripper Well Crude Oil shall be reduced by the amount that the Imputed Stripper Crude Oil exceeds the amount of oil to be allocated in accordance with its Tract Participation. The amount in excess of its Tract Participation shall be termed Excess Imputed Stripper Well Crude Oil. The total Excess Imputed Stripper Well Crude Oil of all Tracts shall be allocated to all Tracts, including Tracts which have not contributed Imputed Stripper Well Crude Oil to the unit certification, in proportion to the quantities that the unit production allocated to a Tract by its Tract Participation exceeds the quantity of Imputed Stripper Well Crude Oil allocated to such Tract.

(b) Imputed Upper Tier Crude Oil. Oil produced, saved, and sold each month from the unit after a quantity of oil equal to the Imputed Stripper Well Crude Oil is produced, saved and sold, up to a quantity equal to the Imputed Upper Tier Crude Oil, shall be allocated to those Tracts contributing Imputed Upper Tier Crude Oil to the unit certification in proportion to their contributions of such Imputed Upper Tier Crude Oil. Should any Tract in any month be allocated out of unit production in accordance with its Tract Participation as set forth in this agreement, a total number of barrels of oil that is less than the sum of its Imputed Stripper Well Crude Oil, its Excess Imputed Stripper Well Crude Oil as provided in subparagraph (a) above, and its allocated Imputed Upper Tier Crude Oil, then such Tract's allocation of Imputed Upper Tier Crude Oil shall be reduced by the quantity that the sum of the Tract's Imputed Stripper Well Crude Oil, its Excess Imputed Stripper Crude Oil and its allocated Imputed Upper Tier Crude Oil exceeds the total quantity of oil to be allocated in accordance with its Tract Participation. The amount in excess of its Tract Participation shall be termed Excess Imputed Upper Tier Crude Oil. The total Excess Imputed Upper Tier Crude Oil of all Tracts shall be allocated to all Tracts, including Tracts which have not contributed Imputed Stripper Well Crude Oil and/or Imputed Upper Tier Crude Oil to the unit certification, in proportion to the quantities that the unit production allocated to a Tract by its Tract Participation exceeds the sum of the Imputed Stripper Well Crude, Excess Imputed Stripper Well Crude Oil and Imputed Upper Tier Crude Oil allocated to such Tract.

(c) Upper Tier Crude Oil and Old Oil shall each be allocated to each Tract in proportion to the quantities that the unit production allocated

to a Tract by its Tract Participaton exceeds the sum of the allocated Imputed Stripper Well Crude Oil, Excess Imputed Stripper Well Crude Oil, Imputed Upper Tier Crude Oil and Excess Imputed Upper Tier Crude Oil allocated to such Tract.

The provisions of this Section 16 shall remain in effect only so long as necessary for the unit to comply with applicable laws, rules and regulations of appropriate governmental authorities. Should such laws, rules, and regulations hereafter change substantially so as to alter the basis for a certification of unit production as set forth above, then in such event a method of allocating the certification among the Tracts comprising the unit shall be implemented by Unit Operator which as nearly as possible achieves the above-stated intention hereof. In any event the provisions of this Section 16 shall automatically terminate in their entirety upon the production of 23,000,000 barrels of oil after the Effective Date from the Unitized Formation underlying all Tracts described in the original Exhibit B hereof; thereafter all oil produced, saved and sold from the unit shall, as to each and every category into which such production may then or thereafter be classified for pricing or other purposes, be allocated to all qualified Tracts in proportion to Tract Participation in accordance with the provisions of Section 15. The provisions of this section shall be deemed supplementary to the other provisions of this Agreement and the provisions of the Unit Operating Agreement so that nothing contained herein shall alter the terms of such agreements, including but not limited to the portions thereof dealing with Tract Participation, allocation of unit production, and allocation of investment and operating costs.

SECTION 17. OUTSIDE SUBSTANCES. If gas obtained from any source other than the Unitized Formation is introduced into the Unitized Formation for use in repressuring, stimulating of production or increasing ultimate recovery, which shall be in conformity with a Plan of Operation first approved by the Land Commissioner and the Division, a like amount of gas with appropriate deduction for loss or depletion from any cause may be withdrawn from unit wells completed in the Unitized Formation royalty free as to dry gas, but not royalty free as to the products extracted therefrom; provided that such withdrawal shall be at such time as may be provided in the approved Plan of Operation or as otherwise may be consented to or prescribed by the Land Commissioner and the Division as conforming to good petroleum engineering practices and provided further that such right of withdrawal shall terminate on the termination date of this Agreement.

SECTION 18. ROYALTY SETTLEMENT. Any and all Royalty Owners who, under an existing contract, are entitled to take in kind a share of the substances produced from any Tract unitized hereunder, shall continue to be entitled to such right to take in kind their share of the Unitized Substances

allocated to such Tract, and Unit Operator shall make deliveries of such Royalty share taken in kind in conformity with the applicable contracts, laws and regulations. Settlement for Royalty not taken in kind shall be made by Working Interest Owners responsible therefor under existing contracts, laws and regulations on or before the last day of each month for Unitized Substances produced during the preceding calendar month; provided, however, that nothing herein contained shall operate to relieve the lessees of any land from their respective lease obligations for the payment of any Royalty due under their leases, except that such Royalty shall be computed on Unitized Substances as allocated to each Tract in accordance with the terms of this Agreement. With respect to Federal leases committed hereto on which the royalty rate depends upon the daily average production per well, such average production shall be determined in accordance with the operating regulations pertaining to Federal leases as though the committed Tracts were included in a single consolidated lease.

If the amount of production or the proceeds thereof accruing to any Royalty Owner (except the United States of America) in a Tract depends upon the average production per well or the average pipeline runs per well from such Tract during any period of time, then such production shall be determined from and after the Effective Date hereof by dividing the quantity of Unitized Substances allocated hereunder to such Tract during such period of time by the number of wells located thereon completed in the Unitized Formation as of the Effective Date hereof, provided that any Tract not having any well completed in the Unitized Formation on the Effective Date hereof shall be considered as having one such well for the purpose of this provision.

All Royalty due the State of New Mexico and the United States of America and the other Royalty Owners hereunder shall be computed and paid on the basis of all Unitized Substances allocated to the respective Tract or Tracts committed hereto, in lieu of actual production from such Tract or Tracts.

Each Royalty Owner (other than the State of New Mexico and the United States of America) that executes this Agreement represents and warrants that it is the owner of a Royalty Interest in a Tract or Tracts within the Unit Area as its interest is indicated in Exhibit B attached hereto. If any Royalty Interest in a Tract or Tracts should be lost by title failure or otherwise in whole or in part, during the term of this Agreement, then the Royalty Interest of the party representing himself to be the owner hereof shall be reduced proportionately and the interests of all parties shall be adjusted accordingly.

SECTION 19. RENTAL SETTLEMENT. Rentals or minimum Royalties due on leases committed hereto shall be paid by Working Interest Owners responsible therefor under existing contracts, laws and regulations provided that

nothing herein contained shall operate to relieve the lessees of any land from their respective lease obligations for the payment of any rental or minimum Royalty in lieu thereof, due under their leases. Rental for lands of the State of New Mexico subject to this Agreement shall be paid at the rate specified in the respective leases from the State of New Mexico. Rental or minimum Royalty for lands of the United States of America subject to this Agreement shall be paid at the rate specified in the respective leases from the United States of America, unless such rental or minimum Royalty is waived, suspended or reduced by law or by approval of the Secretary or his duly authorized representative.

SECTION 20. CONSERVATION. Operations hereunder and production of Unitized Substances shall be conducted to provide for the most economical and efficient recovery of said substances without waste, as defined by or pursuant to Federal and State laws and regulations.

SECTION 21. DRAINAGE. The Unit Operator shall take appropriate and adequate measures to prevent drainage of Unitized Substances from Unitized Land by wells on land not subject to this Agreement.

The Unit Operator, upon approval by the Working Interest Owners and the Land Commissioner, is hereby empowered to enter into a border line agreement or agreements with working interest owners of adjoining lands not subject to this Agreement with respect to operation in the border area for the maximum economic recovery, conservation purposes and proper protection of the parties and interest affected.

SECTION 22. LEASES AND CONTRACTS CONFORMED AND EXTENDED. The terms, conditions and provisions of all leases, subleases and other contracts relating to exploration, drilling, development or operation for oil or gas on lands committed to this Agreement are hereby expressly modified and amended to the extent necessary to make the same conform to the provisions hereof, but otherwise to remain in full force and effect, and the parties hereto hereby consent that the Land Commissioner and the Secretary of the Interior of the United States of America (hereinafter referred to as "Secretary"), respectively, shall and by their approval hereof, or by the approval hereof by their duly authorized representatives, do hereby establish, alter, change or revoke the drilling, producing, rental, minimum Royalty and Royalty requirements of State and Federal leases committed hereto and the regulations in respect thereto to conform said requirements to the provisions of this Agreement.

Without limiting the generality of the foregoing, all leases, subleases and contracts are particularly modified in accordance with the following:

(a) The development and operation of lands subject to this Agreement under the terms hereof shall be deemed full performance of all

obligations for development and operation with respect to each part or separately owned Tract subject to this Agreement, regardless of whether there is any development of any particular part or Tract of the Unit Area, notwithstanding anything to the contrary in any lease, operating agreement or other contract by and between the parties hereto, or their respective predecessors in interest, or any of them.

(b) Drilling, producing or enhanced recovery operations performed hereunder shall be deemed to be performed upon and for the benefit of each Tract, and no lease shall be deemed to expire by reason of failure to drill or produce wells situated on the land therein embraced.

(c) Suspension of drilling or producing operations on all unitized lands pursuant to direction or consent of the Land Commissioner and the Secretary, or their duly authorized representatives, shall be deemed to constitute such suspension pursuant to such direction or consent as to each Tract of Unitized Lands.

(d) Each lease, sublease, or contract relating to the exploration, drilling, development or operation for oil and gas which by its terms might expire prior to the termination of this Agreement, is hereby extended beyond any such term so provided therein, so that it shall be continued in full force and effect for and during the term of this Agreement.

(e) Any lease embracing lands of the State of New Mexico which is made subject to this Agreement shall continue in force beyond the term provided therein as to the lands committed hereto until the termination hereof.

(f) Any lease embracing lands of the State of New Mexico having only a portion of its land committed hereto shall be segregated as to that portion committed and that not committed, and the terms of such lease shall apply separately to such segregated portions commencing as of the Effective Date hereof. Provided, however, that notwithstanding any of the provisions of this Agreement to the contrary, such lease shall continue in full force and effect beyond the term provided therein as to all lands embraced in such lease if oil or gas is, or has heretofore been discovered in paying quantities on some part of the lands embraced in such lease committed to this Agreement or, so long as a portion of the Unitized Substances produced from the Unit Area is, under the terms of this Agreement, allocated to the portion of the lands covered by such lease committed to this Agreement, or, at any time during the term hereof, as to any lease that is then valid and subsisting and upon which the lessee or the Unit Operator is then engaged in bona fide drilling, reworking, or improved recovery operations on any part of the lands embraced in such lease, then the same as to all lands embraced therein shall remain in full force and effect so long as such operations are diligently prosecuted, and if they result in the production

of oil or gas, said lease shall continue in full force and effect as to all of the lands embraced therein, so long thereafter as oil or gas in paying quantities is being produced from any portion of said lands.

(g) The segregation of any Federal lease committed to this Agreement is governed by the following provision in the fourth paragraph of Section 17 (j) of the Mineral Leasing Act, as amended by the Act of September 2, 1960, (74 Stat. 781-784): "Any (Federal) lease heretofore or hereafter committed to any such (unit) plan embracing lands that are in part within and in part outside of the area covered by any such plan shall be segregated into separate leases as to the lands committed and the lands not committed as of the effective date of unitization; provided, however, that any such lease as to the non-unitized portion shall continue in force and effect for the term thereof but for not less than two years from the date of such segregation and so long thereafter as oil or gas is produced in paying quantities."

SECTION 23. COVENANTS RUN WITH LAND. The covenants herein shall be construed to be covenants running with the land with respect to the interests of the parties hereto and their successors in interest until this Agreement terminates, and any grant, transfer or conveyance of interest in land or leases subject hereto shall be and hereby is conditioned upon the assumption of all privileges and obligations hereunder by the grantee, transferee or other successor in interest. No assignment or transfer of any Working Interest subject hereto shall be binding upon Unit Operator until the first day of the calendar month after Unit Operator is furnished with the original, or acceptable photostatic or certified copy of the recorded instrument of transfer; and no assignment or transfer of any Royalty Interest subject hereto shall be binding upon the Working Interest Owner responsible therefor until the first day of the calendar month after said Working Interest Owner is furnished with the original or acceptable photostatic or certified copy of the recorded instrument of transfer.

SECTION 24. EFFECTIVE DATE AND TERM. This Agreement shall become binding upon each party who executes or ratifies it as of the date of execution or ratification by such party and shall become effective on the first day of the calendar month next following the approval of this Agreement by the Land Commissioner and the Division, and the filing by Unit Operator of this Agreement or notice thereof for record in the office of the County Clerk of Lea County, New Mexico. Unit Operator shall not file this Agreement or notice thereof for record, and hence this Agreement shall not become effective, unless such filing is approved by Working Interest Owners owning a combined Phase III Unit Participation of at least eighty percent (80%) as to all Tracts then qualified under the provisions of Section 14.

If this Agreement does not become effective on or before January 1, 1980, it shall ipso facto expire on said date (hereinafter called "expiration

date") and thereafter be of no further force or effect, unless prior thereto this Agreement has been executed or ratified by Working Interest Owners owning a combined Phase III Unit Participation of at least seventy-five percent (75%), and the owners of at least seventy-five percent (75%) of such Working Interest committed to this Agreement have decided to extend said expiration date for a period not to exceed one year (hereinafter called "extended expiration date"). If said expiration date is so extended and this Agreement does not become effective on or before said extended expiration date, it shall ipso facto expire on said extended expiration date and thereafter be of no further force or effect.

Unit Operator shall, within thirty (30) days after the Effective Date of this Agreement, file for record in the office of the County Clerk of Lea County, New Mexico, a certificate to the effect that this Agreement has become effective in accordance with its terms and stating the Effective Date.

The term of this Agreement shall be for and during the time that Unitized Substances are produced from the Unitized Land and so long thereafter as drilling, reworking or other operations (including enhanced recovery operations) are prosecuted thereon without cessation of more than ninety (90) consecutive days unless sooner terminated as herein provided.

This Agreement may be terminated with the approval of the Land Commissioner by Working Interest Owners owning eighty percent (80%) or more of the Unit Participation then in effect whenever such Working Interest Owners determine that Unit Operations are no longer profitable or in the interest of conservation. Upon approval, such termination shall be effective as of the first day of the month after said Working Interest Owners' determination. Notice of any such termination shall be filed by Unit Operator in the office of the County Clerk of Lea County, New Mexico, within thirty (30) days of the effective date of termination.

Upon termination of this Agreement, the parties hereto shall be governed by the terms and provisions of the leases and contracts affecting the separate Tracts just as if this Agreement had never been entered into.

If not otherwise provided by the leases unitized under this Agreement, Royalty Owners hereby grant Working Interest Owners a period of six months after termination of this Agreement in which to salvage, sell, distribute or otherwise dispose of the personal property and facilities used in connection with Unit Operations.

SECTION 25. RATE OF PRODUCTION AND DISPOSAL THEREOF. All production and the disposal thereof shall be in conformity with allocations and quotas made or fixed by any duly authorized person or regulatory body under any Federal or State statute.

SECTION 26. NONDISCRIMINATION. Unit Operator in connection with the performance of work under this Agreement relating to leases of the United States agrees to comply with the provisions of Exhibit D attached hereto and made a part hereof.

SECTION 27. APPEARANCES. Unless a different representative is designated by Working Interest Owners, Unit Operator shall have the right to appear for or on behalf of any interests affected hereby before the Land Commissioner, the Department of the Interior of the United States of America, and the Division, and to appeal from any order issued under the rules and regulations of the Land Commissioner, the Department or the Division, or to apply for relief from any of said rules and regulations or in any proceedings relative to operations before the Land Commissioner, the Department or the Division or any other legally constituted authority; provided, however, that any other interested party shall also have the right at his or its own expense to be heard in any such proceeding.

SECTION 28. NOTICES. All notices, demands, objections or statements required hereunder to be given or rendered to the parties hereto shall be deemed fully given if made in writing and personally delivered to the party or parties or sent by postpaid certified or registered mail, addressed to such party or parties at their respective addresses set forth in connection with the signatures hereto or to the ratification or consent hereof or to such other address as any such party or parties may have furnished in writing to the party sending the notice, demand or statement.

SECTION 29. NO WAIVER OF CERTAIN RIGHTS. Nothing in this Agreement contained shall be construed as a waiver by any party hereto of the right to assert any legal or constitutional right or defense as to the validity or invalidity of any law of the State wherein said Unitized Lands are located, or regulations issued thereunder in any way affecting such party, or as a waiver by any such party of any right beyond his or its authority to waive; provided, however, each party hereto covenants that it will not resort to any action to partition the Unitized Land or the Unit Equipment.

SECTION 30. EQUIPMENT AND FACILITIES NOT FIXTURES ATTACHED TO REALTY. Each Working Interest Owner has heretofore placed and used on its Tract or Tracts committed to this Agreement various well and lease equipment and other property, equipment and facilities. It is also recognized that additional equipment and facilities may hereafter be placed and used upon the Unitized Land as now or hereafter constituted. Therefore, for all purposes of this Agreement all such equipment shall be considered to be personal property and not fixtures attached to realty. Accordingly, all such well and lease equipment and personal property is hereby severed from the mineral estates affected by this Agreement, and it is agreed that all

such equipment and personal property shall be and remain personal property of the Working Interest Owners for all purposes and the rights and interests therein as among Working Interest Owners shall be as set forth in the Unit Operating Agreement.

SECTION 31. UNAVOIDABLE DELAY. All obligations under this Agreement requiring the Unit Operator to commence or continue enhanced recovery operations or to operate on or produce Unitized Substances from any of the lands covered by this Agreement shall be suspended while, but only so long as, the Unit Operator, despite the exercise of due care and diligence, is prevented from complying with such obligations, in whole or in part, by strikes, acts of God, Federal, State or municipal law or agency, unavoidable accident, uncontrollable delays in transportation, inability to obtain necessary materials in open market, or other matters beyond the reasonable control of the Unit Operator whether similar to matters herein enumerated or not.

SECTION 32. LOSS OF TITLE. In the event title to any Tract of Unitized Land shall fail so as to render the Tract inoperable under this Agreement and the true owner cannot be induced to join this Agreement, such Tract shall be automatically regarded as not committed hereto as of the first day of the calendar month in which the failure of title is determined and there shall be such readjustment of future costs and benefits as may be required on account of the loss of such title. In the event of a dispute as to title as to any Royalty, Working Interest or other interest subject hereto, payment or delivery on account thereof may be withheld without liability or interest until the dispute is finally settled; provided, that as to State or Federal land or leases, no payments of funds due the State of New Mexico or the United Sates of America shall be withheld, but such funds shall be deposited as directed by the Land Commissioner and/or the Oil and Gas Supervisor of the United States Geological Survey (hereinafter referred to as "Supervisor"), as the case may be, to be held as unearned money pending final settlement of the title dispute, and then applied as earned or returned in accordance with such final settlement.

Unit Operator as such is relieved from any responsibility for any defeat or failure of any title hereunder.

SECTION 33. NONJOINDER AND SUBSEQUENT JOINDER. Joinder by any Royalty Owner, at any time, must be accompanied by appropriate joinder of the corresponding Working Interest Owner in order for the interest of such Royalty Owner to be regarded as effectively committed. Joinder to this Agreement by a Working Interest Owner, at any time, must be accompanied by appropriate joinder to the Unit Operating Agreement in order for such interest to be regarded as effectively committed to this Agreement.

Any oil or gas interest in the Unitized Formation not committed hereto prior to submission of this Agreement to the Land Commissioner for

final approval may thereafter be committed hereto upon compliance with the applicable provisions of this Section and of Section 14 (Tracts Qualified for Participation) hereof, at any time up to the Effective Date hereof on the same basis of participation as provided in said Section 14, by the owner or owners thereof subscribing, ratifying, or consenting in writing to this Agreement and, if the interest is a Working Interest, by the owner of such interest subscribing also to the Unit Operating Agreement.

It is understood and agreed, however, that from and after the Effective Date hereof the right of subsequent joinder as provided in this Section shall be subject to such requirements or approvals and on such basis and effective as of such date as may be agreed upon by Working Interest Owners owning not less than sixty-five percent (65%) of the Unit Participation then in effect, and approved by the Land Commissioner. Such subsequent joinder by a proposed Working Interest Owner must be evidenced by his execution or ratification of this Agreement and the Unit Operating Agreement and, where State or Federal land is involved, such joinder must be approved by the Land Commissioner or Supervisor. Such joinder by a proposed Royalty Owner must be evidenced by his execution, ratification or consent of this Agreement and must be consented to in writing by the Working Interest Owner responsible for the payment of any benefits that may accrue hereunder in behalf of such proposed Royalty Owner. Except as may be otherwise herein provided, subsequent joinder to this Agreement shall be effective as of the first day of the month following the filing with the Land Commissioner of duly executed counterparts of any and all documents necessary to establish effective commitment of any Tract or interest to this Agreement, unless objection to such joinder by the Land Commissioner is duly made within sixty (60) days after such filing.

SECTION 34. COUNTERPARTS. This Agreement may be executed in any number of counterparts, no one of which needs to be executed by all parties and may be ratified or consented to by separate instrument in writing, specifically referring hereto, and shall be binding upon all those parties who have executed such a counterpart, ratification or consent hereto with the same force and effect as if all parties had signed the same document, and regardless of whether or not it is executed by all other parties owning or claiming an interest in the land within the above described Unit Area.

SECTION 35. JOINDER IN DUAL CAPACITY. Execution as herein provided by any party as either a Working Interest Owner or a Royalty Owner shall commit all interests owned or controlled by such party; provided, that if the party is the owner of a Working Interest, he must also execute the Unit Operating Agreement.

SECTION 36. TAXES. Each party hereto shall, for its own account, render and pay its share of any taxes levied against or measured by the amount or value of the Unitized Substances produced from the Unitized Land;

provided, however, that if it is required or if it be determined that the Unit Operator or the several Working Interest Owners must pay or advance said taxes for the account of the parties hereto, it is hereby expressly agreed that the parties so paying or advancing said taxes shall be reimbursed therefor by the parties hereto, including Royalty Owners, who may be responsible for the taxes on their respective allocated share of said Unitized Substances. No taxes shall be charged to the United States or to the State of New Mexico, nor to any lessor who has a contract with a lessee which requires his lessee to pay such taxes.

SECTION 37. NO PARTNERSHIP. The duties, obligations and liabilities of the parties hereto are intended to be several and not joint or collective. This Agreement is not intended to create, and shall not be construed to create, an association or trust, or to impose a partnership duty, obligation or liability with regard to any one or more of the parties hereto. Each party hereto shall be individually responsible for its own obligations as herein provided.

SECTION 38. PRODUCTION AS OF THE EFFECTIVE DATE. Unit Operator shall make a proper and timely gauge of all lease storage tanks (excluding separation and treating equipment) within the Unitized Area in order to ascertain the amount of merchantable oil above the pipe line connection in such tanks as of the Effective Date hereof. All such oil which has then been produced in accordance with established allowables shall be and remain the property of the Working Interest Owner entitled thereto, the same as if the unit had not been formed; and the responsible Working Interest Owner shall promptly remove said oil from the Unitized Land. Any such oil not so removed shall be sold by Unit Operator for the account of such Working Interest Owners, subject to the payment of all Royalty to Royalty Owners under the terms hereof. The oil that is in excess of the prior allowable of the wells from which it was produced shall be regarded as Unitized Substances produced after Effective Date hereof.

If, as of the Effective Date hereof, any Tract is overproduced with respect to the allowable of the wells on that Tract and the amount of over-production has been sold or otherwise disposed of, such over-production shall be regarded as a part of the Unitized Substances produced after the Effective Date hereof and shall be charged to such Tract as having been delivered to the parties entitled to Unitized Substances allocated to such Tract.

SECTION 39. STATUTORY UNITIZATION. If and when Working Interest Owners owning at least seventy-five percent (75%) of the Phase I, Phase II and Phase III Unit Participation and Royalty Owners owning at least seventy-five percent (75%) of the Phase I, Phase II and Phase III Royalty Interest have become parties to this Agreement or have approved this Agreement in

writing and such Working Interest Owners have also become parties to the Unit Operating Agreement, Unit Operator may make application to the Division for statutory unitization of the uncommitted interests pursuant to the Statutory Unitization Act (Chap. 65, Art. 14, N.M.S. 1953 Ann.). If such application is made and statutory unitization is approved by the Division, then effective as of the date of the Division's order approving statutory unitization, this Agreement and/or the Unit Operating Agreement shall automatically be revised and/or amended in accordance with the following:

(1) Section 14 of this Agreement shall be revised by substituting for the entire said section the following:

"SECTION 14. TRACTS QUALIFIED FOR PARTICIPATION. On and after the Effective Date hereof, all Tracts within the Unit Area shall be entitled to participation in the production of Unitized Substances."

(2) Section 24 of this Agreement shall be revised by substituting for the first three paragraphs of said section the following:

"SECTION 24. EFFECTIVE DATE AND TERM. This Agreement shall become effective on the first day of the calendar month next following the effective date of the Division's order approving statutory unitization upon the terms and conditions of this Agreement, as amended (if any amendment is necessary) to conform to the Division's order; approval of this Agreement, as so amended, by the Land Commissioner; and the filing by Unit Operator of this Agreement or notice thereof for record in the office of the County Clerk of Lea County, New Mexico. Unit Operator shall not file this Agreement or notice thereof for record, and hence this Agreement shall not become effective, unless within ninety (90) days after the date all other prerequisites for effectiveness of this Agreement have been satisfied, such filing is approved by Working Interest Owners owning a combined Phase III Unit Participation of at least sixty-five percent (65%) as to all Tracts within the Unit Area.

"Unit Operator shall, within thirty (30) days after the Effective Date of this Agreement, file for record in the office of the County Clerk of Lea County, New Mexico, a certificate to the effect that this Agreement has become effective in accordance with its terms, therein identifying the Division's order approving statutory unitization and stating the Effective Date."

(3) This Agreement and/or the Unit Operating Agreement shall be amended in any and all respects necessary to conform to the Division's order approving statutory unitization.

Any and all amendments of this Agreement and/or the Unit Operating Agreement that are necessary to conform said agreements to the Division's

order approving statutory unitization shall be deemed to be hereby approved in writing by the parties hereto without any necessity for further approval by said parties, except as follows:

(a) If any amendment of this Agreement has the effect of reducing any Royalty Owner's participation in the production of Unitized Substances, such Royalty Owner shall not be deemed to have hereby approved the amended agreement without the necessity of further approval in writing by said Royalty Owner; and

(b) If any amendment of this Agreement and/or the Unit Operating Agreement has the effect of reducing any Working Interest Owner's participation in the production of Unitized Substances or increasing such Working Interest Owner's share of Unit Expense, such Working Interest Owner shall not be deemed to have hereby approved the amended agreements without the necessity of further approval in writing by said Working Interest Owner.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed and have set opposite their respective names the date of execution.

SHELL OIL COMPANY
Unit Operator and Working Interest Owner

Date: July 31, 1978

By: Robert L. Avary
Attorney in Fact
ROBERT L. AVARY
P. O. Box 991
Houston, Texas 77001

STATE OF TEXAS)
)
COUNTY OF HARRIS)

The foregoing instrument was acknowledged before me this 31st day of July, 1978, by ROBERT L. AVARY, Attorney in Fact for SHELL OIL COMPANY, a Delaware corporation, on behalf of said corporation.

My Commission expires:
BELINDA ROEBER
Notary Public in and for Harris County, Texas
My Commission Expires July 21, 1979

Belinda Roeber
Notary Public in and for
Harris County, Texas

EXHIBIT A
NORTH HOBBS (GRAYBURG – SAN ANDRES) UNIT
Lea County, New Mexico

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LEGEND

- WELLS COMPLETED IN UNITIZED FORMATION
- UNIT BOUNDARY
- (57) TRACT NUMBER

EXHIBIT B
ATTACHED TO UNIT AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
				FEDERAL LAND			
21	T18S-R38E, Sec. 20: NW¼SE¼ (Bill Sweet-Bowers B. Fed.)	40	LC-032233-B HBP 06/01/60	United States Geological Survey 12.5%	Bill L. Sweet 100%	First National Bank and Ida Elizabeth Oliver, Co-Trustees for the benefit of Jessie Fay Oliver Castlen M. Trust No. 1253 0.68360% Exxon Corporation 5.46875% Fred F. Kotyza 2.73438% First National Bank and Ida Elizabeth Oliver, Co-Trustees for the benefit of Donald Couden Oliver Trust No. 1254 0.68359% Donald M. Oliver 1.36718% 10.9375%	Bill Sweet 100%

EXHIBIT B
ATTACHED TO UNIT AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

(EXHIBIT B, CONT'D)

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
22	T18S-R38E, Sec. 20: SE¼SE¼ (Bill Sweet-Bowers B. Fed.)	40	LC-032233-B HBP 06/01/60	United States Geological Survey 12.5%	Bill L. Sweet 100%	First National Bank and Ida Elizabeth Oliver, Co-Trustees for the benefit of Jessie Fay Oliver Castlen M. Trust No. 1253 0.68360% Exxon Corporation 5.46875% Fred F. Kotyza 2.73438% First National Bank and Ida Elizabeth Oliver, Co-Trustees for the benefit of Donald Cowden Oliver - Trust No. 1254 0.68359% Donald M. Oliver 1.36718% 10.9375%	Bill Sweet 100%
47	T18S-R38E, Sec. 29: S½NW¼ & W½SW¼; Sec. 30: SE¼ (Exxon-Bowers A Federal)	280	LC-032233-A HBP 02/01/50	United States Geological Survey 12.5% (Sliding Scale Royalty)	Exxon Corporation 100%	Samuel J. Caudill, Jr. 0.041700%	Exxon Corporation 100%

EXHIBIT B
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NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

(EXHIBIT B, CONT'D)

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
Cont. 47						John W. Chadwick, Individually and as trustee under the wills of Glenn B. Chadwick and Grace W. Chadwick, deceased 0.125% Charles H. Coll 0.208300% James M. Coll 0.208300% Jon P. Coll 0.208400% Lillian Hinkle Coll for the account of Max W. Coll, II 0.208300% William M. Keck, II, Tom Sealy and Katherine Cone Keck as Trustees of the Katherine Cone Keck Trust C under the will of S. E. Cone, deceased 0.083334%	

EXHIBIT B
ATTACHED TO UNIT AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

(EXHIBIT B, CONT'D)

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
Cont. 47						S. E. Cone, Jr. 0.083333% Alva H. Etz and Jean W. Etz 0.218750% George H. Etz, Jr., Trustee of the George H. Etz, Sr., Trust 0.43750% Robert W. Etz 0.218750% F. J. Evans Corporation 0.041700% The Homestake Oil & Gas Company 0.125% The Homestake Royalty Corporation 0.25000% Houston Oil & Minerals Corporation 0.250%	

EXHIBIT B
ATTACHED TO UNIT AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

(EXHIBIT B, CONT'D)

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
Cont. 47						Marjorie Cone Eastman 0.083333% Lawson Petroleum Company 0.208500% The First National Bank of Roswell, Trustee of Allie M. Lee Trust 3.1875% Virginia P. Selby 0.2500% Shriners Hospitals for Crippled Children - a Colorado Corporation 1.0625% 7.5%	
48	T18S-R38E, Sec. 29: NW¼NW¼ (Exxon-Bowers A Fed. Com. 35)	40	**Communitization Agreement SW-623 Effective 10/21/71; Approved 12/23/71	United States Geological Survey 12.5% (Sliding Scale Royalty)	Exxon Corporation 100%	Samuel J. Caudill, Jr. 0.020850% John W. Chadwick, Individually and as trustee under the wills of Glenn B. Chadwick and Grace W. Chadwick, deceased 0.062500% Charles H. Coll 0.104150%	Exxon Corporation 100%
	**Sec. 29: S½NW¼NW¼	20	LC-032233-A 02/01/50				
	**Sec. 29: N½NW¼NW¼	20	LC-032233-B 06/01/60				

EXHIBIT B
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NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

(EXHIBIT B, CONT'D)

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
Cont. 48						James M. Coll 0.104150% Jon F. Coll 0.104200% Lillian Hinkle Coll for the account of Max W. Coll, II 0.104150% William M. Keck, II, Tom Sealy and Katherine Cone Keck as Trustees of the Katherine Cone Keck Trust C under the will of S. E. Cone, deceased 0.041667% S. E. Cone, Jr. 0.041667% Alva M. Etz and Jean W. Etz 0.109375% George H. Etz, Jr., Trustee of the George H. Etz, Sr., Trust 0.218750%	

EXHIBIT B
ATTACHED TO UNIT AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

(EXHIBIT B, CONT'D)

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
Cont. 48						Robert W. Etz 0.109375% F. J. Evans Corporation 0.020850% The Homestake Oil & Gas Company 0.062500% The Homestake Royalty Corporation 0.12500% Houston Oil & Minerals Corporation 0.12500% Marjorie Cone Kastman 0.041666% Lawson Petroleum Company 0.104150% The First National Bank of Roswell, Trustee of Allie M. Lee Trust 1.593750% Virginia P. Selby 0.12500%	

EXHIBIT B
ATTACHED TO UNIT AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

(EXHIBIT B, CONT'D)

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
Cont. 48						Shriners Hospitals for Crippled Children - a Colorado Corporation 0.531250% 3.75%	
Total 4 Federal Tracts ------- 400.00 acres or 3.75603% of unit (surface) area							
	STATE LAND						
1	T18S-R37E, Sec. 14: N½ (Getty-State B)	320	B-2330-4 HBP 12/21/33	Commissioner of Public Lands - State of New Mexico 12.5%	Getty Oil Company 100%	None	Getty Oil Company 100%
2	T18S-R37E, Sec. 14: N½SW¼, SW¼SW¼, SW¼SE¼ (Amerada Hess-State WHB)	160	A-1469-2 HBP 12/18/28	Commissioner of Public Lands - State of New Mexico 12.5%	Amerada Hess Corporation 100%	None	Amerada Hess Corporation 100%
3	T18S-R37E, Sec. 14: SE¼SW¼ (Gulf-Lea FO State)	40	E-8503 HBP 09/21/54	Commissioner of Public Lands - State of New Mexico 12.5%	Gulf Oil Corporation 100%	None	Gulf Oil Corporation 100%
4	T18S-R37E, Sec. 14: N½SE¼ (Texas Pacific-State V-Act 1)	80	E-5770-2 HBP 11/10/51	Commissioner of Public Lands - State of New Mexico 12.5%	Texas Pacific Coal & Oil Co. 100%	None	Texas Pacific Oil Company, Inc. 100%

EXHIBIT B
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NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

(EXHIBIT B, CONT'D)

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
5	T18S-R37E, Sec. 14: SE¼SE¼ (Estes Engineering Co. State)	40	K-5218 HBP 08/17/65	Commissioner of Public Lands - State of New Mexico 12.5%	Yeager & Armstrong 100%	None	Ada A. Anderson 11.71875% W. D. Anderson & Sons 23.43750% Ada A. Anderson, Paul Donald Anderson & Payton V. Anderson Executors of the Estate of Warren D. Anderson 11.71875% J. M. Armstrong 23.43750% Russell G. Estes d/b/a Estes Engineering Co. 6.25% W. A. Yeager 23.43750% 100%
6	T18S-R37E, Sec. 13: W½ (Continental-State B-13)	320	B-1535-4 HBP 12/22/32	Commissioner of Public Lands - State of New Mexico 12.5%	Continental Oil Company 100%	None	Continental Oil Company 100%

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NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

(EXHIBIT B, CONT'D)

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
10A	T18S-R38E, Sec. 17: SW¼NW¼ (Moranco-State T-17)	40	B-2330-4 HBP 12/21/33	Commissioner of Public Lands - State of New Mexico 12.5%	Getty Oil Company 100%	The First National Bank of Midland Texas, for account of Clifford T. Somers 2.5% Tom Schneider 2.5% 5.0%	Howell Spear 1.17190% Ellie Sims Spear 1.17190% J. M. Dunlavey 4.68750% First Roswell Company 9.37500% Getty Oil Company 25.00000% George P. Laflin 4.68750% Kenneth D. McPeters 7.03130% Robert Martin Moran 28.12490% Moranco 9.37500%

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(EXHIBIT B, CONT'D)

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
Cont. 10A							Loyd Whitley 4.68750% A. T. Williamson 4.68750% 100%
10B	T18S-R38E, Sec. 17: SE¼NW¼ (Moranco-State T-17)	40	B-2330-4 HBP 12/21/33	Commissioner of Public Lands - State of New Mexico 12.5%	Getty Oil Company 100%	None	Getty Oil Company 100%
11	T18S-R38E, Sec. 17: N½SW¼ (Chevron State 1-17)	80	B-2277-1 HBP 12/07/33	Commissioner of Public Lands - State of New Mexico 12.5%	Chevron U.S.A., Inc. 100%	None	Chevron U.S.A., Inc. 100%
12	T18S-R38E, Sec. 17: S½SW¼ (Getty (Skelly)-State A)	80	NM-B-1327 HBP 11/16/32	Commissioner of Public Lands - State of New Mexico 12.5%	Getty Oil Company 100%	None	Getty Oil Company 100%
28	T18S-R37E, Sec. 24: NE¼ (Gulf-Graham-State A)	160	A-1543-1 HBP 12/29/28	Commissioner of Public Lands - State of New Mexico 12.5%	Gulf Oil Corporation 100%	None	Gulf Oil Corporation 100%
29	T18S-R37E, Sec. 24: E½NW¼ (Shell-State D)	80	B-1411-1 HBP 12/03/32	Commissioner of Public Lands - State of New Mexico 12.5%	Shell Oil Company 100%	None	Shell Oil Company 100%

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(EXHIBIT B, CONT'D)

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
30	T18S-R37E, Sec. 24: W½NW¼ (Amerada Hess-State E)	80	B-1461-1 HBP 12/14/32	Commissioner of Public Lands - State of New Mexico 12.5%	Amerada Hess Corporation 50% Getty Oil Company 50% 100%	None	Amerada Hess Corporation 50% Getty Oil Company 50% 100%
31	T18S-R37E, Sec. 24: SE¼ (Texas Pacific-State G)	160	A-1977-2 HBP 3/11/29	Commissioner of Public Lands - State of New Mexico 12.5%	Texas Pacific Coal & Oil Co. 100%	None	Texas Pacific Oil Company, Inc. 100%
32	T18S-R37E, Sec. 24: SW¼ (Samedan-State C)	160	A-1118-4 HBP 09/15/28	Commissioner of Public Lands - State of New Mexico 12.5%	Samedan Oil Corporation 100%	Shell Companies Foundation, Inc. 12.5%	Samedan Oil Corporation 37.8% First National Bank of Casper, Trustee, Tate Trusts 3.75% The First National Bank of Fort Worth, Agent for William S. Spradling 0.625% The First National Bank of Fort Worth Trustee for Verda Spradling, No. 3211 0.625%

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(EXHIBIT B, CONT'D)

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
Cont. 32							C. C. Forbes 1.9% Ilamae Forbes 1.85% Samuel Roberts Noble Foundation, Inc. 28.75% G. D. Morris 1.25% Richard L. Noble 15.2% Portales National Bank 1.875% John Roring 3.75% SEA Properties, Ltd. 0.75% E. C. Sullivan 1.875% 100%

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(EXHIBIT B, CONT'D)

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
33A	T18S-R37E, Sec. 23: NE¼NE¼, SE¼NE¼, (Est. of C. H. Sweet-State F)	80	B-9264-5 HBP 08/11/41	Commissioner of Public Lands - State of New Mexico 12.5%	C. H. Sweet Oil Company 100%	Shell Companies Foundation, Inc. Gas - 12.5% Oil - Fluctuating Overriding Royalty Interest per 4/9/51 Agreement	First National Bank of Lea County, Trustee for Cecil H. Sweet and Imo Sweet Trust. 100%
33B	T18S-R37E, Sec. 23: NE¼SE¼ (Est. of C. H. Sweet-State F)	40	B-9264-6 HBP 08/11/41	Commissioner of Public Lands - State of New Mexico 12.5%	C. H. Sweet Oil Company 100%	Shell Companies Foundation, Inc. Gas - 12.5% Oil - Fluctuating Overriding Royalty Interest per 1/2/53 Agreement	First National Bank of Lea County, Trustee for Cecil H. Sweet and Imo Sweet Trust. 100%
34	T18S-R37E, Sec. 23: W½NE¼ (Shell-State F)	80	B-9264-2 HBP 08/11/41	Commissioner of Public Lands - State of New Mexico 12.5%	Shell Oil Company 100%	None	Shell Oil Company 100%
35	T18S-R37E, Sec. 23: E½NW¼ & SW¼ (Texas Pacific-State V-A/C 2)	240	E-5770-2 HBP 11/10/51	Commissioner of Public Lands - State of New Mexico 12.5%	Texas Pacific Coal & Oil Co. 100%	None	Texas Pacific Oil Company, Inc. 100%

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(EXHIBIT B, CONT'D)

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
37	T18S-R37E, Sec. 23: W½SE¼ & SE¼SE¼ (John A. Yates-Shell State F)	120	B-9264-10 HBP 08/11/41	Commissioner of Public Lands - State of New Mexico 12.5%	Abo Petroleum Corporation 100%	Shell Companies Foundation, Inc. Gas - 12.5% Oil - Fluctuating Overriding Royalty Interest per 10/14/55 Agreement	Abo Petroleum Corporation 52.5% Ward Investment Corporation 10% Yates Petroleum Corporation 25% S. P. Yates 12.5% 100%
38	T18S-R37E, Sec. 26: NW¼NE¼ (Wiser-State L)	40	E-5278 HBP 09/21/65	Commissioner of Public Lands - State of New Mexico 12.5%	The Wiser Oil Company 100%	None	The Wiser Oil Company 100%
39	T18S-R37E, Sec. 26: E½NE¼ (Getty (Skelly)-Hobbs B)	80	E-5673 HBP 10/10/51	Commissioner of Public Lands - State of New Mexico 12.5%	Getty Oil Company 100%	None	Getty Oil Company 100%
40	T18S-R37E, Sec. 25: N½NW¼ (Continental-State B-25)	80	B-1535½ HBP 12/22/32	Commissioner of Public Lands - State of New Mexico 12.5%	Continental Oil Company 100%	None	Continental Oil Company 100%

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Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
41	T18S-R37E, Sec. 25: S½NW¼ (Samedan-State B)	80	B-1535½-1 HBP 12/22/32	Commissioner of Public Lands - State of New Mexico 12.5%	Samedan Oil Corporation 100%	Continental Oil Company 6.25%	Samedan Oil Corporation 100%
42	T18S-R37E, Sec. 25: NE¼ (Texaco-N.M. C State)	160	B-159-1 HBP 08/14/31	Commissioner of Public Lands - State of New Mexico 12.5%	Texaco Inc. 100%	None	Texaco Inc. 100%
43	T18S-R37E, Sec. 25: S½ (Exxon-N.M. State A)	320	A-1320 HBP 11/22/28	Commissioner of Public Lands - State of New Mexico 12.5%	Exxon Corporation 100%	None	Exxon Corporation 100%
46	T18S-R38E, Sec. 30: SW¼ (Marathon-State Sec. 30)	155.78	A-3071 HBP 01/09/30	Commissioner of Public Lands - State of New Mexico 12.5%	Marathon Oil Company 100%	None	Marathon Oil Company 100%
49	T18S-R38E, Sec. 29, W½NE¼ & E½NW¼ (Amerada State B)	160	A-1469-2 HBP 12/18/28	Commissioner of Public Lands - State of New Mexico 12.5%	Amerada Hess Corporation 100%	None	Amerada Hess Corporation 100%
51	T18S-R38E, Sec. 29: E½SW¼ & NW¼SE¼ (Continental-State A 29)	120	B-2657 HBP 09/23/33	Commissioner of Public Lands - State of New Mexico 12.5%	Continental Oil Company 100%	None	Continental Oil Company 100%

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Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
53	T18S-R38E, Sec. 29: S½SE¼ (Chevron-State 1-29)	80	B-2277-1 HBP 12/07/33	Commissioner of Public Lands - State of New Mexico 12.5%	Chevron U.S.A. Inc. 100%	None	Chevron U.S.A. Inc. 100%
68	T18S-R38E, Sec. 33: N½NW¼ (Shell-State B)	80	A-1118-5 HBP 09/15/28	Commissioner of Public Lands - State of New Mexico 12.5%	Shell Oil Company 100%	None	Shell Oil Company 100%
69	T18S-R38E, Sec. 33: S½NW¼ (Amoco-State G)	80	A-1573-4 HBP 01/03/29	Commissioner of Public Lands - State of New Mexico 12.5%	Amoco Production Company 100%	None	Amoco Production Company 75.43501% Landreth Interests 24.56499% 100%
70	T18S-R38E, Sec. 33: SW¼NE¼, W½SE¼ & SW¼ (Continental-State A-33)	280	B-2656 HBP 09/23/33	Commissioner of Public Lands - State of New Mexico 12.5%	Continental Oil Company 100%	None	Continental Oil Company 100%
71	T18S-R38E, Sec. 32: N½NE¼ (Amerada Hess-State A)	80	A-1469-2 HBP 12/18/28	Commissioner of Public Lands - State of New Mexico 12.5%	Amerada Hess Corporation 100%	None	Amerada Hess Corporation 100%
72	T18S-R38E, Sec. 32: S½NE¼ (Shell-State A)	80	A-1118-5 HBP 09/15/28	Commissioner of Public Lands - State of New Mexico 12.5%	Shell Oil Company 100%	None	Shell Oil Company 100%

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Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
75A	T18S-R38E, Sec. 32: W½SE¼ (Marathon-State Sec. 32)	80	A-2747-7 HBP 08/22/29	Commissioner of Public Lands - State of New Mexico 12.5%	Marathon Oil Company 50% Atlantic Richfield 50% 100%	None	Marathon Oil Company 50% Atlantic Richfield Company 50% 100%
75B	T18S-R38E, Sec. 32: E½SE¼ (Marathon-State Sec. 32)	80	A-1159-9 HBP 10/01/28	Commissioner of Public Lands - State of New Mexico 12.5%	Marathon Oil Company 100%	None	Marathon Oil Company 50% Atlantic Richfield Company 50% 100%
81	T18S-R37E, Sec. 36: E½NE¼, SW¼NE¼, SE¼ (Amerada Hess-State C)	280	A-1469-2 HBP 12/18/28	Commissioner of Public Lands - State of New Mexico 12.5%	Amarada Hess Corporation 100%	None	Amerada Hess Corporation 100%
82	T18S-R37E, Sec. 36: NW¼NE¼ (Byrom-J. R. Holt State)	40	B-243-1 HBP 09/10/31	Commissioner of Public Lands - State of New Mexico 12.5%	Gulf Oil Corporation 100%	Gulf Oil Corporation 5.46875%	W. K. Byrom 62.5% Robert G. McPherson 37.5% 100%

(EXHIBIT B, CONT'D)

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
83	T18S-R37E, Sec. 36: E½NW¼ (Gulf J. R. Holt-NCT D)	80	B-243-1 HBP 09/10/31	Commissioner of Public Lands - State of New Mexico 12.5%	Gulf Oil Corporation 100%	None	Gulf Oil Corporation 100%

Total 40 State Tracts ------ 4835.78 acres or 45.40839% of unit (surface) area

FEE LAND

7	T18S-R37E, Sec. 13: SE¼ (Shell-Rice)	160	Fee HBP 05/21/28	Amoco Production Company, et al* 12.5%	Shell Oil Company 100%	None	Shell Oil Company 100%
8	T18S-R38E, Sec. 18: SW¼ (Amerada Hess-B. Hardin)	155.21	Fee HBP 03/24/28	Exxon Corporation, et al* 12.5%	Amerada Hess Corporation 100%	None	Amerada Hess Corporation 100%
9	T18S-R38E, Sec. 18: E½ (Gulf-Dan W. Hardin)	320	Fee HBP 04/27/27	Gulf Oil Corporation, et al* 12.5%	Gulf Oil Corporation 100%	None	Gulf Oil Corporation 100%
13	T18S-R38E, Sec. 21: NW¼SE¼ (Antwell-Hobbs-Cone Townsite)	40	Fee HBP 06/28/26	Jack Robinson, et al* 12.5%	Del-Lea, Inc. 100%	Fern Cone 1.56250%	Del-Lea, Inc. 100%

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Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
Cont. 13						Kathleen Cone, Individually and as Co-executor, & Eunice Gibson & James H. Milan, Co-executors of Estate of Gordon M. Cone 7.29166% Del-Lea, Inc. 0.26042% Robert B. Holt 1.69271% A. G. Kaspar 1.69271% 12.5%	
14	T18S-R38E, Sec. 21: SE¼SE¼ (Wiser-Morris B)	40	Fee HBP 05/17/37 Fee HBP 05/27/37	Jack Robinson, et al* 12.5%	Kenneth Noel Headley 12.5% Two States Oil Company 37.5%	None	Kenneth Noel Headley 12.5% Two States Oil Company 37.5%

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Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
Cont. 14			Fee HBP 05/31/37 Fee HBP 06/07/37 Fee HBP 06/12/37 Fee HBP 06/23/37 Fee HBP 09/10/37 Fee HBP 09/24/37 Fee HBP 01/19/38		The Wiser Oil Company 50% 100%		The Wiser Oil Company 50% 100%
15	T18S-R38E, Sec. 21: SW¼SE¼ (Wiser-Morris A)	40	Fee HBP 06/28/26	Jack Robinson, et al* 12.5%	Mary Daniel Conrad 6.25% Herman R. Crile, Sr. Trustee of Herman R. Crile, Sr. 9.37500% Kenneth Noel Headley 9.375%	None	Mary Daniel Conrad 6.25% Herman R. Crile, Sr. Trustee of Herman R. Crile, Sr. 9.37500% Kenneth Noel Headley 9.375%

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Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee Of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
Cont. 15					Peter Hurd 6.25%		Peter Hurd 6.25%
					Ruby Wanda Conrad Judson 1.25%		Ruby Wanda Conrad Judson 1.25%
					Kathryn Louise Conrad McCarthy 1.25%		Kathryn Louise Conrad McCarthy 1.25%
					Nathlyn Ione Conrad Murdoch 1.25%		Nathlyn Ione Conrad Murdoch 1.25%
					Frances I. Conrad Rose 1.25%		Frances I. Conrad Rose 1.25%
					Bettye Conrad Treadaway 1.25%		Bettye Conrad Treadaway 1.25%
					The Wiser Oil Company 50%		The Wiser Oil Company 50%
					Dr. Henry Yeager, Jr. in care of Trust Oil Department Trust Services, First National Bank in Dallas 4.06746%		Dr. Henry Yeager, Jr. in care of Trust Oil Department Trust Services, First National Bank in Dallas 4.06746%

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Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
cont. 15					Ruth Anne Yeager 3.02580% Ruth Peeler Yeager, Henry Yeager, Jr., & First National Bank in Dallas, Joint Trustees of Ruth Anne Yeager Trust No. 2 1.04167% Mrs. Ruth Peeler Yeager in care of Trust Oil Department Trust Services, First National Bank in Dallas 4.36507% 100%		Ruth Anne Yeager 3.02580% Ruth Peeler Yeager, Henry Yeager, Jr., & First National Bank in Dallas, Joint Trustees of Ruth Anne Yeager Trust No. 2 1.04167% Mrs. Ruth Peeler Yeager in care of Trust Oil Department Trust Services, First National Bank in Dallas 4.36507% 100%
16	T18S-R38E, Sec. 21: SW¼ (Gulf-W. D. Grimes, NCT C)	160	Fee HBP 04/29/26	Union Oil Company of California, et al* 12.5%	Gulf Oil Corporation 100%	None	Gulf Oil Corporation 100%
17	T18S-R38E, Sec. 20: NE¼ (Est. of C. H. Sweet-McKinley B)	160	Fee HBP 06/21/26	W. C. McBride-Silurian Oil Company, et al* 12.5%	C. H. Sweet Oil Company 100%	Sun Oil Company 10.93750%	First National Bank of Lea County, Trustee for the Cecil H. Sweet and Ima Emmetta Sweet Trust 100%

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Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
18	T18S-R38E, Sec. 20: N½NW¼ (Getty (Skelly)-H. D. McKinley)	80	Fee HBP 06/21/26	W. C. McBride - Silurian Oil Company et al* 12.5%	Getty Oil Company 100%	None	Getty Oil Company 100%
19	T18S-R38E, Sec. 20: S½NW¼ (Chevron-H. D. McKinley)	80	Fee HBP 06/21/26	W. C. McBride - Silurian Oil Company et al* 12.5%	Chevron U.S.A., Inc. 100%	None	Chevron U.S.A., Inc. 100%
20	T18S-R38E, Sec. 20: NE¼SE¼ (Est. of C. H. Sweet-Grimes)	40	Fee HBP 03/10/28	Mary Evelyn Maddox, et al* 12.5%	C. H. Sweet Oil Company 100%	Verna Lee Brown 5.46875% Alice Patricia Gray 0.05127% Emmett D. White 0.05127% 5.57129%	First National Bank of Lea County, Trustee for Cecil H. Sweet and Imo Emmetta Sweet Trust 100%
23	T18S-R38E, Sec. 20: SW¼SE¼ (Atlantic Richfield-Grimes)	40	Fee HBP 06/23/28	Mrs. Emma Bledsoe, Individually and as Independent Executrix of the Estate of W. H. Bledsoe, et al* 12.5%	Atlantic Oil Producing Co. 100%	None	Atlantic Richfield Company 100%

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Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
24	T18S-R38E, Sec. 20: SW¼ (Shell-H. D. McKinley B)	160	Fee HBP 06/21/26	Cities Service Company, et al* 12.5%	Shell Oil Company 100%	None	Shell Oil Company 100%
25	T18S-R38E, Sec. 19: NE¼ (Getty-Boon Hardin)	160	Fee HBP 03/24/28	Amoco Production Company, et al* 12.5%	Getty Oil Co. (Tidal) 100%	None	Getty Oil Company 100%
26	T18S-R38E, Sec. 19: NW¼ (Cities Service-Boon Hardin)	155.30	Fee HBP 03/24/28	Exxon Corporation, et al* 12.5%	Cities Service Company 100%	None	Cities Service Company 100%
27	T18S-R38E, Sec. 19: S½ (Shell-McKinley A)	315.50	Fee HBP 06/21/26	Amoco Production Company, et al* 12.5%	Shell Oil Company 100%	None	Shell Oil Company 100%
36	T18S-R37E, Sec. 23: [illegible] (C&C Operating Corp.-Shipp A)	80	Fee (2) HBP 01/26/56 Fee (3) HBP 08/31/59	Estate of Burton E. Shipp, et al* 12.5%	C&C Operating Corporation 100%	Elbert Shipp .25635% Homer Shipp .25635% Estate of Burton Shipp 1.70898% Leona Houston .25635% 2.47803%	C&C Operating Corporation 100%
44	T18S-R38E, Sec. 30: NW¼ (Amerada-H. D. McKinley)	155.66	Fee HBP 06/21/26	W. C. McBride-Silurian Oil Company, et al* 12.5%	Amerada Hess Corporation 100%	None	Amerada Hess Corporation 100%

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Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
45	T18S-R38E, Sec. 30: NE¼ (Getty-H. D. McKinley)	160	Fee HBP 06/21/26	W. C. McBride - Silurian Oil Company, et al* 12.5%	Getty Oil Company 100%	Cities Service Company 1.17187%	Getty Oil Company 100%
50	T18S-R38E, Sec. 29: NE¼NE¼ (Exxon-W. D. Grimes)	40	Fee HBP 06/23/28	Exxon Corporation, et al* 12.5%	Exxon Corporation 75% Cities Service Company 25% 100%	Continental Oil Company (net profit interest) 25%	Exxon Corporation 75% Cities Service Company 25% 100%
52	T18S-R38E, Sec. 29: SE¼NE¼ & NE¼SE¼ (Getty-W. D. Grimes)	80	Fee HBP 03/10/28	Lillian Milyko, et al* 12.5%	H. V. Craig 100%	None	Getty Oil Company 100%
54	T18S-R38E, Sec. 28: NW¼ (Atlantic-W. D. Grimes SOC)	160	Fee HBP 06/10/26	Cities Service Company, et al* 12.5%	Sinclair Oil & Gas Company 100%	None	Atlantic Richfield Company 100%
55	T18S-R38E, Sec. 28: W½NE¼ (Samedan-Hoon A)	80	Fee (7) HBP 10/03/34	George H. Etz, Jr., Trustee of the George H. Etz, Sr. Trust, et al* 12.5%	Samedan Oil Corporation 100%	None	John P. Cusack, Jr. 25%

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Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
Cont. 55			Fee (2) HBP 10/08/34 Fee (2) HBP 11/13/34				Michael F. Cusack 25% Samedan Oil Corporation 48.5% SEA Properties, Ltd. 1.5% 100%
56	T18S-R38E, Sec. 28: E½NE¼ (Samedan-Moon B)	80	Fee (1) HBP 04/01/35 Fee (2) HBP 10/03/34 Fee (3) HBP 10/05/34 Fee (2) HBP 10/08/34 Fee (1) HBP 11/08/34 Fee (1) HBP 11/13/34 Fee (1) HBP 11/17/34	Samedan Oil Corporation, et al[4] 12.5%	Samedan Oil Corporation 100%	None	John P. Cusack, Jr. 25% Michael F. Cusack 25% Samedan Oil Corporation 48.5% SEA Properties, Ltd. 1.5% 100%

EXHIBIT B
ATTACHED TO UNIT AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

(EXHIBIT B, CONT'D)

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
57	T18S-R38E, Sec. 28: SW¼ (Shell-W. D. Grimes)	160	Fee HBP 06/10/26	Atlantic Richfield Company, et al* 12.5%	Shell Oil Company 100%	None	Shell Oil Company 100%
58	T18S-R38E, Sec. 28: SE¼ (Continental - W. D. Grimes)	160	Fee HBP 04/02/27	Atlantic Richfield Company, et al* 12.5%	Continental Oil Company 100%	None	Continental Oil Company 100%
59	T18S-R38E, Sec. 27: All (Shell-Sanger Inv. Co.)	640	Fee HBP 04/19/28	Sanger Investment Company, Agency 7, et al* 12.5%	Shell Oil Company 100%	None	Shell Oil Company 100%
60A	T18S-R38E, Sec. 34: NE¼NE¼ (Moranco-Hobbs)	40	Fee (1) HBP 08/17/61 Fee (1) HBP 09/05/61 Fee (1) HBP 09/17/61 Fee (1) HBP 09/18/61 Fee (3) HBP 05/15/61	Buttram Texhoma Company, et al* 15.48369%	C. W. Trainer 100%	George B. Clegg, III 0.05642% Charles E. Delaney 0.05643% Thomas R. and B. C. Dugan 0.05642% 0.16927%	Del-Lea, Inc. 16.40625% M. Ralph Lowe, Inc. 21.875% Kenneth D. McPeters 4.095% Robert Martin Moran 16.40625% Moranco 20.51%

EXHIBIT B
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NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

(EXHIBIT B, CONT'D)

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
cont. 60A			Fee (33) HBP 05/17/61 Fee (1) HBP 10/17/61 Fee (1) HBP 10/20/61 Fee (1) HBP 10/24/61 Fee (1) HBP 11/02/61 Fee (1) HBP 11/17/61 Fee (1) HBP 01/10/62 Fee (1) HBP 10/11/62 Fee (1) HBP 11/27/62				Marshall & Winston, Inc. 12.5% Linda B. Parrish and Linda Ann Parrish Richardson-Co-trustees under the will of M. C. Parrish, Jr. 8.2075% 100%

EXHIBIT B
ATTACHED TO UNIT AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

(EXHIBIT B, CONT'D)

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
608	T18S-R38E, Sec. 34: SE¼NE¼ (Moranco-Hobbs)	40	Fee (1) HBP 08/17/61 Fee (1) HBP 09/05/61 Fee (1) HBP 09/17/61 Fee (1) HBP 09/18/61 Fee (3) HBP 05/15/61 Fee (33) HBP 05/17/61 Fee (1) HBP 10/17/61 Fee (1) HBP 10/20/61 Fee (1) HBP 10/24/61 Fee (1) HBP 11/02/61	Buttram Texhoma Company, et al* 15.48369%	C. W. Trainer 100%	George B. Clegg, III 0.05642% Charles E. Delaney 0.05643% Thomas R. and B. C. Dugan 0.05642% 0.16927%	Del-Lea, Inc. 18.75% M. Ralph Lowe, Inc. 25% Kenneth D. McPeters 4.68% Robert Martin Moran 18.75% Moranco 23.44% Linda B. Parrish and Linda Ann Parrish Richardson-Co-trustees under the will of M. C. Parrish, Jr. 9.38% 100%

EXHIBIT B
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NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

(EXHIBIT B, CONT'D)

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
Cont. 60B			Fee (1) HBP 11/17/61 Fee (1) HBP 01/10/62 Fee (1) HBP 10/11/62 Fee (1) HBP 11/27/62				
61A	T18S-R38E, Sec. 34: SW¼NE¼ (Shell-Turner, Well 1)	40	Fee HBP 04/07/26	Buttram Texhoma Company, et al* 12.5%	Shell Oil Company 100%	None	Shell Oil Company 100%
61B	T18S-R38E, Sec. 34: NW¼NE¼ (Shell-Turner, Well 2)	40	Fee HBP 04/07/26	Marshall & Winston, Inc, et al* 12.5%	Shell Oil Company 100%	None	Shell Oil Company 100%
62	T18S-R38E, Sec. 34: NE¼NW¼ (Getty (Skelly) B. H. Turner-Batt 2)	40	Fee HBP 04/07/26	Marshall & Winston, Inc. et al* 12.5%	Getty Oil Company 100%	None	Getty Oil Company 100%
63	T18S-R38E, Sec. 34: SE¼NW¼ (Getty (Skelly) B. H. Turner-Batt 1)	40	Fee HBP 04/07/26	Atlantic Richfield Company, et al* 12.5%	Getty Oil Company 100%	None	Getty Oil Company 100%

EXHIBIT B
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NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

(EXHIBIT B, CONT'D)

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
64	T18S-R38E, Sec. 34: NE¼SE¼ (Samedan-Turner B)	40	Fee (35) HBP 08/10/37 Fee (1) HBP 12/31/37 Fee (1) HBP 01/20/38 Fee (2) HBP 02/05/38 Fee (1) HBP 12/12/38 Fee (1) HBP 02/11/44 Fee (1) HBP 08/07/34	Bonnie R. Etz, and George H. Etz, Jr., Trustee of George H. Etz, Sr. Trust, et al* 12.5%	Samedan Oil Corporation 100%	None	Samedan Oil Corporation 62.5% Mary Frances Cusack 18.75% John Patrick Cusack Jr., Trustee under the John Patrick Cusack Testamentary Trust 4.6875% John Patrick Cusack, Jr. 7.03125% Michael F. Cusack 7.03125% 100%

EXHIBIT B
ATTACHED TO UNIT AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

(EXHIBIT B, CONT'D)

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
65	T18S-R38E, Sec. 34: SE¼SE¼ (Samedan-Turner B-Batt 2)	40	Fee (35) HBP 08/10/37 Fee (1) HBP 12/31/37 Fee (1) HBP 01/20/38 Fee (2) HBP 02/05/38 Fee (1) HBP 12/12/38 Fee (3) HBP 02/11/44 Fee (1) HBP 08/01/44 Fee (1) HBP 08/02/44 Fee (1) HBP 08/07/34	Bonnie R. Etz, and George H. Etz, Jr., Trustee of George H. Etz, Sr. Trust, et al* 12.5%	Samedan Oil Corporation 62.5% Mary Frances Cusack 18.75% John Patrick Cusack, Jr., Trustee under the John Patrick Cusack Testamentary Trust 4.6875% John Patrick Cusack, Jr. 7.03125% Michael F. Cusack 7.03125% 100%	None	Samedan Oil Corporation 62.5% Mary Frances Cusack 18.75% John Patrick Cusack, Jr., Trustee under the John Patrick Cusack Testamentary Trust 4.6875% John Patrick Cusack, Jr. 7.03125% Michael F. Cusack 7.03125% 100%

EXHIBIT B
ATTACHED TO UNIT AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

(EXHIBIT B, CONT'D)

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
66	T18S-R38E, Sec. 34: W½SE¼ (Samedan-Turner A)	80	Fee (17) HBP 08/07/34 Fee (1) HBP 12/07/34 Fee (1) HBP 12/10/34 Fee (1) HBP 12/12/34	Buttram Texhoma Company, et al* 12.5%	Samedan Oil Corporation 87.891% Hattie C. Williams 5.859% Cities Service Company 6.25% 100%	None	Samedan Oil Corporation 87.89100% Hattie C. Williams 5.859% Cities Service Company 6.25% 100%
67	T18S-R38E, Sec. 33: N½NE¼ & SE¼NE¼ & NE¼SE¼ (Gulf-W. D. Grimes, NCT-A)	160	Fee HBP 04/29/26	Union Oil Company of California, et al* 12.5%	Gulf Oil Corporation 100%	None	Gulf Oil Corporation 100%
73	T18S-R38E, Sec. 32: NW¼ (Gulf-W. D. Grimes NCT-A/2)	160	Fee HBP 04/29/26	Union Oil Company of California, et al* 12.5%	Gulf Oil Corporation 100%	None	Gulf Oil Corporation 100%
74	T18S-R38E, Sec. 32: SW¼ (Gulf-Grimes NCT-A Batt 2)	160	Fee HBP 04/29/26	Union Oil Company of California, et al* 12.5%	Gulf Oil Corporation 100%	None	Gulf Oil Corporation 100%

EXHIBIT B
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NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

(EXHIBIT B, CONT'D)

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage
76	T18S-R38E, Sec. 31: NE¼ (Cities Service-Clara Fowler)	160	Fee HBP 03/08/28	Marshall & Winston, Inc., et al* 12.5%	Cities Service Company 100%	None	Cities Service Company 100%
77	T18S-R38E, Sec. 31: E½NW¼ (Getty (Skelly)-Clara Fowler)	80	Fee HBP 03/08/28	Atlantic Richfield Company, et al* 12.5%	Getty Oil Company 100%	None	Getty Oil Company 100%
78	T18S-R38E, Sec. 31: W½NW¼ (Sun-Clara Fowler)	75.94	Fee HBP 03/08/28	Atlantic Richfield Company, et al* 12.5%	Sunray Mid-Continent Oil Company 100%	None	Sun Oil Company 100%
79	T18S-R38E, Sec. 31: SE¼ (Shell-N. Berry)	160	Fee HBP 03/07/28	The First of Denver for the account of Munro L. and Patricia D. Lyeth #11033-00-8 and Onez Norman Rooney, et al* 12.5%	Shell Oil Company 100%	None	Shell Oil Company 100%
80	T18S-R38E, Sec. 31: SW¼ (Mobil-Nora Berry)	156.14	Fee HBP 04/07/28	The First of Denver for the account of Munro L. and Patricia D. Lyeth #11033-00-8 and Onez Norman Rooney, et al* 12.5%	Mobil Oil Corporation 100%	None	Mobil Oil Corporation 100%

EXHIBIT B
ATTACHED TO UNIT AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

(EXHIBIT B, CONT'D)

Tract No.	Description of Land (Operator & Lease Name)	No. Acres	Serial No. & Expiration & Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner & Percentage	Working Interest Owner & Percentage

Total 44 Tracts ------ 5413.75 acres or 50.83558% of unit (surface) area

RECAPITULATION OF NUMBER OF ACRES

Federal Lands	400.00 acres	3.75603 percent
State Lands	4835.78 acres	45.40839 percent
Fee Lands	5413.75 acres	50.83558 percent
	10,649.53 acres	100.00 percent

* Largest Royalty Interest Owner only is named.
Complete royalty ownership will be furnished upon request.

EXHIBIT C
ATTACHED TO UNIT AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

TRACT PARTICIPATION

Tract No.	Tract Participation					
	Phase I		Phase II		Phase III	
	Oil	Gas	Oil	Gas	Oil	Gas
1	0.04166	0.00929	0.03449	0.00764	0.13978	0.13978
2	0.04372	0.08878	0.03496	0.07047	0.20696	0.20696
3	0.03122	0.03430	0.02643	0.02884	0.08361	0.08361
4	0.11473	0.35014	0.10166	0.30838	0.29162	0.29162
5	0.05364	0.16616	0.03382	0.10370	0.19769	0.19769
6	0.05157	0.04476	0.03087	0.02715	1.35192	1.35192
7	0.33855	0.86416	0.28554	0.74135	2.37454	2.37454
8	0.00000	0.00000	0.00000	0.00000	2.11560	2.11560
9	0.26552	0.85119	0.20781	0.63155	1.29435	1.29435
10A	0.04139	0.02411	0.03640	0.02107	0.03576	0.03576
10B	0.00000	0.00000	0.00000	0.00000	0.00504	0.00504
11	0.00000	0.00000	0.00000	0.00000	0.07277	0.07277
12	0.02525	0.01680	0.02093	0.01383	0.10735	0.10735
13	0.08746	0.42917	0.08048	0.39277	0.03529	0.03529
14	0.17327	0.14273	0.17730	0.01745	0.01819	0.01819
15	0.38534	0.10378	0.40126	0.06477	0.03134	0.03134
16	0.17539	0.20016	0.16097	0.18270	0.17130	0.17130
17	0.02662	0.21697	0.02300	0.18628	0.13047	0.13047
18	0.00853	0.01565	0.00013	0.00140	0.19617	0.19617
19	0.46388	0.84657	0.44274	0.97367	0.39268	0.39268
20	0.00082	0.00000	0.00000	0.00000	0.04338	0.04338
21	0.02651	0.02649	0.02300	0.02283	0.08569	0.08569
22	0.00000	0.00000	0.00000	0.00000	0.09207	0.09207
23	0.06415	0.14318	0.05085	0.11264	0.13035	0.13035
24	2.13208	2.55190	2.18100	2.79399	0.93009	0.93009
25	0.38428	0.49151	0.34282	0.39731	1.37055	1.37055
26	0.73038	1.66052	0.65783	1.95237	2.93591	2.93591
27	4.99981	6.08021	4.72987	6.64223	3.68081	3.68081
28	1.55912	3.04417	1.44073	3.44263	2.98865	2.98865
29	0.71513	0.53634	0.61650	0.37304	1.11779	1.11779
30	0.33636	0.22798	0.32699	0.17396	0.71532	0.71532
31	4.47471	1.84752	4.52936	1.85495	2.18451	2.18451
32	3.19363	0.95292	2.97689	0.68503	1.39212	1.39212
33A	0.14618	0.74487	0.13607	0.68822	0.45033	0.45033
33B	0.09081	0.36334	0.08239	0.32777	0.16981	0.16981
34	0.02065	0.08343	0.00990	0.03948	0.23908	0.23908
35	0.09228	0.10744	0.07279	0.08411	0.34319	0.34319
36	0.01133	0.00022	0.00688	0.00013	0.03147	0.03147
37	0.12986	0.22612	0.10695	0.18492	0.38811	0.38811
38	0.00209	0.00000	0.00000	0.00000	0.08529	0.08529
39	0.03247	0.03270	0.02415	0.02412	0.17221	0.17221
40	0.29448	0.19819	0.32197	0.19398	0.44016	0.44016

EXHIBIT C (CONT'D)

Tract No.	Tract Participation					
	Phase I		Phase II		Phase III	
	Oil	Gas	Oil	Gas	Oil	Gas
41	0.07122	0.10996	0.06099	0.09355	0.26713	0.26713
42	3.15134	1.54441	3.09110	0.98477	1.16515	1.16515
43	0.66554	2.24437	0.49553	1.65710	0.98320	0.98320
44	3.36952	2.34840	3.41061	2.43179	1.86735	1.86735
45	3.64803	5.02853	3.75614	5.47228	2.83435	2.83435
46	1.83355	1.44175	1.86777	1.44663	1.98935	1.98935
47	3.37645	2.81163	3.25911	2.40472	6.10957	6.10957
48	0.59298	0.67176	0.59347	0.77563	0.42645	0.42645
49	1.37425	2.13844	1.32399	2.01128	1.40956	1.40956
50	0.10528	0.20806	0.09598	0.15187	0.23925	0.23925
51	2.01126	3.66274	2.10178	4.19663	2.84880	2.84880
52	0.87710	1.36727	0.86847	1.15993	1.23597	1.23597
53	2.75083	0.69483	2.95624	0.79733	2.50776	2.50776
54	2.07685	1.66517	2.28579	1.41654	1.09210	1.09210
55	2.25105	0.82559	2.43208	0.68204	0.24963	0.24963
56	2.29333	0.86934	2.52115	0.78810	0.10685	0.10685
57	2.91562	1.58446	2.97071	1.46117	3.07756	3.07756
58	4.16481	3.27379	4.73239	3.32535	1.68555	1.68555
59	6.45317	2.42299	6.70337	1.71870	0.33242	0.33242
60A	0.00000	0.00000	0.00000	0.00000	0.00022	0.00022
60B	0.12511	0.20973	0.10695	0.17812	0.00636	0.00636
61A	1.19303	0.63995	1.22347	0.69663	0.09076	0.09076
61B	1.06871	0.35937	1.06806	0.34590	0.01963	0.01963
62	1.15101	0.54376	1.17464	0.58368	0.11411	0.11411
63	1.15287	0.73483	1.17515	0.57763	0.31108	0.31108
64	0.34355	0.18078	0.31251	0.04725	0.01466	0.01466
65	0.37764	0.10272	0.37040	0.05957	0.01661	0.01661
66	2.28031	0.55014	2.47569	0.56246	0.37923	0.37923
67	2.17917	4.86684	2.11608	5.31231	3.40765	3.40765
68	0.96616	1.17272	0.84228	1.04205	2.48452	2.48452
69	1.84129	3.13857	1.80030	3.72411	2.49011	2.49011
70	4.69790	10.71660	4.50257	12.36430	7.98097	7.98097
71	1.47100	2.42416	1.45514	2.76787	2.04430	2.04430
72	0.91041	1.42477	0.83110	1.54778	2.56349	2.56349
73	2.09767	3.87053	1.86731	4.01469	3.47646	3.47646
74	3.40184	2.08463	3.62040	1.60923	3.75733	3.75733
75A	0.64903	2.04432	0.75492	2.40868	2.09583	2.09583
75B	0.95673	0.94199	0.94712	0.84174	2.00533	2.00533
76	2.34959	0.78709	2.36589	0.87467	2.52494	2.52494
77	1.22093	0.44131	1.17282	0.38108	0.70944	0.70944
78	0.22719	0.32052	0.19658	0.18989	0.43429	0.43429
79	2.40938	2.20153	2.30652	1.71149	1.96469	1.96469
80	0.92642	1.33618	0.82805	1.18726	0.67264	0.67264
81	0.14029	0.18401	0.11442	0.14900	0.60098	0.60098
82	0.11572	0.08569	0.10923	0.08047	0.11949	0.11949
83	0.00000	0.00000	0.00000	0.00000	0.04756	0.04756
	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000

RM-470-1 (8-73)
Shell Oil Co.

EXHIBIT D

APPENDIX

"FEDERAL CONTRACT PROVISIONS"

The following provisions are incorporated in the agreement to which this Appendix is attached and shall be applicable to the parties thereunder if and to the extent such agreement is a subcontract or purchase order under a federal contract and inclusion of such provisions is required under applicable Executive Orders or Government Procurement Regulations:

EQUAL OPPORTUNITY CLAUSE

(Executive Order 11246)

(A) Contractor is aware of and is fully informed of Contractor's responsibilities under Executive Order 11246 and shall file compliance reports as required by Section 203 of Executive Order 11246 and otherwise comply with the requirements of such order.

(B) Contractor shall be bound by and agrees to the following provisions as contained in Section 202 of Executive Order 11246, to wit:

"(1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

"(2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

"(3) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the Contractor's commitments under Section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

"(4) The Contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

"(5) The Contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

"(6) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be cancelled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulations, or order of the Secretary of Labor, or as otherwise provided by law.

"(7) The Contractor will include the provisions of Paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions including sanctions for noncompliance; provided, however, that in the event the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States."

(C) Contractor certifies that segregated facilities are not and will not be maintained or provided for Contractor's employees at any of Contractor's establishments; that such employees are not and will not be permitted to perform their services at any location under Contractor's control where segregated facilities are maintained, and, that Contractor is aware of and understands that any breach of the foregoing is a violation of the Equal Opportunity Clause of Executive Order 11246, as included above in paragraph (B). "Segregated facilities" as used herein means any waiting rooms, work areas, rest rooms and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national origin, because of habit, local custom or otherwise.

UTILIZATION OF MINORITY BUSINESS ENTERPRISES

(41 CFR 1-1.13)

(A) It is the policy of the government that minority business enterprises shall have the maximum practicable opportunity to participate in the performance of government contracts.

(B) The Contractor agrees to use his best efforts to carry out this policy in the award of his subcontracts to the fullest extent consistent with the efficient performance of this contract. As used in this contract, the term "Minority Business Enterprise" means a business, at least 50 percent of which is owned by minority group members or, in case of publicly owned businesses, at least 51 percent of the stock of which is owned by minority group members. For the purposes of this definition, minority group members are Negroes, Spanish-speaking American persons, American-Orientals, American-Indians, American-Eskimos, and American-Aleuts. Contractors may rely on written representations by subcontractors regarding their status as minority business enterprises in lieu of an independent investigation.

MINORITY BUSINESS ENTERPRISES SUBCONTRACTING PROGRAM

(41CFR 1-1.13) (Applicable to contracts which may exceed $500,000 in value)

(A) The Contractor agrees to establish and conduct a program which will enable minority business enterprises (as defined in the clause entitled "Utilization of Minority Business Enterprises") to be considered fairly as subcontractors and suppliers under this contract. In this connection, the Contractor shall –

(1) Designate a liaison officer who will administer the Contractor's minority business enterprises program.

(2) Provide adequate and timely consideration of the potentialities of known minority business enterprises in all "make-or-buy" decisions.

(3) Assure that known minority business enterprises will have an equitable opportunity to compete for subcontracts, particularly by arranging solicitations, time for the preparation of bids, quantities, specifications, and delivery schedules so as to facilitate the participation of minority business enterprises.

(4) Maintain records showing (i) procedures which have been adopted to comply with the policies set forth in this clause, including the establishment of a source list of minority business enterprises, (ii) awards to minority business enterprises on the source list, and (iii) specific efforts to identify and award contracts to minority business enterprises.

(5) Include the Utilization of Minority Business Enterprises clause in subcontracts which offer substantial minority business enterprises subcontracting opportunities.

(6) Cooperate with the Contracting Officer in any studies and surveys of the Contractor's minority business enterprises procedures and practices that the Contracting Officer may from time to time conduct.

(7) Submit periodic reports of subcontracting to known minority business enterprises with respect to the records referred to in subparagraph (4), above, in such form and manner and at such time (not more often than quarterly) as the Contracting Officer may prescribe.

(B) The Contractor further agrees to insert, in any subcontract hereunder which may exceed $500,000, provisions which shall conform substantially to the language of this clause, including this paragraph (B), and to notify the Contracting Officer of the names of such subcontractors.

LISTING OF EMPLOYMENT OPENINGS

(41 CFR 50–250)

(A) The contractor, to provide special emphasis to the employment of qualified disabled veterans and veterans of the Vietnam era, agrees that all suitable employment openings of the contractor which exist at the time of the execution of this contract and those which occur during the performance of this contract, including those not generated by this contract and including those occurring at an establishment of the contractor other than the one wherein the contract is being performed but excluding those of independently operated corporate affiliates, shall be offered for listing at an appropriate local office of the State employment service system wherein the opening occurs and to provide such reports to such local office regarding employment openings and hires as may be required: Provided, that if the contract is for less than $10,000 or if it is with a State or local government the reports set forth in paragraphs (C) and (D) of this clause are not required.

(B) Listing of employment openings with the employment service system pursuant to this clause shall be made at least concurrently with the use of any other recruitment service or effort and shall involve the normal obligations which attach to the placing of a bona fide job order, including the acceptance of referrals of veterans and non-veterans. The listing of employment openings does not require the hiring of any particular job applicant or from any particular group of job applicants, and nothing herein is intended to relieve the Contractor from any requirements in any Executive Orders or regulations regarding nondiscrimination in employment.

(C) The reports required by paragraph (A) of this clause shall include, but not be limited to, periodic reports which shall be filed at least quarterly with the appropriate local office or, where the contractor has more than one establishment in a State, with the central office of that State employment service. Such reports shall indicate for each establishment (1) the number of individuals who were hired during the reporting period, (2) the number of those hired who were disabled veterans, and (3) the number who were nondisabled veterans of the Vietnam era. The contractor shall submit a report within 30 days after the end of each reporting period wherein any performance is made on this contract. The contractor shall maintain copies of the reports submitted until the expiration of 1 year after final payment under the contract, during which time they shall be made available, upon request, for examination by any authorized representatives of the contracting officer or of the Secretary of Labor.

(D) Whenever the contractor becomes contractually bound to the listing provisions of this clause, he shall advise the employment service system in each State wherein he has establishments of the name and location of each such establishment in the State. As long as the contractor is contractually bound to these provisions and has so advised the State system there is no need to advise the State system of subsequent contracts. The contractor may advise the State systems when it is no longer bound by this contract clause.

(E) This clause does not apply to the listing of employment openings which occur and are filled outside of the 50 States, the District of Columbia, Puerto Rico, Guam, and the Virgin Islands.

(F) This clause does not apply to openings which the contractor proposes to fill from within his own organization or to fill pursuant to a customary and traditional employer-union hiring arrangement. This exclusion does not apply to a particular opening once an employer decides to consider applicants outside of his own organization or employer-union arrangement for that opening.

(G) As used in this clause:

(1) "All suitable employment openings" includes, but is not limited to, openings which occur in the following job categories: Production and nonproduction; plant and office; laborers and mechanics; supervisory and nonsupervisory; technical; and executive, administrative, and professional openings which are compensated on a salary basis of less than $16,000 per year. This term includes full-time employment, temporary employment of more than 3 days' duration, and part-time employment. It does not include openings which the contractor proposes to fill from within his own organization or to fill pursuant to a customary and traditional employer-union hiring arrangement. Under the most compelling circumstances an employment opening may not be suitable for listing, including such situations where the needs of the Government cannot reasonably be otherwise supplied, where listing would be contrary to national security, or where the requirement of listing would otherwise not be for the best interest of the Government.

(2) "Appropriate office of the State employment service system" means the local office of the Federal-State national system of public employment offices with assigned responsibility for serving the area where the employment opening is to be filled, including the District of Columbia, Guam, Puerto Rico, and the Virgin Islands.

(3) "Openings which the contractor proposes to fill from within his own organization" means employment openings for which no consideration will be given to persons outside the contractor's organization (including any affiliates, subsidiaries, and the parent companies) and includes any openings which the contractor proposes to fill from regularly established "recall" or "rehire" lists.

(4) "Openings which the contractor proposes * * * * to fill pursuant to a customary and traditional employer-union hiring arrangement" means employment openings for which no consideration will be given to persons outside of a special hiring arrangement, including openings which the contractor proposes to fill from union halls, which is part of the customary and traditional hiring relationship which exists between the contractor and representatives of his employees.

(5) "Disabled veteran" means a person entitled to disability compensation under laws administered by the Veterans' Administration for disability rated at 30 per centum or more, or a person whose discharge or release from active duty was for a disability incurred or aggravated in line of duty.

(6) "Veteran of the Vietnam era" means a person (1) who (i) served on active duty for a period of more than 180 days, any part of which occurred after August 5, 1964, and was discharged or released therefrom with other than a dishonorable discharge, or (ii) was discharged or released from active duty for service-connected disability if any part of such duty was performed after August 5, 1964, and (2) who was so discharged or released within the 48 months preceding his application for employment covered under this part.

UNIT OPERATING AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 5562 Exhibit No. 4
Submitted by ~~Conoco~~ Shell
Hearing Date 10-3-79

UNIT OPERATING AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

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UNIT OPERATING AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

THIS AGREEMENT, entered into as of the 1st day of July, 1978, by the parties who have signed the original of this instrument, a counterpart thereof, or other instrument agreeing to be bound by the provisions hereof;

WITNESSETH:

WHEREAS, the parties hereto as Working Interest Owners have executed, as of the date hereof, an agreement entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", herein referred to as "Unit Agreement", which among other things, provides for a separate agreement to be entered into by Working Interest Owners to provide for the development and operation of the Unit Area as therein defined;

NOW, THEREFORE, in consideration of the mutual agreements herein set forth, it is agreed as follows:

ARTICLE 1
CONFIRMATION OF UNIT AGREEMENT

1.1 Confirmation of Unit Agreement. The Unit Agreement is hereby confirmed and by reference made a part of this agreement. The definitions in the Unit Agreement are adopted for all purposes of this agreement. If there is any conflict between the Unit Agreement and this agreement, the Unit Agreement shall govern.

1.2 Additional Definitions. For the purpose of this agreement, the following terms and expressions as used herein shall mean:

(a) "Investment Participation" shall mean the sum of .58 Phase II Unit Participation and .42 Phase III Unit Participation.

(b) "Investment Readjustment Date" shall mean the date of termination of Phase II or January 1, 1991, whichever is the earlier date."

ARTICLE 2
EXHIBITS

2.1 Exhibits. The following exhibits are incorporated herein by reference:

2.1.1 Exhibits A, B, C and D of the Unit Agreement.

2.1.2 Exhibit E, attached hereto, is a schedule showing the Tract Participation, the Unit Participation, and the Investment Participation of each Working Interest Owner. Exhibit E, or a revision thereof, shall not be conclusive as to the information therein, except it may be used as showing the Unit Participations of Working Interest Owners for purposes of this agreement until shown to be in error or revised as herein authorized.

2.1.3 Exhibit F, attached hereto, is the Accounting Procedure applicable to Unit Operations. If there is any conflict between this agreement and Exhibit F, this agreement shall govern.

2.1.4 Exhibit G, attached hereto, contains insurance provisions applicable to Unit Operations.

2.1.5 Exhibit H, attached hereto, is a form of Indemnity Agreement required under the provisions of Section 14(c) of the Unit Agreement.

2.2 Revision of Exhibits. Whenever Exhibits A, B or C are revised, Exhibit E shall be revised accordingly and be effective as of the same date. Unit Operator shall also revise Exhibit E from time to time as required to conform to changes in ownership of which Unit Operator has been notified as provided in the Unit Agreement.

2.3 Reference to Exhibits. When reference is made herein to an exhibit, it is to the exhibit as originally attached, or, if revised, to the last revision.

ARTICLE 3
SUPERVISION OF OPERATIONS BY WORKING INTEREST OWNERS

3.1 Overall Supervision. Working Interest Owners shall exercise overall supervision and control of all matters pertaining to Unit Operations pursuant to this agreement and the Unit Agreement. In the exercise of such authority, each Working Interest Owner shall act solely in its own behalf in the capacity of an individual owner and not on behalf of the owners as an entirety.

3.2 Specific Authorities and Duties. The matters with respect to which the Working Interest Owners shall decide and take action shall include, but not be limited to, the following:

3.2.1 Method of Operation. The method of operation, including any type of pressure maintenance, enhanced recovery, or other recovery program to be employed.

3.2.2 Drilling of Wells. The drilling of any well whether for production of Unitized Substances, for use as an injection well, or for other purposes.

3.2.3 Abandonment and Change of Status of Wells. The abandonment of any well or change of status of any well by converting such well for use as an injector or for any purpose other than production of Unitized Substances.

3.2.4. Expenditures. The making of any single expenditure in excess of twenty-five thousand dollars ($25,000); provided that, approval by Working Interest Owners of the drilling, reworking, deepening, or plugging back of any well shall include approval of all necessary expenditures required therefor, and for completing, testing, and equipping the well, including necessary flow lines, separators, and lease tankage.

3.2.5 Disposition of Unit Equipment. The selling or otherwise disposing of any major item of surplus Unit Equipment, if the list price of new equipment similar thereto is seven thousand five hundred dollars ($7,500) or more.

3.2.6. Appearance Before a Court or Regulatory Agency. The designating of a representative to appear before any court or regulatory agency in matters pertaining to Unit Operations; provided, however, that Unit Operator shall act as such representative in the absence of the designation of a different representative by Working Interest Owners, and provided, further, that such designation shall not prevent any Working Interest Owner from appearing in person or from designating another representative in its own behalf.

3.2.7 Audits. The auditing of the accounts of Unit Operator pertaining to Unit Operations hereunder; however, the audits shall

(a) not be conducted more than once each year except upon the resignation or removal of Unit Operator, and

(b) be made upon approval of the owner or owners of a majority of Working Interest other than that of Unit Operator, at the expense of all Working Interest Owners other than Unit Operator, or

(c) be made at the expense of those Working Interest Owners requesting such audit, if owners of less than a majority of Working Interest, other than that of Unit Operator, request such an audit, and

(d) be made upon not less than thirty (30) days' written notice to Unit Operator.

3.2.8 Inventories. The taking of periodic inventories under the terms of Exhibit F.

3.2.9 Technical Services. The authorizing of charges to the joint account for services by consultants or Unit Operator's technical personnel not covered by the overhead charges provided by Exhibit F.

3.2.10 Assignments to Committees. The appointment of committees to study any problems in connection with Unit Operations.

3.2.11 The removal of Unit Operator and the selection of a successor.

3.2.12 The enlargement of the Unit Area.

3.2.13 The adjustment and readjustment of investments.

3.2.14 The termination of the Unit Agreement.

ARTICLE 4
MANNER OF EXERCISING SUPERVISION

4.1 Designation of Representatives. Each Working Interest Owner shall inform Unit Operator in writing of the names and addresses of the representative and alternate who are authorized to represent and bind such Working Interest Owner with respect to Unit Operations. The representative or alternate may be changed from time to time by written notice to Unit Operator.

4.2 Meetings. All meetings of Working Interest Owners shall be called by Unit Operator upon its own motion or at the request of two (2) or more Working Interest Owners having a total voting interest of not less than ten percent (10%). No meeting shall be called on less than fourteen (14) days' advance written notice, with agenda for the meeting attached. Working Interest Owners who attend the meeting may amend items included in the agenda and may act upon an amended item or other items presented at the meeting; provided, however, that no expenditure or commitment for expenditure may be authorized unless it is included in the agenda attached to the notice of the meeting. The representative of Unit Operator shall be chairman of each meeting. The parties hereto may reduce the notice requirement to not less than three (3) days and may waive the requirement for an attached agenda by consent of Working Interest Owners having a combined voting interest not less than that required for an affirmative vote under the provision of Section 4.3.2.

4.3 Voting Procedure. Working Interest Owners shall decide all matters coming before them as follows:

4.3.1 Voting Interest. Each Working Interest Owner shall have a voting interest equal to its Phase II Unit Participation during Phase I and Phase II and equal to its Phase III Unit Participation during Phase III, depending upon which phase is in effect at the time the vote is taken.

4.3.2 Vote Required. Unless otherwise provided herein or in the Unit Agreement, Working Interest Owners shall determine all matters by the affirmative vote of Working Interest Owners have a combined voting interest of at least sixty-five percent (65%); however, should any one Working Interest Owner have more than thirty-five percent (35%) voting interest, its negative vote or failure to vote shall not defeat a motion, and such motion shall pass if approved by Working Interest Owners having a majority voting interest, unless one or more Working Interest Owners having a combined voting interest of at least five percent (5%) likewise vote against the motion or fail to vote.

4.3.3 Vote at Meeting by Nonattending Working Interest Owner. Any Working Interest Owner who is not represented at a meeting may vote by letter or telegram addressed to the representative of the Unit Operator if its vote is received prior to the vote on the item.

4.3.4 Poll Votes. Working Interest Owners may vote on and decide, by letter or telegram, any matter submitted in writing to Working Interest Owners. If no meeting is requested, as provided in Section 4.2, within seven (7) days after a written proposal is sent to Working Interest Owners, the vote taken by letter or telegram shall become final. Unit Operator will give prompt noice of the results of such voting to all Working Interest Owners.

ARTICLE 5
INDIVIDUAL RIGHTS OF WORKING INTEREST OWNERS

5.1 Reservation of Rights. Working Interest Owners severally reserve to themselves all their rights, except as otherwise provided in this agreement and the Unit Agreement.

5.2 Specific Rights. Each Working Interest Owner shall have, among others, the following specific rights:

5.2.1 Access to Unit Area. Access to the Unit Area at all reasonable times to inspect Unit Operations, all wells, and the records and data pertaining thereto.

5.2.2 Reports. The right to receive from Unit Operator, upon written request, copies of all reports to any governmental agency, reports of crude oil runs and stocks, inventory reports, and all other information pertaining to Unit Operations. The cost of gathering and furnishing information not ordinarily furnished by Unit Operator to all Working Interest Owners shall be charged to the Working Interest Owner that requires the information.

ARTICLE 6
UNIT OPERATOR

6.1 Unit Operator. Shell Oil Company is hereby designated as the Unit Operator.

6.2 Resignation or Removal and Selection of Successor. The resignation or removal of Unit Operator and the selection of a successor shall be governed by the provisions of the Unit Agreement.

ARTICLE 7
AUTHORITIES AND DUTIES OF UNIT OPERATOR

7.1 Exclusive Right to Operate Unit. Subject to the provisions of this agreement and to instructions from Working Interest Owners, Unit Operator shall have the exclusive right and be obligated to conduct Unit Operations.

7.2 Workmanlike Conduct. Unit Operator shall conduct Unit Operations in a good and workmanlike manner as would a prudent operator under the same or similar circumstances. Unit Operator shall freely consult with Working Interest Owners and keep them informed of all matters which Unit Operator, in the exercise of its best judgment, considers important. Unit Operator shall not be liable to Working Interest Owners for damages, unless such damages result from its gross negligence or willful misconduct.

7.3 Liens and Encumbrances. Unit Operator shall endeavor to keep the lands, leases and Unit Equipment in the Unit Area free from all liens and encumbrances occasioned by Unit Operations, except the lien and security interest of Unit Operator granted hereunder.

7.4 Employees. The number of employees used by Unit Operator in conducting Unit Operations, their selection, hours of labor, and compensation shall be determined by Unit Operator. Such employees shall be the employees of Unit Operator.

7.5 Records. Unit Operator shall keep correct books, accounts, and records of Unit Operations.

7.6 Reports to Working Interest Owners. Unit Operator shall furnish to Working Interest Owners quarterly reports of Unit Operations or reports at such less-frequent intervals as may be approved by Working Interest Owners.

7.7 Reports to Governmental Authorities. Unit Operator shall make all reports to governmental authorities that it has the duty to make as Unit Operator.

7.8 Engineering and Geological Information. Unit Operator shall furnish to a Working Interest Owner, upon written request, a copy of all logs and other engineering and geological data pertaining to wells drilled for Unit Operations.

7.9 Expenditures. Unit Operator is authorized to make single expenditures not in excess of twenty-five thousand dollars ($25,000) without prior approval of Working Interest Owners; provided that any capital expenditure in excess of five thousand dollars ($5,000) will be described in an informational authority for expenditure furnished to Working Interest Owners, except individual Working Interest Owners declining to receive such information. If an emergency occurs, Unit Operator may immediately make or incur such expenditures as in its opinion are required to deal with the emergency. Unit Operator shall report to Working Interest Owners, as promptly as possible, the nature of the emergency and the action taken.

7.10 Wells Drilled by Unit Operator. All wells drilled by Unit Operator shall be on a competitive bid basis. Unit Operator may employ its own tools and equipment under terms and conditions approved by Working Interest Owners.

7.11 Border Agreements. Unit Operator may, after approval by Working Interest Owners, enter into border agreements with respect to lands adjacent to the Unit Area for the purpose of coordinating operations.

ARTICLE 8
TAXES

8.1 Ad Valorem Taxes. Beginning with the first calendar year commencing after the Effective Date hereof, Unit Operator shall make and file all necessary ad valorem tax renditions and returns with the proper taxing authorities with respect to all property of each Working Interest Owner used or held by Unit Operator for Unit Operations. Unit Operator shall settle assessments arising therefrom. All such ad valorem taxes shall be paid by Unit Operator and charged to the joint account; however, if the interest of a Working Interest Owner is subject to a separately assessed overriding royalty interest, production payment, or other interest in excess of a one-eighth (1/8) royalty, such Working Interest Owner shall notify Unit Operator of such interest prior to the rendition date and shall be given credit for the reduction in taxes paid resulting therefrom.

8.2 Other Taxes. Each Working Interest Owner shall pay or cause to be paid all production, severance, gathering, and other taxes imposed upon or with respect to the production or handling of its share of Unitized Substances.

ARTICLE 9
INSURANCE

9.1 Insurance. Unit Operator, with respect to Unit Operations, shall:

9.1.1 Comply with the Workmen's Compensation Law of the State of New Mexico.

9.1.2 Provide employers' liability insurance with a limit of $100,000.

9.1.3. Provide other insurance as set forth in Exhibit G.

ARTICLE 10
ADJUSTMENT OF INVESTMENTS

10.1 Personal Property Taken Over. Upon the Effective Date hereof, Working Interest Owners shall deliver to Unit Operator the following:

10.1.1 Wells and Casing. All wells completed in the Unitized Formation, together with all casing therein.

10.1.2 Well and Lease Equipment. The tubing in each such well, the wellhead connections thereon, and all other well, lease and operating equipment used in the operation of such wells which Working Interest Owners determine is necessary or desirable for conducting Unit Operations. Working Interest Owners shall make such determination as soon as practicable after the Effective Date hereof, and all of such property that is determined to be surplus shall be returned as promptly as possible to the Working Interest Owners who delivered same to Unit Operator. Property determined by Working Interest Owners to be surplus shall not be considered to have been taken over under this agreement.

10.1.3 Condition of Wells. All wells, including the casing therein, shall be delivered to Unit Operator in reasonably good physical condition capable of being used for Unit Operations. If within one hundred and eighty (180) days after the Effective Date hereof (a) any such well is determined by the Working Interest Owners not to have been in reasonably good physical condition on said Effective Date, or (b) any casing failure or leak is discovered by Unit Operator in any such well, whether such casing failure or leak developed before or after the Effective Date hereof, the Working Interest Owner who contributed such well shall be liable to the other Working Interest Owners for liquidated damages in an amount, measured by the cost to Working Interest Owners of repairing such well or drilling a replacement well, not to exceed fifty thousand dollars ($50,000), provided that any amount in excess of fifty thousand dollars ($50,000) shall be treated as any other item of Unit Expense and charged to the joint account.

10.1.4 Records. A copy of all production and well records that pertain to such wells.

10.2 Inventory and Evaluation of Personal Property. Working Interest Owners shall at Unit Expense inventory and evaluate the personal property taken over under Section 10.1.2, except flowlines, and shall inventory the

casing taken over under Section 10.1.1, but casing shall be given no value. Such inventories shall include and be limited to those items of equipment indicated to be controllable in the most recent edition of the "Materials Classification Manual" prepared by the Council of Petroleum Accountants Societies of North America, except that, upon determination of Working Interest Owners, items considered noncontrollable may be included in the inventory in order to insure a more equitable adjustment of investment. All noncontrollable items of well and lease equipment installed within the Unit Area that are required in Unit Operations, although excluded from the inventories, shall nevertheless be taken over by the Unit Operator. Immediately following completion of such inventory, the material and equipment taken over under Section 10.1.2 shall be priced at a realistic value as determined by the Working Interest Owners, which pricing shall be performed under the supervision of, by the personnel of, and in the offices of the Unit Operator, with other Working Interest Owners furnishing such additional pricing help as may be available and necessary.

10.3 Investment Adjustment. Upon approval by Working Interest Owners of the inventory and evaluation, investments shall be adjusted as follows:

10.3.1 Initial Adjustment of Investments. Each Working Interest Owner shall be credited with the value, as determined in accordance with Section 10.2 above, of its interest in all personal property taken over by Unit Operator under Section 10.1.2 and charged with an amount equal to that obtained by multiplying the total value of all such personal property taken over by Unit Operator under Section 10.1.2 by such Working Interest Owner's Investment Participation, as shown on Exhibit E. If the charge against any Working Interest Owner is greater than the amount credited to such Working Interest Owner, the resulting net charge shall be paid and in all other respects be treated as any other item of Unit Expense chargeable against such Working Interest Owner. If the credit to any Working Interest Owner is greater than the amount charged against such Working Interest Owner, the resulting net credit shall be paid to such Working Interest Owner by Unit Operator out of funds received by it in settlement of the net charges described above.

10.3.2 Readjustments of Investments. Effective as of the Investment Readjustment Date, the investment account of the Working Interest Owners hereunder shall be readjusted on the basis of their respective Phase III Unit Participations, as shown on Exhibit E. For the purposes of such readjustment, each Working Interest Owner shall be (1) credited for its interest in the adjusted value of all personal property and facilities taken over or otherwise acquired by the Unit Operator pursuant to this agreement prior to the Investment Readjustment Date, and (2) charged with an amount equal to that obtained by multiplying the same adjusted value of personal property and facilities by such Working Interest Owner's Phase III Unit Participation. The adjusted value of all personal property and facilities for the purposes of this Section 10.3.2 shall be determined as follows:

(a) Value personal property and facilities initially taken over by Unit Operator on the same basis as that used when such personal property and facilities were taken over.

(b) Value all other investment items (controllable and noncontrollable materials and construction costs) acquired prior to the Investment Readjustment Date, including well casing subsequently purchased and installed, injection well conversion costs, and tank battery consolidation costs, on the basis of cost to the joint account.

(c) Add (a) and (b) together and deduct the value of all items of investment retired prior to the Investment Readjustment Date on the same basis that such items were originally charged.

Each Working Interest Owner shall be charged or credited with the net cash amount necessary to effect such readjustment of the investment account, and such charges and credits shall be settled in the same manner as the charges and credits referred to in Section 10.3.1.

10.4 General Facilities and Abandoned Installations. The acquisition of warehouses, warehouse stocks, lease houses, camps, facility systems, and office buildings necessary for Unit Operations shall be by negotiation by the owners thereof and Unit Operator, subject to the approval of Working Interest Owners. There shall be no adjustment for lease roads or appurtenances thereto.

10.5 Exchange of Interest in and Ownership of Personal Property and Facilities. Each Working Interest Owner hereby exchanges, and agrees to exchange, its interest in all of the personal property and facilities described in Section 10.1.2 above for its proportionate interest, as shown for Investment Participation on Exhibit E during the time prior to the Investment Readjustment Date and as shown for Phase III Unit Participation on Exhibit E from and after the Investment Readjustment Date in all such personal property and facilities described in Section 10.1.2. Each Working Interest Owner, individually, shall by virtue hereof own an undivided interest in all personal property and facilities taken over or otherwise acquired by Unit Operator pursuant to this agreement.

ARTICLE 11
UNIT EXPENSE

11.1 Basis of Charge to Working Interest Owners. Unit Operator initially shall pay all Unit Expense. Each Working Interest Owner shall reimburse Unit Operator for its share of Unit Expense on the basis provided in Sections 11.1.1 and 11.1.2 below. All charges, credits, and accounting for Unit Expense shall be in accordance with Exhibit F.

11.1.1. Operating Expense. Operating expense shall be shared and borne by Working Interest Owners in proportion to Phase I, Phase II or Phase III Unit Participation, whichever phase is in effect at the time such expense was incurred.

11.1.2. Investment Cost. The cost of investment items (as described in Section 10.3.2 (b) above) incurred prior to the Investment Readjustment Date shall be shared and borne by Working Interest Owners in proportion to Investment Participation. The cost of such investment items incurred after the Investment Readjustment Date shall be shared and borne by Working Interest Owners in proportion to Phase III Unit Participation.

11.2 Budgets. Before or as soon as practical after the Effective Date hereof, Unit Operator shall prepare a budget of estimated Unit Expense for the remainder of the calendar year, and, on or before the first day of each August thereafter, shall prepare such a budget for the ensuing calendar year. A budget shall set forth the estimated Unit Expense by quarterly periods. Budgets shall be estimates only, and shall be adjusted or corrected by Working Interest Owners and Unit Operator whenever an adjustment or correction is proper. A copy of each budget and adjusted budget shall promptly be furnished to each Working Interest Owner.

11.3 Advance Billings. Unit Operator shall have the right, without prejudice to other rights or remedies, to require Working Interest Owners to advance their respective shares of estimated Unit Expense by submitting to Working Interest Owners, on or before the 15th day of any month, an itemized estimate thereof for the succeeding month, with a request for payment in advance. Within fifteen (15) days thereafter, each Working Interest Owner shall pay to Unit Operator its share of such estimate. Adjustments between estimated and actual Unit Expense shall be made by Unit Operator at the close of each calendar month, and the accounts of Working Interest Owners shall be adjusted accordingly.

11.4 Commingling of Funds. Funds received by Unit Operator under this agreement need not be segregated or maintained by it as a separate fund, but may be commingled with its own funds.

11.5 Liens and Security Interest of Unit Operator. Each Working Interest Owner grants to Unit Operator and Unit Operator shall have as to each Working Interest Owner a lien upon its Oil and Gas Rights in each Tract, and a security interest in its share of Unitized Substances when extracted, and its interest in all Unit Equipment, to secure payment of its share of Unit Expense, together with interest thereon at the rate of twelve percent (12%) per annum or the maximum contract rate permitted by applicable usury laws, whichever is the lesser; provided, however, that notwithstanding anything in this agreement to the contrary, said lien shall not be enforceable by foreclosure and sale of the Oil and Gas Rights of any Working Interest Owner which is not a signatory party to this agreement.

To the extent that Unit Operator has a security interest under the Uniform Commercial Code of the State of New Mexico, Unit Operator shall be entitled to exercise the rights and remedies of a secured party under the Code. The bringing of a suit and the obtaining of judgment by Unit Operator for the secured indebtedness shall not be deemed an election of remedies or otherwise affect the lien rights or security interest as security for the payment thereof. In addition, upon default by any Working Interest Owner in the payment of its share of Unit Expense, Unit Operator shall have the right, without prejudice to other rights or remedies, to collect from the purchaser the proceeds from the sale of such Working Interest Owner's share of Unitized Substances until the amount owed by such Working Interest Owner, plus interest as aforesaid, has been paid. Each purchaser shall be entitled to rely upon Unit Operator's written statement concerning the amount of any default. Unit Operator hereby grants to the other Working Interest Owners a similar lien upon all of Unit Operator's right, title and interest as a Working Interest Owner hereunder as security for payment of any and all amounts that may become due and owing hereunder by Unit Operator to any of such other Working Interest Owners.

11.6 Unpaid Unit Expense. If any Working Interest Owner fails to pay its share of Unit Expense within sixty (60) days after rendition of a statement therefor by Unit Operator, each Working Interest Owner which is a signatory party to this agreement shall, upon request by Unit Operator, pay its proportionate part of the unpaid share of Unit Expense of the non-paying Working Interest Owner. Working Interest Owners that pay the share of Unit Expense of a non-paying Working Interest Owner shall be reimbursed by the Unit Operator for the amount so paid, plus any interest collected thereon, upon receipt by Unit Operator of any past due amount collected from or otherwise received for the account of the non-paying Working Interest Owner. Each Working Interest Owner so paying a non-paying Working Interest Owner's share of Unit Expense shall be subrogated to the lien and other rights herein granted Unit Operator, and each such Working Interest Owner, in proportion to the amounts so paid and not reimbursed, shall have and be entitled to exercise the voting interest of the non-paying Working Interest Owner.

11.7 Carved-out Interest. If any Working Interest Owner shall, after becoming bound by this agreement, create an overriding royalty, production payment, net proceeds interest, carried interest, or any other interest out of its Working Interest, such carved-out interest shall be subject to the terms and provisions of this agreement, specifically including, but without limitation, Section 11.5 hereof entitled "Lien and Security Interest of Unit Operator". If the Working Interest Owner creating such carved-out interest (a) fails to pay any Unit Expense chargeable to such Working Interest Owner under this agreement, and the production of Unitized Substances accruing to the credit of such Working Interest Owner is insufficient for that purpose, or (b) withdraws from this agreement under the terms and provisions of Article 17 hereof, the carved-out interest

shall be chargeable with a pro rata portion of all Unit Expense incurred hereunder, the same as though such carved-out interest were a Working Interest, and Unit Operator shall have the right to enforce against such carved-out interest the lien and all other rights granted in Section 11.5 for the purpose of collecting the Unit Expense chargeable to the carved-out interest.

11.8 Uncommitted Royalty. Should an owner of a Royalty Interest in any Tract fail to become a party to the Unit Agreement, and, as a result thereof, the actual Royalty Interest payments with respect to such Tract are more or less than the Royalty Interest payments computed on the basis of the Unitized Substances that are allocated to such Tract under the Unit Agreement, the difference shall be borne by or inure to the benefit of Working Interest Owners, in proportion to their respective Unit Participations at the time the Unitized Substances were produced; however, the difference to be borne by or inure to the benefit of Working Interest Owners shall not exceed an amount computed on the basis of one-eighth (1/8) of the difference between the Unitized Substances allocated to the Tract and the Unitized Substances produced from the Tract. Such adjustments shall be made by charges and credits to the joint account.

11.9 Rentals. The Working Interest Owners in each Tract shall pay and bear all rentals, minimum royalty, advance rentals or delay rentals due under the lease thereon and shall concurrently submit to the Unit Operator evidence of payment.

ARTICLE 12
NONUNITIZED FORMATIONS

12.1 Right to Operate. Any Working Interest Owner that now has or hereafter acquires the right to drill for and produce oil, gas, or other minerals, from a formation underlying the Unit Area other than the Unitized Formation, shall have the right to do so notwithstanding this agreement or the Unit Agreement. In exercising the right, however, the Working Interest Owner shall exercise care to prevent unreasonable interference with Unit Operations. No Working Interest Owner shall produce Unitized Substances through any well drilled or operated by it. If any Working Interest Owner drills any well into or through the Unitized Formation, the Unitized Formation shall be protected in a manner satisfactory to Working Interest Owners so that production of Unitized Substances will not be adversely affected.

12.2 Multiple Completions. No well now or hereafter completed in the Unitized Formation shall ever be completed as a multiple completion with the Unitized Formation and any other formation unless such multiple completion and the subsequent handling of the multiple completion is approved by Working Interest Owners in accordance with the voting procedure set out in Section 4.3.2 of this agreement.

ARTICLE 13
TITLES

13.1 Warranty and Indemnity. Each Working Interest Owner represents and warrants that it is the owner of the respective Working Interests set forth opposite its name in Exhibit B, and agrees to indemnify and hold harmless the other Working Interest Owners from any loss due to failure, in whole or in part, of its title to any such interest, except failure of title arising because of Unit Operations; however, such indemnity and any liability for breach of warranty shall be limited to an amount equal to the net value that has been received from the sale or receipt of Unitized Substances attributed to the interest as to which title failed. Each failure of title will be deemed to be effective, insofar as this agreement is concerned, as of 7:00 a.m. on the first day of the calendar month in which such failure is finally determined, and there shall be no retroactive adjustment of Unit Expense, or retroactive allocation of Unitized Substances or the proceeds therefrom, as a result of a title failure.

13.2 Failure Because of Unit Operations. The failure of title to any Working Interest in any Tract because of Unit Operations, including non-production from such Tract, shall not change the Unit Participation of the Working Interest Owner whose title failed in relation to the Unit Participation of the other Working Interest Owners at the time of the title failure.

ARTICLE 14
LIABILITY, CLAIMS, AND SUITS

14.1 Individual Liability. The duties, obligations, and liabilities of Working Interest Owners shall be several and not joint or collective; and nothing herein contained shall ever be construed as creating a partnership of any kind, joint venture, association, or trust among Working Interest Owners.

14.2 Settlements. Unit Operator may settle any single damage claim or suit involving Unit Operations if the expenditure does not exceed seven thousand five hundred dollars ($7,500.00) and if the payment is in complete settlement of such claim or suit. If the amount required for settlement exceeds the above specified amount, Working Interest Owners shall assume and take over the further handling of the claim or suit unless such authority is expressly delegated to Unit Operator. All costs and expense of handling, settling, or otherwise discharging such claim or suit shall be an item of Unit Expense. If a claim is made against any Working Interest Owner or if any Working Interest Owner is sued on account of any matter arising from Unit Operations over which such Working Interest Owner individually has no control because of the rights given Working Interest Owners and Unit Operator by this agreement and the Unit Agreement, the Working Interest Owner shall immediately notify the Unit Operator, and the claim or suit shall be treated as any other claim or suit involving Unit Operations.

ARTICLE 15
INTERNAL REVENUE PROVISION

15.1 Internal Revenue Provision. Notwithstanding any provisions herein that the rights and liabilities of the parties hereunder are several and not joint or collective, or that this agreement and operations hereunder shall not constitute a partnership, if for Federal income tax purposes this agreement and the operations hereunder are regarded as a partnership, then each of the parties hereto elects to be excluded from the application of all of the provisions of Subchapter K, Chapter 1, Subtitle A, of the Internal Revenue Code of 1954, as permitted and authorized by Section 761 of the Code and the regulations promulgated hereunder. Each party hereto agrees not to give any notices or take any other action inconsistent with the election made hereby. If any present or future income tax laws of the state or states in which the Unit Area is located, or any future income tax law of the United States, contain provisions similar to those in Subchapter K, Chapter 1, Subtitle A, of the Internal Revenue Code of 1954, under which an election similar to that provided by Section 761 of the Code is permitted, each of the parties agree to make such election as may be permitted or required by such laws. In making this election, each of the parties states that the income derived by such party from the operations under this agreement can be adequately determined without the computation of partnership taxable income.

ARTICLE 16
NOTICES

16.1 Notices. All notices required hereunder shall be in writing and shall be deemed to have been properly served when sent by mail or telegram to the address of the representative of each Working Interest Owner as furnished to Unit Operator in accordance with Article 4.

ARTICLE 17
WITHDRAWAL OF WORKING INTEREST OWNER

17.1 Withdrawal. A Working Interest Owner may withdraw from this Agreement by transferring, without warranty of title either express or implied, to the Working Interest Owners who do not desire to withdraw all its Oil and Gas Rights, exclusive of Royalty Interests, together with its interest in all Unit Equipment and in all wells used in Unit Operations, provided that such transfer shall not relieve such Working Interest Owner from any obligation or liability incurred prior to the first day of the month following receipt by Unit Operator of such transfer, and further provided that each of the non-transferring Working Interest Owners shall have the option to acquire a transferred interest and shall indicate such election by notifying the Unit Operator in writing within thirty (30) days of notice of withdrawal. The delivery of the transfer shall be made to Unit Operator for the transferees. The transferred interest shall be owned by the transferees in proportion to their respective Unit Participations. The

transferees, in proportion to the respective interests so acquired, shall pay the transferor for its interest in Unit Equipment, the salvage value thereof less its share of the estimated cost of salvaging same and of plugging and abandoning all wells then being used or held for Unit Operations, as determined by Working Interest Owners. In the event such withdrawing owner's interest in the aforesaid salvage value is less than such owner's share of such estimated costs, the withdrawing owner, as a condition precedent to withdrawal, shall pay the Unit Operator, for the benefit of Working Interest Owners succeeding to its interest, a sum equal to the deficiency. Within sixty (60) days after receiving delivery of the transfer, Unit Operator shall render a final statement to the withdrawing owner for its share of Unit Expense, including any deficiency in salvage value as determined by Working Interest Owners, incurred as of the first day of the month following the date of receipt of the transfer. Provided all Unit Expense, including any deficiency hereunder, due from the withdrawing owner has been paid in full within thirty (30) days after the rendering of such final statement by the Unit Operator, withdrawing owner shall be relieved from all further obligations and liabilities hereunder and under the Unit Agreement, and the rights of the withdrawing Working Interest Owner hereunder and under the Unit Agreement shall cease insofar as they existed by virtue of the interest transferred.

17.2 Limitation on Withdrawal. Notwithstanding anything set forth in Section 17.1, Working Interest Owners may refuse to permit the withdrawal of a Working Interest Owner if its Working Interest is burdened by any royalties, overriding royalties, production payments, net proceeds interest, carried interest, or any other interest created out of the Working Interest in excess of one-eighth (1/8) lessor's royalty, unless other Working Interest Owners willing to accept the assignment agree to accept the Working Interest subject to such burdens.

ARTICLE 18
ABANDONMENT OF WELLS

18.1 Rights of Former Owners. If Working Interest Owners decide to abandon permanently any well within the Unit Area prior to termination of the Unit Agreement, Unit Operator shall give written notice thereof to the Working Interest Owners of the Tract on which the well is located, and they shall have the option for a period of ninety (90) days after the sending of such notice to notify Unit Operator in writing of their election to take over and own the well. Within thirty (30) days after the Working Interest Owners of the Tract have notified Unit Operator of their election to take over the well, they shall pay Unit Operator, for credit to the joint account, the amount estimated by Working Interest Owners to be the net salvage value, as determined by Working Interest Owners, of the casing and equipment in and on the well up to and including the wellhead equipment, except the casing therein if contributed by such Working Interest Owners under Section 10.1.1. The Working Interest Owners of the Tract, by taking

over the well, agree to seal off effectively and protect the Unitized Formation, and upon abandonment to plug the well in compliance with applicable laws and regulations.

18.2 Plugging. If the Working Interest Owners of a Tract do not elect to take over a well located within the Unit Area that is proposed for abandonment, Unit Operator shall at Unit Expense plug and abandon the well in compliance with applicable laws and regulations.

ARTICLE 19
EFFECTIVE DATE AND TERM

19.1 Effective Date. This agreement shall become effective when the Unit Agreement becomes effective.

19.2 Term. This agreement shall continue in effect so long as the Unit Agreement remains in effect, and thereafter until (a) all unit wells have been plugged and abandoned or turned over to Working Interest Owners in accordance with Article 20, (b) all Unit Equipment and real property acquired for the joint account have been disposed of by Unit Operator in accordance with instructions of Working Interest Owners, and (c) there has been a final accounting.

ARTICLE 20
ABANDONMENT OF OPERATIONS

20.1 Termination. Upon termination of the Unit Agreement, the following will occur:

20.1.1 Oil and Gas Rights. Oil and Gas Rights in and to each separate Tract shall no longer be affected by this agreement, and thereafter the parties shall be governed by the terms and provisions of the leases, contracts, and other instruments affecting the separate Tracts.

20.1.2 Right to Operate. Working Interest Owners of any Tract that desire to take over and continue to operate wells located thereon may do so by paying Unit Operator, for credit to the joint account, the amount estimated by Working Interest Owners to be the net salvage value, as determined by Working Interest Owners, of the casing and equipment up to and including the wellhead equipment in and on the wells taken over, except the casing therein if contributed by such Working Interest Owners under Section 10.1.1, and by agreeing to plug properly each well at such time as it is abandoned.

20.1.3 Salvaging Wells: Unit Operator shall salvage as much of the casing and equipment in or on wells not taken over by Working

Interest Owners of separate Tracts as can economically and reasonably be salvaged, and shall cause the wells to be plugged and abandoned in compliance with applicable laws and regulations.

20.1.4 Cost of Abandonment. The cost of abandonment of Unit Operations shall be Unit Expense.

20.1.5 Distribution of Assets. Working Interest Owners shall share in the distribution of Unit Equipment, or the proceeds thereof, in the same proportion as then applicable to the sharing of investment costs.

ARTICLE 21
EXECUTION

21.1 Original, Counterpart, or Other Instrument. An owner of a Working Interest may become a party to this agreement by signing the original of this instrument, a counterpart thereof, or other instrument agreeing to be bound by the provisions hereof. The signing of any such instrument shall have the same effect as if all the parties had signed the same instrument.

ARTICLE 22
SUCCESSORS AND ASSIGNS

22.1 Successors and Assigns. This agreement shall extend to, be binding upon, and inure to the benefit of the parties hereto and their respective heirs, devisees, legal representatives, successors, and assigns, and shall constitute a covenant running with the lands, leases, and interests covered hereby.

IN WITNESS WHEREOF, the parties hereto have executed this agreement on the dates opposite their respective signatures.

SHELL OIL COMPANY
Unit Operator and Working Interest Owner

Date: July 31, 1978

By: Robert L. Avary
Attorney in Fact
ROBERT L. AVARY
P. O. Box 991
Houston, Texas 77001

STATE OF TEXAS)
)
COUNTY OF HARRIS)

The foregoing instrument was acknowledged before me this 31st day of July, 1978, by ROBERT L. AVARY, Attorney in Fact for SHELL OIL COMPANY, a Delaware corporation, on behalf of said corporation.

My Commission expires:

BELINDA ROEBER
Notary Public in and for Harris County, Texas
My Commission Expires July 21, 1979

Belinda Roeber
Notary Public in and for
Harris County, Texas

EXHIBIT E
ATTACHED TO UNIT OPERATING AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

UNIT PARTICIPATION AND INVESTMENT PARTICIPATION

Tract No.	Working Interest Owner	Working Interest In Tract	Unit Participation (By Tracts) Phase I	Phase II	Phase III	Investment Participation* (By Tracts)
1	Getty Oil Company	100.00000	0.04166	0.03449	0.13978	0.07871
2	Amerada Hess Corporation	100.00000	0.04372	0.03496	0.20696	0.10720
3	Gulf Oil Corporation	100.00000	0.03122	0.02643	0.08361	0.05045
4	Texas Pacific Oil Co., Inc.	100.00000	0.11473	0.10166	0.29162	0.18144
5	Ada A. Anderson	11.71875	0.00629	0.00396	0.02317	0.01203
	W. D. Anderson & Sons	23.43750	0.01257	0.00793	0.04633	0.02405
	Ada A. Anderson, Paul Donald Anderson & Payton V. Anderson, Executors of the Estate of Warren D. Anderson	11.71875	0.00629	0.00396	0.02317	0.01203
	J. M. Armstrong	23.43750	0.01257	0.00793	0.04633	0.02406
	Russell G. Estes d/b/a Estes Engineering Co.	6.25000	0.00335	0.00211	0.01236	0.00641
	W. A. Yeager	23.43750	0.01257	0.00793	0.04633	0.02406
		100.00000	0.05364	0.03382	0.19769	0.10264
6	Continental Oil Company	100.00000	0.05157	0.03087	1.35192	0.58571
7	Shell Oil Company	100.00000	0.33855	0.28554	2.37454	1.16292
8	Amerada Hess Corporation	100.00000	0.00000	0.00000	2.11560	0.88855

EXHIBIT E (CONT'D)

Tract No.	Working Interest Owner	Working Interest Tract	Unit Participation (By Tracts) Phase I	Phase II	Phase III	Investment Participation* (By Tracts)
9	Gulf Oil Corporation	100.00000	0.26552	0.20781	1.29435	0.66416
10A	Howell Spear	1.17190	0.00049	0.00042	0.00042	0.00043
	Ellie Sims Spear	1.17190	0.00049	0.00042	0.00042	0.00043
	J. N. Dunlavey	4.68750	0.00194	0.00171	0.00168	0.00169
	First Roswell Company	9.37500	0.00388	0.00341	0.00335	0.00339
	Getty Oil Company	25.00000	0.01034	0.00910	0.00894	0.00903
	George P. Laflin	4.68750	0.00194	0.00171	0.00168	0.00169
	Kenneth D. McPeters	7.03130	0.00291	0.00256	0.00251	0.00254
	Robert Martin Moran	28.12490	0.01164	0.01024	0.01005	0.01016
	Moranco	9.37500	0.00388	0.00341	0.00335	0.00339
	Loyd Whitley	4.68750	0.00194	0.00171	0.00168	0.00169
	A. T. Williamson	4.68750	0.00194	0.00171	0.00168	0.00169
		100.00000	0.04139	0.03640	0.03576	0.03613
10B	Getty Oil Company	100.00000	0.00000	0.00000	0.00504	0.00212
11	Chevron U.S.A., Inc.	100.00000	0.00000	0.00000	0.07277	0.03056
12	Getty Oil Company	100.00000	0.02525	0.02093	0.10735	0.05723
13	Del-Lea, Inc.	100.00000	0.08746	0.08048	0.03529	0.06150
14	Kenneth Noel Headley	12.50000	0.02166	0.02216	0.00227	0.01381
	Two States Oil Company	37.50000	0.06498	0.06649	0.00682	0.04143
	The Wiser Oil Company	50.00000	0.08663	0.08865	0.00910	0.05523
		100.00000	0.17327	0.17730	0.01819	0.11047
15	Mary Daniel Conrad	6.25000	0.02408	0.02508	0.00196	0.01537
	Herman R. Crile, Sr., Trustee of Herman R. Crile, Sr.	9.37500	0.03613	0.03762	0.00294	0.02305
	Kenneth Noel Headley	9.37500	0.03612	0.03761	0.00294	0.02306
	Peter Hurd	6.25000	0.02408	0.02508	0.00196	0.01537
	Ruby Wanda Conrad Judson	1.25000	0.00482	0.00502	0.00039	0.00307
	Kathryn Louise Conrad McCarthy	1.25000	0.00482	0.00502	0.00039	0.00307
	Nathlyn Ione Conrad Murdoch	1.25000	0.00482	0.00502	0.00039	0.00307

EXHIBIT E (CONT'D)

Tract No.	Working Interest Owner	Working Interest In Tract	Unit Participation (By Tracts) Phase I	Phase II	Phase III	Investment Participation* (By Tracts)
15	Frances I. Conrad Rose	1.25000	0.00482	0.00502	0.00039	0.00307
	Bettye Conrad Treadaway	1.25000	0.00482	0.00502	0.00039	0.00307
	The Wiser Oil Company	50.00000	0.19267	0.20062	0.01567	0.12295
	Dr. Henry Yeager, Jr., in care of Trust Oil Department Trust Services, First National Bank in Dallas	4.06746	0.01567	0.01632	0.00127	0.01000
	Ruth Anne Yeager	3.02580	0.01166	0.01214	0.00095	0.00744
	Ruth Peeler Yeager, Henry Yeager, Jr., & First National Bank in Dallas, Joint Trustees of Ruth Anne Yeager Trust No. 2	1.04167	0.00401	0.00418	0.00033	0.00256
	Mrs. Ruth Peeler Yeager in care of Trust Oil Department Trust Services, First National Bank in Dallas	4.36507	0.01682	0.01751	0.00137	0.01074
		100.00000	0.38534	0.40126	0.03134	0.24589
16	Gulf Oil Corporation	100.00000	0.17539	0.16097	0.17130	0.16531
17	First National Bank of Lea County, Trustee for the Cecil H. Sweet and Imo Emmetta Sweet Trust	100.00000	0.02662	0.02300	0.13047	0.06814
18	Getty Oil Company	100.00000	0.00853	0.00013	0.19617	0.08247
19	Chevron U.S.A., Inc.	100.00000	0.46388	0.44274	0.39268	0.42171
20	First National Bank of Lea County, Trustee Cecil H. Sweet and Imo Emmetta Sweet Trust	100.00000	0.00082	0.00000	0.04338	0.01822
21	Bill Sweet	100.00000	0.02651	0.02300	0.08569	0.04933

EXHIBIT E (CONT'D)

Tract No.	Working Interest Owner	Working Interest In Tract	Unit Participation (By Tracts) Phase I	Phase II	Phase III	Investment Participation* (By Tracts)
22	Bill Sweet	100.00000	0.00000	0.00000	0.09207	0.03867
23	Atlantic Richfield Company	100.00000	0.06415	0.05085	0.13035	0.08424
24	Shell Oil Company	100.00000	2.13208	2.18100	0.93009	1.65562
25	Getty Oil Company	100.00000	0.38428	0.34282	1.37055	0.77447
26	Cities Service Company	100.00000	0.73038	0.65783	2.93591	1.61462
27	Shell Oil Company	100.00000	4.99981	4.72987	3.68081	4.28926
28	Gulf Oil Corporation	100.00000	1.55912	1.44073	2.98865	2.09086
29	Shell Oil Company	100.00000	0.71513	0.61650	1.11779	0.82704
30	Amerada Hess Corporation	50.00000	0.16818	0.16350	0.35766	0.24504
	Getty Oil Company	50.00000	0.16818	0.16349	0.35766	0.24505
		100.00000	0.33636	0.32699	0.71532	0.49009
31	Texas Pacific Oil Company, Inc.	100.00000	4.47471	4.52936	2.18451	3.54452
32	Samedan Oil Corporation	37.80000	1.20719	1.12526	0.52622	0.87367
	First National Bank of Casper, Trustee, Tate Trusts	3.75000	0.11976	0.11163	0.05221	0.08667
	The First National Bank of Fort Worth, Agent for William S. Spradling	0.62500	0.01996	0.01861	0.00870	0.01445
	The First National Bank of Fort Worth, Trustee for Verda Spradling, Account No. 3211	0.62500	0.01996	0.01861	0.00870	0.01445
	C. C. Forbes	1.90000	0.06068	0.05656	0.02645	0.04391
	Ilamae Forbes	1.85000	0.05908	0.05507	0.02575	0.04276

EXHIBIT E (CONT'D)

Tract No.	Working Interest Owner	Working Interest In Tract	Unit Participation (By Tracts) Phase I	Phase II	Phase III	Investment Participation* (By Tracts)
32	Samuel Roberts Noble Foundation, Inc.	28.75000	0.91817	0.85585	0.40024	0.66449
	G. D. Morris	1.25000	0.03992	0.03721	0.01740	0.02889
	Richard L. Noble	15.20000	0.48543	0.45249	0.21160	0.35132
	Portales National Bank	1.87500	0.05988	0.05582	0.02610	0.04334
	John Roring	3.75000	0.11976	0.11163	0.05221	0.08667
	SEA Properties, Ltd.	0.75000	0.02396	0.02233	0.01044	0.01733
	E. C. Sullivan	1.87500	0.05988	0.05582	0.02610	0.04334
		100.00000	3.19363	2.97689	1.39212	2.31129
33A	First National Bank of Lea County, Trustee for Cecil H. Sweet and Imo Sweet Trust	100.00000	0.14618	0.13607	0.45033	0.26806
33B	First National Bank of Lea County, Trustee for Cecil H. Sweet and Imo Sweet Trust	100.00000	0.09081	0.08239	0.16981	0.11911
34	Shell Oil Company	100.00000	0.02065	0.00990	0.23908	0.10616
35	Texas Pacific Oil Company, Inc.	100.00000	0.09228	0.07279	0.34319	0.18636
36	C&C Operating Corporation	100.00000	0.01133	0.00688	0.03147	0.01721
37	Abo Petroleum Corporation	52.50000	0.06818	0.05615	0.20376	0.11815
	Ward Investment Corporation	10.00000	0.01299	0.01069	0.03881	0.02250
	Yates Petroleum Corporation	25.00000	0.03246	0.02674	0.09703	0.05626
	S. P. Yates	12.50000	0.01623	0.01337	0.04851	0.02813
		100.00000	0.12986	0.10695	0.38811	0.22504
38	The Wiser Oil Company	100.00000	0.00209	0.00000	0.08529	0.03582
39	Getty Oil Company	100.00000	0.03247	0.02415	0.17221	0.08633
40	Continental Oil Company	100.00000	0.29448	0.32197	0.44016	0.37161
41	Samedan Oil Corporation	100.00000	0.07122	0.06099	0.26713	0.14757

EXHIBIT E (CONT'D)

Tract No.	Working Interest Owner	Working Interest In Tract	Unit Participation (By Tracts) Phase I	Phase II	Phase III	Investment Participation* (By Tracts)
42	Texaco, Inc.	100.00000	3.15134	3.09110	1.16515	2.28220
43	Exxon Corporation	100.00000	0.66554	0.49553	0.98320	0.70035
44	Amerada Hess Corporation	100.00000	3.36952	3.41061	1.86735	2.76244
45	Getty Oil Company	100.00000	3.64803	3.75614	2.83435	3.36899
46	Marathon Oil Company	100.00000	1.83355	1.86777	1.98935	1.91883
47	Exxon Corporation	100.00000	3.37645	3.25911	6.10957	4.45630
48	Exxon Corporation	100.00000	0.59298	0.59347	0.42645	0.52332
49	Amerada Hess Corporation	100.00000	1.37425	1 32399	1.40956	1.35993
50	Exxon Corporation	75.00000	0.07896	0.07199	0.17944	0.11711
	Cities Service Company	25.00000	0.02632	0.02399	0.05981	0.03904
		100.00000	0.10528	0.09598	0.23925	0.15615
51	Continental Oil Company	100.00000	2.01126	2.10178	2.84880	2.41553
52	Getty Oil Company	100.00000	0.87710	0.86847	1.23597	1.02282
53	Chevron U.S.A., Inc.	100.00000	2.75083	2.95624	2.50776	2.76788
54	Atlantic Richfield Company	100.00000	2.07685	2.28579	1.09210	1.78444
55	John P. Cusack, Jr.	25.00000	0.56276	0.60802	0.06241	0.37886
	Michael F. Cusack	25.00000	0.56276	0.60802	0.06241	0.37886
	Samedan Oil Corporation	48.50000	1.09176	1.17956	0.12107	0.73500
	SEA Properties, Ltd.	1.50000	0.03377	0.03648	0.00374	0.02273
		100.00000	2.25105	2.43208	0.24963	1.51545

EXHIBIT E (CONT'D)

Tract No.	Working Interest Owner	Working Interest In Tract	Unit Participation (By Tracts) Phase I	Phase II	Phase III	Investment Participation* (By Tracts)
56	John P. Cusack, Jr.	25.00000	0.57333	0.63029	0.02671	0.37679
	Michael F. Cusack	25.00000	0.57333	0.63029	0.02671	0.37678
	Samedan Oil Corporation	48.50000	1.11227	1.22276	0.05182	0.73096
	SEA Properties, Ltd.	1.50000	0.03440	0.03781	0.00161	0.02261
		100.00000	2.29333	2.52115	0.10685	1.50714
57	Shell Oil Company	100.00000	2.91562	2.97071	3.07756	3.01559
58	Continental Oil Company	100.00000	4.16481	4.73239	1.68555	3.45272
59	Shell Oil Company	100.00000	6.45317	6.70337	0.33242	4.02757
60A	Del-Lea, Inc.	16.40625	0.00000	0.00000	0.00003	0.00001
	M. Ralph Lowe, Inc.	21.87500	0.00000	0.00000	0.00005	0.00002
	Kenneth D. McPeters	4.09500	0.00000	0.00000	0.00001	0.00001
	Robert Martin Moran	16.40625	0.00000	0.00000	0.00004	0.00001
	Moranco	20.51000	0.00000	0.00000	0.00004	0.00002
	Linda B. Parrish and Linda Ann Parrish Richardson, Co-Trustees under the will of M. C. Parrish, Jr.	8.20750	0.00000	0.00000	0.00002	0.00001
	Marshall & Winston, Inc.	12.50000	0.00000	0.00000	0.00003	0.00001
		100.00000	0.00000	0.00000	0.00022	0.00009
60B	Del-Lea, Inc.	18.75000	0.02346	0.02005	0.00119	0.01213
	M. Ralph Lowe, Inc.	25.00000	0.03128	0.02674	0.00159	0.01617
	Kenneth D. McPeters	4.68000	0.00585	0.00501	0.00030	0.00303
	Robert Martin Moran	18.75000	0.02346	0.02005	0.00119	0.01213
	Moranco	23.44000	0.02933	0.02507	0.00149	0.01517
	Linda B. Parrish and Linda Ann Parrish Richardson, Co-Trustees under the will of M. C. Parrish, Jr.	9.38000	0.01173	0.01003	0.00060	0.00607
		100.00000	0.12511	0.10695	0.00636	0.06470

EXHIBIT E (CONT'D)

Tract No.	Working Interest Owner	Working Interest In Tract	Unit Participation (By Tracts) Phase I	Phase II	Phase III	Investment Participation* (By Tracts)
61A	Shell Oil Company	100.00000	1.19303	1.22347	0.09076	0.74773
61B	Shell Oil Company	100.00000	1.06871	1.06806	0.01963	0.62772
62	Getty Oil Company	100.00000	1.15101	1.17464	0.11411	0.72922
63	Getty Oil Company	100.00000	1.15287	1.17515	0.31108	0.81224
64	Samedan Oil Corporation	62.50000	0.21472	0.19532	0.00916	0.11713
	Mary Frances Cusack	18.75000	0.06441	0.05860	0.00275	0.03514
	John Patrick Cusack, Jr., Trustee under the John Patrick Cusack Testamentary Trust	4.68750	0.01610	0.01465	0.00069	0.00878
	John Patrick Cusack, Jr.	7.03125	0.02416	0.02197	0.00103	0.01318
	Michael F. Cusack	7.03125	0.02416	0.02197	0.00103	0.01318
		100.00000	0.34355	0.31251	0.01466	0.18741
65	Samedan Oil Corporation	62.50000	0.23603	0.23150	0.01038	0.13863
	Mary Frances Cusack	18.75000	0.07081	0.06945	0.00311	0.04159
	John Patrick Cusack, Jr., Trustee under the John Patrick Cusack Testamentary Trust	4.68750	0.01770	0.01736	0.00078	0.01039
	John Patrick Cusack, Jr.	7.03125	0.02655	0.02605	0.00117	0.01560
	Michael F. Cusack	7.03125	0.02655	0.02604	0.00117	0.01560
		100.00000	0.37764	0.37040	0.01661	0.22181
66	Samedan Oil Corporation	87.89100	2.00419	2.17591	0.33331	1.40202
	Hattie C. Williams	5.85900	0.13360	0.14505	0.02222	0.09346
	Cities Service Company	6.25000	0.14252	0.15473	0.02370	0.09970
		100.00000	2.28031	2.47569	0.37923	1.59518
67	Gulf Oil Corporation	100.00000	2.17917	2.11608	3.40765	2.65854
68	Shell Oil Company	100.00000	0.96616	0.84228	2.48452	1.53202

EXHIBIT E (CONT'D)

Tract No.	Working Interest Owner	Working Interest In Tract	Unit Participation (By Tracts) Phase I	Phase II	Phase III	Investment Participation* (By Tracts)
69	Amoco Production Company	75.43501	1.38898	1.35806	1.87841	1.57661
	Landreth Interests	24.56499	0.45231	0.44224	0.61170	0.51341
		100.00000	1.84129	1.80030	2.49011	2.09002
70	Continental Oil Company	100.00000	4.69790	4.50257	7.98097	5.96350
71	Amerada Hess Corporation	100.00000	1.47100	1.45514	2.04430	1.70259
72	Shell Oil Company	100.00000	0.91041	0.83110	2.56349	1.55870
73	Gulf Oil Corporation	100.00000	2.09767	1.86731	3.47646	2.54315
74	Gulf Oil Corporation	100.00000	3.40184	3.62040	3.75733	3.67791
75A	Marathon Oil Company	50.00000	0.32452	0.37746	1.04791	0.65905
	Atlantic Richfield Company	50.00000	0.32451	0.37746	1.04792	0.65905
		100.00000	0.64903	0.75492	2.09583	1.31810
75B	Marathon Oil Company	50.00000	0.47836	0.47356	1.00267	0.69578
	Atlantic Richfield Company	50.00000	0.47837	0.47356	1.00266	0.69579
		100.00000	0.95673	0.94712	2.00533	1.39157
76	Cities Service Company	100.00000	2.34959	2.36589	2.52494	2.43269
77	Getty Oil Company	100.00000	1.22093	1.17282	0.70944	0.97820
78	Sun Oil Company	100.00000	0.22719	0.19658	0.43429	0.29642
79	Shell Oil Company	100.00000	2.40938	2.30652	1.96469	2.16295
80	Mobil Oil Corporation	100.00000	0.92642	0.82805	0.67264	0.76278
81	Amerada Hess Corporation	100.00000	0.14029	0.11442	0.60098	0.31878

EXHIBIT E (CONT'D)

Tract No.	Working Interest Owner	Working Interest In Tract	Unit Participation (By Tracts) Phase I	Phase II	Phase III	Investment Participation* (By Tracts)
82	W. K. Byrom	62.50000	0.07232	0.06827	0.07468	0.07096
	Robert G. McPherson	37.50000	0.04340	0.04096	0.04481	0.04258
		100.00000	0.11572	0.10923	0.11949	0.11354
83	Gulf Oil Corporation	100.00000	0.00000	0.00000	0.04756	0.01998
			100.00000	100.00000	100.00000	100.00000

EXHIBIT E (CONT'D)

SUMMARY

Working Interest Owner	Tract Nos.	Unit Participation Phase I	Phase II	Phase III	Investment Participation*
Abo Petroleum Corporation	37	0.06818	0.05615	0.20376	0.11815
Amerada Hess Corporation	2	0.04372	0.03496	0.20696	0.10720
	8	0.00000	0.00000	2.11560	0.88855
	30	0.16818	0.16350	0.35766	0.24504
	44	3.36952	3.41061	1.86735	2.76244
	49	1.37425	1.32399	1.40956	1.35993
	71	1.47100	1.45514	2.04430	1.70259
	81	0.14029	0.11442	0.60098	0.31878
		6.56696	6.50262	8.60241	7.38453
Amoco Production Company	69	1.38898	1.35806	1.87841	1.57661
Ada A. Anderson	5	0.00629	0.00396	0.02317	0.01203
Ada A. Anderson, Paul Donald Anderson & Payton V. Anderson, Executors of the Estate of Warren D. Anderson	5	0.00629	0.00396	0.02317	0.01203
W. D. Anderson & Sons	5	0.01257	0.00793	0.04633	0.02405
J. M. Armstrong	5	0.01257	0.00793	0.04633	0.02406
Atlantic Richfield Company	23	0.06415	0.05085	0.13035	0.08424
	54	2.07685	2.28579	1.09210	1.78444
	75A	0.32451	0.37746	1.04792	0.65905
	75B	0.47837	0.47356	1.00266	0.69579
		2.94388	3.18766	3.27303	3.22352
W. K. Byrom	82	0.07232	0.06827	0.07468	0.07096
C&C Operating Corporation	36	0.01133	0.00688	0.03147	0.01721

EXHIBIT E (CONT'D)

Working Interest Owner	Tract Nos.	Unit Participation Phase I	Phase II	Phase III	Investment Participation*
Chevron U.S.A., Inc.	11	0.00000	0.00000	0.07277	0.03056
	19	0.46388	0.44274	0.39268	0.42171
	53	2.75083	2.95624	2.50776	2.76788
		3.21471	3.39898	2.97321	3.22015
Cities Service Company	26	0.73038	0.65783	2.93591	1.61462
	50	0.02632	0.02399	0.05981	0.03904
	66	0.14252	0.15473	0.02370	0.09970
	76	2.34959	2.36589	2.52494	2.43269
		3.24881	3.20244	5.54436	4.18605
Mary Daniel Conrad	15	0.02408	0.02508	0.00196	0.01537
Continental Oil Company	6	0.05157	0.03087	1.35192	0.58571
	40	0.29448	0.32197	0.44016	0.37161
	51	2.01126	2.10178	2.84880	2.41553
	58	4.16481	4.73239	1.68555	3.45272
	70	4.69790	4.50257	7.98097	5.96350
		11.22002	11.69958	14.30740	12.78907
Herman R. Crile, Sr., Trustee of Herman R. Crile, Sr.	15	0.03613	0.03762	0.00294	0.02305
John P. Cusack, Jr.	55	0.56276	0.60802	0.06241	0.37886
	56	0.57333	0.63029	0.02671	0.37679
	64	0.02416	0.02197	0.00103	0.01318
	65	0.02655	0.02605	0.00117	0.01560
		1.18680	1.28633	0.09132	0.78443
John Patrick Cusack, Jr., Trustee under John Patrick Cusack Testamentary Trust	64	0.01610	0.01465	0.00069	0.00878
	65	0.01770	0.01736	0.00078	0.01039
		0.03380	0.03201	0.00147	0.01917

EXHIBIT E (CONT'D)

Working Interest Owner	Tract Nos.	Unit Participation Phase I	Phase II	Phase III	Investment Participation*
Mary Frances Cusack	64	0.06441	0.05860	0.00275	0.03514
	65	0.07081	0.06945	0.00311	0.04159
		0.13522	0.12805	0.00586	0.07673
Michael F. Cusack	55	0.56276	0.60802	0.06241	0.37886
	56	0.57333	0.63029	0.02671	0.37678
	64	0.02416	0.02197	0.00103	0.01318
	65	0.02655	0.02604	0.00117	0.01560
		1.18680	1.28632	0.09132	0.78442
Del-Lea, Inc.	13	0.08746	0.08048	0.03529	0.06150
	60A	0.00000	0.00000	0.00003	0.00001
	60B	0.02346	0.02005	0.00119	0.01213
		0.11092	0.10053	0.03651	0.07364
J. N. Dunlavey	10A	0.00194	0.00171	0.00168	0.00169
Russell G. Estes d/b/a Estes Engineering Co.	5	0.00335	0.00211	0.01236	0.00641
Exxon Corporation	43	0.66554	0.49553	0.98320	0.70035
	47	3.37645	3.25911	6.10957	4.45630
	48	0.59298	0.59347	0.42645	0.52332
	50	0.07896	0.07199	0.17944	0.11711
		4.71393	4.42010	7.69866	5.79708
First National Bank of Casper, Trustee, Tate Trusts	32	0.11976	0.11163	0.05221	0.08667
The First National Bank of Fort Worth, Agent for William S. Spradling	32	0.01996	0.01861	0.00870	0.01445
The First National Bank of Fort Worth, Trustee for Verda Spradling, Account No. 3211	32	0.01996	0.01861	0.00870	0.01445

EXHIBIT E (CONT'D)

Working Interest Owner	Tract Nos.	Unit Participation Phase I	Unit Participation Phase II	Unit Participation Phase III	Investment Participation*
First National Bank of Lea County, Trustee for Cecil H. Sweet and Imo Sweet Trust	17	0.02662	0.02300	0.13047	0.06814
	20	0.00082	0.00000	0.04338	0.01822
	33A	0.14618	0.13607	0.45033	0.26806
	33B	0.09081	0.08239	0.16981	0.11911
		0.26443	0.24146	0.79399	0.47353
First Roswell Company	10A	0.00388	0.00341	0.00335	0.00339
C. C. Forbes	32	0.06068	0.05656	0.02645	0.04391
Ilamae Forbes	32	0.05908	0.05507	0.02575	0.04276
Getty Oil Company	1	0.04166	0.03449	0.13978	0.07871
	10A	0.01034	0.00910	0.00894	0.00903
	10B	0.00000	0.00000	0.00504	0.00212
	12	0.02525	0.02093	0.10735	0.05723
	18	0.00853	0.00013	0.19617	0.08247
	25	0.38428	0.34282	1.37055	0.77447
	30	0.16818	0.16349	0.35766	0.24505
	39	0.03247	0.02415	0.17221	0.08633
	45	3.64803	3.75614	2.83435	3.36899
	52	0.87710	0.86847	1.23597	1.02282
	62	1.15101	1.17464	0.11411	0.72922
	63	1.15287	1.17515	0.31108	0.81224
	77	1.22093	1.17282	0.70944	0.97820
		8.72065	8.74233	7.56265	8.24688
Gulf Oil Corporation	3	0.03122	0.02643	0.08361	0.05045
	9	0.26552	0.20781	1.29435	0.66416
	16	0.17539	0.16097	0.17130	0.16531
	28	1.55912	1.44073	2.98865	2.09086
	67	2.17917	2.11608	3.40765	2.65854
	73	2.09767	1.86731	3.47646	2.54315
	74	3.40184	3.62040	3.75733	3.67791
	83	0.00000	0.00000	0.04756	0.01998
		9.70993	9.43973	15.22691	11.87036

EXHIBIT E (CONT'D)

Working Interest Owner	Tract Nos.	Unit Participation Phase I	Phase II	Phase III	Investment Participation*
Kenneth Noel Headley	14	0.02166	0.02216	0.00227	0.01381
	15	0.03612	0.03761	0.00294	0.02306
		0.05778	0.05977	0.00521	0.03687
Peter Hurd	15	0.02408	0.02508	0.00196	0.01537
Ruby Wanda Conrad Judson	15	0.00482	0.00502	0.00039	0.00307
Landreth Interests	69	0.45231	0.44224	0.61170	0.51341
George P. Laflin	10A	0.00194	0.00171	0.00168	0.00169
M. Ralph Lowe, Inc.	60A	0.00000	0.00000	0.00005	0.00002
	60B	0.03128	0.02674	0.00159	0.01617
		0.03128	0.02674	0.00164	0.01619
Marathon Oil Company	46	1.83355	1.86777	1.98935	1.91883
	75A	0.32452	0.37746	1.04791	0.65905
	75B	0.47836	0.47356	1.00267	0.69578
		2.63643	2.71879	4.03993	3.27366
Marshall & Winston, Inc.	60A	0.00000	0.00000	0.00003	0.00001
Kathryn Louise Conrad McCarthy	15	0.00482	0.00502	0.00039	0.00307
Kenneth D. McPeters	10A	0.00291	0.00256	0.00251	0.00254
	60A	0.00000	0.00000	0.00001	0.00001
	60B	0.00585	0.00501	0.00030	0.00303
		0.00876	0.00757	0.00282	0.00558
Robert G. McPherson	82	0.04340	0.04096	0.04481	0.04258
Mobil Oil Corporation	80	0.92642	0.82805	0.67264	0.76278
Moranco	10A	0.00388	0.00341	0.00335	0.00339
	60A	0.00000	0.00000	0.00004	0.00002
	60B	0.02933	0.02507	0.00149	0.01517
		0.03321	0.02848	0.00488	0.01858

EXHIBIT E (CONT'D)

Working Interest Owner	Tract Nos.	Unit Participation Phase I	Phase II	Phase III	Investment Participation*
Robert Martin Moran	10A	0.01164	0.01024	0.01005	0.01016
	60A	0.00000	0.00000	0.00004	0.00001
	60B	0.02346	0.02005	0.00119	0.01213
		0.03510	0.03029	0.01128	0.02230
G. D. Morris	32	0.03992	0.03721	0.01740	0.02889
Nathlyn Ione Conrad Murdoch	15	0.00482	0.00502	0.00039	0.00307
Richard L. Noble	32	0.48543	0.45249	0.21160	0.35132
Samuel Roberts Noble Foundation, Inc.	32	0.91817	0.85585	0.40024	0.66449
Linda B. Parrish and Linda Ann Parrish Richardson, Co-Trustees under the will of M. C. Parrish, Jr.	60A	0.00000	0.00000	0.00002	0.00001
	60B	0.01173	0.01003	0.00060	0.00607
		0.01173	0.01003	0.00062	0.00608
Portales National Bank	32	0.05988	0.05582	0.02610	0.04334
John Roring	32	0.11976	0.11163	0.05221	0.08667
Frances I. Conrad Rose	15	0.00482	0.00502	0.00039	0.00307
Samedan Oil Corporation	32	1.20719	1.12526	0.52622	0.87367
	41	0.07122	0.06099	0.26713	0.14757
	55	1.09176	1.17956	0.12107	0.73500
	56	1.11227	1.22276	0.05182	0.73096
	64	0.21472	0.19532	0.00916	0.11713
	65	0.23603	0.23150	0.01038	0.13863
	66	2.00419	2.17591	0.33331	1.40202
		5.93738	6.19130	1.31909	4.14498
SEA Properties, Ltd.	32	0.02396	0.02233	0.01044	0.01733
	55	0.03377	0.03648	0.00374	0.02273
	56	0.03440	0.03781	0.00161	0.02261
		0.09213	0.09662	0.01579	0.06267

EXHIBIT E (CONT'D)

Working Interest Owner	Tract Nos.	Unit Participation Phase I	Unit Participation Phase II	Unit Participation Phase III	Investment Participation*
Shell Oil Company	7	0.33855	0.28554	2.37454	1.16292
	24	2.13208	2.18100	0.93009	1.65562
	27	4.99981	4.72987	3.68081	4.28926
	29	0.71513	0.61650	1.11779	0.82704
	34	0.02065	0.00990	0.23908	0.10616
	57	2.91562	2.97071	3.07756	3.01559
	59	6.45317	6.70337	0.33242	4.02757
	61A	1.19303	1.22347	0.09076	0.74773
	61B	1.06871	1.06806	0.01963	0.62772
	68	0.96616	0.84228	2.48452	1.53202
	72	0.91041	0.83110	2.56349	1.55870
	79	2.40938	2.30652	1.96469	2.16295
		24.12270	23.76832	18.87538	21.71328
Howell Spear	10A	0.00049	0.00042	0.00042	0.00043
Ellie Sims Spear	10A	0.00049	0.00042	0.00042	0.00043
E. C. Sullivan	32	0.05988	0.05582	0.02610	0.04334
Sun Oil Company	78	0.22719	0.19658	0.43429	0.29642
Bill Sweet	21	0.02651	0.02300	0.08569	0.04933
	22	0.00000	0.00000	0.09207	0.03867
		0.02651	0.02300	0.17776	0.08800
Texaco, Inc.	42	3.15134	3.09110	1.16515	2.28220
Texas Pacific Oil Company, Inc.	4	0.11473	0.10166	0.29162	0.18144
	31	4.47471	4.52936	2.18451	3.54452
	35	0.09228	0.07279	0.34319	0.18636
		4.68172	4.70381	2.81932	3.91232

EXHIBIT E (CONT'D)

Working Interest Owner	Tract Nos.	Unit Participation Phase I	Phase II	Phase III	Investment Participation*
Bettye Conrad Treadaway	15	0.00482	0.00502	0.00039	0.00307
Two States Oil Company	14	0.06498	0.06649	0.00682	0.04143
Ward Investment Corporation	37	0.01299	0.01069	0.03881	0.02250
Loyd Whitley	10A	0.00194	0.00171	0.00168	0.00169
Hattie C. Williams	66	0.13360	0.14505	0.02222	0.09346
A. T. Williamson	10A	0.00194	0.00171	0.00168	0.00169
The Wiser Oil Company	14	0.08663	0.08865	0.00910	0.05523
	15	0.19267	0.20062	0.01567	0.12295
	38	0.00209	0.00000	0.08529	0.03582
		0.28139	0.28927	0.11006	0.21400
Yates Petroleum Corporation	37	0.03246	0.02674	0.09703	0.05626
S. P. Yates	37	0.01623	0.01337	0.04851	0.02813
Dr. Henry Yeager, Jr. in care of Trust Oil Department Trust Services, First National Bank in Dallas	15	0.01567	0.01632	0.00127	0.01000
Ruth Anne Yeager	15	0.01166	0.01214	0.00095	0.00744
Ruth Peeler Yeager, Henry Yeager, Jr., & First National Bank in Dallas, Joint Trustees of Ruth Anne Yeager Trust No. 2	15	0.00401	0.00418	0.00033	0.00256

EXHIBIT E (CONT'D)

Working Interest Owner	Tract Nos.	Unit Participation Phase I	Phase II	Phase III	Investment Participation*
Mrs. Ruth Peeler Yeager in care of Trust Oil Department Trust Services, First National Bank in Dallas	15	0.01682	0.01751	0.00137	0.01074
W. A. Yeager	5	0.01257	0.00793	0.04633	0.02406
		100.00000	100.00000	100.00000	100.00000

* Applicable only to investment costs incurred prior to the Investment Readjustment Date

EXHIBIT F

Attached to and made a part of UNIT OPERATING AGREEMENT
North Hobbs (Grayburg-San Andres) Unit
Lea County, New Mexico

ACCOUNTING PROCEDURE
JOINT OPERATIONS

I. GENERAL PROVISIONS

1. Definitions

"Joint Property" shall mean the real and personal property subject to the agreement to which this Accounting Procedure is attached.

"Joint Operations" shall mean all operations necessary or proper for the development, operation, protection and maintenance of the Joint Property.

"Joint Account" shall mean the account showing the charges paid and credits received in the conduct of the Joint Operations and which are to be shared by the Parties.

"Operator" shall mean the party designated to conduct the Joint Operations.

"Non-Operators" shall mean the parties to this agreement other than the Operator.

"Parties" shall mean Operator and Non-Operators.

"First Level Supervisors" shall mean those employees whose primary function in Joint Operations is the direct supervision of other employees and/or contract labor directly employed on the Joint Property in a field operating capacity.

"Technical Employees" shall mean those employees having special and specific engineering, geological or other professional skills, and whose primary function in Joint Operations is the handling of specific operating conditions and problems for the benefit of the Joint Property.

"Personal Expenses" shall mean travel and other reasonable reimbursable expenses of Operator's employees.

"Material" shall mean personal property, equipment or supplies acquired or held for use on the Joint Property.

"Controllable Material" shall mean Material which at the time is so classified in the Material Classification Manual as most recently recommended by the Council of Petroleum Accountants Societies of North America.

2. Statement and Billings

Operator shall bill Non-Operators on or before the last day of each month for their proportionate share of the Joint Account for the preceding month. Such bills will be accompanied by statements which identify the authority for expenditure, lease or facility, and all charges and credits, summarized by appropriate classifications of investment and expense except that items of Controllable Material and unusual charges and credits shall be separately identified and fully described in detail.

3. Advances and Payments by Non-Operators

Unless otherwise provided for in the agreement, the Operator may require the Non-Operators to advance their share of estimated cash outlay for the succeeding month's operation. Operator shall adjust each monthly billing to reflect advances received from the Non-Operators.

Each Non-Operator shall pay its proportion of all bills within fifteen (15) days after receipt. If payment is not made within such time, the unpaid balance shall bear interest monthly at the rate of twelve percent (12%) per annum or the maximum contract rate permitted by the applicable usury laws in the state in which the Joint Property is located, whichever is the lesser, plus attorney's fees, court costs, and other costs in connection with the collection of unpaid amounts.

4. Adjustments

Payment of any such bills shall not prejudice the right of any Non-Operator to protest or question the correctness thereof; provided, however, all bills and statements rendered to Non-Operators by Operator during any calendar year shall conclusively be presumed to be true and correct after twenty-four (24) months following the end of any such calendar year, unless within the said twenty-four (24) month period a Non-Operator takes written exception thereto and makes claim on Operator for adjustment. No adjustment favorable to Operator shall be made unless it is made within the same prescribed period. The provisions of this paragraph shall not prevent adjustments resulting from a physical inventory of Controllable Material as provided for in Section V.

5. Audits

A. Non-Operator, upon notice in writing to Operator and all other Non-Operators, shall have the right to audit Operator's accounts and records relating to the Joint Account for any calendar year within the twenty-four (24) month period following the end of such calendar year; provided, however, the making of an audit shall not extend the time for the taking of written exception to and the adjustments of accounts as provided for in Paragraph 4 of this Section I. Where there are two or more Non-Operators, the Non-Operators shall make every reasonable effort to conduct joint or simultaneous audits in a manner which will result in a minimum of inconvenience to the Operator. Operator shall bear no portion of the Non-Operators' audit cost incurred under this paragraph unless agreed to by the Operator.

6. Approval by Non-Operators

Where an approval or other agreement of the Parties or Non-Operators is expressly required under other sections of this Accounting Procedure and if the agreement to which this Accounting Procedure is attached contains no contrary provisions in regard thereto, Operator shall notify all Non-Operators of the Operator's proposal, and the agreement or approval of a majority in interest of the Non-Operators shall be controlling on all Non-Operators.

II. DIRECT CHARGES

Operator shall charge the Joint Account with the following items:

1. **Rentals and Royalties**

   Lease rentals and royalties paid by Operator for the Joint Operations.

2. **Labor**

   A. (1) Salaries and wages of Operator's field employees directly employed on the Joint Property in the conduct of Joint Operations and related expenses

   (2) Salaries of First Level Supervisors in the field.

   (3) Salaries and wages of Technical Employees directly employed on the Joint Property if such charges are excluded from the Overhead rates.

   B. Operator's cost of holiday, vacation, sickness and disability benefits and other customary allowances paid to employees whose salaries and wages are chargeable to the Joint Account under Paragraph 2A of this Section II. Such costs under this Paragraph 2B may be charged on a "when and as paid basis" or by "percentage assessment" on the amount of salaries and wages chargeable to the Joint Account under Paragraph 2A of this Section II. If percentage assessment is used, the rate shall be based on the Operator's cost experience.

   C. Expenditures or contributions made pursuant to assessments imposed by governmental authority which are applicable to Operator's costs chargeable to the Joint Account under Paragraphs 2A and 2B of this Section II.

   D. Personal Expenses of those employees whose salaries and wages are chargeable to the Joint Account under Paragraph 2A of this Section II.

3. **Employee Benefits**

   Operator's current costs of established plans for employees' group life insurance, hospitalization, pension, retirement, stock purchase, thrift, bonus, and other benefit plans of a like nature, applicable to Operator's labor cost chargeable to the Joint Account under Paragraphs 2A and 2B of this Section II shall be Operator's actual cost not to exceed twenty per cent (20%), or percent most recently recommended by the Council of Petroleum Accountants Societies of North America.

4. **Material**

   Material purchased or furnished by Operator for use on the Joint Property as provided under Section IV. Only such Material shall be purchased for or transferred to the Joint Property as may be required for immediate use and is reasonably practical and consistent with efficient and economical operations. The accumulation of surplus stocks shall be avoided.

5. **Transportation**

   Transportation of employees and Material necessary for the Joint Operations but subject to the following limitations:

   A. If Material is moved to the Joint Property from the Operator's warehouse or other properties, no charge shall be made to the Joint Account for a distance greater than the distance from the nearest reliable supply store, recognized barge terminal, or railway receiving point where like material is normally available, unless agreed to by the Parties.

   B. If surplus Material is moved to Operator's warehouse or other storage point, no charge shall be made to the Joint Account for a distance greater than the distance to the nearest reliable supply store, recognized barge terminal, or railway receiving point unless agreed to by the Parties. No charge shall be made to the Joint Account for moving Material to other properties belonging to Operator, unless agreed to by the Parties.

   C. In the application of Subparagraphs A and B above, there shall be no equalization of actual gross trucking cost of $200 or less excluding accessorial charges.

6. **Services**

   The cost of contract services, equipment and utilities provided by outside sources, except services excluded by Paragraph 9 of Section II and Paragraph 1. ii of Section III. The cost of professional consultant services and contract services of technical personnel directly engaged on the Joint Property if such charges are excluded from the Overhead rates. The cost of professional consultant services or contract services of technical personnel not directly engaged on the Joint Property shall not be charged to the Joint Account unless previously agreed to by the Parties.

7. **Equipment and Facilities Furnished by Operator**

   A. Operator shall charge the Joint Account for use of Operator owned equipment and facilities at rates commensurate with costs of ownership and operation. Such rates shall include costs of maintenance, repairs, other operating expense, insurance, taxes, depreciation, and interest on investment not to exceed eight per cent (8%) per annum. Such rates shall not exceed average commercial rates currently prevailing in the immediate area of the Joint Property.

   B. In lieu of charges in Paragraph 7A above, Operator may elect to use average commercial rates prevailing in the immediate area of the Joint Property less 20%. For automotive equipment, Operator may elect to use rates published by the Petroleum Motor Transport Association.

8. **Damages and Losses to Joint Property**

   All costs or expenses necessary for the repair or replacement of Joint Property made necessary because of damages or losses incurred by fire, flood, storm, theft, accident, or other cause, except those resulting from Operator's gross negligence or willful misconduct. Operator shall furnish Non-Operator written notice of damages or losses incurred as soon as practicable after a report thereof has been received by Operator.

9. **Legal Expense**

   Expense of handling, investigating and settling litigation or claims, discharging of liens, payment of judgments and amounts paid for settlement of claims incurred in or resulting from operations under the agreement or necessary to protect or recover the Joint Property, except that no charge for services of Operator's legal staff or fees or expense of outside attorneys shall be made unless previously agreed to by the Parties. All other legal expense is considered to be covered by the overhead provisions of Section III unless otherwise agreed to by the Parties, except as provided in Section I, Paragraph 3.

10. Taxes

All taxes of every kind and nature assessed or levied upon or in connection with the Joint Property, the operation thereof, or the production therefrom, and which taxes have been paid by the Operator for the benefit of the Parties.

11. Insurance

Net premiums paid for insurance required to be carried for the Joint Operations for the protection of the Parties. In the event Joint Operations are conducted in a state in which Operator may act as self-insurer for Workmen's Compensation and/or Employers Liability under the respective state's laws, Operator may, at its election, include the risk under its self-insurance program and in that event, Operator shall include a charge at Operator's cost not to exceed manual rates.

12. Other Expenditures

Any other expenditure not covered or dealt with in the foregoing provisions of this Section II, or in Section III, and which is incurred by the Operator in the necessary and proper conduct of the Joint Operations.

III. OVERHEAD

1. Overhead - Drilling and Producing Operations

i. As compensation for administrative, supervision, office services and warehousing costs, Operator shall charge drilling and producing operations on either:

(X) Fixed Rate Basis, Paragraph 1A, or
( ) Percentage Basis, Paragraph 1B.

Unless otherwise agreed to by the Parties, such charge shall be in lieu of costs and expenses of all offices and salaries or wages plus applicable burdens and expenses of all personnel, except those directly chargeable under Paragraph 2A, Section II. The cost and expense of services from outside sources in connection with matters of taxation, traffic, accounting or matters before or involving governmental agencies shall be considered as included in the Overhead rates provided for in the above selected Paragraph of this Section III unless such cost and expense are agreed to by the Parties as a direct charge to the Joint Account.

ii. The salaries, wages and Personal Expenses of Technical Employees and/or the cost of professional consultant services and contract services of technical personnel directly employed on the Joint Property shall (X) shall not ( ) be covered by the Overhead rates.

A. Overhead - Fixed Rate Basis

(1) Operator shall charge the Joint Account at the following rates per well per month:

Drilling Well Rate $ 2311
Producing Well Rate $ 165

(2) Application of Overhead - Fixed Rate Basis shall be as follows:

(a) Drilling Well Rate

[1] Charges for onshore drilling wells shall begin on the date the well is spudded and terminate on the date the drilling or completion rig is released, whichever is later, except that no charge shall be made during suspension of drilling operations for fifteen (15) or more consecutive days.

[2] Charges for offshore drilling wells shall begin on the date when drilling or completion equipment arrives on location and terminate on the date the drilling or completion equipment moves off location or rig is released, whichever occurs first, except that no charge shall be made during suspension of drilling operations for fifteen (15) or more consecutive days

[3] Charges for wells undergoing any type of workover or recompletion for a period of five (5) consecutive days or more shall be made at the drilling well rate. Such charges shall be applied for the period from date workover operations, with rig, commence through date of rig release, except that no charge shall be made during suspension of operations for fifteen (15) or more consecutive days.

(b) Producing Well Rates

[1] An active well either produced or injected into for any portion of the month shall be considered as a one-well charge for the entire month.

[2] Each active completion in a multi-completed well in which production is not commingled down hole shall be considered as a one-well charge providing each completion is considered a separate well by the governing regulatory authority.

[3] An inactive gas well shut in because of overproduction or failure of purchaser to take the production shall be considered as a one-well charge providing the gas well is directly connected to a permanent sales outlet.

[4] A one-well charge may be made for the month in which plugging and abandonment operations are completed on any well.

[5] All other inactive wells (including but not limited to inactive wells covered by unit allowable, lease allowable, transferred allowable, etc.) shall not qualify for an overhead charge.

(3) The well rates shall be adjusted as of the first day of April* each year following the effective date of the agreement to which this Accounting Procedure is attached. The adjustment shall be computed by multiplying the rate currently in use by the percentage increase or decrease in the average weekly earnings of Crude Petroleum and Gas Production Workers for the last calendar year compared to the calendar year preceding as shown by the index of average weekly earnings of Crude Petroleum and Gas Fields Production Workers as published by the United States Department of Labor, Bureau of Labor Statistics, or the equivalent Canadian index as published by Statistics Canada, as applicable. The adjusted rates shall be the rates currently in use, plus or minus the computed adjustment.

* of the year 1978 and each year thereafter.

B. Overhead - Percentage Basis

(1) Operator shall charge the Joint Account at the following rates:

(a) Development

_____ Percent (%) of the cost of Development of the Joint Property exclusive of costs provided under Paragraph 9 of Section II and all salvage credits.

(b) Operating

_____ Percent (%) of the cost of Operating the Joint Property exclusive of costs provided under Paragraphs 1 and 9 of Section II, all salvage credits, the value of injected substances purchased for secondary recovery and all taxes and assessments which are levied, assessed and paid upon the mineral interest in and to the Joint Property.

(2) Application of Overhead - Percentage Basis shall be as follows:
For the purpose of determining charges on a percentage basis under Paragraph 1B of this Section III, development shall include all costs in connection with drilling, redrilling, deepening or any remedial operations on any or all wells involving the use of drilling crew and equipment; also, preliminary expenditures necessary in preparation for drilling and expenditures incurred in abandoning when the well is not completed as a producer, and original cost of construction or installation of fixed assets, the expansion of fixed assets and any other project clearly discernible as a fixed asset, except Major Construction as defined in Paragraph 2 of this Section III. All other costs shall be considered as Operating.

2. Overhead - Major Construction

To compensate Operator for overhead costs incurred in the construction and installation of fixed assets, the expansion of fixed assets, and any other project clearly discernible as a fixed asset required for the development and operation of the Joint Property, Operator shall either negotiate a rate prior to the beginning of construction, or shall charge the Joint Account for Overhead based on the following rates for any Major Construction project in excess of $ 25,000 :

A. 3 % of total costs if such costs are more than $ 25,000 but less than $ 100,000 ; plus

B. 3 % of total costs in excess of $ 100,000 but less than $1,000,000; plus

C. 2 % of total costs in excess of $1,000,000.

Total cost shall mean the gross cost of any one project. For the purpose of this paragraph, the component parts of a single project shall not be treated separately and the cost of drilling and workover wells shall be excluded.

3. Amendment of Rates

The Overhead rates provided for in this Section III may be amended from time to time only by mutual agreement between the Parties hereto if, in practice, the rates are found to be insufficient or excessive.

IV. PRICING OF JOINT ACCOUNT MATERIAL PURCHASES, TRANSFERS AND DISPOSITIONS

Operator is responsible for Joint Account Material and shall make proper and timely charges and credits for all material movements affecting the Joint Property. Operator shall provide all Material for use on the Joint Property; however, at Operator's option, such Material may be supplied by the Non-Operator. Operator shall make timely disposition of idle and/or surplus Material, such disposal being made either through sale to Operator or Non-Operator, division in kind, or sale to outsiders. Operator may purchase, but shall be under no obligation to purchase, interest of Non-Operator in surplus condition A or B Material. The disposal of surplus Controllable Material not purchased by the Operator shall be agreed to by the Parties.

1. Purchases

Material purchased shall be charged at the price paid by Operator after deduction of all discounts received. In case of Material found to be defective or returned to vendor for any other reason, credit shall be passed to the Joint Account when adjustment has been received by the Operator.

2. Transfers and Dispositions

Material furnished to the Joint Property and Material transferred from the Joint Property or disposed of by the Operator, unless otherwise agreed to by the Parties, shall be priced on the following bases exclusive of cash discounts:

A. New Material (Condition A)

(1) Tubular goods, except line pipe, shall be priced at the current new price in effect on date of movement on a maximum carload or barge load weight basis, regardless of quantity transferred, equalized to the lowest published price f.o.b. railway receiving point or recognized barge terminal nearest the Joint Property where such Material is normally available.

(2) Line Pipe

(a) Movement of less than 30,000 pounds shall be priced at the current new price, in effect at date of movement, as listed by a reliable supply store nearest the Joint Property where such Material is normally available.

(b) Movement of 30,000 pounds or more shall be priced under provisions of tubular goods pricing in Paragraph 2A (1) of this Section IV.

(3) Other Material shall be priced at the current new price, in effect at date of movement, as listed by a reliable supply store or f.o.b. railway receiving point nearest the Joint Property where such Material is normally available.

B. Good Used Material (Condition B)

Material in sound and serviceable condition and suitable for reuse without reconditioning:

(1) Material moved to the Joint Property

(a) At seventy-five percent (75%) of current new price, as determined by Paragraph 2A of this Section IV.

(2) Material moved from the Joint Property

(a) At seventy-five percent (75%) of current new price, as determined by Paragraph 2A of this Section IV, if Material was originally charged to the Joint Account as new Material, or

(b) at sixty-five percent (65%) of current new price, as determined by Paragraph 2A of this Section IV, if Material was originally charged to the Joint Account as good used Material at seventy-five percent (75%) of current new price.

The cost of reconditioning, if any, shall be absorbed by the transferring property.

C. Other Used Material (Condition C and D)

(1) Condition C

Material which is not in sound and serviceable condition and not suitable for its original function until after reconditioning shall be priced at fifty percent (50%) of current new price as determined by Paragraph 2A of this Section IV. The cost of reconditioning shall be charged to the receiving property, provided Condition C value plus cost of reconditioning does not exceed Condition B value.

(2) Condition D

All other Material, including junk, shall be priced at a value commensurate with its use or at prevailing prices. Material no longer suitable for its original purpose but usable for some other purpose, shall be priced on a basis comparable with that of items normally used for such other purpose. Operator may dispose of Condition D Material under procedures normally utilized by the Operator without prior approval of Non-Operators.

D. Obsolete Material

Material which is serviceable and usable for its original function but condition and/or value of such Material is not equivalent to that which would justify a price as provided above may be specially priced as agreed to by the Parties. Such price should result in the Joint Account being charged with the value of the service rendered by such Material.

E. Pricing Conditions

(1) Loading and unloading costs may be charged to the Joint Account at the rate of fifteen cents (15¢) per hundred weight on all tubular goods movements, in lieu of loading and unloading costs sustained, when actual hauling cost of such tubular goods are equalized under provisions of Paragraph 3 of Section II.

(2) Material involving erection costs shall be charged at applicable percentage of the current knocked-down price of new Material.

3. Premium Prices

Whenever Material is not readily obtainable at published or listed prices because of national emergencies, strikes or other unusual causes over which the Operator has no control, the Operator may charge the Joint Account for the required Material at the Operator's actual cost incurred in providing such Material, in making it suitable for use, and in moving it to the Joint Property; provided notice in writing is furnished to Non-Operators of the proposed charge prior to billing Non-Operators for such Material. Each Non-Operator shall have the right, by so electing and notifying Operator within ten days after receiving notice from Operator, to furnish in kind all or part of his share of such Material suitable for use and acceptable to Operator.

4. Warranty of Material Furnished by Operator

Operator does not warrant the Material furnished. In case of defective Material, credit shall not be passed to the Joint Account until adjustment has been received by Operator from the manufacturers or their agents.

V. INVENTORIES

The Operator shall maintain detailed records of Controllable Material.

1. Periodic Inventories, Notice and Representation

At reasonable intervals, Inventories shall be taken by Operator of the Joint Account Controllable Material. Written notice of intention to take inventory shall be given by Operator at least thirty (30) days before any inventory is to begin so that Non-Operators may be represented when any inventory is taken. Failure of Non-Operators to be represented at an inventory shall bind Non-Operators to accept the inventory taken by Operator.

2. Reconciliation and Adjustment of Inventories

Reconciliation of a physical inventory with the Joint Account shall be made, and a list of overages and shortages shall be furnished to the Non-Operators within six months following the taking of the inventory. Inventory adjustments shall be made by Operator with the Joint Account for overages and shortages, but Operator shall be held accountable only for shortages due to lack of reasonable diligence.

3. Special Inventories

Special Inventories may be taken whenever there is any sale or change of interest in the Joint Property. It shall be the duty of the party selling to notify all other Parties as quickly as possible after the transfer of interest takes place. In such cases, both the seller and the purchaser shall be governed by such inventory.

4. Expense of Conducting Periodic Inventories

The expense of conducting periodic Inventories shall not be charged to the Joint Account unless agreed to by the Parties.

EXHIBIT G
ATTACHED TO UNIT OPERATING AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

INSURANCE PROVISIONS

Unit Operator shall carry the following insurance with respect to Unit Operations:

(1) Public liability and property damage insurance with limits of $100,000.00 for injuries to or death of one person and $300,000.00 for injuries or deaths in one accident, and $100,000.00 for property damage in one accident.

(2) Automobile public liability and property damage insurance with limits of $100,000.00 for injuries to or death of one person and $300,000.00 for injuries or deaths in one accident, and $100,000.00 for property damage in one accident.

All insurance coverage required hereby shall be carried at the joint expense and for the benefit of the Working Interest Owners. Premiums for automobile public liability and property damage insurance on Unit Operator's fully owned equipment shall not be charged directly to the joint account, but will be covered by the flat rate charge assessed for the use of such equipment. Unit Operator will not carry fire, windstorm or explosion insurance covering Unit Operations or Unit Equipment.

Contractors and sub-contractors will be required to carry insurance of the same types as hereinabove specified and in such amounts as deemed necessary by Unit Operator.

If under the laws of the State in which operations are conducted Operator is authorized to be a self-insurer as to workmen's compensation and/or employers' liability, Operator may elect to be a self-insurer under such laws and in such event Operator shall charge to the joint account, in lieu of any premiums for such insurance, a premium equivalent limited to amounts determined by applying manual insurance rates to the payroll.

If the parties hereto or any of them shall insure their respective risks beyond the specific limits of insurance required hereunder to be carried by the Unit Operator, the benefits of such insurance shall inure to the parties procuring and maintaining the same, respectively, and the cost of such insurance shall be borne by such parties, respectively, without reimbursement one from the other and without entering into any accounting hereunder.

EXHIBIT H

ATTACHED TO UNIT OPERATING AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

INDEMNITY AGREEMENT

WHEREAS, Section 14(c) of an agreement entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico," dated July 1, 1978, provides that under certain circumstances and conditions therein stated a Tract that fails to qualify under Section 14(a) or Section 14(b) may be qualified under said Section 14(c) if the requisite Working Interest Owners in the Tract as specified in said Section 14(c) request the qualification of the Tract and execute and deliver, or obligate themselves to execute and deliver, an indemnity agreement; and

WHEREAS, Tract _____, described in the Unit Agreement is such a Tract; and

WHEREAS, the undersigned are owners of Working Interest in such Tract and have become parties to the Unit Agreement and the Unit Operating Agreement and desire the qualification of the Tract under said Section 14(c):

NOW THEREFORE, in consideration of and conditioned upon said Tract meeting the other requirements of said Section 14(c) of the Unit Agreement and its being qualified under said Section 14(c), the undersigned hereby request the qualification of said Tract under said Section 14(c) and agree, together with other owners of Working Interest in the Tract who execute and deliver, or who obligate themselves to execute and deliver, like indemnity agreements, to indemnify and hold harmless all other Working Interest Owners in the Unit Area against all claims and demands required by said Section 14(c) to be the subject of such indemnity. Any liability arising hereunder shall be borne by the undersigned and other Working Interest Owners in the Tract who are committed to like indemnity agreements in the proportion that the Working Interest of each in the Tract bears to the total Working Interest therein of all the owners of Working Interest in the Tract committed to such indemnity agreement.

This indemnity shall become void with respect to all claims and demands based upon occurrences subsequent to any time that conditions are such that said Tract would be qualified under the provisions of said Unit Agreement without this indemnity.

This agreement shall be binding upon and inure to the benefit of the heirs, devisees, legal representatives, successors, and assigns of the respective parties initially bound or benefited by the provisions hereof.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date opposite its signature.

_____ _____

_____ _____

NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO
ROYALTY INTEREST OWNERS

TOTAL NUMBER OF ROYALTY INTEREST OWNERS — 905

HOW CONTACTED:

A) COVER LETTER AND UNIT AGREEMENT SUBMITTED TO ALL KNOWN ROYALTY OWNERS, AUGUST 8,1978.

B) ADDITIONAL LETTER REQUESTING RATIFICATION OF UNIT AGREEMENT SUBMITTED TO ALL UNSIGNED ROYALTY INTEREST OWNERS, OCTOBER 11,1978.

C) CONCENTRATED TELEPHONE CAMPAIGN, DECEMBER, 1978 THROUGH FEBRUARY, 1979.

D) ADDITIONAL LETTER AGAIN REQUESTING RATIFICATION OF UNIT AGREEMENT SUBMITTED TO ALL UNSIGNED ROYALTY INTEREST OWNERS, FEBRUARY 22,1979.

E) FINAL LETTER ADVISING OF STATUS OF UNIT AND REQUESTING RATIFICATION OF UNIT AGREEMENT SUBMITTED TO ALL ROYALTY INTEREST OWNERS IN THE UNIT AREA, AUGUST 6,1979.

STATUS OF SIGN-UP, OCTOBER 3,1979:

TOTAL NUMBER OF ROYALTY INTEREST OWNERS RATIFYING UNIT AGREEMENT*			720
CONTACTED BUT UNSIGNED ROYALTY INTEREST OWNERS			144
ROYALTY INTEREST OWNERS WITH NO KNOWN ADDRESS			41
TOTAL NUMBER OF UNSIGNED ROYALTY INTEREST OWNERS			185
PERCENTAGE OF SIGN UP *	PHASE I	OIL	97.42204%
		GAS	97.24834%
	PHASE II	OIL	97.41066%
		GAS	97.27432%
	PHASE III	OIL	97.18263%
		GAS	97.18263%

* INCLUDES PRELIMINARY APPROVAL BY THE USGS AND THE COMMISSIONER OF PUBLIC LANDS, STATE OF NEW MEXICO.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 5562 Exhibit No. 6
Submitted by Shell
Hearing Date 10-3-79

EXHIBIT 8

NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO
WORKING INTEREST OWNERS

TOTAL NUMBER OF WORKING INTEREST OWNERS 80

HOW CONTACTED:

A) COVER LETTER AND UNIT AND UNIT OPERATING AGREEMENTS SUBMITTED TO ALL WORKING INTEREST OWNERS, AUGUST 7,1978.

B) ADDITIONAL LETTER ADVISING OF PROGRESS OF UNIT SIGN-UP AND REQUESTING RATIFICATION OF UNIT AND UNIT OPERATING AGREEMENTS SUBMITTED TO ALL WORKING INTEREST OWNERS, NOVEMBER 20,1978.

C) CONCENTRATED TELEPHONE CAMPAIGN, NOVEMBER, 1978 THROUGH FEBRUARY, 1979.

D) FINAL LETTER ADVISING OF THE STATUS OF UNIT SIGN-UP AND AGAIN REQUESTING RATIFICATION OF THE UNIT AND UNIT OPERATING AGREEMENTS SUBMITTED TO ALL WORKING INTEREST OWNERS, JULY 13,1979.

STATUS OF SIGN-UP, OCTOBER 3,1979:

TOTAL NUMBER OF WORKING INTEREST OWNERS RATIFYING UNIT AND UNIT OPERATING AGREEMENTS			63
TOTAL NUMBER OF UNSIGNED WORKING INTEREST OWNERS			17
PERCENTAGE OF SIGN-UP	PHASE I	OIL	94.69403%
		GAS	93.09303%
	PHASE II	OIL	95.04702%
		GAS	94.25141%
	PHASE III	OIL	91.74421%
		GAS	91.74421%
	INVESTMENT PARTICIPATION		93.67255%

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 5562 Exhibit No. 8
Submitted by Shell
Hearing Date 10-3-79

United States Department of the Interior

GEOLOGICAL SURVEY
P. O. Box 26124
Albuquerque, New Mexico 87125

JUL 31 1978

RECEIVED
AUG 03 '78

Shell Oil Company
Attention: Mr. W. L. Campbell
P. O. Box 991
Houston, Texas 77001

Gentlemen:

In response to your letter of June 30, 1978, concerning the revised unit agreement form for the Proposed North Hobbs (Grayburg-San Andres) unit, Lea County, New Mexico, we have no objection to the revised unit agreement form transmitted by your letter.

In view of the minority oil participation of the Federal tracts, 3.40305, 3.28211 and 6.28727 percent for Phase I, II, and III, respectively, designation of this unit by the USGS will not be required pursuant to Conservation Division Manual section 645.1.3C(D), a copy of which is enclosed to explain the procedure used where small percentages of Federal land are involved in a unit. The unit agreement, with appropriate collateral material, should be filed with this office after final approval thereof by the New Mexico Oil Conservation Division and performance of all requirements necessary to establish the effective date.

Notwithstanding the above procedure, we would appreciate being kept informed of your progress towards unitization of the area and of the docket dates arranged for the New Mexico Oil Conservation Division hearings. We appreciate your previous cooperation with this office in arranging a preliminary conference and furnishing the engineering report from which the participating parameters were interpreted and established.

Sincerely yours,

James W. Sutherland

JAMES W. SUTHERLAND
Oil and Gas Supervisor, SRMA

Enclosure

cc: Mr. Bill L. Sweet
P. O. Box 51
Hobbs, New Mexico

EXXON
Attention: Mr. J. M. Shepherd
P. O. Box 1600
Midland, Texas 79701

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 5562 Exhibit No. 9
Submitted by Shell
Hearing Date 10-3-79

(4) number and depth of additional wells required to adequately test the structure or features involved; and (5) the expense of drilling.

As a general guideline for unit areas larger than 25,000 acres, one additional test well should be required for each additional 10 - 15,000 acres. Also, these initial well requirements should establish a minimum distance between wells so as to allow for the proper exploration of the unit area.

D. Approval of Executed Agreements

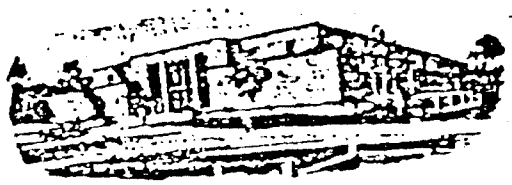
After the area has been designated as logically subject to unitization and the proponent has obtained sufficient joinders to the unit agreement, and unit operating agreement to insure control of operations within the unit area, the executed unit agreement should be filed with the appropriate Area Supervisor for approval. The Area Supervisor has been delegated the authority to approve executed unit agreements. Guidelines and procedures for processing executed unit agreements received for final approval are contained in Exhibit 7.

Units containing less than five to ten percent Federal participation do not require designation or approval under the usual procedures. Such units are generally not handled like units containing large percentages of Federal participation in that the API form is usually used in lieu of the Federal form and the unit operator often will not have requested and obtained the designation of the unit. In such event, the only Federal requirements for the agreement are listed on the approval page signed by the Regional Manager, for the Director. This kind of agreement is usually filed in its final executed form with the Area Supervisor on a "take-it-or-leave-it" basis, e.g., when the area will be unitized with or without Federal participation. In such cases, the executed unit agreement is reviewed for general acceptability by the Area Supervisor, and, if the proposal can be recommended, it is forwarded to the Regional Office for review and final approval. This kind of unit should be treated as a non-Federal control unit, and normal Federal supervision should be maintained only over the Federal/Indian leases involved.

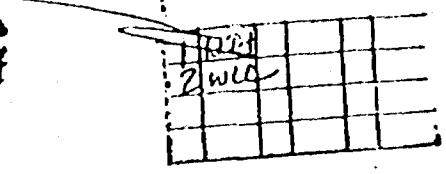
E. Exploratory Drilling Operations

Section 9 of the model form of unit agreement for unproved areas (Exhibit 4) contains the initial test well requirements for the unit. Generally, this section requires the unit

State of New Mexico



Commissioner of Public Lands



RECEIVED
JUN 19 78

June 13, 1978

PHIL R. LUCERO
COMMISSIONER

P. O. BOX 1148
SANTA FE, NEW MEXICO 87501

Shell Oil Company
P. O. Box 991
Houston, Texas 77001

Re: Proposed North Hobbs
(Grayburg-San Andres) Unit
Lea County, New Mexico

ATTENTION: Mr. W. L. Campbell

Gentlemen:

We have reviewed the unexecuted copy of unit agreement, Exhibits "A" and "B", for the proposed North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico. The form of agreement meets the requirements of the Commissioner of Public Lands, therefore, your agreement has been approved as to form and content.

We are sorry to inform you that we can not accept the Exhibit "B" as submitted. All tracts must be in numerical order, starting with tract 1 through 43. Also, the Exhibit has a few errors which we have marked in red in the enclosed copy. We would also like to have the Exhibit on one side of the page only instead of both sides. This makes it much easier in checking our leases and posting our tract books.

When submitting your agreement for final approval, the following are required by this office.

1. Application for final approval stating Tracts committed and Tracts not committed.

2. Two executed copies of Unit Agreement-one must contain original signatures, together with two copies of Exhibits "A" and "B".

3. One executed copy of Operating agreement.

4. Two sets of all ratifications from Lessees of Record and Working Intrest Owners.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 5561 Exhibit No. 10
Submitted by Shell
Hearing Date 10-3-78

5. Order of the New Mexico Oil Conservation Division.

6. Filing Fee in the amount of Three Hundred ($300.00) Dollars.

7. Re-designation of well names and numbers.

8. Initial Plan of Operation

9. Certificate of Determination by USGS.

If we may be of further help please do not hesitate to call on us.

Very truly yours,

PHIL R. LUCERO
COMMISSIONER OF PUBLIC LANDS

BY: Ray D. Graham
RAY D. GRAHAM, Director
Oil and Gas Division

PRL/RDG/s
encl.

State of New Mexico

Commissioner of Public Lands

June 21, 1978

PHIL R. LUCERO
COMMISSIONER

P. O. BOX 1148
SANTA FE, NEW MEXICO 87501

RECEIVED
JUN 26 '78

Shell Oil Company
P. O. Box 991
Houston, Texas 77001

Re: Proposed North Hobbs
(Grayburg-San Andres) Unit
Lea County, New Mexico

ATTENTION: Mr. W. L. Campbell

Gentlemen:

As per our telephone conversation of June 20, 1978, please be advised that the Exhibits "A" and "B" for the North Hobbs (Grayburg-San Andres Unit, are acceptable by this office, as submitted, therefore, please disregard our second paragraph of our letter of June 13, 1978.

Very truly yours,

PHIL R. LUCERO
COMMISSIONER OF PUBLIC LANDS

BY: Ray D. Graham
RAY D. GRAHAM, Director
Oil and Gas Division

PRL/RDG/s

State of New Mexico

Commissioner of Public Lands

PHIL R. LUCERO
COMMISSIONER

July 6, 1978

LAND DEPARTMENT
RECEIVED
JUL 11 78
WLC

FILE
WLC
P001
1623

P. O. BOX 1148
SANTA FE, NEW MEXICO 87501

Shell Oil Company
P. O. Box 991
Houston, Texas 77001

Re: Proposed North Hobbs
(Grayburg-San Andres) Unit
Part of T18S-R37E and T18S-R38E
Lea County, New Mexico

ATTENTION: Mr. W. L. Campbell

Gentlemen:

We are in receipt of your letter dated June 30, 1978, together with revised copy of the unit agreement and revised copy of Exhibit "A" to the North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico. Such revisions were requested by the United States Geological Survey.

We have reviewed the changes and they meet with our approval, therefore, your revised copy, with certain deletions, has been approved as to form and content by the Commissioner of Public Lands on this date.

The requirements for final approval were outlined in our letter of June 13, 1978.

Very truly yours,

PHIL R. LUCERO
COMMISSIONER OF PUBLIC LANDS

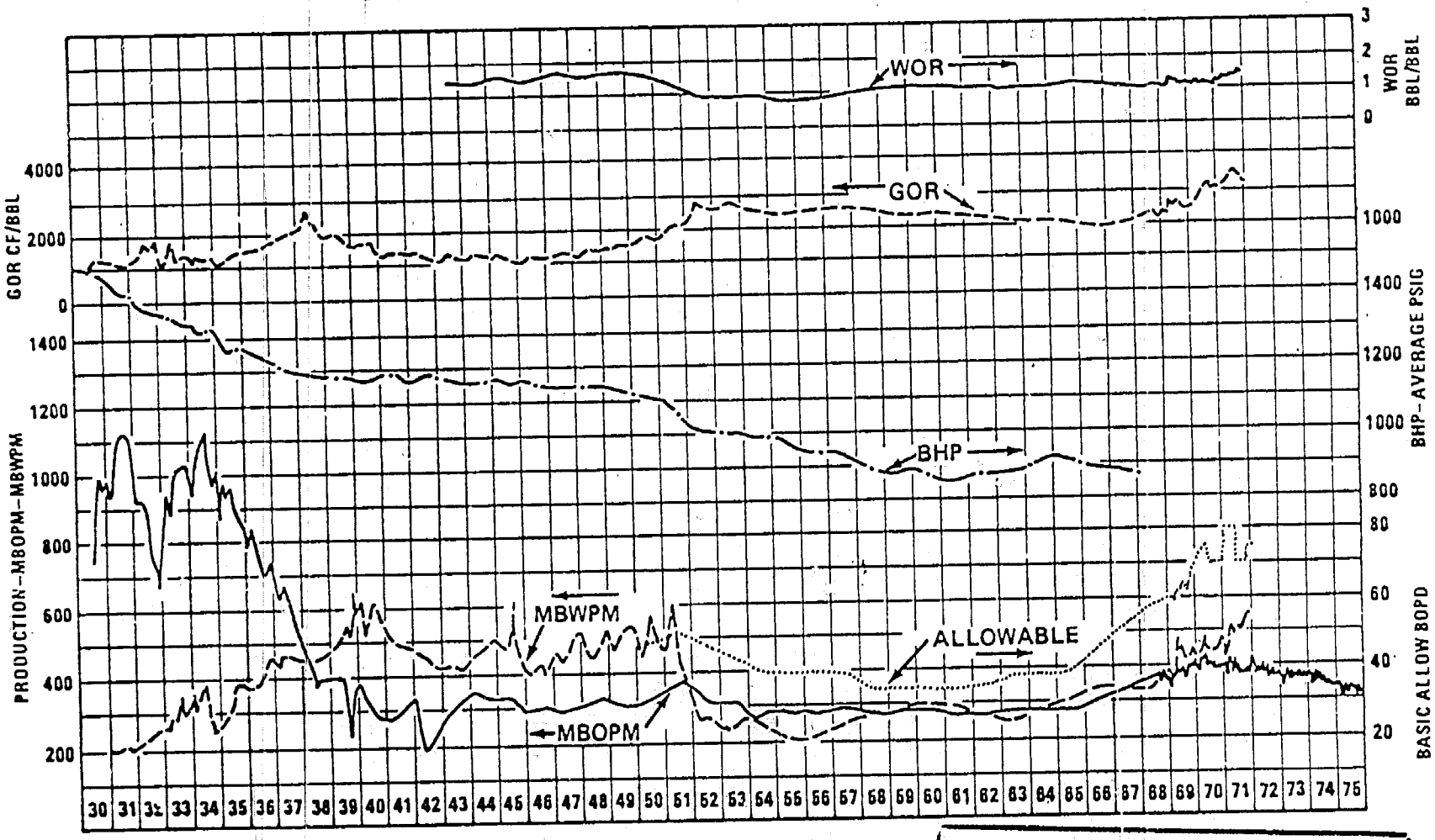
BY: Ray D. Graham
RAY D. GRAHAM, Director
Oil and Gas Division

PRL/RDG/s

ZM-2217

EXHIBIT 13

JCTION PERFORMANCE—HOBBS (GRAYBURG SAN ANDRES) FIELD



BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 5561 Exhibit No. 13
Submitted by Shell
Hearing Date 10-3-79

GRAPH 1

EXHIBIT 14

SHELL EXHIBIT 14

)SED NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT

WORKING INTEREST OWNERS' CHARGE TO THE TECHNICAL COMMITTEE

A. CONSTRUCT AN ACCEPTABLE BASE MAP.

B. DEFINE THE VERTICAL INTERVAL TO BE UNITIZED.

C. RECOMMEND A UNIT AREA OR AREAS.

D. DETERMINE FEASIBILITY OF WATERFLOODING THE GRAYBURG.

1. CONSTRUCT GRAYBURG NET PAY MAP AND (NET Øh, IF POSSIBLE).
2. DETERMINE FLOODABLE NET ACRE FEET.
3. DETERMINE SECONDARY OIL POTENTIAL.

E. DETERMINE FEASIBILITY OF WATERFLOODING THE SAN ANDRES.

1. REVIEW Øh MAPS.
2. REVIEW GOR AND WATER-CUT MAPS.
3. CONSTRUCT CONTINUOUS PAY MAPS BY ZONE.
4. DETERMINE REMAINING PRIMARY PRODUCTION.
5. ESTABLISH SECONDARY OIL POTENTIAL BY ZONES.

F. TABULATE THE FOLLOWING PARAMETERS BY TRACT, BY ZONES, AND BY WORKING INTEREST OWNERS:

1. CURRENT OIL AND GAS PRODUCTION RATE AND VALUE FOR THE MOST RECENT REPRESENTATIVE PERIOD.
2. CUMULATIVE OIL PRODUCTION.
3. USABLE COMPLETIONS.
4. ACTIVE PRODUCING WELLS.
5. TOTAL ACRES.
6. ORIGINAL OIL IN PLACE.
7. FLOODABLE NET ACRE-FEET.
8. REMAINING PRIMARY RESERVES.
9. ULTIMATE PRIMARY OIL.
10. SECONDARY RESERVES.
11. ANY OTHER PARAMETER CONSIDERED APPROPRIATE BY THE ENGINEERING SUBCOMMITTEE.

G. DEVELOP RECOMMENDED PLANS OF DEPLETION INCLUDING ECONOMIC COMPARISONS VERSUS CONTINUED PRIMARY OPERATIONS.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 5562 Exhibit No. 14
Submitted by Shell
Hearing Date 10-3-79

SHELL EXHIBIT 17

NORTH HOBBS WATERFLOOD CAPITAL REQUIREMENTS

I.	Injection System (60,000 BWPD @ up to 1500 psi)	2,500,000
	A. Injection Station	4,500,000
	B. Injection Lines	600,000
	C. Well Heads & Manifolds	7,600,000
II.	Production Handling System (185 Wells, 15,000 BOPD, 70,000 BWPD)	1,200,000
	A. One Central Tank Battery	3,400,000
	B. Fourteen Satellite Stations	6,700,000
	C. Gathering & Distribution Lines	700,000
	D. Additional Electrification	12,000,000
III.	Source Water Gathering System	1,200,000
IV.	Well Work	4,000,000
	A. Drill & Equip _____ 20.5 Wells	2,200,000
	B. Workovers & Conversions	6,200,000
		27,000,000
	INITIAL CAPITAL INVESTMENT	6,000,000
	FUTURE CAPITAL	
	ULTIMATE CAPITAL INVESTMENT	33,000,000

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 5562 Exhibit No. 17
Submitted by Shell
Hearing Date 10-3-79

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ C unty _____

STATE OF TEXAS. I
I
COUNTY OF MIDLAND. I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 21st day of November, 1978, by H. T. FINNEY, Attorney-in-Fact of UNION OIL COMPANY OF CALIFORNIA, a California corporation, on behalf of the corporation.

My Commission Expires:

8-27-79

Alice M. Jones
ALICE M. JONES Notary Public in and for
Midland County Texas

899

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

UNION OIL COMPANY OF CALIFORNIA

Date: Nov. 21, 1978

By: H. T. Finney
H. T. Finney, Attorney-in-Fact

Address: P. O. Box 3100
Midland, Texas 79702

ATTEST:

_____

By: _____

_____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Switzerland I

I

COUNTY OF Gde St. Gall I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 15th day of August, 1978, by Paul Max Schlatter and Ursula Schlatter, husband and wife.

My Commission Expires:

15th August 1979

Deputy Notary public
W. Schwaller

_____
Notary Public in and for
_____ County _____

CHANCERY MUNICIPAL ST. GALL (SWITZERLAND)

NOTARY PUBLIC ST. GALL (SWITZERLAND)

22. Dez. 1978

8234

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 15th August 1978

Paul Max Zollikofer

Date: 15th August 1978

Mathilde Zollikofer

Address: Strebelstr. 16

9010 St. Gall Switzerland

ATTEST:

CHANCERY MUNICIPAL ST. GALL (SWITZERLAND)

NOTARY PUBLIC ST. GALL (SWITZERLAND)

By: Deputy Notary public W. Schwaller

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF ~~STATE OF NEW YORK~~)
COUNTY OF ~~COUNTY OF NEW YORK~~)
~~SWORN TO AND SUBSCRIBED BEFORE ME~~
~~THIS DAY 16TH OF OCT 1978~~

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 25th day of OCTOBER, 1978, by MR. GUSTAVE ZELLNIK.

My Commission Expires:

MARCH 30 1980

Notary Public in and for
County

PATRICIA M. EDER
Notary Public, State of New York
31-4674866
Qualified in New York County
Commission Expires March 30, 1980

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: October 25th 1978

Gustav Rellmik

27 W — 72nd St.

Address: N.Y. N.Y. 10023.

Date: _____

_____

_____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Oklahoma)
)
COUNTY OF Okmulgee)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 4th day of September, 1979, by Samuel Jay Zanti.

My Commission Expires:

9-23-81

Margaret J. Brownfield
Notary Public in and for
Okmulgee County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: September 4, 1979

Samuel Jay Zanti

520 Newfield Road

Glen Burnie, Maryland 21061

Address:

Date:

By:

ATTEST:

O. T. Bingman

Attorney at Law

Address:

Date: September 4, 1979

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF NEW YORK)
)
COUNTY OF NEW YORK)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 31st day of January, 1979, ~~1978~~, by HENRY KOHN Chairman of Young Men and Young Womens Hebrew Association, Incorporated, a New York corporation, on behalf of the corporation.

My Commission Expires:
March 30, 1979

Blanche A. Byrd
Notary Public in and for
New York County ~~New York~~

BLANCHE A. BYRD
Notary Public, State of New York
No. 31-0526350
Qualified in New York County
Commission Expires March 30, 1979

975

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: January 31, 1979

YOUNG MEN AND YOUNG WOMENS HEBREW ASSOCIATION OF NEW YORK, INCORPORATED

Date: _____

_____

Address: 1395 Lexington Avenue
New York, New York 10028

ATTEST:

_____

By: Henry Kohn

_____
Henry Kohn, Chairman

Date: _____

Address: 155 East 72nd Street
New York, New York 10021

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF California)
)
COUNTY OF Los Angeles)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 29th day of September, 1978, by Lisbeth Anne Young and James Conner Young, husband and wife.

My Commission Expires:

8-20-82

OFFICIAL SEAL
PHYLLIS S. HALL
NOTARY PUBLIC - CALIFORNIA
LOS ANGELES COUNTY
My comm. expires AUG 20, 1982

Phyllis L Hall
Notary Public in and for
Los Angeles County California

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: September 29, 1978 Lisbeth June Young

Date: 29 Sept 1978 James Conner Young

Address: 790 TERRAINE AVE
LONG BEACH, CALIF 90804

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Illinois I

I

COUNTY OF Cook I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 4th day of January, 1978, by HERMAN A. KOLE, VICE PRESIDENT of HARRIS TRUST & SAVINGS BANK, a ILLINOIS BANKING corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

4-13-82

Louise Rupel
Notary Public in and for
Cook County Illinois

976

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

Date: _____

James T. Andras
REAL ESTATE OFFICER
HARRIS TRUST AND SAVINGS BANK
Address: ~~111 WEST MONROE STREET~~
CHICAGO 90, ILLINOIS

ATTEST:

_____
Assistant Secretary

Harris Trust and Savings Bank
not individually but as Trustee
of the Lillian G. Wright Trust

By: _____
Herman A. Kole, Vice President

Date: January 4, 1979

Address: 111 West Monroe
Chicago, Ill 60690

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF Pennsylvania I
I
COUNTY OF Philadelphia I

The foregoing instrument was acknowledged before me this 6 day of February, 1978, by Dorothy L. Finley.

My Commission Expires:

[illegible]
Notary Public, Phila., Phila. Co.
My Commission Expires [illegible], 1981

Regina Marie C. Connor
Notary Public in and for
Phila. County Pa.

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

475

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: February 2, 1979

Dorothy L. Worley
Dorothy L. Worley

Date: _____

Address: c/o First Pennsylvania Bank, N.A.
Real Estate Department
Centre Square - 17th Floor
Philadelphia, PA 19101

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF Texas I
I
COUNTY OF Tom Green I

The foregoing instrument was acknowledged before me this 14 day of August, 1978, by Lydia Hall Woods-Widow.

My Commission Expires:

7-31-80

Hezzie Carson
Notary Public in and for
Tom Green County Texas

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 14, 1978 Lydian Hall Woods - widow

Date: _____

Address: P.O. Box 2116
San Angelo, Tex.
76901

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF Mississippi)
)
COUNTY OF Lowndes)

The foregoing instrument was acknowledged before me this 26 day of January, 1979, ~~1978~~, by William J. Threadgill, Surviving Trustee for Randolph Maurice Wolff, under the Will of Frankel M. Wolff.

My Commission Expires:

Dec. 28, 1981

Notary Public in and for
Lowndes County Mississippi

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

(972)
970,971

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement.

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: January 26, 1979

William J. Threadgill, Surviving Trustee for Randolph Maurice Wolff, under the Will of Frankel M. Wolff

Date: _____

Frankel M. Wolff

Address: P. O. Box 1366
Columbus, Mississippi 39701

ATTEST:

M. M. Shackelford
P. O. Box 1366, Columbus, Ms. 39701

By: _____

Date: January 26, 1979

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Mississippi)
)
COUNTY OF Lowndes)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 26 day of January, 1979, ~~1978~~, by William J. Threadgill, Surviving Trustee for Deborah Patricia Wolff, under Will of Frankel M. Wolff.

My Commission Expires:

Dec. 28, 1981

Bonnie L. Ball
Notary Public in and for
Lowndes County Mississippi

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

(969)
967, 968

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: January 26, 1979

William J. Threadgill, Surviving Trustee for Deborah Patricia Wolff, under Will of Frankel M. Wolff

Address: P. O. Box 1366
Columbus, Mississippi 39701

Date: _____

ATTEST:

M. M. Shackelford
P. O. Box 1366, Columbus, Ms. 39701

By: _____

Date: January 26, 1979

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF TOM GREEN I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 21st. day of August, 1978, by CHALES J. WOHLFORD; a widower.

My Commission Expires:

June 1, 1979

Notary Public in and for
Tom Green County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 18 1978 Charles J Wohlford

Date: _____ _____

Address: CHARLES J WOHLFORD
508 1ST SAVINGS BL
SAN ANGELO, TEX.
76901

ATTEST:

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF Washington)
)
COUNTY OF Pierce)

The foregoing instrument was acknowledged before me this 5th day of March, 1978, by Dorothy J. Witkowski and Edward D. Witkowski, husband and wife.

My Commission Expires:

Feb. 25, 1980

Notary Public in and for
Pierce County Washington

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

964A

206-845-9716

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: March 5 - 1979

Dorothy J. Whitbeck

Date: March 5, 1979

7104 E. 84th St.

Address: Puyallup Wn. 98371

Edward D. Whitbeck

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF WEST VIRGINIA I

I

COUNTY OF TYLER I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 13th day of October, 1978, by John C. Wright, President of The Wiser Oil Company, a Delaware corporation, on behalf of the corporation.

My Commission Expires:

July 16, 1985

B. G. Hall
Notary Public in and for
Tyler County West Virginia

2-11
968

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: _____

_____

Address: _____

_____

ATTEST:

THE WISER OIL COMPANY

Milton H. Bailes

Secretary

By: John C. Wiser

President

Date: October 13, 1978

Address: P. O. Box 192
Sistersville, W. Va. 26175

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I

COUNTY OF Tom Green I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16 day of October, 1978, by Marjon Bryan in the capacity therein stated.

My Commission Expires:

11-30-78

Notary Public in and for
Tom Green County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

961

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 10-16-78

Marjorie Bryan
Individually and as Guardian of the Estate of Virginia H. Wimberly

Date: _____

Address: % Central National Bank Trust Dept.
PO Box 2088
San Angelo, Texas 76902

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEW YORK)
)
COUNTY OF NEW YORK)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 1st day of MARCH, 1979, by WILLIAM D. WILSON.

My Commission Expires:
MARCH 30, 1979

Carl J. Geitel
Notary Public in and for
NEW YORK County

CARL J. GEITEL
Notary Public, State of New York
No. 03-1417475 Qual. in Bronx Co.
Certificate filed in New York County
Commission Expires March 30, 19 79

STATE OF NEW YORK)
)
COUNTY OF NEW YORK)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 2ND day of MARCH, 1979, by MARGARET C. WILSON and ~~husband and~~ wife.

My Commission Expires:

Orville G. Brathwaite
Notary Public in and for
County

ORVILLE G. BRATHWAITE
Notary Public, State of New York
No. 24-4520424
Qualified in Kings County
Commission Expires March 30, 1980

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____
Notary Public in and for
_____ County

560A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 3/2/79

Margaret C Wilson

Date: _____

Margaret C. Wilson

Address: 510 East 23rd St
New York, N.Y. 10010

ATTEST:

_____

3/1/79

By: William D Wilson
William D. Wilson (husband)

_____

Date: _____

Address: 510 E 23rd St. (2-G)
New York, NY 10010

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Missouri I
I
COUNTY OF Jackson I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of Aug., 1978, by Dorothy V. Wilson.

My Commission Expires:

10-24-81

Nellie M. Mack
Notary Public in and for
Jackson County Missouri

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

959
#714 & 715

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9/14/78 — Dorothy U. Wilson

Date: _____ — _____

Address: 121 East 48th
K.C. Mo 64112

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I
I
COUNTY OF EASTLAND I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 18th day of August, 1978, by Euel R. Williams and Christine Williams, husband and wife.

My Commission Expires:

July 1, 1980

INEZ HARRELL BOURDEAU
Inez Harrell Bourdeau
Notary Public in and for
Eastland County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 18 Aug 1978

Christine Williams

Address: RT 2 Bx 73A
EASTLAND Tex
76448

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF CALIFORNIA)
)
COUNTY OF LOS ANGELES)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 9TH day of DECEMBER, 1978, by ELLEN ANNE WALLACE WILLIAMS.

My Commission Expires:

APRIL 8 1979

Frank J McIntyre
Notary Public in and for
LOS ANGELES County, CALIFORNIA

OFFICIAL SEAL
FRANK J. MC INTYRE
NOTARY PUBLIC - CALIFORNIA
LOS ANGELES COUNTY
My comm. expires APR 8, 1979

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged befcre me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: 9 December 1978 Ellen Anne Wallace Williams

Address: ELLEN ANNE WALLACE WILLIAMS
S.S. #570-26-7864
POST OFFICE BOX 10054
GLENDALE, CA 91209

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF ~~TEXAS~~ I

COUNTY OF EASTLAND I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 10th day of August, 1978, by Christine Williams.

My Commission Expires:

July 1, 1980

INEZ HARRELL BOURDEAU

Inez Harrell Bourdeau

Notary Public in and for Eastland County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____

Notary Public in and for _____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____

Notary Public in and for _____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 18 Aug 1978 — Christine Williams

Date: _____ _____

Address: Rt 2 Bo: 73A
Eastland Texas 76448

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas §
§
COUNTY OF Tom Green §

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15 day of August, 1978, by Bryant Williams, Trustee Under Trust Agreement Dated September 24, 1965.

My Commission Expires:

6-23-79

Ann Barsch ANN BARSCH
Notary Public in and for
Tom Green County Texas

STATE OF _____ §
§
COUNTY OF _____ §

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ §
§
COUNTY OF _____ §

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 15, 1978

[signature], Trustee Under Trust
Agreement Dated September 24, 1965

Date: _____

_____

Address: P. O. Box 1928
San Angelo, Texas 76902

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Arkansas I

COUNTY OF Washington I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 15th day of Auguast, 1978, by Homer L. Williams and Almaree Williams, husband and wife.

My Commission Expires:

8-15-81

Pat Rush
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-15-78 Homer L. Williams

Date: 8-15-78 Almaree Williams

Address: 304 Woodland Dr.
Springdale Ark 72764

ATTEST:

By:

Date: 8-15-78 Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New York)
)
COUNTY OF New York)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 18th day of Sept., 1978, by ALFRED J. WILLIAMS.

My Commission Expires:

March 30 1979

JOHN V. BALLARD
Notary Public, State of New York
No. 0146100
Qualified in Westchester County
Term Expires March 30, 1979

Notary Public in and for
New York County New York

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept. 18, 1978 — Alfred J. Williams

Date: _____

Address: 230 Park Ave.
New York, N.Y. 10017

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas §
§
COUNTY OF Harris §

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15 day of September, 1978, by William Baker White.

My Commission Expires:

CAROLYN ARMSTRONG
Notary Public in and For Harris County, TX
My Commission Expires April 4, 1980

Carolyn Armstrong
Notary Public in and for
Harris County

STATE OF _____ §
§
COUNTY OF _____ §

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ §
§
COUNTY OF _____ §

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept 15 1978 William Baker White

Date: _____ 800 Nesa BWD # 155

Address: Webster Tx 77598

William Baker White

ATTEST: _____

By: _____

Date: _____ Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New York I
I
COUNTY OF Onondaga I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 22 day of August, 1978, by Jeanne Beach White.

My Commission Expires:

PAUL BUTNORIS
Notary Public, State of New York
Qualified in Oneida County
My Commission Expires March 30, 19 80

Paul Butnoris
Notary Public in and for
Onondaga County NY

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 22, 1978 Jenne Beadle White

Date: _____ 61 Utica Street

Address: Clinton NY 13323

ATTEST: _____

By: _____

Date: _____ Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Illinois)
)
COUNTY OF Cook)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 2 day of September, 1978, by Gerald W. White.

My Commission Expires:

1/20/81

Genevieve A. Kaplan
Notary Public in and for
Cook County, Ill

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ Gerald W. White

Date: 9/2/78 Gerald W White

Address: 21025 Apollo Circle
Olympia Fields, Ill.

ATTEST:

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF TARRANT I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 22nd day of August, 1978, by Carlton L. White.

My Commission Expires:

11.13.78

Notary Public in and for
Tarrant County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

941

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 16, 1978

Carlton L. White

Address: 4325 Clayton Road West
Fort Worth, Texas 76116

Date: _____

ATTEST:

_____

By: Sharon E. White
Sharon E. White

Date: August 16, 1978

Address: 4325 Clayton Road West
Fort Worth, Texas 76116

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas)
)
COUNTY OF Navarro)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of December, 1978, by Robert L. Wheelock,Jr.&Betty W. Kennaugh Co-Independent Executors of Maude C. Wheelock Estate.

My Commission Expires:

8-31-80

Linda S. Estell
Notary Public in and for
Navarro County, Texas

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

SKO

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

MAUDE C. WHEELOCK ESTATE

Date: December 15, 1978

By: Robert L. Wheelock, Jr. Co-Independent Executo

Date: December 12, 1978

By: Betty W. Kennaugh, Co-Independent Executo

Address: P. O. Box 881
Corsicana, Texas 75110

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Mass)
)
COUNTY OF Suffolk)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 26 day of February, 1979, by ~~Dorothy Ripley~~ Mrs. Richard Wheatland. II

My Commission Expires:

1-31-86

Dorothy Ripley
Notary Public in and for
Suffolk County Mass

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Feb 26, 1979

Mrs. Richard Wheatland II

Date: _____

Mrs. Richard Wheatland II

Address: 33 Branch Street
Boston, Ma. 02108

ATTEST:

Sarah M. Bates

Date: 2/26/79

By: _____

Address: 43 Circuit Road
Chestnut Hill MA 02167

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I

COUNTY OF Midland I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 9th day of March, 1978, by K. J. West and Mattie D. West, husband and wife.

My Commission Expires:

5/31/79

Kenneth J. West
Notary Public in and for
Midland County Texas

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 3/9/79 Colorado

Date: 3/9/79 Lucile S. West

Address: 401 N. Colorado
Midland, Texas 79701

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEW YORK)
)
COUNTY OF NEW YORK)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 28th day of September, 1978, by SYDNEY B. WERTHEIMER.

My Commission Expires:
March 30, 1980

Mary E. Donoghue
Notary Public in and for
Queens County N. Y.

MARY E. DONOGHUE
Notary Public, State of New York
No. 41-4639200
Qualified in Queens County
Commission Expires March 30, 1980

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

936

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 14, 1978

Sydney B. Wertheimer
SYDNEY B. WERTHEIMER

Date: _____

Address: 425 Park Avenue
New York, New York 10022

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF OKLAHOMA)
)
COUNTY OF MURRAY)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of September, 1978, by Dorothy Wentz Sparks, Burke Healey, and Baren Healey. known to me to be the trustees of the Dorothy Wentz Trust.

My Commission Expires:

February 13, 1980

Connie Dye
Notary Public in and for
Murray County, Oklahoma

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

93-4933)

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

DOROTHY WENTZ TRUST, by

Date: September 14, 1978 — Dorothy Wentz Sparks (Trustee)

Date: September 14, 1978 — Burk Healey (Trustee)

Date: September 14, 1978 — [illegible] (Trustee)

Address: Box 777
Davis, Oklahoma 73030

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Switzerland }
}
COUNTY OF Berne }

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 28 day of December, 1978, by Charlotte Weder, Eichholzweg 30 3074 Muri b. Bern.

My Commission Expires:

Dieter Jordi, notary
Notary Public in and for
Switzerland County Berne

Reg. B. Nr. 886

STATE OF _____ }
}
COUNTY OF _____ }

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____
Notary Public in and for
_____ County _____

STATE OF _____ }
}
COUNTY OF _____ }

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____
Notary Public in and for
_____ County _____

(931)
932
933

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 12-20-78 Charlotte Nicole

Date: _____ _____

Address: Eichholzweg 30 3074 Muri b. Bern

ATTEST: _____

By: _____

Date: _____ Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS }
}
COUNTY OF TARRANT }

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 18th day of August, 1978, by William B. Watson in the capacity therein stated.

My Commission Expires:

November 30, 1978

Margaret Johnson
Notary Public in and for
Tarrant County Texas

STATE OF _____ }
}
COUNTY OF _____ }

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ }
}
COUNTY OF _____ }

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

927
478

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 18, 1978

WILLIAM B. WATSON, AGENT and
ATTORNEY-IN-FACT # 75-6084659

Date: _____

BY William B. Watson
William B. Watson

Address: 1731 Fort Worth National Bank Bldg.

Fort Worth, Texas 76102

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Arizona)
)
COUNTY OF Maricopa)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14 day of August, 1978, by J. S. Warren, Jr. Trustee.

My Commission Expires:

My Commission Expires Dec. 5, 1981

Mary Ann Sullivan
Notary Public in and for
Maricopa County Arizona

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/14/78

Ann V. Warren
Ann V. Warren, Wife

Date: 8/14/78

J. S. Warren, Jr. Trustee
Address: Warren Revocable Trust Dated as of March 5, 1973
c/o Operations Mgr. Valley National Bank
P.O. Box 2944
Phoenix, Arizona 85062

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Oklahoma)
)
COUNTY OF Okmulgee)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 17th day of January, 1979, ~~1978~~, by C. M. Warren.

My Commission Expires:

July 10, 1979

Helen Vance
Notary Public in and for
Okmulgee County, Oklahoma.

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____,
_____ of _____,
a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

925

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: January 17, 1979 _____

C. M. Warren also known as
Address: Clarence McGregor Warren
1504 320 So. Boston Bldg.,
Tulsa, Okla. 74103 % George S. Downey

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEW YORK I

COUNTY OF WESTCHESTER I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 25 day of AUGUST, 1978, by ALAN C. WARNER in the capacity therein stated.

My Commission Expires:

_____

Argyle V Ballard

Notary Public in and for
_____ County _____

ARGYLE V. BALLARD
Notary Public, State of New York
No. 60-5163050
Qualified in Westchester County
Commission Expires March 30, 1980

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____

Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____

Notary Public in and for
_____ County _____

TRACTS 60A, 60B, 61A, 61B, 62, 63, 64, 65, 66

924

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: July 25 1978

VASK WARNER TRUST 9 9-29-56

Trustee
ALBERT G. WARNER

Address: 42 SAMMIS LANE
WHITE PLAINS N.Y. 10605

Date: _____

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Hampshire)
)
COUNTY OF Sullivan)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 25th day of August, 1978, by Wilma S. Warde ~~in the capacity therein stated~~.

My Commission Expires:

2/5/80

Notary Public in and for
New Hampshire County Sullivan

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

(923) 5:21

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 25, 1978

Wilma S. Warde
Trustee Under the Will of
Wilhelmine Stentzel, Deceased

Date: _____

_____

Address: Box 525
New London, New Hampshire 03257

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Hampshire)
)
COUNTY OF Sullivan)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 25th day of August, 1978, by Wilma S. Warde in the capacity therein stated.

My Commission Expires:

2/5/80

John C. Faulkner
Notary Public in and for
New Hampshire County Sullivan

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 25, 1978

Wilma S. Warde
Executrix of the Estate of
Wilhelmine Stentzel

Date: _____

_____

Address: Box 525

New London, New Hampshire 03257

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas)
)
COUNTY OF Medina)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11 day of August, 1978, by N. E. Walton.

My Commission Expires:

July 7, 1979

Betty L. Walter
Notary Public in and for
Medina County Texas

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-11-78 N E Walton

Date: _____

Address: St Rt Box 54
Devine TX 78016

ATTEST: _____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Arkansas I
I
COUNTY OF Pulaski I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 27th day of November, 1978, by Colleen Huddy McPhearson Wallace.

My Commission Expires:

10-4-81

Ann Elizabeth Wood
Notary Public in and for
Pulaski County Arkansas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

9 of
-066 A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Nov. 22, 1978 — Colleen Grady McPherson Wallace

Date: _____ — _____

Address: # 2 Violet Ct
No. Little Rock, Ark 72116

ATTEST: _____

_____ — By: _____

_____ — _____

Date: _____ — Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Delaware I
I
COUNTY OF New Castle I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 5th day of March, 1979, by Robert W. Wakefield.

My Commission Expires:

3/15/80

Gerald C. Fenell
Notary Public in and for
New Castle County Delaware

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

9186

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 3/3/79 Robert W. Wakefield

Date: _____ _____

Address: P.O. Box 707
Wilmington, Del., 19807
SS # 155-24-6219

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF NEW YORK I

I

COUNTY OF NEW YORK I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 27 day of MARCH, 1978, by DAVID D WAKEFIELD and EARLENE S WAKEFIELD, husband and wife.

My Commission Expires:

3-30-79

FRANK J. RUDDY
NOTARY PUBLIC, State of New York
No. 43-3392794
Qualified in Richmond County
Certificate filed in New York County
Commission Expires March 30, 1979

Frank J. Ruddy

Notary Public in and for
NEW YORK County _____

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 3/27/79

David D. Wakefield

Date: 3/27/79

Carolyn B Wakefield

Address: PO Box 483

Madison, N.J. 07940

ATTEST:

221-18-4986

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Colorado)
)
COUNTY OF Jefferson)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 24th day of August, 1978, by Mary C. Vyskocil.

My Commission Expires:

June 6, 1981

Carol C. Silbaugh
Notary Public in and for
County of Jefferson

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

Jennette Clinton Vyskocil is the same as D Jary 915 (916)
C. Vyskocil

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/24/78 D Jary C. Vyskocil

Date: _____

Address: Box 434
Littleton, Colo. 80160

ATTEST:

By: Cynthia L. Reynolds

Date: _____

Address: 7317 W. Parkview Dr.
Littleton, CO 80123

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Oklahoma)
)
COUNTY OF Okmulgee)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 8th day of November, 1978, by Ralph William Viersen, Jr. and Louise Viersen. Husband and wife

My Commission Expires:

April 24, 1979

Notary Public in and for
Okmulgee County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: November 8, 1978

Ralph William Viersen, Jr
RALPH WILLIAM VIERSEN, JR.

Date: November 8, 1978

Louise Viersen
LOUISE VIERSEN

Address: Post Office Box No. 57
Okmulgee, Oklahoma 74447

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Oklahoma)
)
COUNTY OF Pennsylvania)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 8th day of December, 1978, by Daisy [illegible].

My Commission Expires:

April 24, 1979

Betty May Martin
Notary Public in and for
Pennsylvania County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: November 8, 1978

Daisy M. Viersen
DAISY M. VIERSEN

Date: _____

_____

Address: Post Office Box No. 57
Okmulgee, Oklahoma 74447

ATTEST:

_____

By: _____

_____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Kentucky)
)
COUNTY OF Fayette)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 21 day of August, 1978, by Catherine T. Tanner.

My Commission Expires:

MY COMMISSION EXPIRES FEB. 3, 1980

Notary Public in and for
Fayette County Kentucky

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

_____

_____

By: Catherine T. Vennes

Date: August 28, 1978

Address: 2121 Nicholasville Rd
Apt 709
Lexington-Kentucky
40503

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEW YORK)
)
COUNTY OF NEW YORK)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 28th day of September, 1978, by SYDNEY B. WERTHEIMER, TRUSTEE OF AMY VARNHAGEN TRUST.

My Commission Expires:
March 30, 1980

Mary E. Donoghue
Notary Public in and for
Queens County N. Y.

MARY E. DONOGHUE
Notary Public, State of New York
No. 41-4639200
Qualified in Queens County
Commission Expires March 30, 1980

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

KS 735
904

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 14, 1978

Sydney B. Wertheimer, as Trustee of Amy Varnhagen Trust

SYDNEY B. WERTHEIMER, TRUSTEE OF AMY VARNHAGEN TRUST

Address: 425 Park Avenue
New York, New York 10022

Date: _____

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF Texas I
I
COUNTY OF Tom Green I

The foregoing instrument was acknowledged before me this 14 day of August, 1978, by Rosemary Broome Van Kemen.

My Commission Expires:
6-1-79

Notary Public in and for
Tom Green County Texas

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-14-78 Rosemary Broome VanKeuren

Date: _____

Address: c/o HAROLD W. BROOME
P.O. BOX 421
SAN ANGELO, TEXAS 76902

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New York I
I
COUNTY OF Monroe I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 24th day of August, 1978, by Phillip Horsley, Vice President for Investments of the University of Rochester, a New York State corporation, on behalf of the corporation.

My Commission Expires:

March 30, 1980

Margaret Mc Mullan
Notary Public in and for
Monroe County New York

MARGARET H. WILLIAMS
60

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 24, 1978

UNIVERSITY OF ROCHESTER, ROYALTY #3

Vice President for Investments

Address: Investment Office

Rochester, New York 14[illegible]

Date: _____

ATTEST:

Bruce D. Wohlgemuth

Assistant Secretary

Date: 8/24/78

By: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New York)
)
COUNTY OF Monroe)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 24th day of August, 1978, by Phillip Horsley, Vice President for Investments of the University of Rochester, a New York State corporation, on behalf of the corporation.

My Commission Expires:

March 30, 1980

Margaret McWilliams
Notary Public in and for
Monroe County New York

MARGARET McWILLIAMS
Notary Public, State of N. Y. Monroe Co.
My Commission Expires March 30, 19 80

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 24, 1978

UNIVERSITY OF ROCHESTER

Vice President for Investments

Address: Investment Office

Rochester, New York 14627

Date:

ATTEST:

Assistant Secretary

Date: 8/24/78

By:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Oklahoma)
)
COUNTY OF Cleveland)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 17 day of January, 1979, by T. R. BENEDUM, Vice-Chairman of The University of Oklahoma Foundation, Inc., a _____ corporation, on behalf of the corporation.

My Commission Expires:

May 24, 1981

Janice Pesce
Notary Public in and for
Cleveland County Oklahoma

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

UNIVERSITY OF OKLAHOMA FOUNDATION, INC.

_____

RON D. BURTON, Secretary

By: _____

T. R. BENEDUM, Vice-Chairman

Date: January 17, 1979

Address: 660 Parrington Oval, Room 214

Norman, OK 73019

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF DALLAS I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 9th day of ~~October~~ Nov., 1978, by Mary Carolyn Umpleby, Trustee.

My Commission Expires:

7-31-80

Ann Cummings
Notary Public in and for
Dallas County, Texas
ANN CUMMINGS
Notary Public in and for Dallas County, Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I

COUNTY OF DALLAS I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 4th day of December, 1978, by Donald E. Emsley, ~~Assistant Vice President~~ and Trust Officer of ~~Mercantile National Bank at Dallas, Trustee~~, a Banking Association corporation, on behalf of the corporation.

My Commission Expires:

July 31, 1980

Ann Cummings
Notary Public in and for
Dallas County Texas
ANN CUMMINGS
Notary Public in and for Dallas County, Texas

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

WITNESS:

Date: November 9, 1978

ATTEST:

By Sara B Owens
Trust Petroleum Officer

Executed by Mercantile National Bank at Dallas (and its Co-Fiduciaries, if any) in the representative capacity herein stated and not otherwise and on the condition that no such Fiduciaries shall be liable in its, his or her individual capacity on any agreement, warranty or indemnity herein contained.

Mary Carolyn Empleby, Trustee
MARY CAROLYN EMPLEBY, TRUSTEE (3694)
and
MERCANTILE NATIONAL BANK AT DALLAS, TRUSTEE (3694)

By
Assistant Vice President and Trust Officer

Address: c/o Trust Department
P. O. Box 225415
Dallas, Texas 75265

Date:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas)
)
COUNTY OF Dallas)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 21st day of August, 1978, by J. L. Freedy, Trustee.

My Commission Expires:

_____

Bettye Shafer
Notary Public in and for
_____ County _____

BETTYE SHAFER, Notary Public
in and for Dallas County, Texas
My commission expires March 31, 1979

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that ~~each of the undersigned~~ (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 21, 1978

J. L. Tweedy, Trustee

Date: _____

Address: 14105 Tanglewood
Dallas, Texas 75234

ATTEST: _____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF BEXAR I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 22ND day of September, 1978, by FLORENCE DAHL TWEEDY, in her capacity therein stated.

My Commission Expires:

4-30-79

Notary Public in and for
BEXAR County, Texas

STATE OF TEXAS I

COUNTY OF TOM GREEN I

The foregoing instrument was acknowledged before me this 16th day of August, 1978, by JOHN BAYARD TWEEDY and ANDREW MELLICK TWEEDY, JR., in their capacities therein stated.

My Commission Expires:

3/31/79

W. Truett Smith

Notary public in and for Tom Green County, Texas
W. TRUETT SMITH

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

TRUSTEES UNDER THE WILL OF A.M. TWEEDY, Dec'd.

Date: 8/19/78

Florence Dahl Tweedy

Florence Dahl Tweedy

Date: 8/19/78

John Bayard Tweedy

John Bayard Tweedy

Andrew Mellick Tweedy, Jr.

Address: Knickerbocker, Texas 76939

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF CALIFORNIA I

I

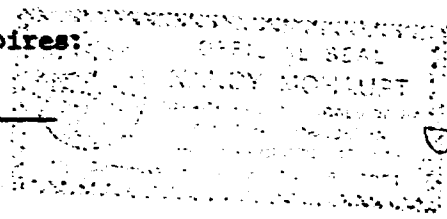
COUNTY OF SAN FRANCISCO I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 28th day of AUGUST, 1978, by WILLIAM BENNETT TURNER and KATHERINE L ESMAY, husband and wife.

My Commission Expires:

5/5/81



_____
Notary Public in and for
San Francisco County, California

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 28, 1978 _____

Date: _____ _____

Katherine Linda Esmay

Address: 977 Lombard St.
San Francisco, CA 94133

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico I
I
COUNTY OF Lea I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 23 day of August, 1978, by Loise Troutt.

My Commission Expires:

7-21-80

Notary Public in and for
Lea County N.M.

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-23-78 Lois Truett

Date: _____ _____

Address: 312 Randy Place
Hobbs, N. Mex

ATTEST:

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I
I
COUNTY OF DALLAS I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15th day of August, 1978, by Jake B. Goodson, Vice President of TRITON OIL & GAS CORP., a Texas corporation, on behalf of the corporation.

My Commission Expires:
July 13, 1980

Gerry Caraile
Notary Public in and for
Dallas County Texas

590

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: _____

Address: _____

_____

ATTEST:

TRITON OIL & GAS CORP.

J. Anderson
Secretary

By: John B Goodson
Vice President

Date: 8-15-78

Address: 1400 One Energy Square
Dallas Texas 75206

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Lubbock I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 11th day of August, 1978, by O. A. Triplett and LaDonette Triplett, husband and wife.

My Commission Expires:

4-12-80

Debra L. Howell
Notary Public in and for
Lubbock County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 16-1978

O. A. Triplett

Date: Aug 16-1978

Charlotte Y. Triplett

Address: 1717 Norfolk, Apt. 1280 F
John Knox Village of W. Texas
Lubbock, Texas 79416

ATTEST:

Dottie L. Dillard

By: _____

Date: August 16, 1978

Address: 1919 9th # 12
Lubbock, Texas

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Harris I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15 day of September, 1978, by Mrs. Gemmie McGhee Triplett.

My Commission Expires:

JUDY STIENECKER
Notary Public in and for Harris County, Texas
My Commission Expires June 1, 1980

Judy Stienecker
Notary Public in and for
Harris County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: September 15, 1978 — Mrs. Jeannie McGhee Triplett

Date: _____ — _____

Address: 3614 ALBANS
HOUSTON, TEXAS 77005

ATTEST: _____

By: _____

Date: _____ — Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas)
)
COUNTY OF Potter)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 11th day of August, 1978, by J. W. Triplett and Lenora Triplett, husband and wife.

My Commission Expires:

11-30-78

Lou Ella Knox
Notary Public in and for
Potter County Texas

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 11, 1978

J. W. Triplett

Date: August 11, 1978

Address: P. O. Box 45
Amarillo, Texas 79105

ATTEST:

Lenora Triplett

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 11, 1978

J. W. Triplett

Date: August 11, 1978

Address: P. O. Box 45
Amarillo, Texas
79105

ATTEST:

Lenora Triplett

By: _____

Date: _____

Address: Same

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I

I

COUNTY OF TARRANT I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 20th day of September, 1978, by E. M. TOWNSEN, President of Fort Worth Scottish Rite Association, a Texas corporation, on behalf of the corporation.

My Commission Expires:

June 8, 1980

Michele E. Young
Notary Public in and for
Tarrant County Texas

(886
1786

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: _____

_____

Address: _____

_____

ATTEST:

Secretary

Fort Worth Scottish Rite Association

By: _____

E. M. Townsen, President

Date: September 20, 1978

Address: P. O. Box 1320
Fort Worth, Texas 76101

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF PENNSYLVANIA I
I
COUNTY OF MONTGOMERY I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 25th day of April, ~~1978~~ 1979, by Theodore N. Towne.

My Commission Expires:
August 17, 1982

Catherine R. Grover
Notary Public in and for
Montgomery County Pennsylvania

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: April 24, 1979

Date: _____

ATTEST:

_____

_____

Date: _____

_____

Address: 1541 Waynesborough Rd
Paulsboro, NJ 19301

_____

By: _____

_____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF PENNSYLVANIA I
I
COUNTY OF McKEAN I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 18 day of August, 1978, by Gladys W. Torgler and Edward R. Torgler, husband and wife.

My Commission Expires:

Jan. 6, 1979

Barnett B. Friedman
Notary Public in and for
McKean County Pa.

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 18, 1978

Gladys H. Torgler

Date: Aug 18, 1978

Edward R. Torgler

Address: 110 Jackson Ave.

Bradford,Pa., 16701

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEW MEXICO)
)
COUNTY OF CHAVES)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 2nd day of November, 1978, by Sally Saunders Toles, a married woman, dealing in her sole and separate property.

My Commission Expires:

9-2-81

Notary Public in and for
Chaves County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

851

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 11-2-78

Shell Western E&P Inc.

Date: _____

Address: P. O. Drawer 1300
Roswell, NM 88201

ATTEST:

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____ in the capacity therein stated.

My Commission Expires:

My Commission Expires Aug. 30, 1982

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF_____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9-12-78

Doris B. Tilghman
Executrix of the Estate
by Jerad Tilghman

Address: 1604 E. Westchester Dr.,
Tempe, Az. 85283

Date: _____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 14 day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

879K

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 14. MAY 1979

Mr. Richard Thompson.

Date: 14. MAY 1979

Mrs Mary Kathleen Thompson

Address: No. 1 CLARKLY COTTAGE,
PUNNETTS TOWN,
HEATHFIELD, SUSSEX,
ENGLAND TN21 9HX

ATTEST:

By:

Date: 14. MAY 1979

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF IOWA)
)
COUNTY OF LINN)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 6th day of October, 1978, by Elizabeth T. Barry & Alice T. Smith in the capacity therein stated.

My Commission Expires:

Sept. 30, 1981

W. Howard Smith
Notary Public in and for
Linn County Iowa

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Oct 6, 1978

Elizabeth T. Barry
Elizabeth T. Barry

Date: Oct 6, 1978

Alice T. Smith, Executors
Alice T. Smith, Executors of Malcolm M. Thompson, Jr., Estate

Address: 350 Pleasant Dr. S.E.
Cedar Rapids, Iowa 52403

ATTEST:

_____

By: _____

_____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF IOWA)
)
COUNTY OF LINN)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 6th day of October, 1978, by Elizabeth T. Barry & Alice T. Smith in the capacity therein stated.

My Commission Expires:

Sept. 30, 1981

W. Howard Smith
Notary Public in and for
Linn County Iowa

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

878

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Oct 5, 1978

Elizabeth T. Barry
Elizabeth T. Barry

Date: Oct. 5, 1978

Alice T. Smith, Executors
Alice T. Smith, Executors of the Estate of

Address: Malcom M. Thompson
115 Thompson Dr. S.E.
Cedar Rapids, Iowa 52403

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF Minnesota)
)
COUNTY OF Hennepin)

The foregoing instrument was acknowledged before me this 18th day of August, 1978, by A. Hugo Thompson and Hazel A. Thompson, husband and wife.

My Commission Expires:

12-4-84

Beverly J. Bendell
Notary Public in and for
Hennepin County Minnesota

BEVERLY J. BENDELL
NOTARY PUBLIC - MINNESOTA
HENNEPIN COUNTY
My Commission Expires Dec. 4, 1984

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

876

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

A. HUGH THOMPSON

Date: AUG 18 1978

A. Hugh Thompson

Date: AUG 18 1978

Laurel S. Thompson

Address: 4208 EWING AVE-SO.
MPLS, MN 55410

ATTEST:

Colleen A. Ennis

By: _____

_____

Date: AUG 18 1978

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

874A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 14 MAY 1979 _____

Date: _____ _____

Address: _____

_____

ATTEST:

_____ By: _____

_____

Date: 14 MAY 1979 Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Oklahoma)
)
COUNTY OF Tulsa)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 22 day of September, 1978, by Martha McMahon Thomas, in the capacity therein stated.

My Commission Expires:

October 22, 1979

Notary Public in and for
Tulsa County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Oklahoma)
)
COUNTY OF Tulsa)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 22 day of September, 1978, by R. V. Faulkner, Vice President of Bank of Oklahoma, a National Banking Assoc. corporation, on behalf of the corporation, in the capacity therein stated.

My Commission Expires:

October 22, 1979

Notary Public in and for
Tulsa County Oklahoma

874

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

Date: _____

ATTEST:

_____
Assistant Cashier

Date: December ___, 1978

Martha McMahon Thomas and Bank of Oklahoma N.A., Trustees of the Martha McMahon Thomas Trust under Trust Agreement dated May 7, 1976

Address: _____

_____

Martha McMahon Thomas ✓
Martha McMahon Thomas, Trustee

Bank of Oklahoma N.A., Trustee

By: _____

Vice President
c/o Trust Department
P.O. Box 2300

Address: Tulsa, Oklahoma 74192

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas)
)
COUNTY OF Howard)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 21 day of August, 1978, by Dorothy Thomas.

My Commission Expires:

12/31/78

Notary Public in and for
Howard County Texas.

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/21/78

Dorothy Thomas

Date: _____

_____

Address: Box 830, Big Spring, Tx 79720

_____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF OKLAHOMA,)
)
COUNTY OF OKMULGEE.)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of JANUARY, 1979, ~~1978~~, by EDITH VIERSEN TERRY.

My Commission Expires:

6-16-80

Notary Public in and for
Okmulgee County Oklahoma

STATE OF OKLAHOMA,)
)
COUNTY OF OKMULGEE.)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 16th day of JANUARY, 1979, ~~1978~~, by SAM K. VIERSEN and ALEENE P. VIERSEN, husband and wife.

My Commission Expires:

6-16-80

Notary Public in and for
Okmulgee County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

909
& 8-72

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: January 16, 1979

Sam K. Viersen
Sam K. Viersen

Date: January 16, 1979

Aleene P. Viersen
Aleene P. Viersen

Address: P. O. Box 280
Okmulgee, Oklahoma 74447

ATTEST:

By:

Edith Viersen Terry
Edith Viersen Terry

Date: January 16, 1979

Address: P. O. Box 1232
Okmulgee, Oklahoma 74447

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF West Virginia)
)
COUNTY OF Cabell)

The foregoing instrument was acknowledged before me this 24th day of August, 1978, by Thomas R. Templeton and June H. Templeton, husband and wife.

My Commission Expires:

Sept. 27, 1982

Barbara A Cerino Comm Ex. Barbara A. Cerino
Notary Public in and for
Cabell County W. Va.

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

869
870
871

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-24-78

June H. Templeton

Date: 8-24-78

Thomas L. Templeton

Address: Rt 1 Box 407
CHESAPEAKE, Ohio 45619

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF West Virginia I

COUNTY OF Cabell I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 17th day of March, ~~1978~~ 1979, by Hazel H. Templeton in the capacity therein stated.

My Commission Expires:

9/27/82

Notary Public in and for Cabell County W. Va.

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for _____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for _____ County _____

827

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: March 7, 1979

Hazel H. Templeton (Widow)
Executrix of Trust 7
Roscoe M. Templeton

Address: 524 2nd Avenue
Chesapeake, Ohio 45619

Date: _____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF West Virginia I
I
COUNTY OF Cabell I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 7th day of March, ~~1978~~ 1979, by Hazel H. Templeton.

My Commission Expires:

9/27/82

Notary Public in and for
Cabell County W. Va.

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

Gov't

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: March 7, 1979

Hazel H. Templeton (Widow)

Address: 524- 2nd Avenue
Chesapeake, Ohio 45619

Date: _____

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Navarro I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by Lois Cone Tekell & J. S. Tekell and _____, husband and wife.

My Commission Expires:

August 1, 1980

_____
Notary Public in and for
Navarro County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 14, 1978 — Lois Cone Tekell

Date: _____ — J S Tekell

Address: 1720 Woodlawn
Corsicana Tx 75110

ATTEST: _____

By: _____

Date: _____ Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 23rd day of _____, 1978, by _____ and _____, husband and wife.

My ~~Commission Expires:~~

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

863A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 23. MAY 1979

Ms. Gladys Jedham

Date: 23. MAY 1979

Mrs Richard Victor Tedham

Address: 5, HOBNEY RISE,
WESTHAM, PEVENSEY,
EAST SUSSEX, BN24, 5NN
ENGLAND

ATTEST:

By: [signature]

Date: 23. MAY 1979

Address: 1 North Street Hailsham
Sussex

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF [illegible])
)
COUNTY OF [illegible])

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this [illegible] day of [illegible], 1978, by [illegible].

My Commission Expires:
CLARA E. WALTERS
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires July 31, 1980

[illegible]
Notary Public in and for
[illegible] County [illegible]

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 25, 1978

Alvin R Tieden

Date: _____

Address: PO Box 205
Newton N J 07860

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Jefferson I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 1st day of March, 1979, by Ruby Mae Batts Taylor.

My Commission Expires:

9-30-80

Notary Public in and for
Jefferson County Texas
(Katherine R. Fontenberry)

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 3-1-79 Ruby Mae Baten Tafs

Date: _____

Address: 5680 Calder Rd
Beaumont, Tx 77706

ATTEST: _____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF California)
)
COUNTY OF Fresno)

The foregoing instrument was acknowledged before me this 12th day of January, 1979, ~~1978~~, by Mr. R. L. Tate and Mrs. R. L. Tate and _____, husband and wife.

My Commission Expires:

7-2-82

Notary Public in and for
Fresno County California

OFFICIAL SEAL
THELMA A. RICKS
NOTARY PUBLIC — CALIFORNIA
FRESNO COUNTY
My Commission Expires July 2, 1982

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

861A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 1-12-79

Mr. R. L. Tate
Mr. R. L. Tate

Date: 1-12-79

Mrs. R. L. Tate
Mrs. R. L. Tate

Address: 4870 E. Townsend
Fresno, Ca. 93727

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Harris I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15th day of September, 1978, by Edward M Stahlman in the capacity therein stated.

My Commission Expires:

7-31-80

Alice Catalina
Notary Public in and for
Harris County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

860

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

_____

_____

Louise A Swilley
Howard M. Startzman, Independent Executor of the Estate of Louise A.
By: Swilley, Deceased

Louise A. Swilley
Howard M. Startzman, Independent
Executor of the Estate of Louise A.
Address: Swilley, Deceased
1200 S. Post Oak Road, Suite 428
Houston, Texas 77056

Date: September 14, 1978

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF California)
)
COUNTY OF Solano)

The foregoing instrument was acknowledged before me this 11th day of August, 1978, by Merrill M. Swenson.

My Commission Expires:
07-28-80

OFFICIAL SEAL
ZANDRA K. MADSEN
NOTARY PUBLIC - CALIFORNIA
PRINCIPAL OFFICE IN
SOLANO COUNTY
My Commission Expires July 28, 1980

Zandra K. Madsen
Notary Public in and for
Solano County Calif

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

859

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

Merrill M Swenson
Merrill M. Swenson, married

Date: Aug. 11 1978

Address: P.O. Box 87
Dixon Ca. 95620

ATTEST: _____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF CALIFORNIA I

COUNTY OF STANISLAUS I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 1st day of September, 1978, by John A. Swenson and Verle J. Swenson, husband and wife.

My Commission Expires:

8-1-82

BARBARA J. SILVA
NOTARY PUBLIC OF CALIFORNIA
Lic. No. 415877
PRINCIPAL OFFICE IN STANISLAUS COUNTY
My Commission expires August 1, 1982

Barbara J. Silva
Notary Public in and for
said County Stanislaus

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

858

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9-1-78 — John A. Swenson

Date: 9-1-78 — Wm. T. Swenson

Address: 1400 N. Tully #71
Turlock, CA 95380

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

TO 1945 CA (8-74)

TITLE INSURANCE AND TRUST
A TICOR COMPANY

(Corporation)

STATE OF CALIFORNIA)
COUNTY OF SAN DIEGO) SS.

OWLEDGMENT

On DECEMBER 26, 1978 before me, the undersigned, a Notary Public in and for said State, personally appeared DAVID M. HAWKINS known to me to be the TRUST OFFICER ~~President~~, and _____ known to me to be _____ ~~Secretary~~ of the corporation that executed the within Instrument, known to me to be the persons who executed the within Instrument on behalf of the corporation therein named, and acknowledged to me that such corporation executed the within instrument pursuant to its by-laws or a resolution of its board of directors.

ay of _____, _____, n.

WITNESS my hand and official seal.

Signature Margaret H. Eaves

M. MARGARET H. EAVES
... Co. Calif.
... Feb. 1, 1980

(This area for official notarial seal)

for _____

STAPLE HERE

857
(156)

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: ~~DECEMBER 20, 1978~~

CALIFORNIA FIRST BANK, A CALIFORNIA CORPORATION (formerly SOUTHERN CALIFORNIA FIRST NATIONAL BANK OF SAN DIEGO) SUCCESSOR TRUSTEE U/W OF WILLIE B. ~~SWEETMAN~~

Date: _____

BY: Harold M. Hawkins

TRUST OFFICER

Address: P.O. BOX 109

SAN DIEGO, CA 92112

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF Lea)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16 day of January, 1979, by Robert L. Summers & Louise C. Summers.

My Commission Expires:

2-17-81

M. L. Barnes
Notary Public in and for
Lea County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 1-16-78 Robert P. Summers

Date: 1-16-78 Louise C. Summers

Address: P.O. Box 766

Hobbs, New Mexico 88240

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF CALIFORNIA)
)
COUNTY OF SAN DIEGO)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 25th day of October, 1978, by Everett Stunz and Ellen P. Stunz, husband and wife.

My Commission Expires:

July 16,1982

OFFICIAL SEAL
MARION R. SCOTT
NOTARY PUBLIC - CALIFORNIA
SAN DIEGO COUNTY
My comm. expires JUL 16, 1982

Marion R. Scott
Notary Public in and for
San Diego County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Oct 25, 1978 — Everett Stern

Date: Oct. 25, 1978 — Ellen P. Stern

Address: 7644 Girard Ave - La Jolla, Ca. 92037

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Navarro I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 18th day of August, 1978, by Walter Holmes, Vice President & Trust Officer of First National Bank, Corsicana, a Banking corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

9-30-78

Notary Public in and for
Navarro County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

First National Bank, Corsicana, Texas Trustee for Mary Stroube Account No. 377

Pat Carnes
Asst. Cashier

By: Walter Holmes
Walter Holmes, Vice President and Trust Officer

Date: August 18, 1978

Address: P.O. Box 613
Corsicana, Texas 75110

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I

COUNTY OF Navarro I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 18th day of August, 1978, by Walter Holmes, Vice President & Trust Officer of First National Bank, Corsicana, a Banking corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

9-30-78

Notary Public in and for
Navarro County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

First National Bank of Corsicana, Texas Trustee
for Joseph Edward Stroube Trust No. 495

ATTEST:

Pat Carver
Asst. Cashier

By: Walter Holmes
Walter Holmes, Vice President and Trust Officer

Date: August 18, 1978

Address: P. O. Box 613
Corsicana, Texas 75110

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____

Notary Public in and for

_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____

Notary Public in and for

_____ County _____

STATE OF Texas I

I

COUNTY OF Navarro I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 18th day of August, 1978, by Walter Holmes, Vice President & Trust Officer of First National Bank, Corsicana, a banking corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

9-30-78

Peggy Dunn

Notary Public in and for

Navarro County Texas

841

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: _____

_____

Address: _____

_____

ATTEST:

First National Bank Corsicana, Texas Trustee for
Bessie Stroube Life Estate Trust No. 494

Pat Carver
Asst Cashier

By: Walter Holmes
Walter Holmes, Vice President and Trust Officer

Date: August 18, 1978

Address: P.O. Box 613
Corsicana, Texas 75110

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Navarro I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 18th day of August, 1978, by Walter Holmes, Vice President & Trust Officerof First National Bank, Corsicana, a Banking corporation, on behalf of the corporation. In the capacity therein stated.

My Commission Expires:

9-30-78

Peggy Dixon
Notary Public in and for
Navarro County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

First National Bank Corsicana, Texas Trustee for
Bessie Watts Stroube Trust #496

ATTEST:

Pat Cannon
Asst. Cashier

By: Walter Holmes
Walter Holmes, Vice President and Trust Officer

Date: August 18, 1978

Address: P.O. Box 613
Corsicana, Texas 75110

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Tom Green I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 9th day of March, 1978, by Helen Schneemann Strauss.

My Commission Expires:
1/31/81

Notary Public in and for
Tom Green County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

840

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 31st day of October, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
Bernalillo County New Mex

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

845A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 10/12/78

Mary A. D. Stephenson

Date: 10/31/78

Address: ROBERT B. STEPHENSON
3805 Riverview Rd., N.W.
Albuquerque, N.M. 87105

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Illinois)
)
COUNTY OF Williamson)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 15th day of September, 1978, by R. W. Steckenrider and Cecile Steckenrider, husband and wife.

My Commission Expires:

March 15, 1982

Ruth Suchocki
Notary Public in and for
Williamson County Illinois

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept 15 - 1978 Cecile Steckenrider

Date: Sept 15 1978 [signature]

Address: RR 2 Box 100
Herrin, Il 62948

ATTEST:

By: [signature]

Date: Sept 15 1978

Address: RR 2, Box 100
Herrin, Ill. 62948

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Vermont I
I
COUNTY OF Windsor I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 19th day of October, 1978, by Joan Steiger and Arby Steiger, husband and wife.

My Commission Expires:

2/10/79

Florence W. Pierce
Notary Public in and for
Windsor County Vermont

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Oct. 19, 1978

Joan F. Stugers

Date: Oct. 19, 1978

Arly H. Stugers

Address: Meadow Hill
Chester Vermont 05143

ATTEST:

I hereby certify the above signatures to be valid.

By: Florence C. Plumb

Date: October 19 1978

Address: R.D #1
Chester, Vermont 05143

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Orange I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11th day of August, 1978, by Nelda C. Stark.

My Commission Expires:

July 31, 1980

Norma J. Clark
Notary Public in and for
Orange County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

640
641
642

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 11, 1978

Nelda C. Stark

Address: P. O. Drawer 909
Orange, Texas 77630

Date: _____

ATTEST: _____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF BEXAR I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 28th day of February, ~~1978~~ 1979, by WILHELYN STAPPER.

My Commission Expires:

✓ 4-30-79

Leo C. Tynan Jr.
Notary Public in and for
Bexar County Texas
(Leo C. Tynan, Jr.)

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Feb. 28, 1979

Wilelyn Stapper
WILELYN STAPPER, a Single Woman

Date: _____

Address: 501 Garraty Road
San Antonio, Texas 78209

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I
I
COUNTY OF BEXAR I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this ~~30th~~ day of ~~March~~, 1979, by ~~G. Alfred Erler~~, _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I
I
COUNTY OF BEXAR I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 30th day of March, 1979, by G. Alfred Erler, Asst. Vice President & Trust Officer of Bexar County National Bank of San Antonio, a national corporation, on behalf of the corporation, in the capacity therein stated.

My Commission Expires:

August, 1980

Erlinda G. Ernst
Notary Public in and for
Bexar County Texas

ERLINDA G. ERNST
Notary Public, Bexar County, Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

_____

_____

Bexar County National Bank, Independent
Executor of the Luella H. Stapper Estate
By: _____

ASS'T. VICE-PRESIDENT & TRUST OFFICER

Date: 3/30/79

Address: P.O. Box 300
SAN ANTONIO, TEXAS 78291
ID# 74-6275796

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New York I
I
COUNTY OF Cayuga I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 13th day of April, 1979, by Henry H Stamm.

My Commission Expires:

_____

Schuble D. Van Fleet, Jr.
Notary Public in and for
_____ County _____

SCHUBLE D. VAN FLEET, JR.
Notary Public in the State of New York
Qualified Cayuga County No. 840
My Commission Expires March 30, 1981

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

833A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: April 13, 1979

[signature]

Address: 197 CAYUGA ST.
GROTON, N.Y 13073

Date: _____

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New York I

I

COUNTY OF Queens I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 15 day of August, 1978, by Maurice Spring and Sylvia R. Spring, husband and wife.

My Commission Expires:

10/1/79

MARILYN FINE
COMMISSIONER OF DEEDS
City of New York – No. 2-2797
Commission Expires Oct. 1, 1979

Marilyn Fine
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 15, 1978

Marina Sprung

Date: Aug 15, 1978

Sylvia L. Sprung

Address: 123-10 Ocean Promenade

BELLE HARBOR N.Y.

ATTEST:

_____

By: _____

_____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEW MEXICO I
I
COUNTY OF LEA I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 29th day of September, 1978, by June D. Speight, a married woman dealing in her sole and separate property.

My Commission Expires:

1-27-81

Elaine Henderson
Notary Public in and for
Lea County New Mexico

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: September 29, 1978

June D. Speight, a married woman dealing in her sole and separate property.

Date: _____

_____

Address: P. O. Drawer 1687
Lovington, New Mexico 88260

ATTEST:

_____

_____

By: _____

_____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Connecticut)
)
COUNTY OF Fairfield)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this [illegible] day of January, 1978, by [illegible] and [illegible], husband and wife.

My Commission Expires:

[illegible]

[illegible]
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Jan 10 1979 — Francis B. Spangler

Date: _____ — [signature]

Address: 9 Coverwood Drive
Rowayton, CT 06853

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas §
§
COUNTY OF Midland §

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11th day of Aucust, 1978, by Marguerite W. Somers.

My Commission Expires:

_____

_____
Notary Public in and for
Midland County Texas

STATE OF _____ §
§
COUNTY OF _____ §

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ §
§
COUNTY OF _____ §

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

312 B
(4830A)

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9-11-1978 _____

Date: _____ _____

Address: P.O. Box 1150
Midland, Texas 79702

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Travis I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of August, 1978, by Joe C. Benson, Jr., Vice President and Executive Trust Officer of American National Bank of Austin, a Texas corporation, on behalf of the corporation, in the capacity therein stated.

My Commission Expires:

10/4/79

Annette H. McCulloch
Notary Public in and for
Travis County Texas
Annette H. McCulloch

(830)

829

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: _____

_____

Address: _____

_____

ATTEST:

Adrian Gentry

Assistant Cashier

American National Bank of Austin, Independent Executor of the Estate of Carroll M. Sneed, Deceased

By: _____

Joe C. Benson, Jr.

Vice President and Executive Trust Officer

Date: August 16, 1978

Address: P. O. Box 2266

Austin, Texas 78780

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Florida I
I
COUNTY OF Saint Lucie I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15th day of August, 1978, by Marjorie Louise Smither.

My Commission Expires:

Nov. 12, 1978

Notary Public in and for
County

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

828

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 15, 1978

Marjorie Louise Smither, Widow

Address: 2050 Oleander Blvd.
Building 5, Apt. 101
Fort Pierce, Fla. 33450

Date: _____

ATTEST: _____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I
I
COUNTY OF STERLING I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 12 day of March, ~~1978~~ 1979, by Lola Lee Smith.

My Commission Expires:

November 30, 1980

Beth Kilpatrick
Notary Public in and for
Sterling County Texas

(Beth Kilpatrick)

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: March 12, 1979

Lola Lee Smith
Lola Lee Smith

Date: _____

_____

Address: Box 562

Sterling City, Texas 76951

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Arkansas I
I
COUNTY OF Indep. I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 28th day of August, 1978, by Mrs. Joy Smith and W.B. Smith, husband and wife.

My Commission Expires:
MY COMMISSION EXPIRES
FEBRUARY 9, 1982

Cecilia Vinson
Notary Public in and for
Indep. County Ark

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

875

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-28-78 Mrs. Joy Smith

Date: 8-28-78 H. B. Smith

Address: Independence Savings & Loan
Account No. 70-063-73
P.O. Box 2276
Batesville, Arkansas 72501

ATTEST:

By:

Date: Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF [illegible])
)
COUNTY OF [illegible])

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 21st day of [illegible], 1978, by [illegible] and [illegible], husband and wife.

My Commission Expires:

[illegible]

[illegible]
Notary Public in and for
[illegible] County [illegible]

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 24 1978

Janice Lemmon Smith - married

Date: August 24, 1978

Preston T. Smith

Address: 23 Colonel Evans Drive

Morristown, N.J. 07960

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Arkansas I
I
COUNTY OF Indep. I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 28th day of August, 1978, by Helen Joy Smith and W.B. Smith, husband and wife.

My Commission Expires:
MY COMMISSION EXPIRES
FEBRUARY 9, 1982

Cecilia Hinson
Notary Public in and for
Indep. County Ark.

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-28-78

Helen Joy Smith

Date: _____

H. B. Smith

Address: Route 1, Box 146A
Newark, Arkansas 72562

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF KERR I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by Charles Tyson Smith II.

My Commission Expires:

6-30-80

Lois Baker
Notary Public in and for
Kerr County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

822

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 14, 1978

Charles Tyson Smith II

Date: _____

_____

Address: First National Bank Building
Suite 320
301 Junction Highway
Kerrville, Texas 78028

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF IOWA)
)
COUNTY OF LINN)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 6th day of October, 1978, by Alice M. Smith & W. Howard Smith.

My Commission Expires:

Sept. 30, 1980

O. J. Eisenbast
Notary Public in and for
Linn County Iowa

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Oct 6, 1978

Alice M. Smith

Date: Oct. 6, 1978

W. Howard Smith

Address: 637 Staub Ct. N.E

Cedar Rapids, Iowa 52402

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I

COUNTY OF Tarrant I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11th day of August, 1978, by Patsy Beazley Small.

My Commission Expires:

9-20-79

Linda Plumb

Notary Public in and for Tarrant County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____

Notary Public in and for _____ County

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____

Notary Public in and for _____ County

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: August 11, 1978

Patsy Bradley Small

Address: 309 Vaquero Place

Ft. Worth, Texas 76107

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

Province
~~STATE OF~~ of British Columbia)
)
~~COUNTY OF~~ _____)

The foregoing instrument was acknowledged before me this 30* day of June, 1978, by Mrs Joyce Slade.

My Commission Expires:

n/a.

Joanne F. Beamish
Notary Public in and for the
Province of ~~County~~ British Columbia

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

8/9A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: June 30, 1979 — Mrs. Joyce Slade

Date: _____ — _____

Address: Ambercrest R.R.1
Bowen Island B.C

ATTEST: _____ — Canada VON1G0

By: Joanne F. Beamish

_____ — _____

Date: June 30/79 — Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Arizona I

I

COUNTY OF Maricopa I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by Dolores Sloat and Francis E. Sloat, husband and wife.

My Commission Expires:

My Commission Expires Dec 20, 1981

_____

Dolores Sloat
Notary Public in and for
Maricopa County Arizona

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-14-78 — Dolores Sloat

Date: 8/14/78 — Francis E. Sloat

Address: 10512 MOUNTAIN VIEW RD
SUN CITY ARIZONA 85351

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Iowa)
)
COUNTY OF Mapello)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of August, 1978, by Sister Ann Theresa Collins, President of Congregation of the Humility of Mary, a _____ corporation, on behalf of the corporation.

My Commission Expires:

Sept. 30, 1978

Pauline Turri
Notary Public in and for
Mapello County Iowa

818

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 16, 1978

Sisters of the Humility of Mary of Ottumwa

Date: _____

by Sister Anne Therese Collins, Pres

Address: Ottumwa Heights

Ottumwa, Iowa 52501

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Louisiana ⌇
PARISH ⌇
COUNTY OF Calcasieu ⌇

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 17th day of November 17, 1978, by Elaine Ellis Singleton.

My Commission Expires:

at death

David L. Sigler
Notary Public in and for
Calcasieu Parish Louisiana

STATE OF _____ ⌇
⌇
COUNTY OF _____ ⌇

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ ⌇
⌇
COUNTY OF _____ ⌇

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

817A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: November 17, 1978

Eldine Ellis Singleton

Date: _____

_____

Address: 1102 Melanie Drive
Sulphur, LA 70663

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF California)
)
COUNTY OF Los Angeles)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by **Morris Simms** and **Mary L. Simms**, husband and wife.

My Commission Expires:

July 16, 1982

OFFICIAL SEAL
DEBRA J. RAEBER
NOTARY PUBLIC — CALIFORNIA
PRINCIPAL OFFICE IN
LOS ANGELES COUNTY
My Commission Expires July 16, 1982

Debra J. Raeber

Notary Public in and for
Los Angeles County California

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 08-14-78

Mary L. Simms

Date: 08-14-78

Mary L. Simms

Address: 426 Calle de Aragon

Redondo Beach, Ca. 90277

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Oklahoma)
)
COUNTY OF Okfuskee)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 6th day of Nov., 1978, by LaVaughn Sims.

My Commission Expires:

8-15-82

Gretta Reddick
Notary Public in and for
Okfuskee County, Okla.

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

(816)
5815

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement: and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 11-6-78

Date: _____

Mrs Laraughn Sims

Address: 214 E 6th St
Weleetka OK 74880

ATTEST:

Florine Sandlin

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF *Illinois*)
)
COUNTY OF *Cook*)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this *19th* day of *October*, 1978, by *C. Victor Thornton, President and George M. Saunders, Secretary* of *Shriners Hospitals for Crippled Children*, a *Colorado* corporation, on behalf of the corporation.

My Commission Expires:

My Commission Expires March 11, 1981

Janet Dezsnar
Notary Public in and for
Cook County *Illinois*

811

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

_____

ATTEST:

George M. Saunders

George M. Saunders, Secretary

By: C. Victor Thornton

C. Victor Thornton, President
Shriners Hospitals for Crippled Children

OK. LT

Date: October 18, 1978

Address: 323 North Michigan Avenue

Chicago, IL 60601

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Oklahoma)
)
COUNTY OF Tulsa)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 22 day of August, 1978, by Emmie K Sherman.

My Commission Expires:

October 17 1978

Ruth L Wallace
Notary Public in and for
Tulsa County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 29, 1978 — Emma R. Shawman

Date: _____ — _____

Address: 3605 So. Gary
Tulsa, Okla 74105

ATTEST: _____

_____ — By: _____

_____ — _____

Date: _____ — Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New York)
)
COUNTY OF Nassau)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 20 day of April, 1979, by James M. Marrin.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New York)
)
COUNTY OF Nassau)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 20th day of April, 1979, by JAMES M. MARRIN, Trust Officer of Long Island Trust Company, a New York Banking corporation, on behalf of the corporation.

My Commission Expires:
March 30, 1980

Mary Ann Descovich
Notary Public in and for
_____ County _____

MARY ANN DESCOVICH
NOTARY PUBLIC, STATE OF NEW YORK
NO 41-4675606
QUALIFIED IN QUEENS COUNTY
CERT FILED IN NASSAU COUNTY
COMMISSION EXPIRES MARCH 30, 1980

505

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

Long Island Trust Company
by: [signature]
TRUST OFFICER
Trustee under the Will of
Edna M. Shortle

Date: _____

Address: 82 7th Street
Garden City, New York 11530

ATTEST:

James J Castle
Assistant Secretary

By: _____

Date: April 20, 1979

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF California)
)
COUNTY OF San Joaquin)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 2nd day of November, 1978, by Carole A. Johnson

My Commission Expires:

6/2/81

Carole A. Johnson
Notary Public in and for
County San Joaquin

OFFICIAL SEAL
CAROLE A. JOHNSON
NOTARY PUBLIC-CALIFORNIA
SAN JOAQUIN COUNTY
My commission expires June 2, 1981.

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

808

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 11-2-78 — Mrs. Virginia Frost McLaughlin

Date: _____ — _____

Address: X 410 East Walnut St.
Stockton, Calif. 95204
X _____

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF NEW MEXICO)
)
COUNTY OF EDDY)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 25th day of September, 1978, by Homer Shipp and Lucinda J. Shipp and _____, husband and wife.

My Commission Expires:

8-5-82

Dorothy Baidgwater
Notary Public in and for
State of N.M. County of Eddy

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

807c

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: September 25, 1978

Homer Slipp

Date: September 25, 1978

Lucinda J. Slipp

Address: 1015 North 8th

Carlsbad, New Mexico 88220

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEW MEXICO)
)
COUNTY OF LEA)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 29th day of August, 1978, by Elbert D. Shipp, a/k/a Daymon Shipp, Personal Representative of the Estate of Burton E. Shipp, a/k/a Bunk Shipp, Dec.

My Commission Expires:

June 9, 1981

Patricia Thomason
Notary Public in and for
Lea County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

5076

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, as revised, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 29, 1979

Elbert D. Shipp
Elbert D. Shipp, a/k/a Daymon Shipp, Personal Representative of the Estate of Burton E. Shipp, a/k/a Bunk Shipp, Deceased

Address: 1104 West Avenue J
Lovington, New Mexico 88260

Date: _____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF ILL I
I
COUNTY OF Cook I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 16 day of AUG, 1978, by RONALD J. SHEPHERD and MARY FRANCES SHEPHERD, husband and wife.

My Commission Expires:

2/23/81

_____
Notary Public in and for
Cook County ILL

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

807
803

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreemcnts entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/16/78

Mary Frances Shepherd

Date: 8/16/78

Ronald J Shepherd (Trustee)

Address: 555 Dalewood Lane
Hinsdale, Illinois 60521

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF ILLINOIS I
I
COUNTY OF Cook I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 26th day of AUGUST, 1978, by JOHN L. SHEPHERD and MICHELE C SHEPHERD, husband and wife.

My Commission Expires:

Elizabeth H. Kirk
My Commission Expires
June 12, 1979

Elizabeth H. Kirk
Notary Public in and for
Cook County ILLINOIS

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 26, 1978

John L. Shepherd

Date: August 26, 1978

Michele C. Shepherd (wife)

Address: 1216 Elmwood Ave.
Wilmette, Ill. 60091

ATTEST:

Mary Helen Keithley

By: _____

Date: August 26, 1978

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF OKLAHOMA)
)
COUNTY OF OKLAHOMA)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15 day of August, 1978, by Elaine N. Shepherd as Attorney-in-Fact for Ruth Newby Jones, David Newby and Rosemary Newby Mullen.

My Commission Expires:

April 15, 1981

Loyce Rountree
Notary Public in and for
Oklahoma County, Oklahoma

STATE OF OKLAHOMA)
)
COUNTY OF OKLAHOMA)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 15 day of August, 1978, by James W. Shepherd and Elaine N. Shepherd, husband and wife.

My Commission Expires:

April 15, 1981

Loyce Rountree
Notary Public in and for
Oklahoma County, Oklahoma

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

8314805

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 15, 1978

Elaine N. Shepherd, Individually
Elaine N. Shepherd, as Attorney-in-Fact for Ruth Newby Jones, David Newby and Rosemary Newby Budden.

Address: 800 Citizens Tower, 2200 Classen Blvd.
Oklahoma City, Ok 73106

Date: August 15, 1978

James W. Shepherd
James W. Shepherd, Husband of Elaine N. Shepherd

ATTEST:

By: _____

_____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Georgia)
)
COUNTY OF Gordon)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 31st day of January, 1979, 1978, by Beatrice Shepard.

My Commission Expires:

8/20/82

Jeanne T. Arp

Jeanne T. Arp

Notary Public in and for Gordon County Georgia

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____

Notary Public in and for _____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____

Notary Public in and for _____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: 1/31/79

Beatrice Shepard

Address: 2229 Charlene Road N.E.
Albuquerque New Mexico
87111

ATTEST:

Sam Johnston

By: _____

Date: 1/31/79

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I

COUNTY OF Galveston I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 26th day of February, 1978, by Kenneth R. Sullivan ~~in the capacity~~ therein stated.

My Commission Expires:

March 31, 1979

Notary Public in and for Galveston County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Feb. 26, 1979

ESTATE OF [illegible]
BY: KENNETH R. SHELTON AND [illegible] EXECUTOR

Kenneth R. Shelton

Date: Feb. 26, 1979

Address: P.O. Box 3070
Galveston, Texas 77552

ATTEST:

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I
I
COUNTY OF HARRIS I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of December, 1978, by G. B. Grove, Attorney in Fact of SHELL COMPANIES FOUNDATION INCORPORATED, a New York corporation, on behalf of the corporation.

My Commission Expires:

SHELBA S. MARSHALL
Notary Public In And For Harris County, Texas
My Commission Expires May 3, 1979

Shelba S Marshall
Notary Public in and for
Harris County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Dec. 14, 1978

SHELL COMPANIES FOUNDATION INCORPORATED

Date: _____

BY: G. B. Grove

G. B. Grove, Attorney in Fact

Address: _____

_____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF California)
)
COUNTY OF San Diego)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 21 day of August, 1978, by Edna M. Foote in the capacity therein stated.

My Commission Expires:

7/5/82

Edna E. Guist
Notary Public in and for
San Diego County California

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 21, 1978

Edna M. Foote, Grantee

Date: _____

for Vivian Stilson

Address: 2830 Turnbull St
Oceanside, Calif. 92054

ATTEST:

_____

By: _____

_____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Maryland I
I
COUNTY OF Baltimore I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 4th day of November, 1978, by Winifred Sharkey.

My Commission Expires:

7/1/82

Notary Public in and for
Baltimore County Maryland

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 11/4/78

Winifred Shartsey

Date: _____

Winifred Shartsey

Address: 90 Teehan

4333 Bather Rd

Glyndon Maryland 21071

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF OKLAHOMA)
)
COUNTY OF TULSA)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 9th day of April, 1978, by THOMAS P. SHAW.

My Commission Expires:

My Commission Expires 1-22-83

Marilyn Sue Klaher
Notary Public in and for
TULSA County OKLAHOMA

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

795A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: April 9, 1979 — Thomas P Shaw

Date: _____ _____

Address: THOMAS P. SHAW
1407 EAST 21st STREET
TULSA, OKLAHOMA 74114

ATTEST:

_____

By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF ~~Texas~~ _____ I
Harris I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 28th day of August, 1978, by Barbara Lucky Shannon and James S. Shannon, husband and wife.

My Commission Expires:

May 31, 1979

Rosemary Ward
Notary Public in and for
Harris County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: 8-28-78 Barbara Lucky Shannon

Address: 11011 Huntwyck
Houston, Texas 77024

ATTEST: _____

_____ By: _____
James L. Shannon

_____

Date: _____ Address: 11011 Huntwyck
Houston Tx 77024

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Penna I
I
COUNTY OF Bucks I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 27 day of February, 1978, by Frank B. Shalters and Alma E. Shalters, husband and wife.

My Commission Expires:
NOTARY PUBLIC, Doylestown, Bucks County
My Commission Expires August 15, 1982

Beverly Willard
Notary Public in and for
NOTARY PUBLIC, Doylestown, Bucks County
My Commission Expires August 15, 1982
County

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 27 February 1979

Frank E. Shelters

Date: 27 February 1979

Alma E Shelters

Address: Century House. Suite 148
303 West State Street
Doylestown Pennsylvania 18901

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I

COUNTY OF Potter I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 31st day of January, 1979, by Mildred Parks Sexton.

My Commission Expires:

4-25-79

Mary L. Newsom
Notary Public in and for
Potter County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 1-31-79 Mildred Parks Lepton

Date: _____ _____

Address: 2602 Harmony
Amarillo, Tex 79106

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS)
)
COUNTY OF MIDLAND)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11th day of August, 1978, by Virginia P. Selby.

My Commission Expires:

May 31, 1979

Notary Public in and for
Midland County Texas

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 11, 1978

Virginia P. Dilby

Date: _____

S.S # 461-28-6873

Address: Box 5434

Midland Texas

79701.

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Arizona I
I
COUNTY OF Maricopa I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15th day of August, 1978, by Peggy Seale.

My Commission Expires:

My Commission Expires Jan. 25, 1982

Sue J. Hancock
Notary Public in and for
Maricopa County Arizona

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 15, 1978 — Madge Seale (Madge Seale)

Date: _____

Address: 525 Miller Rd., #39
Scottsdale, AZ 85257

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF OKLAHOMA

COUNTY OF CARTER

BEFORE ME, the undersigned authority, a Notary Public in and for said County and State, on this day personally appeared Sam Noble known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of SEA Cattle Company, General Partner of SEA Properties, Ltd., and that he executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this 17th day of August 1979.

My commission expires:

June 23, 1982

Sue Jones
Notary Public in and for State of Oklah

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: _____

_____

Address: _____

_____

ATTEST:

_____
Secretary

SEA Properties, Ltd.
By: SEA Cattle Company, General Partner

By: _____
Sam Noble, President

Date: August 10, 1979

Address: P. O. Box 1486
Ardmore, OK 73401

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Florida I
I
COUNTY OF Palm Beach I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 5 day of December, 1978, by [signature].

My Commission Expires:

NOTARY PUBLIC STATE OF FLORIDA AT LARGE
MY COMMISSION EXPIRES NOV. 3 1982
BONDED THRU GENERAL INS. UNDERWRITERS

Jean C. Williams
Notary Public in and for
Palm Beach County Florida

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9-5-78 Alfred Schwarz

Date: _____ /

Address: 122 Lakeshore Dr
No Palm Beach
Fl 33408

ATTEST:

By: _____

Date: _____ Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Maverick I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 8 day of Sept., 1978, by Tom Schneider and Patricia C. Schneider, husband and wife.

My Commission Expires:

8-31-80

Frances G. Downing
Notary Public in and for
Maverick County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9/07/78

Date: 9/07/78

Address: ROUTE 2, BOX 562
EAGLE PASS TEXAS 78852

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF N Y)
)
COUNTY OF N Y)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15 day of September, 1978, by Gilbert L. Schneider.

My Commission Expires:

SIDNEY JANOFF
Notary Public, State of New York
No. 31-1956350
Qualified in New York County
Commission Expires March 30, 1979

Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

IVO, 781 (799

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept. 15, 1978

Lillian L Schneider

Date: _____

_____

Address: 430 W. 116 St. 6C
New York, N.Y. 10027

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Missouri)
)
COUNTY OF Jackson)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 10th day of November, 1978, by Charles S. Joss, Jr. for Plaza Bank & Trust Company In the capacity therein stated.

My Commission Expires:

3/13/82

Jan Lee
Notary Public in and for
Jackson County Missouri

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

(777)
1778

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

ATTEST: _____

PLAZA BANK & TRUST COMPANY
Trustee of Lewise B. Schneider Trust

By: Charles S Jones J A.T.O

Date: 11-10-78

Address: 118 W. 47th St.
Kansas City, Mo

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Switzerland)
)
COUNTY OF Berne)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 28 day of December, 1978, by A. Schmid, Engeriedweg 6 3012 Berne and Margrit Schmid Engeriedweg 6 3012 Berne, husband and wife.

My Commission Expires:

_____

Dieter Jordi, notary

_____
Notary Public in and for
Switzerland County Berne

Reg. B. Nr. 891

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

774
775

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 12-28-78 X Margit Schmid

Date: _____ X [signature]

Address: 3011 Neue CH
Engelsberg 6

ATTEST: _____

DIETER JORDI NOTAR DES KANTONS BERN

By: _____

Date: _____ Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEW MEXICO)
)
COUNTY OF LEA)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by H. Dillard Schenck.

My Commission Expires:

12-11-79

Carolyn Sapp
Notary Public in and for
Lea County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug-14-1978 H. Dillard Schenck

Date: _____ _____

Address: Box 1225
Hobbs-N.M. 88240

ATTEST: _____

_____

Date: _____

By: _____

_____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I

COUNTY OF Midland I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11th day of January, ~~1978~~ 1979, by Arnold P. Scharbauer and Ted M. Kerr, Trustees.

My Commission Expires:

March 31, 1979

Patsy Spencer
Notary Public in and for
Midland County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 1/11/79

Arnold P Scharbauer

Arnold P. Scharbauer, Trustee

Date: 1/11/79

Ted M Kerr

Ted M. Kerr, Trustee

Address: Box 194, Midland, Texas 79702

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Penna. I

COUNTY OF Chester I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 18 day of August, 1978, by Alfred D Scattergood in the capacity therein stated.

My Commission Expires:

RALPH S. QUINTER, NOTARY PUBLIC
SCHUYLKILL TOWNSHIP, CHESTER COUNTY
MY COMMISSION EXPIRES FEB. 23, 1981
Member, Pennsylvania Association of Notaries

Ralph S Quinter
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 18, 1978

Alfred G. Scattergood
Alfred G. Scattergood, Executor and Trustee
Under Will of Maria C. Scattergood

Date: _____

_____

Address: Route 2
Chester Springs, Pennsylvania 19425

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Pennsylvania I
I
COUNTY OF Philadelphia I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 20th day of October, 1978, by Julian L. Eysmans III, Vice President of First Pennsylvania Bank N.A., a corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
Phila. County Penna.

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

_____

ATTEST:

_____

_____

Date: 10/20/78

First Pennsylvania Bank, N.A. Trust for M. Saul

By: _____
Julien L. Eysmans, III, V. P.

Address: First Pennsylvania Bank, N.A.
Real Estate Dept., First Pa. Tower
Philadelphia, Pa. 19101

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I

I

COUNTY OF DALLAS I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11th day of September, 1978, by Jacob Mossiker, President of Sanger Investment Company, a Texas corporation, on behalf of the corporation.

My Commission Expires:

9-30-80

Ruth Green
RUTH GREEN
Notary Public in and for
Dallas County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

Glenn L. Mamberg Jr.

Secretary

Date: September 11, 1978

SANGER INVESTMENT COMPANY

By: J. Mossiker

President

Address: %Republic National Bank of Dallas
Trust Department
P. O. Box 241
Dallas, Texas 75221

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF California)
)
COUNTY OF Los Angeles)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 22 day of August, 1978, by Dorothy K. Metzler.

My Commission Expires:

OFFICIAL SEAL
DOROTHY K. METZLER
NOTARY PUBLIC — CALIFORNIA
PRINCIPAL OFFICE IN
LOS ANGELES COUNTY
My Commission Expires November 6, 1981

Dorothy K Metzler
Notary Public in and for
Los Angeles County

STATE OF Massachusetts)
)
COUNTY OF Nantucket)

~~JOINT ACKNOWLEDGMENT~~
~~(HUSBAND AND WIFE)~~

The foregoing instrument was acknowledged before me this 26th day of August, 1978, by Charles H. Sanford Jr. ~~in the capacity~~ and Rita S. Hatch, ~~husband and wife~~ therein stated.

My Commission Expires:

Aug. 24, 1984

Della D. Brooks
Notary Public in and for
Nantucket County

STATE OF _____)
)
COUNTY OF _____)

~~CORPORATE ACKNOWLEDGMENT~~

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ ~~of~~ _____, a _____ ~~corporation, on behalf of the corporation.~~

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

(765)
766

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: ✓ 8-22-78

CHS Charles H. Sanford Jr. Trustee

Date: ✓ 8-26-78

RSH Rita S. Holch Trustee

Address: Charles H. Sanford Jr. & Rita S. Holch, Trustees under trust Agreement of 7-22-75
C/O Security Pacific Nat. Bank
Savings Acct. # 128 846
4754 Admiralty Way
Marina del Rey
California 90291

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEW MEXICO)
)
COUNTY OF BERNALILLO)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 28 day of September, 1978, by Amalia S. Sanchez.

My Commission Expires:

4/19/81

Notary Public in and for
Bernalillo County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: September 28, 1978 — Amalia S. Sanchez

Date: _____ — _____

Address: 356 East Garcia St.
Santa Fe, New Mexico 87501

ATTEST:

Marian L Whitney — By: _____

Date: September 28, 1978 — Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I

I

COUNTY OF Tom Green I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16 day of August, 1978, by Arlena Hinnant, Vice President of San Angelo National Bank, a _____ corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

June 30, 1980

Frances C. Beck
Notary Public in and for
Tom Green County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 16, 1978

Date: _____

Address: _____

ATTEST:

Lenin Gossett

Assistant Trust Officer

Date: August 16, 1978

SAN ANGELO NATIONAL BANK

By: Arlena Hinnant

Vice President

Address: P.O. Box 5291

San Angelo, Texas 76902

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF OKLAHOMA)
)
COUNTY OF CARTER)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 2nd day of July, 1979 by Thomas C. Jobe, Vice President of Samedan Oil Corporation, a Delaware corporation, on behalf of the corporation.

My Commission Expires:

November 18, 1982

Notary Public in and for
the State of Oklahoma

757
255

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST: SAMEDAN OIL CORPORATION

_____ By: _____

Secretary Vice President

_____ _____

Date: July 2, 1979 Address: P. O. Box 909

Ardmore, Oklahoma 73401

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF England)
)
COUNTY OF Sussex)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 14 day of May, 1978, by Alice Emily Sotter and Herbert Sotter, husband and wife.

~~My Commission Expires:~~

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 14th May 1979

Ms Alice Emily Salter

Date: 14th May 1979

Mr Herbert Schlee

Address: EBENEZER FARM
PUNNETTS TOWN
HEATHFIELD SUSSEX TN21 9DH
ENGLAND

ATTEST:

By:

Date: 14th May 1979

Address: 1 Market Street Hamilton
Avon England

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I

I

COUNTY OF MIDLAND I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 7th day of September, 1978, by B. L. House, Attorney-in-Fact, _____ of Sabine Production Company, a Louisiana corporation, on behalf of the corporation.

My Commission Expires:

June 30, 1980

Welda Bates
Notary Public in and for
Midland County Texas

WELDA BATES

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

SABINE PRODUCTION COMPANY

Date: September 7, 1978

B. L. House
Attorney-in-Fact

Date: _____

Address: 901 Wall Towers East
Midland, Texas 79701

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____ ____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I
I
COUNTY OF MIDLAND I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 7th day of September, 1978, by B. L. House, Attorney-in-Fact, of Sabine Corporation, a Louisiana corporation, on behalf of the corporation.

My Commission Expires:

June 30, 1980

Welda Bates
Notary Public in and for
Midland County Texas

WELDA BATES

255
254

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

SABINE CORPORATION

Date: September 7, 1978

B. L. House
Attorney-in-Fact

Date: _____

Address: 1200 Mercantile Bank Building
Dallas, Texas 75201

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Massachusetts)
)
COUNTY OF Worcester)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 19th day of September, 1978, by Barbara Perdew Russell and Donald P. Russell, husband and wife. In the capacity therein stated.

My Commission Expires:

10-24-80

Alice M. Stanfield
Notary Public in and for
Worcester County Mass.

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept 19, 1978

Barbara Perdue Russell as custodian for Winfield Perdue Russell

Date: 9/19/78

Brad L. Russell

Address: 11 Barbry Rd
Southborough Mass
01772

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Oklahoma)
)
COUNTY OF Cleveland)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 12 day of September, 1978, by Mary Frances Rupnow.

My Commission Expires:

10-22-78

Ellen Huntington
Notary Public in and for
Cleveland County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9-12-78 Mary Frances Rupnow

Date: _____ _____

Address: 430 W Symmes St
Norman OK 73069

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Oklahoma)
)
COUNTY OF Cleveland)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 12 day of September, 1978, by Mamie Frances Rupnow and Flora K. McLaughlin, as Trustees under the Last Will and Testament of Jefferson N. McLaughlin, Deceased.

My Commission Expires:

k 10-22-78

Notary Public in and for
Cleveland County Oklahoma

1109 Louisiana St.
Norman, Oklahoma, 73071

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9-12-78

Mamie Frances Rupnow

Date: 9-12-78

Flova K. McLaughlin

Trustees under the Last Will and Testament of Jefferson N. McLaughlin, Deceased

Address: 430 West Symmes St.
Norman, Oklahoma, 73069

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF HARRIS I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 2nd day of October, 1978, by ELLIS RUDY.

My Commission Expires:

August 8, 1980

Notary Public in and for
HARRIS County TEXAS

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: 10-2-78

Address: Ellis Rudy
~~SS # 461-36-6114~~
P. O. Box 789
~~Houston, Texas 77001~~

Ellis Rudy

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Harris I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 3rd day of January, 1979, by Walter G. Sterling.

My Commission Expires:

5-20-79

Bernice Agnes Grantham
Notary Public in and for
Harris County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I
I
COUNTY OF HARRIS I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11th day of January, 1979, by Walter G. Sterling, President, of Royalty Properties, a _____ corporation, on behalf of the corporation.

My Commission Expires:

5-20-79

Bernice Agnes Grantham
Notary Public in and for
Harris County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: January 3, 1979

Royalty Properties

Date:

by Walter G Glenting Jr

Address: P. O. Box 2891
Houston, Texas 77001

ATTEST:

Elva Taylor

By:

Date: 1-3-79

Address: P.O. Box 2891
Houston, Tex 77001

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas)
)
COUNTY OF Dallas)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 7th day of September, 1978, by John K. Royall, Successor Trustee of the Tucker K. Royall Trust u/w K. K. Royall, Jr., Decd

My Commission Expires:

March 30, 1979

Brenda Wisin
Notary Public in and for
Dallas County Texas

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept 7 1978

John R Lamar successor trustee
TUCKER K ROYALL TRUST U/W
N R ROYALL JR. DEC'D

Date: _____

_____
Address: 2600 REPUBLIC BANK TOWER
DALLAS TX 75201

_____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Dallas I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of August, 1978, by John L. Loyall, Trustee of N. L. Loyall III Trust under the will of Fannie May Loyall, Deceased.

My Commission Expires:

March 30, 1979

Brenda Weis
Notary Public in and for
Dallas County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement;

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 16 78

John R Royall Trustee

of N. R. Royall, III Trust under the will of Fannie May Royall, Deceased

Date: _____

Address: 2600 Republic Bank Tower

Dallas, Texas 75201

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Dallas I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of August, 1978, by John L Royall Trustee of N. L. Royall III Trust under the will of N. L. Royall, Jr.

My Commission Expires:

March 30, 1979

Brenda Wisen
Notary Public in and for
Dallas County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

John R Royall Trustee

Date: 16 Aug 78

of N. R. Royall III Trust under the will of
N. R. Royall, Jr.

Date: _____

Address: 2600 Republic Bank Tower
Dallas, Texas 75201

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas)
)
COUNTY OF Dallas)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of August, 1978, by John L. Loyall Trustee of the John L. Royall Trust under the will of N. L. Loyall, Jr.

My Commission Expires:

March 30, 1979

Linda Wiser
Notary Public in and for
Dallas County Texas

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 16 1978

John R. Royall Trustee
John R. Royall Trust Under The Will of
N. R. Royall, Jr.

Date: _____

Address: 2600 Republic Bank Tower
Dallas, Texas 75201

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Dallas I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of August, 1978, by John R Loyall Trustee of the John R. Loyall Trust under the will of Fannie May Loyall, Deceased.

My Commission Expires:

March 30, 1979

Brenda Wiser
Notary Public in and for
Dallas County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 16 78

John R Royall Trustee

of the John R. Royall Trust under the will of Fannie May Royall, Deceased

Address: 2600 Republic Bank Tower

Dallas, Texas 75201

Date: _____

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Dallas I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of August, 1978, by John L. Royall Trustee of the Decker K. Royall Trust under the will of Fannie May Royall, Deceased.

My Commission Expires:

March 30, 1979

Brenda Wilson
Notary Public in and for
Dallas County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 16 78

John K Royall Trustee

of the Tucker K. Royall Trust under the will of Fannie May Royall, Deceased

Address: 2600 Republic Bank Tower

Dallas, Texas 75201

Date: _____

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Dallas I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11th day of August, 1978, by Miss Frances L Boyd, a widow.

My Commission Expires:

March 30, 1979

Brenda Wain
Notary Public in and for
Dallas County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-11-78 — Mrs. Frances K. Royall, a widow

Date: _____

Address: 2600 REPUBLIC NATL BANK TOWER
323 ST. PAUL N
DALLAS, TEXAS 75201

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS)
)
COUNTY OF MIDLAND)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 1st day of November, 1978, by Richard L. Westlake.

My Commission Expires:

10-3-80

Pat Marioth
Notary Public in and for
Midland County Texas

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS)
)
COUNTY OF MIDLAND)

~~CORPORATE~~ ACKNOWLEDGMENT
PARTNERSHIP

The foregoing instrument was acknowledged before me this 14 day of November, 1978, by Richard L. Westlake, Managing Partner of Rotary Oil and Gas Company, a partnership _____, ~~xx~~ _____ ~~xxxxxxxxxxx~~ on behalf of the ~~xxxxxxxxxxx~~ Partnership.

My Commission Expires:

10-3-80

Pat Marioth
Notary Public in and for
Midland County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: November 1, 1978

ROTARY OIL & GAS COMPANY

BY: Richard L. Westlake

Richard L. Westlake

Managing Partner

Address: 1200 Vaughn Building

Midland, Texas 79701

Date: _____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Massachusetts)
)
COUNTY OF Hampden)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 22 day of August, 1978, by [illegible].

My Commission Expires:

[illegible]

[illegible]
Notary Public in and for
Hampden County

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 11/28 1978 — Celia Rosenthal

Date: _____

Address: 307 Chestnut St, Apt 426 Springfield, Mass. 01104

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Oklahoma I

I

COUNTY OF Tulsa I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 11th day of August, 1978, by Robert L. Rorschach and Susan S. Rorschach, husband and wife.

My Commission Expires:
My Commission Expires April 17, 1982
BONNIE L. DIDRICKSON
Suite 708 - 320 S. Boston Tulsa, Okla.

Bonnie L. Didrickson
Notary Public in and for
Tulsa County Oklahoma

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 11, 1978

Robert L. Rorschach
Robert L. Rorschach

Date: August 11, 1978

Susan S. Rorschach
Susan S. Rorschach

Address: Suite 708 - 320 South Boston
Tulsa, Oklahoma 74103

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Oklahoma I

COUNTY OF Oklahoma I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 29th day of January, 1979, by Onez Norman Rooney and William A. Rooney, her husband.

My Commission Expires:

January 3, 1983

Notary Public in and for
Oklahoma County Oklahoma

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 1/29/79 Onez Norman Rooney OK/RJC ONR

Date: 1/29/79 William A Rooney WAR

Address: 2915 [illegible] BANK TOWER
OKLAHOMA [illegible], OKLAHOMA 73102

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

X STATE OF Kansas I

I

COUNTY OF Haskell I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 15th day of _____, 1978, by Jack Robinson and Ethel W. Robinson, husband and wife.

June Alexander
NOTARY PUBLIC
Feb 19, 1979
SEAL COUNTY, KANSAS

My Commission Expires:

_____

_____
Notary Public in and for
Haskell County Kansas

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 15, 1978

X Jack Robinson

Date: August 15, 1978

X Mrs. Ethel K. Robinson

Address: P. O. Box 425

Capitan, New Mexico 88316

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Virginia I
I
COUNTY OF Newport News I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 8th day of September, 1978, by [illegible].

My Commission Expires:
10/31/81

Notary Public in and for
State of Virginia County Newport News

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: September 8, 1978

Lillian S. Robertson
Lillian S. Robertson

Date: _____

Address: 235 James River Drive
Newport News, Virginia 23601

ATTEST:

Witness -
By: Henrietta B. Kulth
129 Battlewood Rd

Date: _____

Address: Newport News Va

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF ARIZONA)
)
COUNTY OF MARICOPA)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 21st day of August, 1978, by G. M. Robertson.

My Commission Expires:

My Commission Expires Jun 12, 1981

Connie Corcoran
Notary Public in and for
Maricopa County Arizona

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 21, 1978 G. M. Robertson

Date: _____ _____

Address: 4515 Edmonton
Phoenix, Ariz

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico I
I
COUNTY OF Santa Fe I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 2nd day of November, 1978, by Joseph A. Roberts in the capacity therein stated.

My Commission Expires:

Jan 20 1980

Louise M. Burttram
Notary Public in and for
Santa Fe County New Mexico

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: November 2, 1978

Personal Representative as
Estate of Robert S. Roberts

Address: P.O. Box 2402
Santa Fe, NM 87501

Date: _____

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEW MEXICO)
)
COUNTY OF CHAVES)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 24 day of August, 1978, by Mary Evelyn Roberts.

My Commission Expires:
February 1, 1979

Notary Public in and for
Chaves County N.M.

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

731
46 447

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 24-78

Mary Evelyn Roberts
(Mary Evelyn Beck)

Address: 1111 N. Penn
Roswell, N.M. 88201

Date: _____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF Santa Fe)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 17th day of August, 1978, by Joseph A. Roberts.

My Commission Expires:
Feb 7, 1980

J H Burttram
Notary Public in and for
Santa Fe County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

730

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 6-12-78

Date: _____

Address: P.O. BOX 177
SANTA FE, NEW MEXICO 87501

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I

COUNTY OF Bexar I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of August, 1978, by Dorothy H. Ritzhaupt.

DOROTHY H. RITZHAUPT

My Commission Expires:

9-23-79

DON HOLLAND
NOTARY PUBLIC IN AND FOR
BEXAR COUNTY, TEXAS

Notary Public in and for Bexar County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ Dorothy H. Rifkhaupt

Date: 8-16-78 3427 Truth. Village

Address: San Antonio Texas 78230

ATTEST:

DON HOLLAND
NOTARY PUBLIC IN AND FOR
BEXAR COUNTY, TEXAS

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Vermont I
I
COUNTY OF Lamoille I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 13 day of June, 1978, by Steven N. Riley.

My Commission Expires:

2/6/83

Notary Public in and for
Lamoille County Vt

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 6/15/79

x _____
Steven N. Riley

Date: _____

_____

Address: P. O. Box 959
Stowe, Vermont 05672

ATTEST: _____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New York)
)
COUNTY OF New York)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 21 day of August, 1978, by John J Reynolds.

My Commission Expires:

3/30/80

Mary E Sullivan
Notary Public in and for
New York County New York

MARY E. SULLIVAN
NOTARY PUBLIC, State of New York
No. 60-9244925
Qualified in Westchester County
Certificate filed in New York County
Commission Expires March 30, 1980

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 21, 1978

John J. Reynolds

Date: _____

_____

Address: 505 Park Avenue
New York, New York 10022

ATTEST:

_____

By: _____

_____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF OKLAHOMA)
)
COUNTY OF OKLAHOMA)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by G.C. Richards.

My Commission Expires:

3-31-82

Notary Public in and for
OKLAHOMA County OKLAHOMA

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

723

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: Aug 14, 1978 A C Richards

Address: A. C. RICHARDS
~~BOX 60173~~
OKLAHOMA CITY, OKLA. 73146

ATTEST:

_____ _____

By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF California I
I
COUNTY OF Orange I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 24th day of May, 1978, by Mrs. Helen A. Regan and Morton J. Regan husband and wife.

My Commission Expires:

2/5/81

OFFICIAL SEAL
CASPER P. HARE
NOTARY PUBLIC - CALIFORNIA
PRINCIPAL OFFICE IN
ORANGE COUNTY
My Commission Expires Feb. 5, 1981

Casper P. Hare
Notary Public in and for
Orange County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

721A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: May 24, 1979

Mrs Helen A Regan
Mrs. Helen A. Regan

Date: May 24, 1979

Martin J Regan
Martin J. Regan

Address: 18321 Warren Ave.,
Tustin, CA. 92680

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New Mexico I
I
COUNTY OF Chaves I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 25th day of August, 1978, by Geo L Reese Jr and Lila Reese, husband and wife.

My Commission Expires:

Aug 15, 1981

Bobby R Baldwin
Notary Public in and for
New Mex County Chaves

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-25-78

Geo. L. Reese Jr

Date: 8-25-78

Lila Reese

Address: Box 1776

Roswell, N.M. 88201

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

2-8-79

Dina J. Schumacher
Notary Public in and for
El Paso County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

720

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: October 16, 1978

W. T. Reed

Date: October 1[illegible], 1978

Pearl C Reed

Address: 10143 Buckood Drive

El Paso, Texas 79925

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I

I

COUNTY OF MIDLAND I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 15th day of August, 1978, by John J. Redfern, Jr. and Rosalind Redfern, husband and wife.

My Commission Expires:

_____

Doris Williams
Notary Public in and for
Midland County Texas

DORIS WILLIAMS - Notary Public
Midland County, Texas
My Commission Expires June 1, 1979

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

719

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 15, 1978

Rosalind Redfern
Rosalind Redfern

Date: August 15, 1978

John S. Redfern, Jr., Husband of Rosalind Redfern
Address: P. O. Box 1747
Midland, TX 79702

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I
I
COUNTY OF MIDLAND I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 25th day of April, 1979, by John J. Redfern, Jr., in the capacity therein stated.

My Commission Expires:

1-30-82

J D Ballard
Notary Public in and for
MIDLAND County TEXAS

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: April 24, 1979

John J. Redfern, Jr., individually and as attorney-in-fact

Date: _____

Address: P. O. Box 1747
Midland, Texas 79702

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New Mexico)
)
COUNTY OF Lea)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16 day of March, 1979 by Ellie Spear, President of Rebel Oil Company, a New Mexico corporation, on behalf of the corporation.

My Commission Expires:

4/1/79

Elaine P. McKinney
Notary Public in and for
Lea County New Mexico

717

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: March 16, 1979

Ellie Spear

Ellie Spear, President of Rebel Oil Company

Date: _____

_____

Address: 603 Seco Drive

Hobbs, New Mexico 88240

ATTEST:

_____

By: _____

_____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF California)
)
COUNTY OF San Diego)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 1st day of August, 1978, by Theodore Ray.

My Commission Expires:

May 3 1982

OFFICIAL SEAL
PATRICIA T. APPLING
NOTARY PUBLIC - CALIFORNIA
SAN DIEGO COUNTY
My comm. expires MAY 3, 1982

Patricia T. Appling
Notary Public in and for
San Diego County California

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9/18/78

Mrs. Jeanette Ray
Jeanette W. Ray
Jeanette W. RAY

Date: _____

Address: 285 AVENIDA DESCANSO
Oceanside, CA 92054

ATTEST:

9-19-78 WITNESSED BY;

By: William W Howell

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF LOUISIANA)
)
~~COUNTY OF~~ CADDO PARISH)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 17 day of April, 1979 ~~1978~~, by MRS. ELIZABETH A. RASTER.

My Commission Expires:
at life

Notary Public in and for
Caddo Parish, La. ~~XXXXXXX~~

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

715A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: April 17, 1979

Mrs. Elizabeth D. Baxter

Date: _____

_____

Address: 249 Atkins Ave
Shreveport, La. 71104

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF England I
I
COUNTY OF Sussex I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 27th day of April, 1978, by DORIS PULLEN and BASIL LAURENCE PULLEN, husband and wife.

My Commission Expires:

Permanent.

M Sandsbury
Notary Public in and for
England County Sussex.

STATE OF _____ I
I
COUNTY OF _____ I

CO[redacted]MENT

The foregoing instrument was acknowledged before [redacted]
_____, 1978, by _____
_____ of _____
a _____ corporation, on behalf of th[redacted]

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

713B

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations [illegible] a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 27th April 1979

Doris Pullen

Date:

D. L. Pullen

Address: 27 HARMERS HILL
NEWICK
SUSSEX ENGLAND

ATTEST:

E H Sainsbury

By: E. H. SAINSBURY
Messrs. DAWSON, HART & CO.,
The OLD GRAMMAR-SCHOOL,
CHURCH STREET,
UCKFIELD, SUSSEX.
Solicitor and Notary

Date: 27 April 1979

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas §
§
COUNTY OF Whatever §

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 27th day of April, 1978, by [illegible].

My Commission Expires:

June 2, 1979

[signature]
Notary Public in and for
Whatever County Texas

STATE OF _____ §
§
COUNTY OF _____ §

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ §
§
COUNTY OF _____ §

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

1/2A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: April 9th 1979 — Marion H. Price

Date: _____ — _____

Address: Box 143
Boling, Texas 77420

ATTEST:

_____ — _____

By: _____

_____ — _____

Date: _____ — Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

~~XXXXXXXX~~ DISTRICT)
OF)
~~XXXXXXXX~~ COLUMBIA)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 18th day of August, 1978, by Ira S. Siegler, President of PROMCO, INC., a District of Columbia corporation, on behalf of the corporation.

My Commission Expires:

July 14, 1981

Notary Public in and for
DISTRICT OF ~~County~~ COLUMBIA

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST: PROMCO, INC.

Secretary By: President

Date: August 18, 1978 Address: 1616 H Street NW - 9th Floor
Washington, D.C. 20006

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF [illegible])
)
COUNTY OF San Diego)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 20th day of September, 1978, by MARGARET SPENCER PRICE.

My Commission Expires:

July 9, 1982

[illegible]
Notary Public in and for
San Diego County, California

OFFICIAL SEAL
CAROLE A. BADGER
NOTARY PUBLIC - CALIFORNIA
SAN DIEGO COUNTY
My comm. expires JUL 9, 1982

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept. 20, 1978 Margaret Spencer Price

Date: _____ _____

Address: 4705 Cumberland Dr.
Carlsbad, Ca. 92008

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF [illegible])
)
COUNTY OF [illegible])

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 23 day of August, 1978, by [illegible].

My Commission Expires:

_____

[signature]
Notary Public in and for
_____ County _____

MAX BAUMAN
NOTARY PUBLIC, State of New York
No. 41-0194700
Qual. in Queens Co. Cert. filed [illegible]
[illegible]

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/23/78 — Howard J. Price

Date: _____ — _____

Address: 67-43 CLYDE Street
FOREST HILLS, NY
11375

ATTEST:

_____ — By: _____

_____ — _____

Date: _____ — Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF OHIO)
)
COUNTY OF ERIE)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of September, 1978, by BEVERLY L. PRESSLER.

My Commission Expires:

MAY 13, 1980

Notary Public in and for
Erie County Ohio

KATHLEEN PRESSLER SCHENK, Notary Public
Erie County, Ohio
My Commission expires May 13, 1980

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept. 14 1978 Beverly L. Pressler

Date: _____

Address: 135 Huntington Place
Sandusky, Ohio 44870

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF CALIFORNIA)
)
COUNTY OF SANTA CLARA)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15th day of August, 1978, by Ingrid Powell.

My Commission Expires:

Dec. 4, 1979

Lillie S. Coe
Notary Public in and for
Santa Clar County, California

OFFICIAL SEAL
LILLIE S. COE
NOTARY PUBLIC - CALIFORNIA
SANTA CLARA COUNTY
My comm. expires DEC 4, 1979

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 15, 1978

Ingrid Powell

P. O. Box 416
Address: 225 Mt. Hamilton
Los Altos, CA 94022

Date: _____

ATTEST:

_____

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF [illegible])
)
COUNTY OF [illegible])

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 22nd day of [illegible], 1978, by [illegible], of [illegible], a [illegible] corporation, on behalf of the corporation.

My Commission Expires:

_____

[illegible]
Notary Public in and for
[illegible] County [illegible]

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: _____

_____

Address: _____

_____

ATTEST:

_____

_____

First Pennsylvania Bank, N.A. Trustee Under
The Will of Katherine E. Polis, Dec'd. Residuary

By: _____
Julien L. Eysmans, III Vice-President

_____

Date: October 23 1978

Address: First Pa. Tower - 17th fl. Centre Square

Philadelphia, Pa. 19101

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF CONNECTICUT)
)
COUNTY OF FAIRFIELD)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 22nd day of JANUARY, ~~1978~~ 1979, by ANN PINCHOT.

My Commission Expires:

4/1/79

Notary Public in and for
FAIRFIELD County, CONN.

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Jan. 22, 1979 Ann Pinchot

Date: _____

Address: 88 Maltbie Ave
Stamford, Conn
06902

ATTEST:

By: Susan Pinchot

Date: 1-22-79

Address: 72 Maltbie Ave.
Stamford, Conn. 06902

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF N.Y.)
)
COUNTY OF N.Y.)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 17TH day of April, ~~1978~~ 1979, by RICHARD A. PRADO.

My Commission Expires:

RICHARD P. BENNETT
Notary Public, State of New York
No. [illegible]
Qualified in [illegible] County
Commission Expires March 30, 1980

Notary Public in and for
Kings County N.Y.

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 4/17/79 _____ Richard A. Picard

Date: _____ _____

Address: 180 Central Park South
N.Y. N.Y.

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Johnson I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 24th day of August, 1978, by A. W. Phelps and Dorothy Phelps, husband and wife.

My Commission Expires:
10-31-78

_____

Notary Public in and for
Johnson County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 2 1979 — Dorothy P. Phelps

Date: _____ — A.W. Phelps.

Address: 701 STUCKERT RT 3
BURLESON TEXAS
76028

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF San Saba I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of March, 1978, by Bill Bethea.

My Commission Expires:

Feb 16 1980

Cindy K Hall
Notary Public in and for
San Saba County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-16-78 Bill Bolog

Date: _____

Address: 2657 Vista del Arroyo
San Angelo, Tx 76901

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas)
)
COUNTY OF Tom Green)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15th day of August, 1978, by Addison Lee Pflugar.

My Commission Expires:

Feb. 16 1980

Judy F. Holik
Notary Public in and for
Tom Green County Texas

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 15 Aug 78 — Addison Lee Bruce

Date: _____ — 415-62-9227

Address: 1215 W. Ave D
San Angelo, Tx 76901

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Illinois)
)
COUNTY OF Cook)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by [illegible] and [illegible], husband and wife.

My Commission Expires:
My Commission Expires 6/12/81

[illegible]
Notary Public in and for
_____ County Cook

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Oct. 5, 1978

Edward C. Petty

Date: Oct. 5 1978

Dorthea M. Petty

Address: 2052 W. Farragut
Chicago, Illinois
60625

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New York)
)
COUNTY OF New York)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 17 day of August, 1978, by N. P. FRANKEL, President of Detroit Corporation of America, a _____ corporation, on behalf of the corporation.

My Commission Expires:

9/30/80

Kathleen P. Gannon
Notary Public in and for
New York County, N.Y.

KATHLEEN P. GANNON
Notary Public, State of New York
No. 24-6455000
Qualified in Kings County
Certificate Filed in New York County
Commission Expires March 30, 1980

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement;

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Id# 510098119

Date: August 17, 1978

Petrust Corporation of America

Date:

By W P Van Kirk, President

ATTEST

Address: c/o W P Van Kirk
521 Fifth Avenue NYC 10017

ATTEST:

Kathleen P. Gannon
Secy.-Treas.

By:

Date: August 17, 1978

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEW MEXICO)
)
COUNTY OF SANTA FE)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 17th day of August, 1978, by Helen Perry.

My Commission Expires:

August 19, 1980

Teresa F. Olson
Notary Public in and for
Santa Fe County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

695

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 17, 1978 Helen Perry

Date: August 17, 1978 Helen Perry

Address: 1300 Don Diego
Santa Fe, N.M. 87501

ATTEST:

Amelia B. Lobato
2509 Almanacker

By:

Date: Aug 17, 1978

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I

I

COUNTY OF TARRANT I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 11th day of August, 1978, by MYRL PEPPER and R. C. PEPPER, husband and wife.

My Commission Expires:

1-31-79

Shirley J. Nipp

Shirley J. Nipp
Notary Public in and for
Tarrant County, Texas

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-10-78 Meyer Pepper

Date: 8-11-78 R C Pepper

Address: 1263 Roaring Springs Rd
Fremont Dev 76114

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

_____
Asst Sec

Date: 10/20/74

First Pennsylvania Bank, N.A. Trustee
for Marguerite Saul

By: _____
Julien L. Eysmans, III Vice President

Address: First Pennsylvania Bank, N.A.
Real Estate Dept., First Pa. Tower
Philadelphia, Pa. 19101

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF NEW YORK I
I
COUNTY OF NEW YORK I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14TH day of FEBRUARY, 1979, by GUY O. DOVE III, PRESIDENT of PINNACLE OIL CO., a TEXAS corporation, on behalf of the corporation.

My Commission Expires:

3/30/80

Albert L. Lingelbach
Notary Public in and for
_____ County _____

ALBERT L. LINGELBACH
NOTARY PUBLIC, State of New York
No. 30-7560875
Qualified in Nassau County
Certificate filed in New York County
Commission Expires March 30, 1980

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 2/9/79

Pinnacle Oil Company

Date: _____

c/o Guy O. Dove, III

Address: 5 Merryman Court

Baltimore, Maryland 21210

ATTEST:

Elizabeth Hunter Hurst

PINNACLE OIL CO.

By: Guy O. Dove III

Guy O. Dove III, President

Date: Feb. 9, 1979

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF California)
)
COUNTY OF Orange)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 16 day of August, 1978, by Andrew S. Pearson, Jr. and Dolores J. Pearson, husband and wife.

My Commission Expires:

Nov. 14, 1980

OFFICIAL SEAL
AUDREY V. WOODARD
NOTARY PUBLIC - CALIFORNIA
ORANGE COUNTY
My comm. expires NOV 14, 1980

Audrey V. Woodard
Notary Public in and for
Orange County California

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 16 August 1978

Andrew A. Pearson, Jr.

Date: 16 August 1978

Dolores J. Pearson

Address: 26832 CARRANZA DRIVE
MISSION VIEJO, CA. 92675

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New York)
)
COUNTY OF Nassau)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 13th day of September, 1978, by Carl Ganz and Joan Miller Ganz, husband and wife. in the capacity therein stated.

JOHN W. PRUZ
NOTARY PUBLIC, State of New York
No. 30-4510112
Qualified in Nassau County
Commission Expires March 30, 1979

My Commission Expires:

_____

John W. Pruz
_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept 13, 1978 — Carl Ganz

Date: Sept 13, 1978 — Joan M. Ganz, Successor Trustees

Address: Estate of Mary D. Pearlbrook
P. O. Box 65
Farmingdale, N. Y. 11735

ATTEST:

_____

_____ By: _____

_____

Date: _____ Address: _____

_____

JOAN M. GANZ & CARL D. GANZ
SUCCESSOR TRUSTEES
EST. OF MARY D. PEARLBROOK
P.O. BOX #65
FARMINGDALE, N. Y. 11735

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF N. H. I

COUNTY OF CARROLL I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 22 day of Aug., 1978, by ROBERT SARGENT in the capacity therein stated.

My Commission Expires:

[illegible] 1978

Notary Public in and for CARROLL County [illegible]

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for _____ County _____

STATE OF New York I

COUNTY OF New York I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of August, 1978, by Richard E. Smith, III, Trust Officer of The Chase Manhattan Bank, N.A., a National Banking corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

HUGH M. WILLIAMS
NOTARY PUBLIC, State of New York
No. 60 4617201
Qualified in Westchester County
Certificate Filed in New York County
Commission Expires March 30, 1979

Notary Public in and for _____ County _____

6&C

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

The Chase Manhattan Bank, N.A. by:

Date: August 16, 1978

Richard E. Smith, III, Trust Officer

Date: Aug 21- 78

Webster Sanford, Executors + Trustees of
Address: Estate of Helen D. Pearlbrook
1211 Avenue of The Americas
New York, New York 10036

ATTEST:

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF OKLAHOMA I
I
COUNTY OF OKLAHOMA I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 19th day of March, 1978, by James B. Crawley, President of PDI, Inc., a Texas corporation, on behalf of the corporation.

My Commission Expires:

April 21, 1980

Mary Jane Pitts
Notary Public in and for
Oklahoma County Oklahoma

6FU

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

PDI, Inc.

Lucy S. Dustin

By: James B. Crawley

Assistant Secretary

President

Date: March 19, 1979

Address: 740 Hightower Building

Oklahoma City, Oklahoma 73102

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF MISSOURI I

I

COUNTY OF JACKSON I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 16th day of August, 1978, by Elyse Saunders Patterson and R. M. Patterson, husband and wife.

My Commission Expires:

Sept. 16, 1978

Mary Lockridge Cotton
Notary Public in and for
Jackson County Missouri

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 16, 1978

Elyan Saunders Patterson

Date: August 16, 1978

H. Patterson

Address: 6444 Indian Lane
Shawnee Mission, Kansas 66208

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New York)
COUNTY OF Nassau)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of April, 1979, by Dorothea Chapin Parrot.

My Commission Expires:
R.E. No. 0771250
3-30-1981

Paul L. Corwin
Notary Public in and for
New York County Nassau

STATE OF _____)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____.

_____
Notary Public in and for
_____ County _____

STATE OF _____)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

682E

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: April 16, 1979

Date: _____

Address: _____

ATTEST:

Leanne Corwin
298 Milburn Ave Baldwin

Date: April 16, 1979

By: Dorothea Chapin Parrot

Address: 289 Milburn Ave
Baldwin L.I. N.Y.
11510

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Oklahoma)
)
COUNTY OF McIntosh)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 17 day of APRIL, 1978, by [illegible] (husband) and [illegible] (wife), husband and wife.

My Commission Expires:

3-11-82

E. W. Harrison
Notary Public in and for
McIntosh County Okla

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

632A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: April 17, 1979 — Helen Farmer Parker

Date: April 17, 1979 — Harvey L. Parker

Address: 605 SW 3rd
Checotah, Okla 74426

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS §
§
COUNTY OF TARRANT §

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 22 day of September, 1978, by Lucy P. Owings and Hamilton Rogers, in the capacities therein stated.

My Commission Expires:

Sept 30, 1978

Pauline Gardner
Notary Public in and for
Tarrant County Texas

STATE OF _____ §
§
COUNTY OF _____ §

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ §
§
COUNTY OF _____ §

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

682

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept. 22. 1978

Lucy P. Owings
Lucy P. Owings, Individually

~~Date:~~ Emilee C. Spearman

Address: 1504 Oil and Gas Building
Fort Worth, Texas 76102

~~ATTEST~~:

ROGER B. OWINGS ESTATE

Date: Sept. 22. 1978
Emilee C. Spearman

By: Lucy P. Owings
Lucy P. Owings, Ancillary Personal Representative of the Estate of Roger B. Owings

Date: Sept. 22. 1978
Emilee C. Spearman

~~XXXXXXX~~ J. Hamilton Rogers
Hamilton Rogers, Ancillary Personal Representative of the Estate of Roger B. Owings.

Address: 1504 Oil & Gas Building
Fort Worth, Texas 76102

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Dallas I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 28 day of August, 1978, by Elizabeth G. Orchard and Joseph T. Orchard, husband and wife.

My Commission Expires:

May 6, 1979

Margaret J. Brabbee
Notary Public in and for
Dallas County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

680

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 28 1978 — Elizabeth J. Orchard

Date: Aug 28 1978 — Joseph T. Orchard

Address: 6623 PRESTONSHIRE LANE
DALLAS TX 75225

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Dallas I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 28 day of August, 1978, by Elizabeth B. Orchard and Joseph T. Orchard, husband and wife.

My Commission Expires:

May 6, 1979

Margaret D. Barbee
Notary Public in and for
Dallas County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

679

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 28. 1978

Elizabeth B. Orchard

Date: Aug 28 1978

Joseph T. Orchard

Address: 6147 PRESTONSHIRE
DALLAS TX 75225

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF California)
)
COUNTY OF Solano)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 12th day of September, 1978, by Mary Lou Olson and Rollie G. Olson ***, husband and wife.

My Commission Expires:

April 3, 1981

Barbara S. Frazier
Notary Public in and for State of California, County of Solano

OFFICIAL SEAL
BARBARA S. FRAZIER
NOTARY PUBLIC — CALIFORNIA
SOLANO COUNTY
My Commission Expires APRIL 3, 1981

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9-12-78 Mary Lou Olson

Date: 9-12-78 Rollie G Olson

Address: 361 S Orchard
Vacaville, Ca 95688

ATTEST:

By:

Date: Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I
I
COUNTY OF MIDLAND I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 17th. day of August, 1978, by Windel M. Gibson, Vice President & Trust Land Manager of The First National Bank of Midland, Texas, a Banking corporation, on behalf of the corporation, in the capacity therein stated.

My Commission Expires:

5-31-79

Jean E. Wilson
Notary Public in and for
MIDLAND County TEXAS

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

ATTEST:

Assistant Trust Officer

Date: 8-17-78

The First National Bank of Midland, Texas,
Trustee, Trust No. 1253

Vice President & Trust Land Manager

Address: P. O. Box 270

Midland, Texas 79702

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I
I
COUNTY OF MIDLAND I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 17th. day of August, 1978, by Windel M. Gibson, Vice President & Trust Land Manager of The First National Bank of Midland, Texas, a Banking corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

5-31-79

Jean E. Wilson
Notary Public in and for
MIDLAND County TEXAS

676

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

ATTEST:

Assistant Trust Officer

Date: 8-17-78

The First National Bank of Midland, Texas
Trustee, Trust No. 1254

Vice President & Trust Land Manager

Address: P. O. Box 270

Midland, Texas 79702

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I

COUNTY OF Travis I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 21st day of August, 1978, by Donald M. Oliver and Phyllis R. Oliver, husband and wife.

My Commission Expires:

2-28-79

Notary Public in and for
Travis County Texas

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Dec 21, 1978 — Donna M. Price

Date: Dec 21, 1978 — Phyllis Q. Price

Address: _____

_____

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF OKLAHOMA)
)
COUNTY OF TULSA)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 2nd day of May, 1979, by Charles W. Oliphant as trustee for Allen Green Oliphant, Jr.

My Commission Expires:

4/17/82

Toni Allen
Notary Public in and for
Tulsa County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 5/1/79

Charles W Oliphant
Charles W. Oliphant as Trustee for
Allen Green Oliphant, Jr., ~~a minor~~

Date: _____

Address: 4400 One Williams Center
Tulsa, Oklahoma 74172

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

A60-1946

STATE OF Washington)
)
COUNTY OF King)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by ~~XXXXXXXXXXXXXXXX~~ Mary Oja.

My Commission Expires:

April 10, 1981

Rita L. McGoffin
Notary Public in and for
King County Washington

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

671

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 14, 1978

Mary Ojai

Date: _____

_____

Address: 9676 Rainier Ave S.
Seattle, Wa 98118

ATTEST:

_____

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF ECTOR I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 24th day of August, 1978, by [illegible].

My Commission Expires:

July of 1980

Notary Public in and for Ector County

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for _____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for _____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: AUGUST 24, 1978 Mary Jane McAnally O'Hern

Date: _____ _____

Address: 1500 Nutter Graham
Odessa, Tx. 79763

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS)
)
COUNTY OF ECTOR)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 24th day of August, 1978, by [illegible].

My Commission Expires:

July of 1980

[illegible]
Notary Public in and for
Ector County

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 24, 1978 Jane M. O'Horn

Date: _____ _____

Address: 1500 N Graham
Odessa, Tx 79763

ATTEST: _____

By: _____

Date: _____ Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Nebraska)
)
COUNTY OF Douglas)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 18th day of August, 1978, by Albert C. Ogden and Laura M. Ogden, husband and wife.

GENERAL NOTARY - State of Nebraska
LUTHER C. THOMPSON
My Comm. Exp. Aug. 16, 1981

My Commission Expires:

August 16, 1981

Luther C. Thompson
Notary Public in and for
Douglas County Nebraska

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

664

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 18, 1978 — Albert E. Ogden

Date: Aug 18, 1978 — Laura M. Ogden

Address: 4910 N 57
Omaha Ne 68104

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF ORANGE I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of AUGUST, 1978, by BABETTE MOORE ODOM.

My Commission Expires:

9/30/78

Notary Public in and for
ORANGE County TEXAS

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

666
667

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: AUGUST 16, 1978

Babette Mone Odom

Date: _____

_____

Address: P. O. BOX 458
ORANGE TEXAS 77630

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New York I

I

COUNTY OF New York I

JOINT ACKNOWLEDGMENT
~~(HUSBAND AND WIFE)~~

The foregoing instrument was acknowledged before me this 22 day of October 22, 1978, by Thomas F. Lugaric and William Rubin, ~~husband and wife~~ partners.

My Commission Expires:

ANNE C. MARGARINO
Notary Public State of New York
Qualified in Kings County
Certificate filed in New York County
Term Expires March 30, 1979

Anne C. Margarino
Notary Public in and for
Kings County _____

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

66x

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

NORWIN ASSOCIATES

Date: 10/27/78 — THOMAS [illegible], PARTNER &

Date: 10/27/78 — WILLIAM K. WANG, PARTNER & SOLE PTNRS.

Address: 15 PROSPECT AVE.
MONTCLAIR NEW JERSEY 07042

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS)
)
COUNTY OF HARRIS)

BEFORE ME, the undersigned authority, a Notary Public in and for said County and State, on this day personally appeared CHARLES R. PIRTLE, Vice President, known to me to be the person and officer whose name is subscribed to the foregoing instrument, and acknowledged to me that the same was the act of the said NORTH CENTRAL OIL CORPORATION, a corporation, and that he executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the 6 day of September, 1978.

Lee C. Kelley

LEE C. KELLEY
Notary Public in and for Harris County, Texas
My Commission Expires 11-30-78

662

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

NORTH CENTRAL OIL CORPORATION

Date: _____

Date: 9-6-78

Charles R. Pirtle

Address: CHARLES R. PIRTLE VICE PRESIDENT

NORTH CENTRAL OIL CORPORATION
4545 POST OAK PLACE DRIVE, SUITE 301
HOUSTON, TEXAS 77027

ATTEST:

Jimmie W. Davis
JIMMIE W. DAVIS
ASSISTANT SECRETARY

By: _____

Date: 9-6-78

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Oklahoma)
)
COUNTY OF Carter)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 23rd day of May, 1979 by John R. March, President of The Samuel Roberts Noble Foundation, Inc., a corporation, on behalf of the corporation.

My Commission Expires:

June 25, 1981

Notary Public in and for
Carter County Oklahoma

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

Eldon Jones
Secretary Treasurer

The Samuel Roberts Noble Foundation, Inc.

By: John R. Mack
President

Date: May 23, 1979

Address: Route 1
Ardmore, Oklahoma 73401

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Oklahoma)
)
COUNTY OF Oklahoma)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15 day of November, 1978, by R. L. McPheron.

My Commission Expires:

5-25-80

Notary Public in and for
Oklahoma County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

620 C
§650 B
§2043 A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 11-15-78

R. L. McPheron

Date: _____

_____

Address: P. O. Box 1388
Oklahoma City, Oklahoma 73101

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico I

COUNTY OF Lea I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 12 day of February, 1979, ~~XXXX~~ by Margaret M. McPheron.

My Commission Expires:

June 20, 1981

Notary Public in and for
Lea County New Mexico

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____.

Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: February 12, 1979

Margaret M. McPheron

Margaret M. McPheron
219 East Yucca
Hobbs, New Mexico 88240

Address: _____

Date: _____

_____

Address: _____

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I

I

COUNTY OF Navarro I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 18th day of August, 1978, by Walter Holmes, Vice Pres. & Trust Officer of First National Bank, Corsicana, a banking corporation, on behalf of the corporation, in the capacity therein stated.

My Commission Expires:

9-30-78

Peggy Holmes
Notary Public in and for
Navarro County Texas

656

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: _____

_____

Address: _____

_____

ATTEST:

First National Bank Corsicana Texas
Trustee for Frank B. McNally Trust No. 502

By: Walter Holmes

Walter Holmes Vice President and Trust Officer

Ast Cashier

Asst. Cashier

Date: August 18, 1978

Address: P. O. Box 613
Corsicana, Texas 75110

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas)
)
COUNTY OF Dallas)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 13 day of October, 1978, by C. E. McCreless, ASSISTANT VICE PRESIDENT of [illegible] NATIONAL BANK of DALLAS, a Texas corporation, on behalf of the corporation.

My Commission Expires:
LOMETA BROWN
Notary Public, Dallas County, Texas
My Commission Expires 6-30-80

Lometa Brown
Notary Public in and for
Dallas County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

REPUBLIC NATIONAL BANK OF DALLAS, A. M. McMillan Estate #8940

By: _____ By: _____

Trust Officer Asst. Vice President & Trust Officer

Date: 10-13-78 Address: P. O. Box 241

Dallas, Texas 75221

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF INDIANA I
I
COUNTY OF HAMILTON I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 7th day of AUGUST, 1978, by MARY ELIZABETH McMATH.

My Commission Expires:

5-3-81

Notary Public in and for HAMILTON County INDIANA

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

654

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-22-78 — Mary Elizabeth McMath

Date: _____ — _____

Address: 403 E. 4th St.
SHERIDAN, IND. 46069

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF OKLAHOMA)
)
COUNTY OF TULSA)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 18th day of August, 1978, by Richard Wallace McMahon and Bobbie Lou McMahon, husband and wife.

My Commission Expires:

My Commission Expires April 24, 1982

Ruth J. Langley
Notary Public in and for
Tulsa County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 18, 1978 — Richard Wallace McMahon

Date: Aug. 18, 1978 — Bobbie Lou McMahon

Address: 5200 S. Harvard, Bldg. #6

Tulsa, Oklahoma 74135

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Oklahoma)
)
COUNTY OF Tulsa)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 21 day of August, 1978, by Peter J. McMahon.

My Commission Expires:

July 9, 1979

Notary Public in and for
Tulsa County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 21, 1978

PETER J. McMAHON

Date: _____

Address: 320 S. Boston, Suite 1605

Tulsa, Oklahoma 74103

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF OKLAHOMA)
)
COUNTY OF TULSA)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 18th day of August, 1978, by Charles L. McMahon, Jr. and Margie M. McMahon, husband and wife.

My Commission Expires:

My Commission Expires April 24, 1982

Ruth J. Landa
Notary Public in and for
Tulsa County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

651

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 18 Aug 1978

Charles J. McMahon

Date: Aug 18, 1978

Margie M. McMahon

Address: 5200 S. Harvard, Bldg. #6

Tulsa, Oklahoma 74135

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Oklahoma I
I
COUNTY OF Comanche I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 8th day of September, 1978, by John Shoemaker, Chairman of The McMahon Foundation, a _____ corporation, on behalf of the corporation.

My Commission Expires:

Jan. 23, 1982

Edna Neely
Notary Public in and for
Comanche County Oklahoma

650

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andras) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept. 8, 1978

THE MCMAHON FOUNDATION

By John Shoemaker

John Shoemaker, Chairman

Address: P. O. Box 1249

Lawton, OK 73502

Date: _____

ATTEST:

_____

_____

THE MCMAHON FOUNDATION

By: James L. Keegan

James L. Keegan, Sec.-Treas.

Date: Sept. 8, 1978

Address: P. O. BOX 1249

Lawton, OK 73502

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I
I
COUNTY OF TARRANT I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 8th day of Jan, 1979, by William Eugene McLaughlin and Mrs. W.E. McLaughlin, husband and wife.

My Commission Expires:

June 1, 1979

Wanda Eaton
Notary Public in and for
TARRANT County TEXAS

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 1-8-79

William Eugene McLaughlin

Date: 1-8-79

Mrs. W. E. McLaughlin

Address: 917 Rambler Dr
Waco, Texas 76710

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I

I

COUNTY OF TARRANT I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 16 day of NOV., 1978, by WAYNE B. McLAUGHLIN and MARTHA A. McLAUGHLIN, husband and wife.

My Commission Expires:

PAT LITTLE
NOTARY PUBLIC IN AND FOR
TARRANT COUNTY, TEXAS
MY COMMISSION EXPIRES NOV. 30, 1980

Pat Little
Notary Public in and for
Tarrant County Texas

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 16 NOV. 1978

Wayne B. McLaughlin

Date: 16 NOV. 1978

Martha A. McLaughlin

Address: 1304 MILDRED DR.
FT. WORTH, TEXAS 76126

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I
I
COUNTY OF WICHITA I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 20TH day of January, 1979, by Wayne B. McLaughlin ~~in the capacity therein stated.~~.

My Commission Expires:

2-12-80

Carol Hennan
Carol Hennan Notary Public in and for
Wichita County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

646

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 1-20-79

Wayne B. McLaughlin

Wayne B. McLaughlin, Receiver of the Estate of J. A. (Arch) McLaughlin, Deceased

Date: _____

Address: 1304 MILDRED DR.
FT. WORTH, TEXAS 76126

ATTEST: _____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF Oklahoma I
I
COUNTY OF Stephens I

The foregoing instrument was acknowledged before me this 8th day of February, 1979, by H.C. McLaughlin and Jetmanna McLaughlin, husband and wife.

My Commission Expires:

November 9, 1980

Shirley Conner
Notary Public in and for
Stephens County Okla.

CORPORATE ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

645

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: January 12, 1979

H. C. McLaughlin
H. C. McLaughlin

Date: January 12, 1979

Johnanna J. McLaughlin
Johnanna J. McLaughlin
Address: 3005 Surreywood Circle
Duncan, Oklahoma 73533

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Oklahoma)
)
COUNTY OF Cleveland)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 12 day of September, , 1978, by Flora K. McLaughlin .

My Commission Expires:

10-22-78

Edna Huntington
Notary Public in and for
Cleveland County OK. 73071

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

644

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9-12-98 Flora K. McLaughlin

Date: _____ _____

Address: 430 West Symmes
Norman Ok 73069

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas
COUNTY OF Wichita

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 5th day of September, 1978, by Ethel B. McLaughlin.

My Commission Expires:
4-30-79

Notary Public in and for
County

NELDA A. THOMPSON
Notary Public in and for
Wichita County, Texas

STATE OF
COUNTY OF

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

Notary Public in and for
County

STATE OF
COUNTY OF

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

Notary Public in and for
County

643

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept. 5 1978

Ethel L. McLaughlin

Date: _____

_____

Address: 2307 Talonar Lane
Wichita Falls, Texas 76301

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF California)
)
COUNTY OF Los Angeles)

The foregoing instrument was acknowledged before me this 31st day of August, 1978, by George McLaughlin and Elouise McLaughlin, husband and wife.

My Commission Expires:

10-8-78

OFFICIAL SEAL
RUBY HUMPHRIES
NOTARY PUBLIC - CALIFORNIA
PRINCIPAL OFFICE IN
LOS ANGELES COUNTY
My Commission Expires October 8, 1981

Ruby Humphries
Notary Public in and for
Los Angeles County California

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

642

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 5-31-75

Elaine M. Laughlin

Date: 5-31-75

George M. Wright

Address: 5303 Lasher Road
Hidden Hills
Calabasas
Calif. 91302

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF TEXAS I
I
COUNTY OF TOM GREEN I

The foregoing instrument was acknowledged before me this 29th day of August, 1978, by Faye Brigham in the capacity therein stated, and Dean W. Brigham, husband and wife.

My Commission Expires:

May 15, 1980

Shirley A. Eubank
Notary Public in and for
Tom Green County Texas

CORPORATE ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

641

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 29, 1978

Faye Brigham Indep. Exectx of
Estate of P. W. McKinley, Dec'd

Address: 1189 Benedict Dr. Apt. 175
San Angelo, Texas 76903

Date: August 29, 1978

ATTEST:

By: Alan W. Brigham

Date:

Address: 1189 Benedict Dr. Apt. 175
San Angelo, Texas 76903

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Arkansas)
)
COUNTY OF Washington)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15th day of August, 1978, by Jessie McKinney.

My Commission Expires:

8-15-81

Pat Rush
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

640

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 15-1978 — Jessie McKinney (Widow)

Date: _____ — _____

Address: 714 McKinney St
Springdale, Ark 72764

ATTEST:

_____ — By: _____

_____ — _____

Date: _____ — Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I
I
COUNTY OF HOWARD I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 25th day of October, 1978, by Joe Hamby and Marvin Sewell in the capacity therein stated.

My Commission Expires:

_____

Lucie Roberson
Notary Public in and for
Howard County Texas

LUCIE ROBERSON
Notary Public in and for
Howard County, Texas
My commission expires 3-10-79

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

6384 (629)

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Estate of J. Homer McKinely

Date: October 25, 1978

Jas. H Crosby
Co-Executor

Date: _____

Martin Sewell
Co-Executor

Address: % Kenneth Boothe

P.O. Box 2206, Big Spring, TX. 79720

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I
I
COUNTY OF ECTOR I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 22 day of AUG, 1978, by RAY L. MCKIM and HELEN C. MCKIM, husband and wife.

My Commission Expires:

2-13-80

Notary Public in and for
ECTOR County TEXAS

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

637

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/22/78

Ray L. McKinney

Date: 8/22/78

Helen C. McKinney

Address: ECTOR COUNTY COURTHOUSE
ROOM 335
ODESSA, TEXAS 79760

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF Quay)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 29th day of May, 1978, by [illegible].

My Commission Expires:

10-16-82

[signature]
Notary Public in and for
Quay County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

636A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

Date: _____

Address: R. 4, Box 75-C
Tucumcari, New Mexico 88401

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas)
)
COUNTY OF Harris)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 12 day of August, 1978, by Meryl Harning McFerron, Trustee U.W.O. George Irwin McFerron, Deceased

My Commission Expires:

6-1-79

C Ballew
Notary Public in and for
Harris County Texas

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-12-78

Merylle Horning McFerron Jr
Merylle Horning McFerron, Trustee
U/W/O George Irvin McFerron, Deceased

Date: _____

Address: 1906 Wroxton Road
Houston, Texas 77005

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas)
)
COUNTY OF Harris)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 12 day of August, 1978, by Mary Harning McFerron.

My Commission Expires:
6-1-79

C Ballew
Notary Public in and for
Harris County Texas

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 12, 1978

Merle Horning McFerron
Merle Horning McFerron

Date: _____

Address: 1906 Wroxton Road
Houston, Texas 77005

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I
I
COUNTY OF Harris I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 20 day of October, 1978, by Emma M. Ramera, Ind. Executrix of the Estate of Nellie McElroy

My Commission Expires:

Nov 2nd 1978

NOTARY PUBLIC
COUNTY OF HARRIS, TEXAS

Joseph Johnson
Notary Public in and for
Harris County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: October 20, 1978

Emma M. Romero, Independent Executrix of

Date: _____

Estate of Nelle Mc Elroy

Address: 4590 Beechnut #309 ETH

Houston, Texas 77096

ATTEST:

Emma M. Romero

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF California)
)
COUNTY OF San Diego)

The foregoing instrument was acknowledged before me this 10 day of October, 1978, by Mary Ruth McCrory.

My Commission Expires:

12/22/80

OFFICIAL SEAL
MARILYN MITCHELL
NOTARY PUBLIC - CALIFORNIA
SAN DIEGO COUNTY
My comm. expires DEC 22, 1980

Marilyn Mitchell
Notary Public in and for
San Diego County

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

630

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 10-10-78

X Mary Ruth B Ewing

Date: _____

_____

Address: P. O. Box 25764

Albuquerque, N.M. 87125

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New York)
) INDIVIDUAL ACKNOWLEDGMENT
COUNTY OF New York)

The foregoing instrument was acknowledged before me this 12th day of March, 1978, by Ethel B. McCoy.

My Commission Expires:
2/30/79

BARNEY ROSE
Notary Public, State of New York
No. 41-3343010
Qualified in Queens County
Term Expires March 30, 19

Barney Rose
Notary Public in and for
N.Y. State
County of N.Y.

STATE OF _____)
) JOINT ACKNOWLEDGMENT
COUNTY OF _____) (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
) CORPORATE ACKNOWLEDGMENT
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: March 1, 1979 Ethel B McCoy

Date: _____

Address: 65 West 54 street
New York, N.Y. 10019

ATTEST: _____

_____

By: _____

_____

Date: 3/1/79

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF MISSOURI)
)
COUNTY OF ST LOUIS)

The foregoing instrument was acknowledged before me this 5th day of March, 1979, by THOMAS S. MCCORMACK.

My Commission Expires:

2-25-82

Notary Public in and for
St. Louis County Missouri

FREDERIC H. REPKE
NOTARY PUBLIC, STATE OF MISSOURI
MY COMMISSION EXPIRES 2/25/82
ST. LOUIS COUNTY

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

627A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

_____ By: _____

_____

Date: 3-5-79 Address: 3906 High Aire

St. Louis, Missouri 63125

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF ARKANSAS I
I
COUNTY OF Washington I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 7th day of September, 1978, by John E McCain and MARCIA RAE McCain, husband and wife.

My Commission Expires:

4-17-82

Cindy Albritton
Notary Public in and for
Washington County Arkansas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9-7-78

John E McCain

Date: 9-7-78

Marcia Rae McCain

Address: 2575 Centerwood
Fayetteville, Ark 72701

ATTEST: *

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF MISSOURI)
)
COUNTY OF ST. LOUIS)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 10th day of October, 1978, by R. J. Connors, Executive Vice-President, of W. C. McBride-Silurian Oil Co., a Delaware corporation, on behalf of the corporation.

My Commission Expires:

September 27, 1981

Elvira C. Krablik
Notary Public in and for
St. Louis County, Missouri

Notary Public in and for the City of St. Louis, State of Missouri, with authority to act in adjoining St. Louis County under Sec. 486.010 of R. S. Mo. 1969.

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

_____

ATTEST:

ATTEST:

JAMES C. ROAN, SR., ASSIST. SECRETARY

W. C. McBride - Silurian Oil Co.

By: _____

R. J. Connors, Executive Vice President

Date: OCT 10 1978

Address: W. C. McBRIDE-SILURIAN OIL CO.
25 N. Brentwood Blvd.
St. Louis, Missouri 63105
43-1055638

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New York I
I
COUNTY OF New York I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 6th day of August, 1978, by Marguerite A. H. McAdoo.

My Commission Expires:

EVELYN D. WIDEMARK
Notary Public, State of New York
No. 24-4259950
Qualified in Kings County
Certificate filed in New York County
Commission Expires March 30, 1979

Evelyn D. Widemark
Notary Public in and for
Kings County New York

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 16, 1978 — Marguerite deH. McAdoo

Date: _____ — _____

Address: 480 Park Avenue
New York 10022

ATTEST:

_____ — _____

By: Evelyn M. Schaffer

_____ — _____

Date: 8/16/78 — Address: 455 Park Ave
N.Y., N.Y. 10022

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

CORPORATE ACKNOWLEDGMENT

State of California } S.S.
City and County of San Francisco }

On this 2 day of November, 1978, before me Florence Leppink, a Notary Public in and for said _____ County, personally appeared Don Yarbrough

(SEAL) _____

known to me to be the Assistant Vice President
and Timothy F. Freeman, known to me to be the
_____ of the Assistant Vice President,
the Corporation that executed the within instrument, and also known to me to be the person who executed the within instrument, on behalf of the Corporation herein named, and acknowledged to me that such Corporation executed the same, and further acknowledged to me that such Corporation executed the within instrument pursuant to its by-laws or a resolution of its Board of Directors.

OFFICIAL SEAL
FLORENCE LEPPINK
NOTARY PUBLIC - CALIFORNIA
SAN FRANCISCO COUNTY
My comm. expires JUL 16, 1982

WITNESS my hand and official seal.

Florence Leppink Florence Leppink

Notary Public in and for said San Francisco, CA County and State.

My commission expires July, 19 82

P-169X 9-77

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 11-2-78

Don Yarbrough - Assistant Vice President

Date: 11-2-78

Timothy F. Freeman - Assistant Vice President

Address: Bank of America National Trust And Savings Association, Trustee Under The Will of Eleanor Wilson Mcadoo
C/O Trust Department
P.O.Drawer E-E
Santa Barbara, California 93102

ATTEST:

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF CALIFORNIA)
)
COUNTY OF LOS ANGELES)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by Doris Cross McAdoo.

My Commission Expires:

4/30/82

Madeline Liguori
Notary Public in and for
Los Angeles County

OFFICIAL SEAL
MADELINE LIGUORI
NOTARY PUBLIC - CALIFORNIA
LOS ANGELES COUNTY
My comm. expires APR 30, 1982

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

623

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 14, 1978 — Dais Cross McAdoo

Date: _____ — _____

Address: (2048 Amherst Drive) P.O. Box 645
South Pasadena, California 91030

ATTEST: _____ — _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Dallas I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 26 day of September, 1978, by Joe B Mullins, Jr.

My Commission Expires:

6/23/79

Notary Public in and for
Dallas County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

G20

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9/25/78

Joe B. Mullins Jr.
JOE B. MULLINS

Date: _____

Address: P.O. Box 8190
Dallas, Tex 75208

ATTEST:

_____

By: _____

_____

Date: _____

Address: 3622 Villa Verde -
Dallas, Tex - 75234

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Dallas I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 26th day of September, 1978, by ~~Joe B. Mullens, Jr.~~ Julian Keith Mullens, J.K. Mullens J. K. Mullens.

My Commission Expires:

1979

Carol L. Mattsson
Notary Public in and for
Dallas County Dallas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

620

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9/15/78

Lillian Keith Mullins
LILLIAN KEITH MULLINS

Date: _____

90 JOE B. MULLINS

Address: P.O. Box 8190
Dallas, Tex 75258

ATTEST:

_____

By: _____

_____

Date: 9-26-78

Address: 3622 Villa Verde #4
Dallas, Tex 75234

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF NJ _____ I

I

COUNTY OF Monmouth I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 21 day of August, 1978, by Dorothy Mueller and Karl Mueller, husband and wife.

My Commission Expires:

My Commission Expires Aug. 8, 1979

Notary Public in and for
_____ County Monmouth

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

618

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 21, 1978

Dorothy B. Muller

Date: 8/21/78

Karl H. Muller

Address: 13 NEA DRIVE
MATAWAN, N.J. 07747

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Connecticut I
I ss: Kensington
COUNTY OF Hartford I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 24 day of October, 1978, by ROBERT K MUIRHEAD and DIANA F. MUIRHEAD, husband and wife.

My Commission Expires:
My Commission Expires Mar. 31, 1981

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 10-24-78

Date: 24 October 1978

Robert K Muirhead

Diana P Muirhead

Address: 34 Chatham Rd

Kensington Conn 06037

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF [illegible] I

COUNTY OF [illegible] I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 30 day of [illegible], 1978, by Ada M. Muirhead.

My Commission Expires:

My Commission Expires Mar. 31, 1982

[signature]
Notary Public in and for
[illegible] County

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 3/5/79 — Alda M. Muirhead

Date: _____ — _____

Address: 151 Hillside Road
Kensington Conn 06037

ATTEST: _____

_____ — By: _____

_____ — _____

Date: _____ — Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Arkansas I

I

COUNTY OF Washington I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 15th day of August, 1978, by Ruth Morton and W. B. Morton, husband and wife.

My Commission Expires:

8-15-81

Pat Rush
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

614

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 15, 1978 — Ruth Morton

Date: Aug. 15- 1978 — W. B. Morton

Address: Rt. 6, Box 319A
Springdale, Ark.

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF Mass)
)
COUNTY OF Norfolk)

The foregoing instrument was acknowledged before me this 2[illegible] day of [illegible], 1978, by [illegible], [illegible] of [illegible], a Mass corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:
THOMAS P. BAGGETT · NOTARY
My Commission Expires May 24, 1979

Thomas P. Baggett
Notary Public in and for
Norfolk County Mass.

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 1/22/79

SOUTH SHORE BANK Trustee for Gladys R. Morse

BY [signature]
Trust Officer

Date: _____

Address: 1 Lee Hancock St
Quincy, Mo. 02169

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New York I
I
COUNTY OF New York I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 29 day of January, 1978, by Constance J. Swetko, Trust Officer of Citibank, N.A., a _____ corporation, on behalf of the corporation. and in the capacity therein stated.

My Commission Expires:

March 30, 1979

Elizabeth Arzoomanian
Notary Public in and for
Bronx County New York

ELIZABETH ARZOOMANIAN
Notary Public, State of New York
No. 03—0102180
Qualified in Bronx County
Certificate filed in New York County.
Commission Expires March 30, 1979.

611
5612

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

Citibank, N.A. as trustee under will of Robert Morgan #129726

_____ By: Constance J. Swetko
Constance J. Swetko, Trust Officer

Date: January 18, 1979 Address: Private Banking Division

New York, New York 10043

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New Mexico I

I

COUNTY OF Lea I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 14 day of August, 1978, by J.P. Morgan and Esta Lou Morgan, husband and wife.

My Commission Expires:

Oct. 11, 1979

_____
Notary Public in and for
Lea County N.M.

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 14, 1978

Date: Aug. 14, 1978

Address: 221 N. MAIN
Lovington, N. Mexico
88260

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I
I
COUNTY OF Harris I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11th day of August, 1978, by Kilburn G. Moore.

My Commission Expires:

RUTH B. HALLMARK
Notary Public, Harris County, Texas
My Commission Expires Oct. 31, 1978

Ruth B. Hallmark
Notary Public in and for
Harris County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 11, 1978

[signature]

Address: P. O. Box 22442
Houston, TX 77027

Date: _____

ATTEST:

_____

Date: _____

By: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I
I
COUNTY OF HARRIS I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 30 day of JAN, 1979, by DONALD G MOORE.

My Commission Expires:

3-6-80

Elnora Cordova
Notary Public in and for
Harris County Texas

ELNORA CORDOVA
Notary Public in and for Harris County, Texas
My Commission Expires 3-6-80

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: 1/30/79 _____

Address: 13112 BELKNAP ROAD
HOUSTON, TEXAS 77099

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas)
)
COUNTY OF Galveston)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15th day of Sept, 1978, by David H. Moore.

My Commission Expires:
March 31, 1979

Delma Sims
Notary Public in and for
Galveston County Texas

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

592

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9/15/78 — David W. Moore

Date: _____ — _____

Address: P.O. Box 3070
Galveston, Texas 77552

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I
I
COUNTY OF ORANGE I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15 day of August, 1978, by Mrs.Cecil B. Moore, a widow.

My Commission Expires:

January 31, 1979

Ada Ruth Nicks
Notary Public in and for
Orange County Texas
Ada Ruth Nicks

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 15, 1978 — Mrs. Cecil B Moore / Mrs. Cecil B Moore

Date: _____

Address: 907 14th St. Orange, TX 77630

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Harris I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 9th day of August, 1978, by Carol Pauls Moore.

My Commission Expires:

9-30-78

Dorothy D. Glaze
Notary Public in and for
Harris County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 9, 1976 — Carol Paule Moore

Date: _____

Address: 3723 Tartan Lane
Houston, Texas 77025

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Harris I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 8th day of February, 1978, by Bartlett G. Moore and Linda I. Moore, husband and wife.

My Commission Expires:

6-19-79

Notary Public in and for
Harris County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

Date: 2-8-79

Address: 4019 COLQUITT
HOUSTON, TEXAS 77027

ATTEST:

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas)
)
COUNTY OF Galveston)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 21st day of August, 1978, by B. L. Moore, Jr.

My Commission Expires:
March 31, 1979

Delma Lewis
Notary Public in and for
Galveston County Texas

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 21, 1978 B E Moore

Date: _____

Address: P.O. Box 3070
Galveston, Texas 77552

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Harris I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 26th day of September, 1978, by ANITA G. MOORE and ~~in the capacity~~ therein stated.

My Commission Expires:

Dec 31, 1978

B.C. Murphy
Notary Public in and for
Harris County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

58 P 5494

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9/26/78

Anita L. Moore Individually
and as Executrix of the
Estate of Charles H. Moore

Address: P.O. Box 22442
Houston, TEXAS 77027

Date: _____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF Lea)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 6th day of September, 1978, by Lonnie Moon.

My Commission Expires:

2-3-82

Jeannie M. Jones
Notary Public in and for
Lea County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept 6 1978 Jonnie Moon

Date: _____ Tatum, New Mex

Address: _____

ATTEST: _____

By: _____

Date: _____ Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF CALIFORNIA)
)
COUNTY OF SF)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF CALIFORNIA)
)
COUNTY OF SANTA CLARA)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 21 day of JUNE, 1979 by CHARLES F. MCNHAM and FLORENCE M. MCNHAM, husband and wife.

My Commission Expires:

12/29/80

Magdalena M. Carrillo
Notary Public in and for
SANTA CLARA County _____

OFFICIAL SEAL
MAGDALENA M. CARRILLO
NOTARY PUBLIC — CALIFORNIA
PRINCIPAL OFFICE IN
SANTA CLARA - COUNTY
My Commission Expires Dec. 29, 1980

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

591A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 6/21/79

Mrs. Elaine M. Mueller

Date: 6/21/79

Charles F. Mueller

Address: 11259 La Sirla Court

Cupertino, CA 95014

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New York I
I
COUNTY OF Nassau I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 21st day of August, 1978, by Lillian Mulyter, widow.

My Commission Expires:
March 30, 1980

PEGGY R. PINTO
NOTARY PUELIC, State of New York
No. 30-4666779
Qualified in Nassau County
Commission Expires March 30, 1980

Peggy R. Pinto
Notary Public in and for
Nassau County New York

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 21, 1978 — Lilian Milyko

Date: _____ — _____

Address: 23 Todd Drive East
Glen Head, New York 11545

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I

COUNTY OF Tom Green I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 10 day of August, 1978, by Austin C. Millspaugh.

My Commission Expires:

7-27-79

Sherrie A. Mackey
Notary Public in and for
Tom Green County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 10, 1978 Austin Millspaugh

Date: _____ _____

Address: 520 S. Washington St
San Angelo, Texas 76901

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Harris I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 18th day of August, 1978, by Leland D. T. Miller and Frances C. P. Miller, husband and wife.

My Commission Expires:
Sept. 13, 1979

Dianna T. Moore
Notary Public in and for
Harris County Texas

DIANNA MOORE
Notary Public in and for Harris County, Texas
My Commission Expires September 13, 1979
Bonded by Alexander Lovett, Lawyers Surety Corp.

CORPORATE ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

5%

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 16, 1978 — Leland H. Miller

Date: August 16, 1978 — Bessie E. Miller

Address: 10345 Gawain Lane
Houston Texas 77024

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New York I

COUNTY OF Nassau I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 13th day of September, 1978, by Joan Ganz.

My Commission Expires:

JOHN W. PRINZ
NOTARY PUBLIC, State of New York
No. 30-3164112
Certified in Nassau County
Qualified in Suffolk County
Term Expires March 30, 1979

John W. Prinz
Notary Public in and for
County

STATE OF New Jersey I

COUNTY OF Bergen I

JOINT ACKNOWLEDGMENT
~~(HUSBAND AND WIFE)~~

The foregoing instrument was acknowledged before me this 19th day of September, 1978, by John William Lyttle Jr. and ~~husband and wife~~.

My Commission Expires:

LOIS A. HOLST
NOTARY PUBLIC OF N. J.
MY COMMISSION EXPIRES
APRIL 12, 1982

Lois A. Holst
Notary Public in and for
County

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept 13. 1978

Joan Ganz
Joan Ganz co-executor

Date: Sept 19, 1978

John Lyttle, co-executor
Address: Estate of Ida Miller
P. O. Box 65
Farmingdale, N. Y. 11735

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Jersey I
I
COUNTY OF Monmouth I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 24 day of March, 1978, by Ruth G. Millar.

My Commission Expires:

G. PATTERSON
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires Dec. 1, 1982

G. Patterson
Notary Public in and for
Monmouth County New Jersey

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

_____ By: X Ruth G. Millar

G. WAYNE PATTERSON
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires Dec. 1, 1982

Date: 3-24-79 Home Address: P.O. Box 626
1218 Allaire Rd.
Springlake Hts N.J.
07762

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEW YORK)
)
COUNTY OF NEW YORK)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 6th day of September, 1978, by HERMAN JERVIS In the capacity aforementioned stated.

Paul M. Gartner

PAUL M. GARTNER
Notary Public, State of New York
No. 1381830
Qualified in Westchester County
Commission Expires March 30, 1979

My Commission Expires:

_____

_____ Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

572

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept 6, 1978 — Estate of Ann W Meyer

Date: _____ — By Herman Jones Executor

Address: 489 - 5 Ave
New York 10017

ATTEST: _____

By: _____

Date: _____ — Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEW YORK)
)
COUNTY OF NEW YORK)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 6th day of September, 1978, by HERMAN JERVIS In the capacity hereinafter stated.

My Commission Expires:

PAUL M. GARTNER
Notary Public, State of New York
No. 1381330
Qualified in Westchester County
Commission Expires March 30, 19

Paul M. Gartner
Notary Public in and for
County

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____
Notary Public in and for
_____ County _____

571

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept 6, 1978

[signature]
b/w [illegible]

Date: _____

Address: 489 - 5 Ave
New York, 10017

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New York I
I
COUNTY OF New York I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 3rd day of August, 1978, by Roy Plaut in the capacity therein stated.

My Commission Expires:

JOHN L. LIPKOWITZ
NOTARY PUBLIC, STATE OF NEW YORK
No. 31-7564416
Qualified in New York County.
Commission Expires March 30, 1978

Notary Public in and for
County

STATE OF New Jersey I
I
COUNTY OF Morris I

~~JOINT~~ ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 25th day of August, 1978, by Ralph G. Engelsman, Jr. in the capacity therein stated. ~~husband and wife~~

My Commission Expires:

ERIS A. BURGER
A Notary Public of New Jersey
My Commission Expires Mar. 4, 1982

Eris A. Burger
Notary Public in and for
Morris County N. J.

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

ESTATE OF NAOMI ENGELSMAN MERRILL

Date: Aug 30 '78

By: _____ Executor
Roy Plaut

Date: Aug 25 1978

By: _____ Executor
Ralph G. Engelsman, Jr.

Address: c/o Lipkowitz & Plaut
1290 Avenue of the Americas
New York, NY 10019

ATTEST:

_____

_____

Date: _____

By: _____

_____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Oklahoma)
)
COUNTY OF Carter)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15th day of August, 1978, by Ward S. Merrick, Jr. and Elizabeth Merrick Coe, Trustees under that certain Irrevocable Trust Agreement dated October 1, 1954.

My Commission Expires:

10-22-79

Mary C. Jarnes
Notary Public in and for
Carter County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

569 & 568

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Ward S. Merrick, Jr. and Elizabeth Merrick Coe,
Trustees under that certain Irrevocable Trust
Agreement dated October 1, 1954

Date: August 15, 1978

Ward J. Merrick Jr. Trustee
Ward S. Merrick, Jr., Trustee

Date: _____

Elizabeth Merrick Coe, Trustee
Elizabeth Merrick Coe, Trustee

Address: P.O. Box 998
Ardmore, Oklahoma 73401

ATTEST: _____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I
I
COUNTY OF HARRIS I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by W. T. Mendell and Elizabeth A. Mendell, husband and wife.

My Commission Expires:
LADEMA LEE MOORE
Notary Public in and for Harris County, Texas
My Commission Expires 12-31-78

Ladema Lee Moore
Notary Public in and for
Harris County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

(SS # 549-10-6624)

Date: 8/14/78 W. T. Mundell

Date: 8/14/78 Elizabeth A. Mundell

Address: 2100 Capital National Bank Building
1300 Main
Houston, Texas 77002

ATTEST:

_____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF OKLAHOMA)
)
COUNTY OF TULSA)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 28th day of December, 1978, by Charles W. Oliphant, Gertrude O. Oliphant, and Allene O. Mayo.

My Commission Expires:

March 5, 1979

Notary Public in and for
Tulsa County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF Oklahoma)
)
COUNTY OF Tulsa)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 28th day of December, 1978, by W. Douglas Jones, Vice President of Bank of Oklahoma, a National Banking Association corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

5-19-81

Notary Public in and for
Tulsa County Oklahoma

565
672
673
674

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: December 28, 1978

Charles W. Oliphant
Charles W. Oliphant

Date: December 28, 1978

Gertrude O. Oliphant
Gertrude O. Oliphant

Date: December 28, 1978

Allene O. Mayo
Allene O. Mayo

ATTEST:

ATTEST: Robert A. Fugate
ASSISTANT CASHIER

BANK OF OKLAHOMA, Trustee u/t/w of A. C. Oliphant, deceased

By:
VICE PRESIDENT
AND SENIOR TRUST OFFICER

Date: December 28th, 1978

Address:) 4400 One Williams Center
for All) Tulsa, Oklahoma 74172

(Certificates of acknowledgment are on the reverse side hereof.)

AGO-1946

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I
I
COUNTY OF UVALDE I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 16 th day of MARCH, 1979, by RAY CARLES and LADY JANE MAYER CARLES, husband and wife.

My Commission Expires:

July, 1981

Jack Cooper
Notary Public in and for
Uvalde County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____,
_____ of _____,
a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

564

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: March 16, 1979

Ray Cames

Date: March 16, 1979

Lady Jane Mayer Cames

Address: P.O Box 437

Hereford, Texas 79045

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF WASHINGTON)
)
COUNTY OF COWLITZ)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 24th day of August, 1978, by ROSE MATSON.

My Commission Expires:

April 24, 1982

Notary Public in and for State of Washington, County of Cowlitz.

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

562

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 24, 1978 — Rose Matson

Date: _____ — _____

Address: P. O. Box 947
Castle Rock, WA 98611

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I

I

COUNTY OF BEXAR I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 12th day of September, 1978, by Houston H. Hayte, of The Matrix Land Company, a Texas corporation, on behalf of the corporation.

My Commission Expires:

3-8-80

Pam Mooneyham
Notary Public in and for
Bexar County Texas

PAM MOONEYHAM
My Commission expires March 8, 1980

561

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: _____

_____

Address: _____

_____

ATTEST:

THE MATRIX LAND COMPANY

_____
Secretary

By: _____
Houston H. Harte, President

_____

Date: 9-12-78

Address: P. O. Box 269

San Antonio, TX 78291

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Colorado I
I
COUNTY OF El Paso I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 22nd day of November, 1978, by Linda A. Rice.

My Commission Expires:

September 25, 1982

Linda A. Rice
Notary Public in and for
El Paso County

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

560

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 10/30/78 Frederick Martin

Date: _____

Address: 1306 WEST CHEYENNE ROAD
COLORADO SPRINGS, COLORADO 80906

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Colorado)
)
COUNTY OF Archuleta)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 21st day of September, 1978, by SIDNEY MARTIN JR and Phyllis S Martin, husband and wife.

My Commission Expires:
October 6, 1981

Jennifer L. Mountain
Notary Public in and for
Archuleta County Colorado

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9-21-78

Sidney Martin Jr

Date: 9-21-78

Phyllis S. Martin

Address: MR. & MRS. SIDNEY A. MARTIN
POST OFFICE BOX 1620
PAGOSA SPRINGS, CO. 81147

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEW JERSEY I
I
COUNTY OF BERGEN I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 6TH day of NOVEMBER, 1978, by [redacted] JOHN DOUGLAS MARTIN.

My Commission Expires:

DOROTHY M. BLEYLE
NOTARY PUBLIC OF NEW JERSEY
MY COMMISSION EXPIRES JULY 25, 1982

Dorothy M. Bleyle
Notary Public in and for
Bergen County N.J.

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____,
_____ of _____,
a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 11/6/78 John Douglas Mueller

Date: _____

Address: 326 Rock Rd.
Glen Rock, N.J. 07452

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF KANSAS)
)
COUNTY OF JOHNSON)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 19th day of August, 1978, by Joe Edward Martin and Mrs. Jean G. Martin, husband and wife.

My Commission Expires:

February 20, 1981

Notary Public in and for
Johnson County Kansas

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 19, 1978

Joe Edward Martin

Date: 19 August 1978

Mrs. Jean G. Martin

Address: 8517 W 90th St
Overland Park Ks 66212

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF CALIFORNIA)
)
COUNTY OF SAN DIEGO)

The foregoing instrument was acknowledged before me this 2nd day of March, 1978, by Beverly B. Martin.

My Commission Expires:

April 3, 1981

Connie Lynn Cameron
Notary Public in and for
San Diego County California

OFFICIAL SEAL
CONNIE LYNN CAMERON
NOTARY PUBLIC - CALIFORNIA
SAN DIEGO COUNTY
My comm. expires APR 3, 1981

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: March 2, 1979

Beverly B Martin
BEVERLY BREON MARTIN

Date: _____

_____

Address: c/o Newby & Harden
8939 Villa La Jolla Drive
Suite 202
La Jolla, CA 92037

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Midland I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 28th day of August, 1978, by William S. Marshall, President of Marshall & Winston, Inc., a Nevada corporation, on behalf of the corporation.

My Commission Expires:

4-30-79

Joan E. Upfold
Notary Public in and for
Midland County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST: [signature] Secy Treas

By: Marshall & Winston, Inc. By [signature] William S. Marshall, President

Date: Aug 28 1978

Address: PO Box 874
Midland, Texas, 79702

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I
I
COUNTY OF TOM GREEN I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 24th day of August, 1978, by John Abe March III in the capacity therein stated.

My Commission Expires:

May 15, 1980

Shirley D. Eubanks
Shirley Eubanks
Notary Public in and for
Tom Green County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 24, 1978

Mrs John Abe Marsh
by John Abe Marsh II
P.O.A.

Date: _____

Address: 304 S Park
San Angelo, Tex
76901

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Tarrant I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 10th day of August, 1978, by Ruby Collins Mann.

My Commission Expires:

June 1, 1979

Wanda Seals
Notary Public in and for
Tarrant County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 10, 1978 — Ruby Collins Mann

Date: _____ — _____

Address: 5117 Trentman Street
Fort Worth, Texas 76119

ATTEST: _____

_____ — By: _____

_____ — _____

Date: _____ — Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New York)
)
COUNTY OF Jefferson)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by Margaret O'Neil in the capacity therein stated.

My Commission Expires:

CHARLES F. HASNER
Notary Public State of New York
Qualified in Jefferson County
Commission expires March 30, 19 79

Charles F. Hasner
Notary Public in and for
New York County Jefferson

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 14, 1978

Margaret D. Wiley - Lawful Attorney for Mrs. Cola Mahaney

Address: Cape Vincent, N.Y. 13618

Date: _____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Washington I
I
COUNTY OF KING I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 29th day of August, 1978, by William Maki and Martha Maki, husband and wife.

My Commission Expires:

3/31/82

Laurie Patrice Stracke
Notary Public in and for
King County Seattle, WA.

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 29, 1978

Martha Maki

Date: August 29, 1978

William Maki

Address: 5942 - 46th S. W.
Seattle, WA. 98136

ATTEST:

Dorothy G. Halle
7725-26th SW
Seattle, Wa 98106

Date: 8-29-78

By: Ann Benson

Address: 2713 57th S.W.
Sea WA 98116

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF Lea)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 24th day of August, 1978, by George F. Stanley.

My Commission Expires:

2/15/82

Virginia Duncan
Notary Public in and for
Lea County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New Mexico)
)
COUNTY OF Lea)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 24th day of August, 1978, by George F. Stanley, Vice-President & Trust Officer of New Mexico Bank & Trust Co., a Banking corporation, on behalf of the corporation.

My Commission Expires:

2/15/82

Virginia Duncan
Notary Public in and for
Lea County New Mexico

5208

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 24, 1978

New Mexico Bank & Trust Co., Trustee for
William C. Grimes Maddox

George F. Stanley

George F. Stanley, V.P. & Trust Officer

Date: _____

Address: P. O. Box 400, Hobbs, N. M. 88240

ATTEST:

Janis Collins

Janis Collins, Asst. Trust Officer

By: _____

Date: August 24, 1978

Address: P. O. Box 400, Hobbs, N.M. 88240

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Idaho I
I
COUNTY OF Washington I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 4th day of September, 1978, by Mary Evelyn Grimes Mills.

My Commission Expires:

6-30-79

Dorothy Benth
Notary Public in and for
Washington County Idaho

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

387
(547)

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9-4-78 Mary Evelyn Grimes Malby

Date: _____ _____

Address: P O BOX 292
BRENHAM TEXAS 77833

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Missouri)
)
COUNTY OF Barry)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 14 day of August, 1978, by James J. Lydle and John J. Lydle, husband and wife.

My Commission Expires:

March 29-1979

Jack Byrd
Notary Public in and for
Barry County Missouri

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

James S. Lytle

Date: Aug. 14th. 1978

James S. Lytle

Johnnie J. Lytle

Date: Aug. 14th. 1978

Johnnie J. Lytle

Address: Sunset Heights

Sunset Heights,
Eagle Rock, Missouri 65641

Eagle Rock, Missouri 65641

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF COLORADO)
)
COUNTY OF PITKIN)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 29th day of January, 1979, by Munro L. Lyeth.

My Commission Expires:

2/27/81

Notary Public in and for
State of Colorado

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

(538)

537
539
540
541

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: January 29, 1979

MUNRO L. DYETH

Date: _____

Address: P. O. Box 1860
Aspen, CO 81611

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF Illinois)
)
COUNTY OF Du Page)

The foregoing instrument was acknowledged before me this 26th day of August, 1978, by Edward L. Hull and Mary J. Hull, husband and wife.

My Commission Expires:
May 13, 1981

Notary Public in and for
Illinois County Du Page

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 26, 1978

Edward E. Lull

Date: August 26, 1978

Inez Eldridge Lull

~~Inez Lull~~

A/K/A Inez E. Lull

Address: 515- 64th St.

Clarendon Hills, Ill 60514

ATTEST:

_____

By: _____

_____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Jersey I

COUNTY OF Union I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by Emily C. Greenhalgh ~~in the capacity~~ therein stated.

My Commission Expires:
NOTARY PUBLIC OF NEW JERSEY
MY COMMISSION EXPIRES FEB 3 1979

June C. Mokelby
Notary Public in and for
Union County

STATE OF Arizona I

COUNTY OF Maricopa I

Individual
~~CLIENT~~ ACKNOWLEDGMENT
~~(HUSBAND AND WIFE)~~

The foregoing instrument was acknowledged before me this 21st day of August, 1978, by Dolores Sloat, in the capacity therein stated.

My Commission Expires:

My Commission Expires December 5, 1981

Barbara McCann
Notary Public in and for
Maricopa County Arizona

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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(301)-368-0238

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

DS D.S JOINT EXECUTORS OF THE ESTATE OF
H. C. LUDWIG, DECEASED

Date: 8-14-78 ECS Emily C. Greenhalgh

Date: 8.21.78 Dolores Sloat

Address: 437 Maple Ave
Rahway, NJ 07065

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New York I
I
COUNTY OF Ulster I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 6 day of Oct, 1978, by Lloyd Luders and Margaret B. Luders, husband and wife.

My Commission Expires:

OLGA M. WARD
Notary Public in the State of New York
County of Ulster
Commission Expires March 30, 19[illegible]

Olga M. Ward
Notary Public in and for
Ulster County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

_____ _____

_____ By: Lloyd Luders
Margaret B. Luders

Date: Oct. 6, 1978 Address: P.O. Box 124
Beaverville, N.Y. 12409

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF San Juan)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 25 day of August, 1978, by Mildred A. Wright, a single woman, Managing Trustee for Lucky Wright Royalty Syndicate.

My Commission Expires:

1-9-82

Notary Public in and for San Juan County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for _____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for _____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 25, 1978

Managing Trustee for Lucky Wright Royalty Syn.

Date: _____

Address: P. O. Box 505
Farmington, N. M. 87401

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF California)
)
COUNTY OF Santa Barbara)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15 day of August, 1978, by Maurice Charles Lucky.

My Commission Expires:

9-4-1980

OFFICIAL SEAL
G. J. SENTIS
NOTARY PUBLIC — CALIFORNIA
PRINCIPAL OFFICE IN
SANTA BARBARA COUNTY
My Commission Expires September 4, 1980

G J Sentis
Notary Public in and for Santa Barbara County

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/15/78 Maurice Chalmers Sulzer

Date: _____

Address: 777 Las Palmas
Santa Barbara, Ca., 93110

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF Texas I
I
COUNTY OF Harris I

The foregoing instrument was acknowledged before me this 21st day of August, 1978, by Gertrude M. Lucky, a widow.

My Commission Expires:

3-17-79

Evelyn S. Murphy
Notary Public in and for
Harris County Texas

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

532

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 21, 1978 — Gertrude M. Lowry

Date: _____ — _____

Address: 2200 Willowick Unit 2E
Houston Texas 77027

ATTEST: _____

_____ — By: _____

_____

Date: _____ — Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS §
§
COUNTY OF LUBBOCK §

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 28th day of December, 1978, by H. L. Lowe.

My Commission Expires:

5-31-79

Ruth C. Wilson
Notary Public in and for
Lubbock County Lubbock

STATE OF _____ §
§
COUNTY OF _____ §

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ §
§
COUNTY OF _____ §

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 12-28-78

H L Lowe

H. L. Lowe

Date: _____

Address: 2626 20th Street
Lubbock, Texas 79410

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Iowa I
I
COUNTY OF Polk I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 3rd day of APRIL, 1979, by JOHN FRED LORENZ in the capacity therein stated.

My Commission Expires:

9-30-80

Marilyn A. Geschala
Notary Public in and for
POLK County Iowa

MARILYN A. GESCHALA
MY COMMISSION EXPIRES
9-30-80

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: April 3, 1979 — John Fred Lorenz, Executor for Fred J. Lorenz

Date: _____

Address: P. O. Box 4692, Des Moines Ia 50306

ATTEST: _____

MY COMMISSION EXPIRES MARIAN V. BROCHARD

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Oklahoma I
I
COUNTY OF Oklahoma I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 10th day of August, 1978, by Margaret Harris Long and Robert F. Long, husband and wife.

My Commission Expires:

October 18, 1980

Catherine P. O'Connor
Notary Public in and for
Oklahoma County Oklahoma

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

5-23

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 10, 1978

Margaret Harris Long
Margaret Harris Long

Date: August 10, 1978

Robert F. Long
Robert F. Long

Address: PO Box 14130
Oklahoma City, Okla. 73113

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New York)
)
COUNTY OF Bronx)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 28 day of September, 1978, by Americus Lombardi and ~~Helen Lombardi~~, husband and wife.

My Commission Expires:
March 30, 1980

FRANCES FERNEZ
Notary Public State of New York
No. 03-6274635
Qualified in Bronx County
Commission Expires March 30, 1980

Frances Fernez
Notary Public in and for
Bronx County New York

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: September 28, 1978

Date: Sept 28 1978

Americus Lombardi

Helen Lombardi

Address: 940 Grand Concourse
Bronx NY 10451

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF ARKANSAS I
I
COUNTY OF PULASKI I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 10th day of August, 1978, by Kelley D. Johnson, Trust Officer of Worthen Bank and Trust Co., N.A., a n Arkansas corporation, on behalf of the corporation, in the capacity therein stated.

My Commission Expires:

July 25, 1982

Notary Public in and for
Pulaski County Arkansas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: _____

Address: _____

_____

Worthen Bank and Trust Company, N.A.,
Trustee Under the Will of Ruena E. Logue

ATTEST:

Ann L Blair

Assistant Secretary

By: Kelley D Johnson

Trust Officer

Date: August 10, 1978

Address: P.O. Box 1681

Little Rock, Arkansas 72203

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Pennsylvania I
I
COUNTY OF Philadelphia I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 9 day of January, 1978, by Dorothy L. Harvey in the capacity therein stated.

My Commission Expires:

REGINA MARIE O'CONNOR
Notary Public, Phila., Phila. Co.
My Commission Expires April 13, 1981

Regina Marie O'Connor
Notary Public in and for
Phila. County Pa.

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF PENNSYLVANIA I
I
COUNTY OF PHILADELPHIA I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 31st day of October, 1978, by Francis J. Furey, Senior Real Estate Officer of Provident National Bank, Trustee, a Pennsylvania corporation, on behalf of the corporation.

My Commission Expires:

MARCIA SHPRINTZ, NOTARY PUBLIC
Philadelphia, Philadelphia County, Pa.
My Commission Expires 9/19/81

Marcia Shprintz
Notary Public in and for
Philadelphia County Pennsylvania

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: January 9, 1979

Dorothy L. Worley

Dorothy L. Worley, Trustee Under Assignment of Martha B. Livezey

Date: _____

Address: c/o First Pennsylvania Bank, N.A.
Real Estate Department
Centre Square - 17th Floor
Philadelphia, Pa. 19101

ATTEST:

Gordon B. Callaghan

Gordon B. Callaghan
Assistant Vice President

Provident National Bank, Trustee Under Assignment of Martha B. Livezey

By: Francis J. Furey

Francis J. Furey
Senior Real Estate Officer

Date: October 31, 1978

Address: c/o First Pennsylvania Bank, N.A.
Real Estate Department
Centre Square - 17th Floor
Philadelphia, Pa. 19101

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Pennsylvania I
I
COUNTY OF Philadelphia I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 6 day of February, 1978, by Dorothy L Hartzig in the capacity therein stated.

My Commission Expires:

REGINA MARIE O'CONNOR
Notary Public, Phila., Phila. Co.
My Commission Expires April 13, 1981

Regina Marie O'Connor
Notary Public in and for
Phila County Pa

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Pennsylvania I
I
COUNTY OF Philadelphia I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 6 day of February, 1978, by Julian L. Espenshade, Vice President of First Pennsylvania Bank, a National Association corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

REGINA MARIE O'CONNOR
Notary Public, Phila., Phila. Co.
My Commission Expires April 13, 1981

Regina Marie O'Connor
Notary Public in and for
Phila County Pa

525

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: February 2, 1979

Date: _____

Dorothy L. Worley

Dorothy L. Worley, Trustee Under Will of John R. Livezey

Address: c/o First Pennsylvania Bank, N.A.
Real Estate Department
Centre Square - 17th Floor
Philadelphia, Pa 19101

ATTEST:

E. Jean Emmons

ASST SECRETARY

Date: 2/2/79

First Pennsylvania Bank, N.A. Trustee
Under Will of John R. Livezey

By: Julien L. Eysmans

Julien L. Eysmans, III
Vice President

Address: First Pennsylvania Bank, N.A.
Real Estate Department
Centre Square - 17th Floor
Philadelphia, PA 19101

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas)
)
COUNTY OF Wichita)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 23 day of August, 1978, by Charles E Litchfield Jr in the capacity therein stated.

My Commission Expires:
11-1-78

JIMMY M. KOURI
Notary Public in and for
Wichita County Tex

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

524

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 23, 1978

Charles E. Litchfield, Jr.
Attorney in fact for
Grace Florand Litchfield

Address: 1800 Buchanan St.
Wichita Falls, Texas
76309

Date: _____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Oklahoma I
I
COUNTY OF Bryan I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 5th day of September, 1978, by Cecil Lindley and Christine Lindley, husband and wife.

My Commission Expires:

April 25, 1981

Notary Public in and for
Bryan County Oklahoma

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____,
_____ of _____,
a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept 5 - 1978

Christina Lindley

Date: Sept 5 - 1978

Teil Lindley

Address: Rt 1 Box 28X
Durant, Okla. 74701

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF WASHINGTON)
)
COUNTY OF KING)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 25 day of AUGUST, 1978, by ~~DAVID A. RILEY~~ Margaret Lewis Lidren Margaret Lewis Lidren.

My Commission Expires:

12/23/78

David A. Riley
Notary Public in and for
KING County WASHINGTON

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/25/78 — Margaret Louis Ledien

Date: _____ — _____

Address: 1243 N.E. 168th
Sea Wa. 98155

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas)
COUNTY OF Deaf Smith)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 30th day of March, 1978, by Louis LeGrand in the capacity therein stated.

My Commission Expires:

5-11-80

Linda Welty
Notary Public in and for
Deaf Smith County Texas

STATE OF _____)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: March 30, 1979

Louie LeGrand
Executor under the will of C.F. LeGrand

Date: _____

Address: Box 511

Hereford, Texas 79045

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS _____ I
I
COUNTY OF HOWARD I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 11th day of August, 1978, by J. M. Lee and Vera Davis Lee, husband and wife.

My Commission Expires:

January 31, 1979

Pauline S. Petty
(Pauline S. Petty)
Notary Public in and for
Howard County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 11, 1978

J. M. Lee
(Mr. J. M. Lee)

Date: August 11, 1978

Mrs. Vera Davis Lee
(Mrs. Vera Davis Lee)
Address: 1600 State Street
Big Spring, Texas. 79720

ATTEST:

_____

By: _____

_____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I
I
COUNTY OF TAYLOR I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 7th day of December, 1978, by Herman J. Ledbetter, and Desa L. Ledbetter, husband and wife.

My Commission Expires:

4/30/79

Judy Thompson
Notary Public in and for
Taylor County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 12-7-78

Hermann Red Cutter

Date: 12-7-78

Dessa L. Cutter

Address: 1002 Sayles Boulevard

Abilene, Texas 79605

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF California
COUNTY OF Sacramento

The foregoing instrument was acknowledged before me this 6 day of September, 1978, by Rhoda Le Cocq.

My Commission Expires:

Dec. 23, 1978

Paula Shortt
Notary Public in and for
Sacramento County California

PAULA SHORTT
NOTARY PUBLIC — CALIFORNIA
PRINCIPAL OFFICE IN
SACRAMENTO COUNTY
My Commission Expires December 23, 1978

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9/6/78

Rhoda Le Cocq
Rhoda Le Cocq

Date: _____

Address: P.O. Box 2648, Metro Main
Sacramento, CA. 95812

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF ARKANSAS I

I

COUNTY OF CLEBURNE I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 28 day of September, 1978, by Wilburn E. Layman and Martha Ann Walton Layman, husband and wife.

My Commission Expires:

5-23-82

Brenda Sue Logan
Notary Public in and for
Cleburne County Arkansas

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept 28, 1978

Martha Ann Walton Layman

Date: "

William E. Layman

Address: 7811 Hiway 72
Germantown, Tenn 38138

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Oklahoma I

I

COUNTY OF Tulsa I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 12th day of September, 1978, by Edward C. Lawson, Jr., President of Lawson Petroleum Company, a _____ corporation, on behalf of the corporation.

My Commission Expires:

4-28-79

Anne H. Caiman
Notary Public in and for
Tulsa County Oklahoma

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept 12, 1978 -

LAWSON PET CO
by
Edward C Lawson Jr.
PRESIDENT

Date: _____

Address: 2100 PHILTOWER BLDG
TULSA, OKLA
74103

ATTEST:

E. J. Jones
Assistant Secretary

By: Anne H. Dunnick

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Wisconsin I
I
COUNTY OF Milwaukee I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11 day of August, 1978, by RICKARD H. LAURITZEN.

My Commission ~~Expires:~~
is Permanent

Richard V. Reis
Notary Public in and for
County
~~State of Wisconsin~~

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 11, 1978 _____

Address: 324 E. Wisconsin Ave - Milwaukee, Wis. 53202

Date: _____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New Mexico)
)
COUNTY OF Otero)

OFFICIAL SEAL
Signature Nancy J. Appel
NANCY J. APPEL
NOTARY PUBLIC - NEW MEXICO
Notary Bond Filed with Secretary of State
My Commission Expires: Dec. 20, 1980

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 11th day of May, 1978, by David James Lathan and Jeeh M. Lathan, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

508A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: May 11, 1979 — David James Latham

Date: May 11, 1979 — Jean M. Latham

Address: Rt. 4 Box 123
Tucumcari, NM
88401

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I
I
COUNTY OF TARRANT I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 18th day of August, 1978, by William B. Watson, President of Lasca, Inc., a Texas corporation, on behalf of the corporation.

My Commission Expires:
November 30, 1978

Margaret Johnson
Notary Public in and for
Tarrant County Texas

508

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

LASCA, INC. # 75-6018111

Lesbia W. Roberts
Lesbia W. Roberts, Secretary

By: William B. Watson
William B. Watson, President

Date: August 18, 1978

Address: 1731 Fort Worth National Bank Bldg.
Fort Worth, Texas 76102

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Colorado)
)
COUNTY OF Ouray)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 6th day of November, 1978, by Bruce M. Larson.

My Commission Expires:

My Commission Expires April 7, 1979

Notary Public in and for
Ouray County Colorado

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: November 1978 — Grace M. Lanier

Date: _____

Address: 731 Ivy St
Denver Co 80220

ATTEST: _____

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New York I
I
COUNTY OF Queens I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 16 day of August, 1978, by William M Larrabee and Dorothy S Larrabee, husband and wife.

My Commission Expires:

_____

STEPHEN J. WALL
NOTARY PUBLIC, State of New York
No. 41-4606313
Qualified in Queens County
Cert. filed in Queens County
Commission Expires March 30, 1979

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF_____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____,
_____ of _____,
a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/16/78

William M Larrabee
WILLIAM M LARRABEE

Date: 8/16/78

Dorothy S Larrabee
DOROTHY S LARRABEE

Address: 21 UPLAND RD
GREAT NECK N.Y. 11020

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF CALIFORNIA }
}
COUNTY OF RIVERSIDE }

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 28th day of August, 1978, by DAVID J. ERWIN in the capacity therein stated.

My Commission Expires:

December 5, 1978

OFFICIAL SEAL
ELIZABETH F. MERCY
NOTARY PUBLIC CALIFORNIA
BOND FILED IN
RIVERSIDE COUNTY
My Commission Expires December 5, 1978

Elizabeth F. Mercy
Notary Public in and for
County RIVERSIDE

STATE OF California }
}
COUNTY OF Orange }

INDIVIDUAL ACKNOWLEDGMENT
~~JOINT ACKNOWLEDGMENT~~
~~(HUSBAND AND WIFE)~~

The foregoing instrument was acknowledged before me this 1st day of September, 1978, by HENRY H. HELMS ~~and~~ in the capacity therein stated, ~~husband and wife~~.

My Commission Expires:

9-30-78

OFFICIAL SEAL
JUDITH K. GOODLIN
NOTARY PUBLIC - CALIFORNIA
ORANGE COUNTY
My comm. expires SEP 30, 1978

Judith K. Goodlin
Notary Public in and for
County Orange

STATE OF _____ }
}
COUNTY OF _____ }

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 28, 1978

David J. Erwin

Date: Sept. 1, 1978

Henry H. Helms

TRUSTEES UNDER WILL OF CHARLES W. LARABEE

Address: P. O. Box 789

Palm Desert, CA 92260

ATTEST:

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF ARKANSAS)
)
COUNTY OF CRITTENDEN)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15th day of December, 1978, by J. D. Langford.

My Commission Expires:

Feb. 15th 1980

B L Russ
Notary Public in and for
CRITTENDEN County ARKANSAS

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: December 15, 1978

J. D. Langston

Date: _____

Address: Rt. 2, Box 300
Hughes, Ark. 72348

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF California I

I

COUNTY OF Orange I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of August, 1978, by George H. Earnest, President of Landowners Royalty Company, a California corporation, on behalf of the corporation.

My Commission Expires:

June 3, 1979

B. G. Albertson
Notary Public in and for
Orange County California

OFFICIAL SEAL
B. G. ALBERTSON
NOTARY PUBLIC CALIFORNIA
PRINCIPAL OFFICE
ORANGE COUNTY
My Commission Expires June 3, 1979

502

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

Landowners Royalty Company

Date: August 16, 1978

by George H Earnest, President

Address: 1505 East 17th St., Suite #106

Santa Ana, California 92701

ATTEST:

_____

By: _____

_____

Date: August 16, 1978

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Midland I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 4 day of April, 1978, by Vina Rue Cole Lambert, a widow.

My Commission Expires:

9-30-80

B. C. Gridley
Notary Public in and for
Midland County Texas

B. C. GRIDLEY

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

501

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 4-4-79

Vina Rue Cole Lambert

Vina Rue Cole Lambert 433-38-5757
Box 562, Midland, Texas 79702

Date: _____

_____

Address: _____

_____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF ARIZONA)
)
COUNTY OF PIMA)

The foregoing instrument was acknowledged before me this 13 day of August, 1978, by THOMAS J. LAMBERT.

My Commission Expires:
My Commission Expires January 22, 1981

Notary Public in and for
Pima County Arizona

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

G5 590

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ Thomas J. Campbell

Date: _____

Address: 2777 N. Campbell
Tucson, AZ 85719

ATTEST:

_____

By: _____

Date: _____ Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Arizona I

COUNTY OF Pima I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15 day of August, 1978, by Robert B Forbes.

My Commission Expires:

My Commission Expires Nov. 3, 1981

Notary Public in and for
Pima County Az.

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

498

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

Date: 8-15-78

Robert B Lambert

Address: ROBERT B. LAMBERT
SUITE 210, 2777 N. CAMPBELL
TUCSON, ARIZONA 85719

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Arizona)
)
COUNTY OF Gila)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11 day of August, 1978, by FRED F. KOTYZA.

My Commission Expires:

My Commission Expires Jan 27, 1979

Anna Mae Lessard
Notary Public in and for
Gila County Arizona

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 11, 1978

Fred F. Kotyza
FRED F. KOTYZA

Date: _____

Address: P.O. BOX 1680
PAYSON, ARIZONA 85541

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEW YORK)
)
COUNTY OF NEW YORK)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by RENA KLEEFELD.

My Commission Expires:

March 30, 1980

Robert Kleefeld
Notary Public in and for State of New York County of New York

ROBERT O. KLEEFELD
Notary Public, State of New York
No. 31-7288725
Qualified in New York County
Commission Expires March 30, 19 80

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 14, 1978 — Mrs. Reed Keefeed

Date: _____ — _____

Address: 165 WEST 16th STREET
NEW YORK, N.Y. 10011

ATTEST: _____

By: _____

Date: _____ — Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Penna I
I
COUNTY OF Bucks I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 22 day of August, 1978, by Fitzhugh Lee Kirk and Mae Marie Kirk, husband and wife.

My Commission Expires:

June 29, 1981

Lucia Tattanzi
Notary Public in and for
Montgomery County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 22 1978 — [signature]

Date: August 22 1978 — Ann Marie Kirk

Address: 784 Boxwood Drive
Warminster PA 18974

ATTEST:

C. John Leydakes
167 Treaty Rd.
Drexel Hill, Pa 19026

Date: August 22, 1978

By: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I
I
COUNTY OF HARRIS I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 2nd day of March, 1978, by J. D. Bivens, Vice President of Kirby Exploration Company, a Nevada corporation, on behalf of the corporation.

My Commission Expires:
10-07-80

Tamara Loffler
Notary Public in and for
Harris County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

KIRBY EXPLORATION COMPANY

_____

R. T. Shores, Assistant Secretary

By: _____

J. D. Bissey, Vice President

Date: March 2, 1979

Address: P.O. Box 1745

Houston, Texas 77001

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF WEST VIRGINIA I
I
COUNTY OF MARION I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 9th day of MARCH, 1979, by BLANCHE KINNEY as Attorney in Fact for CHRISTIE KINNEY.

My Commission Expires:

SEPT 20, 1983

Notary Public in and for
MARION County, WEST VIRGINIA

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 3-9-79

Date: _____

Address: 722 Coleman Ave
FAIRMONT W. Va. 26554

ATTEST: _____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Tom Green I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 15th day of Sept., 1978, by Leonard B. King and Elizabeth S. King, husband and wife.

My Commission Expires:

Sept. 30, 1980

_____
Notary Public in and for
Tom Green County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: _____

_____

Address: _____

_____

ATTEST:

_____

_____

By: _____

Date: 9-15-78

Address: 3456 Nasworthy Drive
San Angelo Texas
76901

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF NEW MEXICO)
)
COUNTY OF CHAVES)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of October, 1978, by B. M. Keohane, President of Keohane, Incorporated, a New Mexico corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

OFFICIAL SEAL
SIGNATURE: Peggy Ann Voigt
PEGGY ANN VOIGT
NOTARY PUBLIC--NEW MEXICO
NOTARY BOND FILED WITH SECRETARY OF STATE
MY COMMISSION EXPIRES MAY 28, 1982

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: _____

_____

Address: _____

_____

ATTEST:

Cheryl Ringheimer

CHERYL RINGHEIMER, ASST. SEC.

Date: OCTOBER 16, 1978

KEOHANE, INCORPORATED

By: B M Keohane

B. M. KEOHANE, PRESIDENT

Address: P. O. BOX 1120

ROSWELL, NEW MEXICO 88201

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Reeves I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 17th day of August, 1978, by Robert S. Kent and Marguerite M. Kent, husband and wife.

My Commission Expires:

June 30, 1980

Maggie Bygkin
Notary Public in and for
Reeves County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-17-78

Margueritte M. Kent

Date: 8/17/78

Robert S. Kent

Address: 2110 Nebraska,

Pecos, Texas 79772

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Oklahoma I
I
COUNTY OF Oklahoma I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 23rd day of August, 1978, by Winifred Kellogg and C. W. Kellogg, husband and wife.

My Commission Expires:

10-16-79

Sandra J. Morton
Notary Public in and for
Okla. County Okla.

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 23, 1978 — Winifred Kellogg

Date: August 23, 1978 — A. W. Kellogg

Address: 2724 C Hancer
Oklahoma City, Okla 73120

ATTEST:

Jan M. Bahan

By: _____

Date: August 23, 1978

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF Texas

COUNTY OF Tarrant

The foregoing instrument was acknowledged before me this 12 day of September, 1978, by S. E. Keith, Jr.

My Commission Expires:

1 June 1979

Notary Public in and for
Tarrant County Texas

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____

COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____

COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 12 September 1978

S. E. Keith Jr.
Sam E. Keith, Jr.

Date: _____

Address: 6716 Brants Lane
Fort Worth, Texas 76116

ATTEST:

Clyde W Blair
Ft Worth Tex

By: _____

Date: 9/12/78

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF McLennan I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 10 day of Aug, 1978, by Dorothy Dryden Keith, in the capacity therein stated.

My Commission Expires:

1/31/79

Janie Nielsen
Notary Public in and for
McLennan County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-10-78

Donald Boyd Kerr
Ex. Estate of Robert B. Kerr

Address: 4108 Garnet
Waco, Texas 76710

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I

COUNTY OF Tarrant I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 12 day of September, 1978, by Samuel E. Keith, Jr., Independent Executor, Estate of Leonard S. Keith.

My Commission Expires:

1 June 1979

Notary Public in and for Tarrant County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for _____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for _____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 12 September 1978

Samuel E. Keith, Jr.
Samuel E. Keith, Jr.
Independent Executor
Estate of Leonard S. Keith

Date: _____

Address: 6716 Brants Lane
FortWorth, Texas 76116

ATTEST:

Ft Worth Tex

Date: 9/12/78

By: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS)
)
COUNTY OF MIDLAND)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 21st day of August, 1978, by Tom Sealy, Trustee of the Katherine Cone Keck 1971 Trust "C".

My Commission Expires:

11-30-78

Betty Alice Lewis (Betty Alice Lewis)
Notary Public in and for
Midland County Texas

STATE OF CALIFORNIA,

COUNTY OF LOS ANGELES } ss.

ON August 16, 19 78,
before me, the undersigned, a Notary Public in and for said State, personally appeared
William Myron Keck, II and Katherine Cone Keck,
Trustees for Katherine Cone Keck 1971 Trust "C"
, known to me to be the
person s whose name s are subscribed to the within instrument,
and acknowledged to me that they executed the same.

WITNESS my hand and official seal.

OFFICIAL SEAL
JEAN SCHWABAUER
NOTARY PUBLIC CALIFORNIA
PRINCIPAL OFFICE IN
LOS ANGELES COUNTY
My Commission Expires January 17, 1981

Jean Schwabauer
NAME (TYPED OR PRINTED)
Notary Public in and for said State.

ACKNOWLEDGMENT—General—Wolcotts Form 232—Rev. 3-64

COUNTY OF _____)
)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

KATHERINE CONE KECK 1971 TRUST "C"

Date: 8-16-78

Katherine Cone Keck

8/16/78

William Myron Keck, I

Date: 8-21-78

Tom Sealy, Trustees

Address: 1801 Avenue of the Stars, Suite 1110

Los Angeles, Ca. 90067

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF California)
)
COUNTY OF Orange)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 18th day of August, 1978, by J. L. KEEL and LILLIAN C. KEEL, husband and wife.

My Commission Expires:

OFFICIAL SEAL
ELAINE C. PORTER
NOTARY PUBLIC - CALIFORNIA
PRINCIPAL OFFICE IN
ORANGE COUNTY
My Commission Expires Aug. 22, 1980

Elaine C. Porter
Notary Public in and for
Orange County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 5-18-78

JLK J. L. Keel

Date: 5-18-78

LCK Leman C. Fuk

Address: 27091-A CALLE CABALLERO

SAN JUAN CAPISTRANO, CA 92675

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I

I

COUNTY OF Bexar I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 24th day of August, 1978, by Robert A. Kesley and Gay Blanton Kesley, husband and wife.

My Commission Expires:

6/29/79

Rhea C. Stouffer
Notary Public in and for
Bexar County Texas

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/24/78

Gay Blanks Keahey

Date: 8/24/78

Robert A. Keahey

Address: 410 Elden Road
San Antonio, Texas
78209

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I

COUNTY OF Lubbock I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14 day of August, 1978, by Marjorie Cone Kastman.

My Commission Expires:

7-31-80

Notary Public in and for Lubbock County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for _____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for _____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 14, 1978

Marjorie Lou Kastman
a married woman dealing in her separate property.

Date: _____

Address: 2420 Quaker Ave., Suite 5
Lubbock, Texas 79410

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF KANSAS)
)
COUNTY OF HARVEY)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 27th day of SEPTEMBER, 1978, by ~~Charlene Cornett~~ Winona Jones.
W. C. J.

My Commission Expires:

March 19 1991

CHARLENE CORNETT
Harvey County, Ks.
My Appt. Exp. 3-19-91

Charlene Cornett
Notary Public in and for
Harvey County Kansas

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9-27-1978

Virginia C. Jones

Date: _____

_____

Address: P. O. BOX 195

BURRTON, KANSAS 67020

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF Lubbock I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11th day of August, 1978, by Vivian Jones.

My Commission Expires:

June 30, 1980

Notary Public in and for
Lubbock County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 11, 1978 — Vivian Jones

Date: _____ — _____

Address: 3716-27 — 3716 27th St.

Lubbock, Texas 79410

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mex

COUNTY OF Chaves

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 31 day of Oct, 1978, by Duswood Jones for The Corte Company a partner in Jones Robinson Co

My Commission Expires:

2-1-82

Barbara J Garrett
Notary Public in and for
Chaves County NM

STATE OF _____

COUNTY OF _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____

COUNTY OF _____

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 10-31-78

Jones Robinson Company
By The Carter Company
By Durwood O Jones
a Genl Partner

Date: _____

Address: Box 1455
Roswell NM
88201

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Illinois I
I
COUNTY OF Peoria I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 14th day of October, 1978, by Jean Eldridge Johnson and Glen L. Johnson, husband and wife.

My Commission Expires:

February 79

Verne E. Dentino
Notary Public in and for
Peoria County Illinois

STATE OF _____ I
I
COUNTY OF_____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Oct. 14 1978

Jean Eldridge Johnson

Date: October 16, 1978

Warren L. Johnson

Address: 204 RAINBOW COURT

CREVE COUER, ILLINOIS 61611

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Minnesota I
I
COUNTY OF Hennepin I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 28th day of August, 1978, by Charlotte Jensen.

My Commission Expires:

April 5 1985

GEORGE E. NEWELL
NOTARY PUBLIC - MINNESOTA
HENNEPIN COUNTY
My Commission Expires April 5, 1985

George E. Newell
Notary Public in and for
County Minnesota

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: Aug 28, 1978 Charlotte Jamison

Address: 986 E Ivy Ave
St. Paul, Mn. 55106

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF OKLAHOMA)
)
COUNTY OF TULSA)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16 day of October, 1978, by DAVID F. JAMES, Trustee.

My Commission Expires:

Feb. 25, 1980

Notary Public in and for
Tulsa County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: October 16, 1978

JAMES PETROLEUM TRUST, u/a Feb. 2, 1974

BY: David F. James, Trustee

Address: 202 Mayo Building

Tulsa, Oklahoma 74103

Date: _____

ATTEST:

_____

_____

Date: _____

By: _____

_____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF [illegible] I

COUNTY OF [illegible] I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11th day of [illegible], 1978, by [illegible].

My Commission Expires:

Nov 12, 1981

[illegible]
Notary Public in and for
[illegible] County _____

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 11- 1978

Helen M Bachman
HELEN M BACHMAN
THE VILLAS

Address: 7338 W. Cedar Circle
Denver Colo - 80226

Date:

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS §
§
COUNTY OF TRAVIS §

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 12th day of January, 1979, by Cathie Auvenshine.

My Commission Expires:

SANDRA LYNN HICKS
Notary Public, Travis County, Texas
My Commission Expires May 16, 1980

Sandra Lynn Hicks
Notary Public in and for
Travis County Texas

STATE OF _____ §
§
COUNTY OF _____ §

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ §
§
COUNTY OF _____ §

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

27A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest ~~xxxxxxxxxx interest, or both,~~ as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, ~~and if the undersigned is the owner of a working interest, does hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto,~~ the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: January 12, 1979

Cathie Auvenshine
CATHIE AUVENSHINE

Date: _____

_____

Address: Route 6, Box 79N
Austin, Texas 78737

ATTEST: _____

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I

I

COUNTY OF MIDLAND I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 6th day of September, 1978, by C. E. Cardwell, Jr., Attorney in Fact of Atlantic Richfield Company, a Pennsylvania corporation, on behalf of the corporation.

My Commission Expires:

6-30-80

Yvonne Brooks
Notary Public in and for
Midland County Texas

2001
26

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

ATLANTIC RICHFIELD COMPANY

Date: September 6, 1978 JMB CR

BY: C. E. Cardwell Jr.
C. E. Cardwell, Jr. Attorney-in-Fact

Address: P. O. Box 1610
Midland, Texas 79702

ATTEST: GVA

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF LOUISIANA)
PARISH)
COUNTY OF CADDO)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 10 day of August, 1978, by Mrs. Elizabeth A. Raster.

My Commission Expires:

at life

Notary Public in and for
Caddo Parish ~~County~~ Louisiana

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 10, 1978 — Mrs. Elizabeth A. Parker

Date: _____

Address: 249 Atkins Ave.
Shreveport, La. 71104

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I

I

COUNTY OF HARRIS I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 30th day of October, 1978, by BURT E. HAMRIC, Senior Vice-President of ASHLAND EXPLORATION, INC., a Delaware corporation, on behalf of the corporation.

My Commission Expires:

_____

Sue A. Alford
Notary Public in and for
Harris County Texas

SUE A. ALFORD
Notary Public in and for Harris County, Texas
My Commission Expires July 12, 1979

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Address: _____

_____

Date: _____

_____

Address: _____

_____

Form App. OLW

ATTEST:

ASHLAND EXPLORATION, INC.

O. Lawrence Mielke
Secretary

By: Burt E. Hamric
Burt E. Hamric
Senior Vice-President

Date: 10/30/78

Address: P. O. Box 1503
Houston, Texas 77001

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Wisconsin I

COUNTY OF Milwaukee I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 21st day of August, 1978, by MARGARET E. ARTIS.

My Commission Expires:

HEIDI C. TONDRYK
Notary Public
Milwaukee County
My Commission Expires January 24, 1982

Heidi C Tondryk
Notary Public in and for
Milwaukee County Wisconsin

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 21, 1978

Margaret E. Ariis

Date: _____

Address: 2525 S. SHORE DRIVE
BAY VIEW TERRACE-APT 2A
MILWAUKEE, WISCONSIN
53207

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NY)
COUNTY OF NY)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14 day of Aug, 1978, by Nathan Appleman.

My Commission Expires:

2/30/79

BERTRAN S. PRIMOFF
Notary Public, State of New York
No. 60-8441900
Qualified in Westchester County
Term Expires March 30, 1979

Notary Public in and for
NY County NY

STATE OF _____)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

20
21

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 5-14-78

Date: _____

c/o The Bank of New York
Address: #13-9181
P.O.Box 11160
New York City 10049

ATTEST: _____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF California I

COUNTY OF San Diego I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 26 day of April, 1978 by Harriet E. Anfenson and Thomas R. Anfenson, husband and wife.

My Commission Expires:

June 10, 1980

OFFICIAL SEAL
GREG LEE ANFENSON
NOTARY PUBLIC - CALIFORNIA
SAN DIEGO COUNTY
My comm. expires JUN 10, 1980

Greg Lee Anfenson
Notary Public in and for
San Diego County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Oct. 24, 1979

Date: Oct 26-79

Address: 3318 DON DIABLO
CARLSBAD CA-92008

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
COUNTY OF Chaves)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 21 day of August, 1978, by Jane Andrus (Mrs. Dale Andrus)

My Commission Expires:
9-7-80

Ditta Mae McCullough
Notary Public in and for
Chaves County New Mexico

STATE OF _____)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 24 1978

Jane Andrus (Gas Unit 3

Date: _____

Address: Box 307
Hagerman N. Mex

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Okla. I
I
COUNTY OF Carter I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 25th day of August, 1978, by James D. Andrews and Bobbye J. Andrews, husband and wife.

My Commission Expires:

10-19-81

Lynda Ayres
Notary Public in and for
Carter County Okla.

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 29, 1978

Date: Aug 29, 1978

Date: _____

ATTEST:

_____

_____

Date: _____

_____
441-24-5530

_____
441-12-5309

Address: 227 Woods Lane East
Ardmore, OK - 73401

_____

By: _____

_____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF New Mexico)
)
COUNTY OF Lea)

The foregoing instrument was acknowledged before me this ~~16th~~ day of ~~August~~, 1978, by ~~Raymond R. Anderson~~ and ~~Billie Anderson~~, husband and wife.

My Commission Expires:

June 4, 1981

Naomi V. Goss
Notary Public in and for
Lea County New Mexico

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-16-78

Raymond R. Anderson
Raymond R. Anderson

Date: 8-16-78

Billie Anderson
Billie Anderson

Address: 1806 Brookon Dr.
Hobbs, New Mexico 88240

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Washington I
I
COUNTY OF Whatcom I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 19th day of January, 1978 by Emma S. Anderson.

My Commission Expires:

March, 1982

Patricia L. McCaskill
Notary Public in and for
Whatcom County Washington

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 1-19-79 Emma S. Anderson

Date: _____ 1200 Lincoln Sp. 137

Address: Billing Mon WA 98225

ATTEST:

_____

_____

Date: _____

By: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF New York)
COUNTY OF New York)

The foregoing instrument was acknowledged before me this 15 day of August, 1978, by Leonard [illegible] and [illegible], husband and wife.

My Commission Expires:

_____

[signature]
Notary Public in and for
_____ County _____

VINCENT J. [illegible]
Notary Public, State of New York
No. 41-2383940
Qualified in Queens County
Certificate Filed in New York County
Term Expires March 30, 1979

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

14415

212-556-7436

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has exacuted this instrument on the date stated below.

Date: August 15, 1978

Leonard Amster

Date: August 15 1978

Margaret Amster

Address: 2 SUTTON PLACE SOUTH

NEW YORK N.Y. 10022

ATTEST:

VINCENT J. LIVIERI
Notary Public, State of New York
No. 41-0383940
Qualified in Queens County
Certificate Filed in New York County
Term Expires March 30, 1979

By: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF New York)
)
COUNTY OF Bronx)

The foregoing instrument was acknowledged before me this 16 day of August, 1978, by James Amato.

My Commission Expires:
March 30, 1980

Kim R. Lancellotti
Notary Public in and for
Bronx County

KIM R. LANCELLOTTI
Notary Public, State of New York
No. 03-4668824
Qualified in Bronx County
Cert. filed in New York County
Commission Expires March 30, 1980

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Kim R. Lancellotti
Notary Public in and for
_____ County _____

KIM R. LANCELLOTTI
Notary Public, State of New York
No. 03-4668824
Qualified in Bronx County
Cert. filed in New York County
Commission Expires March 30, 1980

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 15, 1978

James Amster

James Amster

Address: 211½ East 49th Street
New York, N.Y. 10017

Date: _____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Harris I

CORPORATE ACKNOWLEDGMENT

BEFORE ME, the undersigned authority, a Notary Public in and for said County and State, on this day personally appeared W. V. GRISHAM, ATTORNEY-IN-FACT of AMOCO PRODUCTION COMPANY, a corporation, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same as the act and deed of said corporation, for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND and seal of office this 22nd day of September, 1978.

My commission Expires:

4/25/80

Anne Holmes
Notary Public in and for
Harris County Texas

2003
1 2

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

APPROVED

Date: _____

Amoco Production Company

Date: September 22, 1978

W. Grisham

Attorney-in-fact

Address: P.O. Box 3092

Houston, Texas 77001

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I

COUNTY OF Lubbock I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 27 day of _____, 1978, by _____.

My Commission Expires:

4-27-79

Notary Public in and for
Lubbock County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF Texas I

COUNTY OF Lubbock I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 27th day of October, 1978, by John R. Cammack Vice President & Tr. Officer of American State Bank, a _____ corporation, on behalf of the corporation.

My Commission Expires:

4-27-79

Notary Public in and for
Lubbock County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

AMERICAN STATE BANK IN LUBBOCK, TEXAS,
TRUSTEE UNDER TRUST DTD 3/26/69

ATTEST:

Betty Verett asst. Cashier
10-29-78

By: John R. Carson SVP & TO

Date: _____

Address: P.O. Box 1401
Lubbock, Texas 79408

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____

Notary Public in and for

_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____

Notary Public in and for

_____ County _____

STATE OF OKLAHOMA I

I

COUNTY OF TULSA I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of December, 1978, by P. A. Dysert, Senior Vice President of Amerada Hess Corporation, a Delaware corporation, on behalf of the corporation.

My Commission Expires:

November 2, 1980

Notary Public in and for the

State of Oklahoma

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: December 14, 1978

P.G. Dysart

Date:

Address: P. O. Box 2040
Tulsa, Oklahoma 74102

ATTEST:

G. R. Williamson

Assistant Secretary

By:

Date: December 14 1978

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF TENNESSEE)
)
COUNTY OF Franklin.)

The foregoing instrument was acknowledged before me this 25th day of August, 1978, by Robert S ALLAN and Margaret J ALLAN, husband and wife.

My Commission Expires:

1-15-79

Notary Public in and for
Franklin County Tennessee

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 25 1978

Robert S Allan

Date: Aug 25, 1978

Margaret J. Allan

Address: Rt 1 Box 158

Hartford Tenn 37345

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF N. J. I
I
COUNTY OF Bergen I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 8th day of Sept, 1978, by Elizabeth B. Allan and Robert P. Allan, husband and wife.

My Commission Expires:
WILLIAM G. WOWK
NOTARY PUBLIC OF NEW JERSEY
Commission Expires April 5, 1982

William G. Wowk
Notary Public in and for
N. J. County Bergen

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: September 8, 1978 — Elizabeth B. Allan

Date: September 8, 1978 — Robert Allan

Address: 215 Manning Avenue
River Edge, New Jersey 07661

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF California)
)
COUNTY OF Monterey)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 18th day of August, 1978, by Mary L. Aldrich.

My Commission Expires:

October 8, 1979

Notary Public in and for
County Monterey

PATRICIA M. JUNG
NOTARY PUBLIC-CALIFORNIA
COUNTY OF MONTEREY
My Commission Expires Oct. 8, 1979

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

8

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 18, 1978 — Mary L. Aldrich

Date: _____ — _____

Address: 831 Parcel
Monterey, Ca 93940

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF INDIANA I
I
COUNTY OF HAMILTON I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 14th day of AUGUST, 1978, by HORTON ALDRED and DORA ALDRED, husband and wife.

My Commission Expires:

June 23, 1982

Judith L. Kenney
Notary Public in and for
Hamilton County Indiana

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-14-78 Horton Aldred

Date: _____ Dora Aldred

Address: R. R. 2
Sheridan, Ind. 46069

ATTEST:

_____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Massachusetts I
I
COUNTY OF Essex I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 14th day of September, 1978, by Leon D. Alderman and Barbara E. Alderman, husband and wife.

My Commission Expires:

January 1, 1982

_____
Notary Public in and for
Essex County Mass.

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept 14, 1978

x Leon D Alderman

Date: _____

x Barbara E Alderman

Address: 913 Bancroft Ave.
Beverly Mass
01915

Moved 1978 6/1/78
Old address Hesperus Ave
Magnolia, Mass 01930

ATTEST:

_____

By: _____

_____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF DISTRICT OF COLUMBIA
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of AUGUST, 1978, by FRANCIS J. FINNERAN, SECRETARY / TREASURER of AIMTEE, a N.Y. corporation, on behalf of the corporation.

My Commission Expires:
[illegible] Oct. 31, 1979

_____

_____
Notary Public in and for
DISTRICT OF COLUMBIA ~~County~~ _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

Duffy B. Finneran AGR. SEC

Date: 8/14/78

ALMZEE CORPORATION

By: Francis J. Finneran SEC. TREAS
FRANCIS J. FINNERAN

Address: 4948 LOWELL ST, N.W.
WASH - DC 20016

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Wisconsin I
I
COUNTY OF Eau Claire I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 16th day of August, 1978, by Irma Adams and H. Vincent Adams, husband and wife.

My Commission Expires:

9-23-79

Irma Van Aelst
Notary Public in and for
Eau Claire County Wis.

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-16-78 Mrs. Lenora Adams

Date: 8-16-78 H. Vincent Adams

Address: 522 Menomonie St.
Eau Claire, Wisconsin, 54701

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I

I

COUNTY OF Midland I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 29th day of September, 1978, by W. R. Welcome, Vice President of Adobe Royalty Inc., a _____ corporation, on behalf of the corporation.

My Commission Expires:

10-17-79

Carolyn Gustow
Notary Public in and for
Midland County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-Sa ... County, New Mexico", are being entered into as of July 1, 197 ... g and conducting unit operat ... in Lea County, New Mexico, ... being shown on Exhibit A a ... attached to said unit agreem

W ... or a working interest, ... t, in one or more of the tra ... to commit said interest o

EXHIBITS 11 & 12

... the undersigned (whether o ... irsuant to the joinder pr ... d agree to be bound by t ... , and if the undersigned is ... d agree to be bound by the pr ... reto, the same in each case as if the undersigned ... eement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

[signature]
Secretary

ADOBE ROYALTY INC.

By: [signature]
Vice President
Tax I.D. # 75-1458872

Date: September 29, 1978

Address: 1100 Western United Life Building
Midland, Texas 79701

(Certificates of acknowledgment are on the reverse side hereof.)

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: _____

_____

Address: _____

_____

ATTEST:

ADOBE ROYALTY INC.

_____
Secretary

By: _____
Vice President

_____

Tax I.D. # 75-1458872

Date: September 29, 1978

Address: 1100 Western United Life Building

Midland, Texas 79701

(Certificates of acknowledgment are on the reverse side hereof.)

HEM

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: January 16, 1979

Herbert E. Meyer

Herbert E. Meyer

Address: c/o M.S. & I.S. Isaacs
489 Fifth Avenue
New York, New York 10017

Date: _____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New York)
)
COUNTY OF ~~New York~~ Bronx)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of January, 1978, by Herbert E. Meyer.

My Commission Expires:

March 30 1980

Pamela M. Quirolo
Notary Public in and for
Bronx County

PAMELA M. QUIROLO
Notary Public, State of New York
No. 60-8474250
Qualified in Westchester County
Cert. filed in Bronx County
Commission Expires March 30, 1980

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

PM

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: January 30, 1979

Peter Meyer

Address: c/o M.S. & I.S. Isaacs
489 Fifth Avenue
New York, New York 10017

Date: _____

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New York)
)
COUNTY OF Westchester)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 30th day of January, 1979, by Peter Meyer.

My Commission Expires:

S. JEROME FEINBERG
NOTARY PUBLIC, State of New York
No. 60-1181750
Qualified in Westchester County
Commission Expires March 30, 1979

Notary Public in and for
Westchester County

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

VCH

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: January 17, 1979

Valerie Heidell
Valerie Heidell

Date: _____

_____

Address: c/o M.S. & I.S. Isaacs
489 Fifth Avenue
New York, New York 10017

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New York)
)
COUNTY OF Westchester)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 17th day of January, 1979, by Valerie Heidell.

My Commission Expires:

March 30, 1980

Ellaina L. Nork

Notary Public in and for
_____ County _____

ELLAINA L. NORK
Notary Public, State of New York
No. 43-4521368
Qualified in Richmond County
Certified in New York County
Commission Expires March 30, 19 80

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

MJM

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: January 11, 1979

Mary Jane Meyer

Date: _____

_____

Address: c/o M.S. & I.S. Isaacs
489 Fifth Avenue
New York, New York 10017

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF Florida)
)
COUNTY OF Sarasota)

The foregoing instrument was acknowledged before me this 11th day of January, 1978, by Mary Jane Meyer.

My Commission Expires:

Notary Public, State of Florida at Large
My Commission Expires Oct. 23, 19[illegible]
Bonded By American Fire & Casualty Company

Joanne B. Pratt
Notary Public in and for
Sarasota County Florida

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

Faye Novak

Address: % General Delivery
Apache Junction
Arizona 85220
P.O. Box 1743

ATTEST:

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF Illinois)
) ss
COUNTY OF Du Page)

The foregoing instrument was acknowledged before me this 8th day of February, 1978, by Faye Novak.

My Commission Expires:

My Commission Expires November 6, 1979

Notary Public in and for
Du Page County Illinois

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
) ss
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
) ss
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: November 3, 1978 Geraldine Kennington

Address: 3711 N. Kedvale
Chicago, Ill. 60641

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF Illinois)
)
COUNTY OF DuPage)

The foregoing instrument was acknowledged before me this 8th day of February, 1978, by Gretchen Rummingal.

My Commission Expires:

My Commission Expires November 3, 1979

Notary Public in and for
DuPage County Illinois

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

Date: _____

ATTEST:

_____

_____

Date: _____

_____

Dalie G. Brinkman

Address: 506 So. Main St.
Naperville, Illinois
60540

By: _____

_____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Illinois I

COUNTY OF Lee Page I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 8th day of February, 1978, by Mrs. Leslie B. Brinkman.

My Commission Expires:

My Commission Expires November 3, 1978

Notary Public in and for Lee Page County Illinois

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for _____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for _____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ Nancy A. Mason

Address: 16 W 540 Lake Dr.
Clarendon Hill, Ill.
60514

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Illinois)
)
COUNTY OF Lee Page)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 8th day of February, 1978, by Nancy A. Mason.

My Commission Expires:

My Com[illegible] 1979

Alice L. Tuerweiler
Notary Public in and for
Lee Page County Illinois

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement: and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: October 31 1978

William D. Greenwood

Address: 506 N. Main
Naperville Ill. 60540

Date: _____

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Illinois I
I
COUNTY OF DuPage I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 8th day of February, 1978, by William D. Greenwald.

My Commission Expires:

My Commission Expires November 3, 1979

Alice L. Trierweiler
Notary Public in and for
DuPage County Illinois

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: October 31, 1978

Mac J. Usher

Address: 307 Charles Drive
Plainfield Illinois
60544

Date: _____

ATTEST:

_____

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Tennessee)
)
COUNTY OF Dekalb)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 8th day of February, 1978, by Mae S. Walker.

My Commission Expires:

My Commission Expires November 3, 1979

Alice L. Trammell
Notary Public in and for
DeKalb County Tennessee

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 11-6-78

Dellis Lee Bugg Winnett

Date: 11-6-78

Tommy L Winnett

Address: P.O Box 723
Willows, Ca 95988

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF CALIFORNIA)
)
COUNTY OF GLENN)

The foregoing instrument was acknowledged before me this 6th day of November, 1978, by DELLIA SUE BUGG WINNETT and TOMMY L. WINNETT, husband and wife.

My Commission Expires:

OCT. 3, 1982

Judyth M. Galke
JUDYTH M. GALKE
Notary Public in and for
GLENN County CALIFORNIA

OFFICIAL SEAL
JUDYTH M. GALKE
NOTARY PUBLIC-CALIFORNIA
Principal Office in GLENN County
My Commission Expires Oct. 3, 1982

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 10-25-78

J. Jimmy Jr. Bragg

Date: 10-25-78

Doris M. Bragg

Address: 723 Galatia
Rota, N Mex 87740

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____

Notary Public in and for

_____ County _____

STATE OF N. Mex. I

I

COUNTY OF Eddy I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 25th day of October, 1978, by J (Jimmy) D. Bugg and Doris M. Bugg, husband and wife.

My Commission Expires:

My Commission Expires November 20, 1979

Notary Public in and for

Eddy County N. Mex.

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____

Notary Public in and for

_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Oct 20, 1978

Linda B. W. Spannenburg

Date: _____

(Formerly Linda Berta White)

Address: 61 Utica Street
Clinton, New York 13323

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New York)
)
COUNTY OF Oneida)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 20th day of Oct, 1978, by Linda B. W. Spearenburg.

My Commission Expires:

3-30-80

Karen P. McCabe
Notary Public in and for
Oneida County New York

KAREN P. McCABE
Notary Public in the State of New York
Appointed in Oneida County
Commission Expires March 30, 1980

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 10-24-78 Lanell Bugg Foreman

Date: 10-24-78 Robert H. Foreman

Address: 3406 BARB Street
WAUKEGAN, ILL. 60085

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF ILLINOIS I
I
COUNTY OF LAKE I

~~JOINT ACKNOWLEDGMENT~~
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 24TH day of October, 1978, by LANELL Bugg FOREMAN and ROBERT H. FOREMAN, husband and wife.

My Commission Expires:

11-10-79

Betty Jane Bundsgaard
Notary Public in and for
Lake County Illinois

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 10-25-78 Barbara Cast

Date: _____

Address: Rt 4 Box 143
Tucumcari, N.M.

ATTEST: _____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF Luna)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 25th day of October, 1978, by Barbara Cast.

My Commission Expires:

7-24-82

Darla J. Alarcon
Notary Public in and for
Luna County NM

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 11-3-78

x R.J. Bugg

Date: 11-3-78

x Clemmie Bugg

Address: 723 Kelvin Rd
El Sobrante Calif 94803

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF CALIFORNIA)
)
COUNTY OF SOLANO)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 3rd day of November, 1978, by R. T. Bugg and Clemmie Bugg, husband and wife.

My Commission Expires:

Jan. 11, 1981

OFFICIAL SEAL
AGNES L. BUONACORSI
NOTARY PUBLIC - CALIFORNIA
PRINCIPAL OFFICE IN
SOLANO COUNTY
My Commission Expires Jan. 11, 1981

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: November 6, 1978

James Edward Larson

Address: 645 S. Harrison
Denver, Co 80209

Date: _____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF Colorado)
)
COUNTY OF Denver)

The foregoing instrument was acknowledged before me this 16 day of November, 1978, by James Edward Parsons.

My Commission Expires:
My Commission Expires April 7, 1982

Notary Public in and for
City County Denver

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 11/6/78 — Roy George Larson

Date: _____ — _____

Address: 515 Clarkson apt 701
Denver, Co 80203

ATTEST:

_____ — By: _____

_____ — _____

Date: _____ — Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Colorado)
)
COUNTY OF Denver)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 6th day of November, 1978, by Roy George Larson.

My Commission Expires:
My Commission Expires April 7, 1982

Patricia B. Kennedy
Notary Public in and for
City County Denver

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Nov. 6, 78

John Richard Larson

Date: _____

_____

Address: 2353 W 23rd Circle
Golden, Co 80401

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Colorado)
)
COUNTY OF Denver)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 6th day of November, 1978, by John Richard Larson.

My Commission Expires:

My Commission Expires April 7, 1982

Notary Public in and for
City County Denver

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Nov 7 1978 Dorothy L. Hoeschen

Date: _____

Address: 907 E. Anderson Dr.
Burbank, Ca. 91504

ATTEST:

By: _____

Date: _____ Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF California)
)
COUNTY OF Los Angeles)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 7th day of November, 1978, by *Dorothy L. Hoeschen*.

My Commission Expires:

May 19, 1980

OFFICIAL SEAL
EDNA B. BAIRD
NOTARY PUBLIC - CALIFORNIA
PRINCIPAL OFFICE IN
LOS ANGELES COUNTY
My Commission Expires May 19, 1980

Edna B. Baird
Notary Public in and for
Los Angeles County

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 11/4/78 Earnest Bugg

Date: 11/4/78 Judi N. Bugg

Address: 3697 Bucks Way
Carson City, Nv-89701

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Nevada)
)
COUNTY OF Douglas)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 4th day of November, 1978, by Ernest Bugg and Judi A. Bugg, husband and wife.

My Commission Expires:

12-21-79

JUDITH A. GRENADE
Notary Public — State of Nevada
County of Douglas
My Commission Expires December 21, 1979

Judith A. Grenade
Notary Public in and for
Douglas County Nevada

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Nov 9-1978

George Theodore Larson Sr.

Date: _____

_____

Address: 1655 W. Ajo #37
Tucson, Ariz 85713

ATTEST:

_____

_____

By: Rita A. Brown

_____

Date: November 9 1978

Address: 8065 S. Cardinal
Tucson, Arizona 85706

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Arizona)
)
COUNTY OF Pima)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 9th day of November, 1978, by GEORGE THEODORE LARSON, JR.

My Commission Expires:

April 12, 1979

Notary Public in and for
Pima County Arizona

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

Date: December 5, 1978

Janet Neal

Address: 3118 So 41st Street
Ft Smith, Arkansas
72903

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Arkansas)
)
COUNTY OF Sebastian)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 5th day of December, 1978, by Jerit Neal Workford.

My Commission Expires:

_____

Betty J Sanders
Notary Public in and for
Sebastian County Arkansas

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF_____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ Helen M Williams

Date: Nov. 24 1978 _____

Address: 2801 Vista del Arroyo
San Angelo, Texas 76901

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF TOM GREEN I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 24th, day of November, 1978, by Helen M. Williams.

My Commission Expires:

June 1979

Notary Public in and for
Tom Green County, Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 4-20-79 Aurore Gansy

Date: _____

Address: 884 NEWPORT AVE
PAWTUCKET, R.I. 02861

ATTEST:

Helen W Nicholls
15 Riverside Drive
Lincoln, R I 02865

By: Pauline R. Sliney

Date: 4-20-79

Address: 331 MORRIS AVE
PROV, RI. 02906

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF R.I.)
)
COUNTY OF Providence)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 20th day of April, 1979, by Aurore Goosy & Pauline Sliney.

My Commission Expires:

6-30-81

Helen W Nicholls
Notary Public in and for
County Providence

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: May 9 1979

L. Slade Brown
L. SLADE BROWN

Date: _____

_____

Address: P.O. Box 400
Orange, Texas

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS §
§
COUNTY OF ORANGE §

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 9th day of MAY, 1978, by L. SLADE BROWN.

My Commission Expires:

May 31, 1979

Henrietta S. Wobbe
Notary Public in and for
Orange County Texas

STATE OF _____ §
§
COUNTY OF _____ §

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ §
§
COUNTY OF _____ §

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 5/8/79

John S. Brown
JOHN S. BROWN

Date: _____

Address: Suite 418 Meadows Building
Dallas, Texas

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I
I
COUNTY OF DALLAS I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 8TH day of MAY, 1978, by JOHN S BROWN.

My Commission Expires:

Sept. 16, 1979

John J Pummell
Notary Public in and for
Dallas County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 5-18-79

Charles E. Brown
CHARLES E. BROWN

Date: _____

_____

Address: P.O. Box 2432
Monroe, Louisiana

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Louisiana I
Parish
COUNTY OF Ouachita I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 18 day of May, 1978, by Charles E. Brown.

My Commission Expires:

Life

Kent Breard
Notary Public in and for
Ouachita County Louisiana
Parish

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 6/16/79

Kathryn Riley Kennedy
Kathryn Riley Kennedy

Date: _____

_____

Address: Box 11
Ninilchik, Alaska 99639

ATTEST: _____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Alaska)
)
~~COUNTY OF~~ Third Judicial District)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of June, 1978, by Kathryn Riley Kennedy.

My Commission Expires:

May 13, 1981

Kathleen M. Jacklusky
Notary Public in and for
The State of ~~County~~ Alaska

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 6/15/79

* Nelson S. Riley, III

Date: _____

Address: P. O. Box 959
Stowe, Vermont 05672

~~ATTEST:~~

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Vermont)
)
COUNTY OF Lamoille)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15 day of June, 1978, by Nelson S. Riley, III.

My Commission Expires:

2/10/82

Notary Public in and for
Lamoille County Vt

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

John Field Riley

Date: _____

Address: ~~P.O. Box 10066~~
~~P. O. Box 1042~~
~~Denver, Colorado 80210~~
130 West River Rd.
Tucson, Arizona 85704

ATTEST: _____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF ~~XXXXXXXXX~~ ARIZONA)
)
COUNTY OF ~~XXXXXXX~~ PIMA)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 19th day of JUNE, 1978, by JOHN FIELD RILEY.

My Commission Expires:

4-25-82

Notary Public in and for
PIMA County ARIZONA

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: July 16, 1979

C. W. Trainer
C. W. TRAINER

Date: _____

_____

Address: 9205 Hwy. 71 W
Austin, Texas 78736

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Travis I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16 day of July, 1978, by C. W. Trainer.

My Commission Expires:

Jan 23, 79

Notary Public in and for
Travis County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: July 2 1979 Alan D. Engelsman

Date: _____ _____

Address: 110 Brighton Way
Clayton, Mo. 63105

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Missouri)
)
COUNTY OF St. Louis)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 2nd day of July, ~~1978~~ 1979, by Alan Engelsman.

My Commission Expires:

July 18, 1982

Elizabeth M. Greiner
Notary Public in and for
St. Louis County Missouri

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 13, 1979 — Kenneth R Hutton Jr

Date: _____

Address: PO Box 3070
Galveston, Texas Zip Code 77552

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Galveston I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by Kenneth K. Sullivan, Jr.

My Commission Expires:
March 31, 1981

Notary Public in and for
Galveston County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 13, 1979 _____

Date: _____ _____

Address: P.O. Box 3070
Galveston, Texas
77552

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas
COUNTY OF Galveston

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by Kenneth R. Hilton, Jr.

My Commission Expires:
March 31, 1981

Notary Public in and for
Galveston County Texas

STATE OF _____
COUNTY OF _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____
COUNTY OF _____

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 9, 1979

Kenneth R Shelton Jr

Date: _____

guardian for Andrew M. Shelton

Address: 3815 Avenue P (P.O. Box 3070)

Galveston, Texas 77552

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas §
§
COUNTY OF Galveston §

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 9th day of August, 1978 by Kenneth R. Shelton, Sr., Guardian for Andrew M. Shelton

My Commission Expires:

March 31, 1981

Delma Sims
Notary Public in and for
Galveston County Texas

STATE OF _____ §
§
COUNTY OF _____ §

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ §
§
COUNTY OF _____ §

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

2001
2072
2073

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

ATTEST:

Assistant Secretary

YATES PETROLEUM CORPORATION

By: President

ATTEST:

Secretary

ABO PETROLEUM CORPORATION

By: President

S. P. YATES

Date: September 1, 1978

207 South 4th Street
Artesia, New Mexico 88210

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEW MEXICO)
)SS.
COUNTY OF EDDY)

The foregoing instrument was acknowledged before me this 18th day of October, 1978, by John A. Yates, Vice President of YATES PETROLEUM CORPORATION, a New Mexico corporation, on behalf of said corporation.

My Commission Expires:

August 20, 1980

Marsha A. Keyes
Notary Public

STATE OF NEW MEXICO)
)SS.
COUNTY OF EDDY)

The foregoing instrument was acknowledged before me this 18th day of October, 1978, by John A. Yates, _____ President of ABO PETROLEUM CORPORATION, a New Mexico corporation, on behalf of said corporation.

My Commission Expires:

August 20, 1980

Marsha A. Keyes
Notary Public

STATE OF NEW MEXICO)
)SS.
COUNTY OF EDDY)

The foregoing instrument was acknowledged before me this 18th day of October, 1978, by S. P. YATES.

My Commission Expires:

August 20, 1980

Marsha A. Keyes
Notary Public

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: December 14, 1978

P. G. Dysart

Date: _____

_____

Address: P. O. Box 2040
Tulsa, Oklahoma 74102

ATTEST:

_____

Assistant Secretary

Date: December 14 1978

_____

By: _____

_____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF OKLAHOMA)
)
COUNTY OF TULSA)

The foregoing instrument was acknowledged before me this 14th day of December, 1978, by P. A. Dysert, Senior Vice President of Amerada Hess Corporation, a Delaware corporation, on behalf of the corporation.

My Commission Expires:

November 2, 1980

Notary Public in and for the
State of Oklahoma

2003
12

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

APPROVED
BL JK

Date: _____

Amoco Production Company

Date: September 22, 1978

W. Grisham

Attorney-in-fact

Address: P.O. Box 3092

Houston, Texas 77001

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____ and _____, 1978, by _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF Texas I
I
COUNTY OF Harris I

BEFORE ME, the undersigned authority, a Notary Public in and for said County and State, on this day personally appeared W. V. GRISHAM, ATTORNEY-IN-FACT of AMOCO PRODUCTION COMPANY, a corporation, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same as the act and deed of said corporation, for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND and seal of office this 22nd day of September, 1978.

My commission Expires:
4/25/80

Anne Holmes
Notary Public in and for
Harris County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: December 15, 1978

ADA A. ANDERSON

Ada A. Anderson

Date: 12-15-78

~~Address~~ W. D. ANDERSON & SONS

By: Payton Victor Anderson
Payton Victor Anderson, Partner

ATTEST:

12-15-78

12-15-78

ESTATE OF WARREN D. ANDERSON

By: Ada A. Anderson
Ada A. Anderson, Co-Executrix

Paul Donald Anderson, Co-Executor

Date: 12-15-78

~~Address~~ Payton Victor Anderson
Payton Victor Anderson, Co-Executor

All Addresses:
P. O. Box 136
Midland, TX 79702

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF TEXAS)
)
COUNTY OF MIDLAND)

The foregoing instrument was acknowledged before me this 15th day of December, 1978, by Ada A. Anderson.

My Commission Expires:

4-30-79

Notary Public in and for
Midland County Texas

STATE OF TEXAS)
)
COUNTY OF MIDLAND)

The foregoing instrument was acknowledged before me this 15th day of December, 1978, by Payton Victor Anderson, Partner of W. D. ANDERSON & SONS.

My Commission Expires:

4-30-79

Notary Public in and for
Midland County Texas

STATE OF TEXAS)
)
COUNTY OF MIDLAND)

The foregoing instrument was acknowledged before me this 15th day of December, 1978, by Ada A. Anderson, Paul Donald Anderson and Payton Victor Anderson, Co-Executors of The ESTATE OF WARREN D. ANDERSON,
&

My Commission Expires:

4-30-79

Notary Public in and for
Midland County Texas

2007

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 12-18-78

J. M. Armstrong

Date: 12-18-78

Mary Lee Armstrong

Address: P. O. Box 990

Midland, Tx. 79702

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I

I

COUNTY OF Midland I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 18th day of December, 1978, by J. M. Armstrong and Mary Lee Armstrong, husband and wife.

My Commission Expires:

Sept. 22, 1980

Sherry Cobb
Notary Public in and for
Midland County Texas

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

2001
26

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

ATLANTIC RICHFIELD COMPANY

Date: September 6, 1978 JMB CR

BY: C. E. Cardwell, Jr.
C. E. Cardwell, Jr. Attorney-in-Fact
Address: P. O. Box 1610
Midland, Texas 79702

GVA

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I

I

COUNTY OF MIDLAND I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 6th day of September, 1978, by C. E. Cardwell, Jr., Attorney in Fact of Atlantic Richfield Company, a Pennsylvania corporation, on behalf of the corporation.

My Commission Expires:

6-30-80

Yvonne Brooks
Notary Public in and for
Midland County Texas

2009

WI

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-11-78

W. K. Byrom
W. K. Byrom

Date: 8-11-78

Frankie M. Byrom
Frankie M. Byrom

Address: Box 147
Hobbs, New Mexico 88240

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New Mexico I
I
COUNTY OF Lea I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 11th day of August, 1978, by ~~W. K. Byrom~~ and ~~Frankie M. Byrom~~, husband and wife.

My Commission Expires:

June 24, 1981

R. M. Jelsnik
Notary Public in and for
Lea County New Mexico

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

2010

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

Ann D. Jessica

_____

Date: August 31, 1978

C & C Operating Corporation

By: Joe A. Coleman
Joe A. Coleman
President

Address: Box 1829
Hobbs, N.M. 88240

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New Mexico I
I
COUNTY OF Lea I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 31st day of August, 1978, by Joe A. Coleman, President of C & C Operating Corporation, a New Mexico corporation, on behalf of the corporation.

My Commission Expires:

2-13-82

Ann D. Janeca
Notary Public in and for
Lea County NM

2011

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

CHEVRON U.S.A. INC.

Date: Sept. 5, 1978

By: [signature]
Assistant Secretary

Address: P. O. Box 599
Denver, Colorado 80201

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF COLORADO)
) SS
COUNTY OF ARAPAHOE)

Before me, the undersigned authority, a Notary Public in and for said County, personally appeared T. G. LIVERMORE to me personally known, who being by me duly sworn did say that he, with the capacity designated by his signature on the document to which this certificate is attached, is an officer or agent, of Chevron U.S.A. Inc., a corporation organized and existing under and by virtue of the laws of the State of California, and that he as such officer or agent and in such capacity being authorized by its Bylaws and/or Board of Directors so to do, signed, sealed, executed and acknowledged before me the foregoing instrument on behalf of said Corporation as his voluntary act and deed and the voluntary act and deed of said Corporation for the uses, purposes and consideration therein expressed and contained by signing the name of the Corporation by him as such officer or agent and that the seal, if any, affixed to said instrument is the Corporate seal of said Corporation, and he further acknowledges to me that said Corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my official signature and affixed my notarial seal of office on this the 15th day of September, 1978.

My commission expires:
PEGGY D. BICKETT
Notary Public in and for the
State of Colorado, residing
at Denver, Colorado.
My commission expires Sept. 28, 1978

Peggy D. Bickett
Notary Public

CW-741-1 (D 6/7)

201-
160

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST: CITIES SERVICE COMPANY

[signature]

ASSISTANT SECRETARY

By: [signature]
VICE-PRESIDENT

Date: August 31, 1978

Address: P. O. Box 300

Tulsa, Oklahoma 74102

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF OKLAHOMA I
I
COUNTY OF TULSA I

The foregoing instrument was acknowledged before me this 6th day of November, 1978, by David A. Hentschel, Vice-President of CITIES SERVICE COMPANY, a Delaware corporation, on behalf of the corporation.

My Commission Expires:

July 25, 1980

Evelyn M. Schultz
Notary Public in and for
Tulsa County Oklahoma
Evelyn M. Schultz

2014
197

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: _____

_____

Address: _____

_____

ATTEST:

_____

_____

CONTINENTAL OIL COMPANY

By: _____

Ted E. Davis, Attorney-in-Fact

Date: November 15, 1978

Address: P. O. Box 2197

Houston, TX 77001

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I

I

COUNTY OF HARRIS I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15th day of November, 1978, by Ted E. Davis, Attorney-in-Fact of Continental Oil Company, a Delaware corporation, on behalf of the corporation.

My Commission Expires:

Oct. 31, 1980

Notary Public in and for
Harris County Texas

2015

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-15-78

Herman L. Crile, Sr., Revocable Trust
by E. Bernard Johnston, Jr., Trustee

Date: _____

Tax I.D.# 85-608 1999

Address: P.O. Box 864
Roswell, N.M. 88201

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico I
I
COUNTY OF Chaves I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15 day of August, 1978, by E. Bernard Johnston, Trustee.

My Commission Expires:

September 16, 1981

Elsa M. Stearns
Notary Public in and for
New Mexico ~~County~~ _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: April 6, 1979

John P Cusack Jr.
John P. Cusack, Jr.
P.O.Box 250
Roswell, New Mexico 88201

Date: _____

Address: _____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF Chaves)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 6th day of April, 1978, by John [illegible] Cusack, Jr.

OFFICIAL SEAL
Betty D Gross

My Commission Expires:

2/7/80

Notary Public in and for
Chaves County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

2-
2017 WI

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: April 6, 1979

John Patrick Cusack, Jr.
John Patrick Cusack, Jr., as Trustee under the John Patrick Cusack Testamentary Trust

Date: _____

Address: Box 250
Roswell, New Mexico 88201

ATTEST:

Catherine Cusack
Catherine Cusack

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF New Mexico)
)
COUNTY OF Chaves)

The foregoing instrument was acknowledged before me this 6 day of April, 1979, by John Patrick Cusack, Jr., as trustee under the John Patrick Cusack Intervivos Trust.

OFFICIAL SEAL
Signature Betty D. Gross
BETTY D. GROSS
NOTARY PUBLIC - NEW MEXICO
NOTARY BOND FILED WITH SECRETARY OF STATE
Expires

My Commission Expires:

2/7/80

Notary Public in and for
Chaves County New Mexico

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF Illinois)
)
COUNTY OF Cook)

The foregoing instrument was acknowledged before me this 16 day of March, 1979, by Catherine Cusack and _____, husband and wife.

My Commission Expires:
My Commission Expires June 3, 1979

Lois Hebert
Notary Public in and for
Cook County Illinois
My Commission Expires June 3, 1979

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

210
2012 WI

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: April 5, 1979

Mary F. Cusack

Mary Frances Cusack
3815 McCart Street
Fort Worth, Texas 76110

Date: _____

Address: _____

_____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF Chaves)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 5th day of April, 1978, by Mary Frances Cusack.

My Commission Expires:
2/7/80

OFFICIAL SEAL
Betty D. Yates
Notary Public in and for
Chaves County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 3/19/79

Michael P. Cusack
3815 McCart Street
Fort Worth, Texas 76110

Address: 3815 McCart
Ft Worth

Date:

ATTEST:

Judy Cole

Date: 3/19/79

By:

Address: 3815 McCart
Ft Worth, Tx

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I

COUNTY OF Harris I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 19 day of March, 1978, by Michael W. Sussek.

My Commission Expires:

12-20-79

Notary Public in and for
Harris County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 12/29/78

Russell D. Estes

Russell G. Estes, d/b/a/ Estes Engineering Company

Date: _____

Address: 306 Petroleum Bldg.
Midland, Texas 79701

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF MIDLAND I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 29 day of December, 1978, by Russell G. Estes, d/b/a/ Estes Engineering Company.

My Commission Expires:

9/30/80

Dorothy H. Goodman
Notary Public in and for
Midland County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

2024

WI OWNER

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-9-78

Date:

Address:

ATTEST:

Trust Officer

Date: 8/10/78

First National Bank of Casper
Trustee, Tate Trusts

By: L. Philip House
Vice-President & Trust Officer

Address: Box 40
Casper, Wyo 82602

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Wyoming I
I
COUNTY OF Natrona I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 9th day of August, 1978, by L. Philip House, Vice-President of First National Bank of Caspen, a Wyoming corporation, on behalf of the corporation, in the capacity therein stated.

My Commission Expires:

May 2 1982

CATHY SEARS - Notary Public
County of Natrona — State of Wyoming
My Commission Expires May 2, 1982

Cathy Sears
Notary Public in and for
Natrona County Wyoming

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

_____
Trust Officer

The First National Bank of Fort Worth,
Agent for William S. Spradling

By: _____
Billy R. Henson
Vice President & Trust Officer

Date: October 31, 1978

Address: P.O. Box 2546
Fort Worth, TX 76113

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS)
)
COUNTY OF TARRANT)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 31st day of October, 1978, by Billy R. Henson, Vice President & Trust Officer of The First National Bank of Fort Worth, a ---------- corporation, on behalf of the corporation, and in the capacity therein stated.

My Commission Expires:

September 21, 1980

John L Dupree
Notary Public in and for
Tarrant County Texas

817-390-6952
2026

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

_____

Trust Officer

The First National Bank of Fort Worth, Independent Executor of the Estate of Verda Spradling, No. 3462

By: _____

Billy R. Henson
Vice President & Trust Officer

Date: October 31, 1978

Address: P.O. Box 2546
Fort Worth, TX 76113

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I

I

COUNTY OF TARRANT I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 31st day of October, 1978, by Billy R. Henson, Vice President & Trust Officer of The First National Bank of Fort Worth, a ---------- corporation, on behalf of the corporation, and in the capacity therein stated.

My Commission Expires:

September 21, 1980

Jane L. Turner
Notary Public in and for
Tarrant County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: October 3, 1978

FIRST NATIONAL BANK OF LEA COUNTY,
TRUSTEE FOR CECIL H. SWEET AND
IMO EMMETTA SWEET TRUST

Date: _____

Address: P. O. BOX 70
HOBBS, NM 88240

ATTEST:

Beverly P Brandon
Asst. Cashier

By: Rita R. Neal
Rita R. Neal, Vice President and
Trust Officer

Date: Oct. 3, 1978

Address: P. O. Box 70
Hobbs, NM 88240

(Certificates of acknowledgment are on the reverse side hereof.)

2027 L

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: October 3, 1978

FIRST NATIONAL BANK OF LEA COUNTY,
TRUSTEE FOR CECIL H. SWEET AND
IMO EMMETTA SWEET TRUST

Address: P. O. BOX 70

HOBBS, NM 88240

Date:

ATTEST:

Asst. Cashier

Date: Oct. 3, 1978

By: Rita R. Neal
Rita R. Neal, Vice President and
Trust Officer

Address: P. O. Box 70

Hobbs, NM 88240

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF NEW MEXICO)
)
COUNTY OF LEA)

The foregoing instrument was acknowledged before me this 3rd day of October, 1978, by Rita R. Neal, of First National Bank of Lea County, a National Banking corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

OFFICIAL SEAL
Signature Sharon Craig
SHARON CRAIG
NOTARY PUBLIC - NEW MEXICO
NOTARY BOND FILED WITH SECRETARY OF STATE
My Commission Expires 7/21/82

Sharon Craig
Notary Public ~~in and for~~
Lea County _____

2020
2030

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-3-79

C. C. Forbes

Date: 8-3-79

Ilamae Forbes

Address: P. O. Box 843

Tulsa, Oklahoma 74101

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Oklahoma I
I
COUNTY OF Tulsa I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 3rd day of August, 1979, by C. C. Forbes and Ilamae Forbes, husband and wife.

My Commission Expires:

7-16-83

Lana Denny
Notary Public in and for
Tulsa County Oklahoma

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

341

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: April 5, 1979

GETTY OIL COMPANY

Date: _____

by: R James Staub
ATTORNEY-IN-FACT

Address: _____

_____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Oklahoma I
I
COUNTY OF Tulsa I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 5th day of April 1979, ~~1978~~, by R. JAMES STARRAK, ATTORNEY-IN-FACT of GETTY OIL COMPANY, a Delaware corporation, on behalf of the corporation.

My Commission Expires:

June 28, 1981

Hester A. Romine
Notary Public in and for
Tulsa County Oklahoma

JC32
395

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

GULF OIL CORPORATION

Date: September 14, 1978

By Attorney-in-Fact
Address: P. O. Box 1150
Midland, Texas 79702

ATTEST:

_____

By: _____

Date: September 14, 1978

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas)
)
COUNTY OF Midland)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14 day of September, 1978, by R. E. GALVIN, Attorney-in-Fact of GULF OIL CORPORATION, a Pennsylvania corporation, on behalf of the corporation.

My Commission Expires:

NOV 30 1978

Emily Jones
Notary Public in and for
Midland County Texas

WIO
2034

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 29 August 1978

Peter Hurd
PETER HURD

Date: 29 August 1978

Henriette W. Hurd
HENRIETTE W HURD

Address: Sentinel Ranch
San Patricio, NMex 88348

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico I
I
COUNTY OF Lincoln I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF NEW MEXICO I
I
COUNTY OF LINCOLN I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 29th day of August, 1978, by Peter Hurd and Henriette W Hurd, husband and wife.

My Commission Expires:

3-22-80

Louise M. Babers
Notary Public in and for
Lincoln County New Mexico

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____: a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

2035 V

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 25, 1978

Ruby Wanda Conrad Judson

Date: August 25, 1978

Address: 7 Josephine Court
Northport, New York 11768

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF New York)
)
COUNTY OF Suffolk)

The foregoing instrument was acknowledged before me this 25 day of August, 1978, by Ruby Wanda Comrade Judson and husband and wife.

My Commission Expires:

3-30-79

Notary Public in and for
Suffolk County New York

THEODORE G. RUSSELL
NOTARY PUBLIC, State of New York
Residing in Suffolk County No. 52-0516071
My Commission Expires March 30, 19 79

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

2036

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept. 13, 1978

Landett Interests

By W A Landett, Repr

Address: 908 CNB Building

Fort Worth, Texas 76102

Date: _____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I

COUNTY OF Tarrant I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 13th day of September, 1978, by W. A. Landreth in the capacity therein stated.

My Commission Expires:

LORETTA OWENS, Notary Public
IN AND FOR TARRANT COUNTY, TEXAS
MY COMMISSION EXPIRES JUNE 1, 19 79

Loretta Owens
Notary Public in and for
Tarrant County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

2039 V

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto,* and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

APPROVED AS TO FORM ECT

Date: _____

*...this ratification is contingent upon Marathon Oil Company retaining use of all its presently owned surface acreage of approximately 13.95 acres of land, located in the SE/4 of SE/4 Section 32-18S-38E, Lea County, New Mexico, on which land the Marathon Hobbs Field Office and Pipe Yard is located...

Address: _____

_____

ATTEST:

MARATHON OIL COMPANY

_____

By: C. L. Roberts

_____

Date: October 9, 1978

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I

I

COUNTY OF HARRIS I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 9th day of October, 1978, by C. L. Roberts, Manager Houston Division Onshore Operations of Marathon Oil Company, a Delaware corporation, on behalf of the corporation.

My Commission Expires:

PATRICIA F. KENT
NOTARY PUBLIC IN AND FOR HARRIS COUNTY, TEXAS
MY COMMISSION EXPIRES AUGUST 1, 1979

Patricia F. Kent
Notary Public in and for
Harris County Texas

2041

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Dec. 29, 1978 — Kathryn Louise Conrad McCarthy

Date: _____

Address: 4435 San Gabriel
Dallas, Texas 75229

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF [illegible] I
I
COUNTY OF [illegible] I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 1st day of [illegible], 1978, by [illegible].

My Commission Expires:

[illegible]

[illegible]
Notary Public in and for
[illegible] County [illegible]

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: February 12, 1979

Margaret M. McPheron

Margaret M. McPheron
219 East Yucca
Hobbs, New Mexico 88240

Date: _____

Address: _____

_____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF New Mexico)
)
COUNTY OF Lea)

The foregoing instrument was acknowledged before me this 12 day of February, 1979, ~~XXXX~~ by Margaret M. McPheron.

My Commission Expires:

June 20, 1981

Notary Public in and for
Lea County New Mexico

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

650 C
§ 650 B
§ 2043 A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 11-15-78

R. L. McPheron

Date: _____

Address: P. O. Box 1388

Oklahoma City, Oklahoma 73101

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Oklahoma)
)
COUNTY OF Oklahoma)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15 day of November, 1978, by R. L. McPheron

My Commission Expires:

5-25-80

Notary Public in and for
Oklahoma County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ a _____ of _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

2044

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST: Mobil Oil Corporation

_____ By: P E Harrison
ATTORNEY-IN-FACT

_____ _____

Date: 8-30-78 Address: 3 Greenway Plaza East
Suite 800
Houston, Texas 77046

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I

COUNTY OF Harris I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 30th day of August, 1978, by L. E. Harrison,
ATTORNEY-IN-FACT of MOBIL OIL CORPORATION,
a New York corporation, on behalf of the corporation.

My Commission Expires:

June 7 1979

Dotti H. Jones
Notary Public in and for
Harris County Texas

DOTTI H. JONES
Notary Public in and for Harris County, Texas
My Commission Expires 6-7-79

2045

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept 18, 1978

Kathleen Jane Conrad Murdock

Date: _____

B K Murdock

Address: 11117 Bushire Dr
DALLAS, TEXAS
75229

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Dallas I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 8th day of September, 1978, by Kathryn Jone Conrad Murdock and B. R. Murdock, husband and wife.

My Commission Expires:

6-30-80

Katherine Snow Bush
Notary Public in and for
Dallas County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

2019

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: April 9, 1979

R L Noble
Richard L. Noble

Date: _____

_____

Address: c/o Noble, Campbell & Uhler
Attorneys at Law
523 West Sixth Street, Los Angeles, CA 90014

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF California I

COUNTY OF Los Angeles I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 9th day of April, 1978, by Richard L. Noble.

My Commission Expires:

OFFICIAL SEAL
MICHAEL D. SCOTT
NOTARY PUBLIC - CALIFORNIA
LOS ANGELES COUNTY
My comm. expires JUN 7, 1980

Michael D Scott
Notary Public in and for
Los Angeles County California

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

2550
661

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

Elda Jones
Secretary Treasurer

The Samuel Roberts Noble Foundation, Inc.

By: John R. Mack
President

Date: May 23, 1979

Address: Route 1
Ardmore, Oklahoma 73401

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Oklahoma I
I
COUNTY OF Carter I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 23rd day of May, 1979 by John R. March, President of The Samuel Roberts Noble Foundation, Inc., a _____ corporation, on behalf of the corporation.

My Commission Expires:

June 25, 1981

Jackie N. Hickman
Notary Public in and for
Carter County Oklahoma

2052

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: _____

_____

Address: _____

_____

ATTEST:

Portales National Bank, Portales, New Mexico, Executor, of the Estate of Myrtle A. Moore

_____

O. R. Roberson, Jr.
Cashier, Portales National Bank

By: _____
Douglas B. Stone
President and Trust Officer

Date: 9/13/78

Address: P.O. Drawer 888, Portales, NM 88130

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New Mexico I
I
COUNTY OF Roosevelt I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 13th day of September, 1978, by Douglas B. Stone, President & Trust Officer of Portales National Bank, a New Mexico corporation, on behalf of the corporation.

My Commission Expires:

2/9/80

Vera Foster
Notary Public in and for
Roosevelt County New Mexico

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: December 20, 1978

Donald R. Lisle, Co-Executor of the Estate of John Roring, deceased

Date: December 20, 1978

Hal A. Treadwell, Co-Executor of the Estate of John Roring, deceased

1100 City National Building
Oklahoma City, Oklahoma 73102
(405) 236-5311

Estate I.D. #73-6182160

ATTEST:
WITNESS:

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF OKLAHOMA)
)
COUNTY OF OKLAHOMA)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 20th day of December, 1978, by RONALD R. LISLE and HAL A. TERADWELL, as Co-Executors of the Estate of John Boring, Deceased.

My Commission Expires:

June 2, 1982

Notary Public in and for
Oklahoma County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 15, 1978 — Frances I Conrad Rose

Date: _____

Address: Box 20234
Dallas, Texas 75220

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas)
)
COUNTY OF Dallas)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15th day of August, 1978, by Janice Phipps [illegible] Rose

My Commission Expires:

5-2-80

Janice Phipps
Notary Public in and for
Dallas County Texas

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

2055

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

SAMEDAN OIL CORPORATION

_____ Secretary

By: _____ Vice President

Date: July 2, 1979

Address: P. O. Box 909

Ardmore, Oklahoma 73401

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF OKLAHOMA)
)
COUNTY OF CARTER)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 2nd day of July, 1979 by Thomas C. Jobe, Vice President of Samedan Oil Corporation, a Delaware corporation, on behalf of the corporation.

My Commission Expires:

November 18, 1982

_____
Notary Public in and for
the State of ~~xxxxxx~~ Oklahoma

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: _____

_____

Address: _____

_____

ATTEST:

_____
Secretary

SEA Properties, Ltd.
By: SEA Cattle Company, General Partner

By: _____
Sam Noble, President

Date: August 10, 1979

Address: P. O. Box 1486
Ardmore, OK 73401

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF OKLAHOMA

COUNTY OF CARTER

BEFORE ME, the undersigned authority, a Notary Public in and for said County and State, on this day personally appeared Sam Noble known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of SEA Cattle Company, General Partner of SEA Properties, Ltd., and that he executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this 17th day of August 1979.

My commission expires:

June 23, 1983

Sue Jones
Notary Public in and for State of Oklahoma

2059

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 9, 1978 _____ Eric Simon Spear

Date: _____ _____

Address: 603 E Seco Dr.
Hobbs NM 88240

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEW MEXICO)
)
COUNTY OF LEA)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 9th day of August, 1978, by Ellie Sims Spear.

My Commission Expires:

8-17-78

Eleanor A. McKinney
Notary Public in and for
Lea County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: July 27,1979

E.C.Sullivan

Date: _____

Address: 3408-43rd Street
Lubbock, Texas, 79413

ATTEST: _____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF LUBBOCK I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 27TH day of July, 1979, by E.C.Sullivan.

My Commission Expires:

3/31/1981

Carolyn Marcus
Notary Public in and for
Lubbock County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

2062 V

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 1-30-79

Neil L. Sweet

Date: 1-30-79

Barbara A. Sweet

Address: 619 E. Mesa Dr - Box 51
Hobbs, New Mexico 88240

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New Mexico I
I
COUNTY OF Lea I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 30 day of January, 1978, by Bill L. Sweet and Barbara A. Sweet, husband and wife.

My Commission Expires:
4-26-78

J. M. Bryant
Notary Public in and for
Lea County New Mexico

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 10-3-78

TEXACO INC.

By D P McHenry
Attorney-in-Fact

Address: P. O. Box 3109

Midland, Texas 79702

APPROVED AS TO:
GMP
BK

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I
I
COUNTY OF MIDLAND I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 3rd day of October, 1978, by D. P. McCoskey, Attorney-in-Fact of TEXACO INC., a Delaware corporation, on behalf of the corporation.

My Commission Expires:

May 26, 1979

Carolyn Cason
Notary Public in and for Carolyn Cason
Midland County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: October 30, 1978

R. M. Brackbill, Executive Vice President

TEXAS PACIFIC OIL COMPANY, INC.

Address: 1700 One Main Place

Dallas, Texas 75250

Date: _____

ATTEST: _____

ASSIST. SEC.

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF TEXAS I
I
COUNTY OF DALLAS I

The foregoing instrument was acknowledged before me this 30 day of October, 1978, by R. M. Brackbill, Executive Vice President of Texas Pacific Oil Company, Inc., a Delaware corporation, on behalf of the corporation.

My Commission Expires:

BESS MARRON, Notary Public
In and for Dallas County, Texas
My Commission Expires December 31, 1978

Bess Marron
Notary Public in and for
Dallas County Texas

2065

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/21/78 Betty Conrad Leadaway

Date: 8-21-78 [signature]

Address: 5215 Havenwoods
Houston, Texas 77066

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I
I
COUNTY OF HARRIS I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 21st day of August, 1978, by JAMES N. TREADAWAY and BETTYE CONRAD TREADAWAY, husband and wife.

My Commission Expires:

April 12, 1980

Wanda Baechli
Notary Public in and for
Harris County Texas
WANDA BAECHLI

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

2000 V

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: January 19, 1979

Two States Oil Company

By: _____

Vice-President

Date: _____

_____

Address: Mercantile Commerce Bldg.
Suite 1910
Dallas, Texas 75201

ATTEST:

_____

Secretary & Treasurer

_____

By: _____

_____

Date: January 19, 1979

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF Texas)
)
COUNTY OF Dallas)

The foregoing instrument was acknowledged before me this 19 day of January, 1978, by R. E. Pisarri, Vice-President of Two States Oil Company, a Texas corporation, on behalf of the corporation.

My Commission Expires:

3-29-79

Karen Kennie
Notary Public in and for
Dallas County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Nov. 22, 1978 — Colleen Grady McPherson Wallace

Date: _____ _____

Address: # 2 Violet Ct
No. Little Rock, Ark 72116

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Arkansas)
)
COUNTY OF Pulaski)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 22nd day of November, 1978, by Colleen Grady McPherson Wallace.

My Commission Expires:
10-4-81

Ann Elizabeth Wood
Notary Public in and for
Pulaski County Arkansas

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST: WARD INVESTMENT CORPORATION

_____ By: _____

Secretary President

Date: 10/26/78 Address: 101 South Fourth Street

Artesia, New Mexico 88210

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New Mexico I
I
COUNTY OF Eddy I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 26 day of October, 1978, by J. S. Ward, President of Ward Investment Corporation, a New Mexico corporation, on behalf of the corporation.

My Commission Expires:

9-18-80

Diane M. Donaghey
Notary Public in and for
Eddy County New Mexico

2069

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: July 28, 1979

Hattie C. Williams

HATTIE C. WILLIAMS

Date: _____

Address: P. O. BOX 3187

LUBBOCK, TEXAS 79410

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS)
COUNTY OF Lubbock)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 28th day of July 1979, ~~XXXX~~, by Hattie C. Williams.

My Commission Expires:

3/7/81

Thelma Phillips
Notary Public in and for
Lubbock County Texas

STATE OF _____)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST: THE WISER OIL COMPANY

Milton G. Bailes By: _____

Secretary President

Date: October 13, 1978 Address: P. O. Box 192

Sistersville, W. Va. 26175

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF WEST VIRGINIA)
)
COUNTY OF TYLER)

The foregoing instrument was acknowledged before me this 13th day of October, 1978, by John C. Wright, President of The Wiser Oil Company, a Delaware corporation, on behalf of the corporation.

My Commission Expires:

July 16, 1985

B. G. Hall
Notary Public in and for
Tyler County West Virginia

2074

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: September 6, 1978

Henry Yeager Jr.

Date: _____

_____

Address: 5624 Knollwood Rd
Bethesda MD 20016

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF District of Columbia I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 6th day of September, 1978, by Leroy Yeager Jr.

My Commission Expires:

My Commission Expires Dec. 15, 1978

Thomas J. White
Notary Public in and for
District of Columbia County

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County

2075

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept 5, 1978 — Ruth Ann Yeager

Date: _____ — (Single person)

Address: 5939 GLENWICK LANE
DALLAS, TEXAS 75230

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ___ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept. 1, 1978

Mrs. Ruth Yeager
Co-Trustee - Ruth Anne Yeager Trust No 2

Date: _____

Address: 5939 GLENWICK LANE
DALLAS, TEXAS 75206

and

ATTEST:

First National Bank in Dallas

By: Edward B. Pennebaker
Assistant Cashier

By: Ernest M. Barnett
Vice President-Trust
Joint Trustees for Ruth Ann Yeager Trust No. 2

Date: 13 Sept 1978

Address: P.O. Box 83782
Dallas, Texas 75283

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF Texas I
I
COUNTY OF Dallas I

The foregoing instrument was acknowledged before me this 1st day of September, 1978, by Mrs. Ruth Fuller Yeager in the capacity therein stated.

My Commission Expires:

16-13-78

Evelyn Patterson
Notary Public in and for
Dallas County Texas

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF Texas I
I
COUNTY OF Dallas I

The foregoing instrument was acknowledged before me this 13th day of September, 1978, by ERNEST M. BARNETT, VICE PRESIDENT-TRUST of First National Bank in Dallas, a National Banking corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

_____

Littie Grooms
Notary Public in and for
_____ County _____

LITTIE GROOMS, Notary Public
In and for Dallas County, Texas
My commission expires October 31, 1978

3077

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 30, 1978 — Mrs. Retha Reder Yeager

Date: _____

Address: 3928 GLENWICK LANE
DALLAS, TEXAS 75205

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF Texas
COUNTY OF Dallas

The foregoing instrument was acknowledged before me this 30 day of August, 1978, by Miss Ruth Lucile Yager.

My Commission Expires:

10-13-78

Evelyn Pattison
Notary Public in and for
Dallas County Texas

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

2071

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement. North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 12-18-78

W. A. Yeager
W. A. Yeager

Date: 12-18-78

Patsy Goss Yeager
Patsy Goss Yeager

Address: P. O. Box 990

Midland, Tx. 79702

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF Texas I
I
COUNTY OF Midland I

The foregoing instrument was acknowledged before me this 18th day of December, 1978, by W. A. Yeager and Patsy Goss Yeager, husband and wife.

My Commission Expires:

Sept. 22, 1980

Notary Public in and for
Midland County Texas

CORPORATE ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-30-79

Howell Spear

Address: Box 206
Perkinston, Miss
39573

Date: _____

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Midland I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 30th day of August, 1979, by Howell Spear a married man dealing in his sole & separate property.

My Commission Expires:

5/20/80

Carol C. Abernathy CAROL C. ABERNATHY,
Notary Public in and for
Midland County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept. 5, 1979

Louise B. Whitley

Date: September 5, 1979

Louise R. Whitley

Address: 2202 Western Drive

Midland, Texas 79701

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
County _____

JOINT ACKNOWLEDGMENT ✓
(HUSBAND AND WIFE)

STATE OF TEXAS I
I
COUNTY OF MIDLAND I

The foregoing instrument was acknowledged before me this 5th day of September, 1979, by Loyd G. Whitley and Louise R. Whitley, husband and wife.

My Commission Expires:

_____

Lottie Arnold
Notary Public in and for
County _____

LOTTIE ARNOLD
Notary Public in and
for Midland Co., Tx
My Commission
Expires 10-24-80

CORPORATE ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

FIRST ROSWELL COMPANY

Date: 8-30-79

By: _____
President

Date: _____

_____

Address: P. O. Box 1797
Roswell, New Mexico 88201

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Chaves I

I

COUNTY OF New Mexico I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 30th day of August, 1978 by T. Z. Jennings, President of First Roswell Company, a New Mexico corporation, on behalf of the corporation.

My Commission Expires:

3-28-82

Jana R. Burch
Notary Public in and for
Chaves County New Mexico

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 31 1979

Mary Louise Laflin

Date: Aug. 31 1979

George R. Laflin

Address: 8716 E. Florence Pl
Denver, Co. 80237

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Colorado I
I
COUNTY OF Denver I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 31st day of August, 1979, 1978, by George P. Laflin and Mary Joyce Laflin, husband and wife.

My Commission Expires:

June 29, 1983

Patricia M Blessing
Notary Public in and for
Denver County State of Colorado

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-30-79

E.T. Williamson

Date: 8-30-79

Wesley Williamson

Address: 1630 Harvard Ct.
Hobbs, NM 88240

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF NEW MEXICO I

I

COUNTY OF LEA I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 30th day of August, 1979 by A. T. Williamson and Gladys Williamson, husband and wife.

My Commission Expires:

April 1, 1982

Notary Public in and for
Lea County New Mexico

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9-7-79

J. F. Dunlavey

Date: 9-7-79

Juliette F Dunlavey

Address: Box 837
Roswell, New Mexico

ATTEST:

Secretary

By: _____

Date: 9-7-79

Address: Box 2057
Roswell NM 88201

My Commission expires
May 18 1982

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-31-79 R. M. Nolan

Date: 8-31-79 Brenda Anne Morris

Address: _____

_____

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New Mexico I

I

COUNTY OF Lea I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 31st day of August, 1978, by R.M. and Brenda Ann Moran and _____, husband and wife.

My Commission Expires:

4-1-82

Wayne Swinney
Notary Public in and for
Lea County New Mexico

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9-4-79

Kenneth D McGuire

Date: 9-4-79

Address: P.O. Box 1919

Hobbs, NM 88240

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New Mexico I

COUNTY OF Lea I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 4th day of September, 1979, by K.D. Mc PETERS and ROSELYN Mc PETERS, husband and wife.

My Commission Expires:

April 1, 1982

Notary Public in and for
Lea County N.M.

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 30, 1979

MORANCO

By R. W. Moran
President

Address: P. O. Box 1860

Hobbs, New Mexico 88240

Date: _____

Attest: Wayne Summers
Secretary

ATTEST:

_____

By: _____

_____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF NEW MEXICO I

I

COUNTY OF LEA I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 30th day of August, 1979, by R. M. Moran, _____ of MORANCO, a New Mexico corporation, on behalf of the corporation.

My Commission Expires:

_____

Earlene Hiser

Jan 19, 1983

Earlene Hiser
Notary Public in and for
Lea County New Mexico

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-22-78

Joyce Louise Green

Date: 8-22-78

O. L. Green

Address: P. O. Box 830

Big Spring, Texas 79720

ATTEST:

_____

By: _____

_____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Howard I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 22nd day of August, 1978, by Joyce Louise Green and O. L. Green, husband and wife.

My Commission Expires:

11-30-78

Jeannie Lewis
Notary Public in and for
Howard County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 10, 1978 — Alexia M. Greene

Date: _____

Address: 170 Country Place
Ft. Worth Texas 76107

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Tarrant I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 10 day of August, 1978, by Alyssa M. Irene.

My Commission Expires:
May 1979

Ruth L Watson
Notary Public in and for
Tarrant County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-14-78 — Sidney F. Greenleigh

Date: 8-14-78 — Emily C. Greenleigh

Address: 1437 MAPLE AVE
RAHWAY, N. J. 07065

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF New Jersey)
)
COUNTY OF UNION)

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by Sidney F. Greenhalgh and Emily C. Greenhalgh, husband and wife.

My Commission Expires:
NOTARY PUBLIC OF NEW JERSEY
MY COMMISSION EXPIRES FEB 3, 1979

June C. Molesky
Notary Public in and for
UNION County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 21, 1978

Daniel Lee Greenwood
Daniel Lee Greenwood

Date: _____

_____

Address: 2232 Illinois Rd.
2232 Illinois Road
Northbrook, Ill.
Northbrook, ~~IL 60062~~

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Illinois I
I
COUNTY OF Cook I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 21st day of August, 1978, by Daniel Lee Greenwood, a single person.

My Commission Expires:

February 3, 1981

Victoria Lee Adams
Notary Public in and for
Cook County Illinois

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____, _____ of _____, _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/29/78

Jack Greenwood

Date: 8/29/78

Judith Greenwood

Address: R.R. #1
Herrin, Ill. 62948

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Illinois I

I

COUNTY OF Williamson I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 29th day of August, 1978, by Jack Greenwood and Judith Greenwood, husband and wife.

My Commission Expires:

March 15, 1982

Ruth Sucharski
Notary Public in and for
Williamson County Illinois

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 21, 1978

Jennie M. Greenwood
Jennie M. Greenwood

Date: _____

_____

Address: 2211 Greenview Rd
~~2211~~ Greenview Road
Northbrook, Ill 60062
~~Northbrook, IL 60062~~

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Illinois I
I
COUNTY OF Cook I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 21st day of August, 1978, by Jennie M. Greenwood, a widow.

My Commission Expires:
February 3, 1981

Victoria Lee Adams
Notary Public in and for
Cook County Illinois

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-21-78

Jennie M. Greenwood
Jennie M. Greenwood

Date: 8-21-78

Daniel Lee Greenwood
Daniel Lee Greenwood

Address: 2011 Greenview Rd
Northbrook Ill. 60062

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Illinois)
)
COUNTY OF Cook)

JOINT ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 21st day of August, 1978, by Jennie M. Greenwood, a widow, and Daniel Lee Greenwood, a single person, ~~husband and wife~~.

My Commission Expires:

February 3, 1981

Victoria Greenwood
Notary Public in and for
Cook County Illinois

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Jan 2, 1979 — Jim Greenwood

Date: Jan 2, 1979 — Mary Catherine Greenwood

Address: R.R. #1
Mulkeytown, Illinois 62865

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Illinois)
)
COUNTY OF Franklin)

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 4th day of January, 1979, by Theresa Greenwood and Jim and Mary A. Greenwood, husband and wife.

My Commission Expires:
Dec 2nd 1979

Theresa Greenwood
Notary Public in and for
Mulkeytown, Ill County Franklin

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: October 3, 1978

Lillian L. Greenwood,

Address: 506 N. Main St,
Naperville, Illinois
60540.

Date: _____

ATTEST:

_____

_____

Date: _____

By: _____

_____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Illinois I
I
COUNTY OF DuPage I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 3rd day of October, 1978, by Lillian L. Greenwood.

My Commission Expires:

1982

Rosemary Des Camps
Notary Public in and for
Illinois County DuPage

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept. 15 1978 — Robert Greenwood

Date: Sept. 15 1978 — Mildred Greenwood

Address: RR2, Box 102
Herrin, Ill. 62948

ATTEST:

_____

_____ By: Cecile Stockenrider

_____

Date: Sept 15 1978 — Address: RR 2 Box 100
Herrin Ill 62948

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Illinois I
I
COUNTY OF Williamson I

X

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 15th day of September, 1978, by Robert Brunwood and Mildred Brunwood, husband and wife.

My Commission Expires:

March 15, 1982

Ruth Suchocki
Notary Public in and for
Williamson County Illinois

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 3-6-79 — Ronald G. Greenwood

Date: 3-6-79 — Margie M. Greenwood

Address: Rt. 4 Box 1E
Reedsport, Oregon
97467

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF OREGON I
I
COUNTY OF Douglas I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 6 day of March, 1978, by Ronald G Greenwood and Margie M. Greenwood, husband and wife.

My Commission Expires:

MY COMMISSION EXPIRES APRIL 5, 1982

Lois A. Dickson
Notary Public in and for
Douglas County OREGON

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 18, 1978

Diane Marie Queen

Date: _____

_____

Address: P.O. Box 1689

Santa Fe, N.M. 87501

ATTEST: _____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico I
I
COUNTY OF Santa Fe I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 24th day of August, 1978, by Diane Marie Green.

My Commission Expires:

3-14-81

Cynthia T Perez
Notary Public in and for
Santa Fe County N. M.

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Nov. 6, 1978

Charles Hobbs Griffith

Date: _____

Address: P.O. Box 168
Skidmore, Texas 78389

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF ~~Texas~~ Texas I

I

COUNTY OF Bee I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 6th day of Nov., 1978, by Charles Hobbs Griffith.

My Commission Expires:

1-31-79

Notary Public in and for Bee County Texas

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for _____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for _____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 10, 1978

Otha H. Grimes Revocable Trust U/a dated December 30, 1977

Trustee

Address: Box 3327
Tulsa, Oklahoma 74101

Date: _____

ATTEST:

_____

_____

Date: _____

By: _____

_____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Oklahoma)
)
COUNTY OF Tulsa)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 10th day of August, 1978, by Otha H. Grimes, in the capacity therein stated.

My Commission Expires:

September 22, 1981

Notary Public in and for
Tulsa County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

330 #388

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 17, 1978

C. W. Grimes II
Trustee of the C. W. Grimes Trust

Date: _____

_____

Address: P. O. Box 7413
Tulsa, OK 74105

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Oklahoma I
I
COUNTY OF Tulsa I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 17th day of August, 1978, by Charles W. Grimes II in the ~~capacity~~ therein stated.

My Commission Expires:

April 27, 1981

Dorothy G. Lewis
Notary Public in and for
Tulsa County Oklahoma

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: October 26, 1978

Velva Grimes
Velva Grimes, Successor Trustee of the
Oscar L. Grimes Trust

Date: _____

Address: P. O. 7413
Tulsa, OK 74105

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Oklahoma)
)
COUNTY OF Tulsa)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 26th day of October, 1978, by Velva Grimes, Trustee.

My Commission Expires:

April 27, 1981

Dorothy A. Light
Notary Public in and for
Tulsa County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: October 26, 1978

Velva Grimes
Velva Grimes, Successor Trustee of the
Oscar L. Grimes Trust under the Will
Date 10-10-66

Date: _____

Address: P. O. Box 7413
Tulsa, OK 74105

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Oklahoma)
)
COUNTY OF Tulsa)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 26th day of October, 1978, by Velva Grimes, Trustee.

My Commission Expires:

April 27, 1981

Dorothy A. Lisle
Notary Public in and for
Tulsa County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

New Mexico Bank & Trust Co., Executor of the Estate of William Cecil Grimes, Deceased.

Date: August 24, 1978

George F. Stanley

George F. Stanley, V.P. & Trust Officer

Date: _____

Address: P. O. Box 400, Hobbs, N. M. 88240

ATTEST:

Janis Collins

Janis Collins
Asst. Trust Officer

By: _____

Date: August 24, 1978

Address: P. O. Box 400, Hobbs, N. M. 88240

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico I
I
COUNTY OF Lea I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 24th day of August, 1978, by George F. Stanley.

My Commission Expires:

2/15/82

Virginia Duncan
Notary Public in and for
Lea County New Mexico

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New Mexico I
I
COUNTY OF Lea I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 24th day of August, 1978, by George F. Stanley, Vice President & Trust Officer of New Mexico Bank & Trust Company, a Banking corporation, on behalf of the corporation. In the capacity therein stated.

My Commission Expires:

2/15/82

Virginia Duncan
Notary Public in and for
Lea County New Mexico

2032
395

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

GULF OIL CORPORATION

Date: September 14, 1978

By Attorney-in-Fact

Address: P. O. Box 1150

Midland, Texas 79702

ATTEST:

_____

By: _____

Date: September 14, 1978

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Midland I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14 day of September, 1978, by R. E. GALVIN, Attorney-in-Fact of GULF OIL CORPORATION, a Pennsylvania corporation, on behalf of the corporation.

My Commission Expires:

NOV 30 1978

Emily Jones
Notary Public in and for
Midland County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 14 Aug 1978 _____

Date: _____ _____

Address: 721 Tamo St
Costa Mesa
92627

ATTEST:

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF CALIFORNIA)
)
COUNTY OF ORANGE)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by Roland Hall --------.

My Commission Expires:

May 5, 1979

OFFICIAL SEAL
EVELYN M. CHAMBERLAIN
NOTARY PUBLIC - CALIFORNIA
ORANGE COUNTY
My comm. expires MAY 5, 1979

Evelyn M. Chamberlain
Notary Public in and for
Orange County

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 22, 1978 Lois A. Hankamp

Date: _____ _____

Address: 5432 Shelley Way
Carmichael, Calif. 95608

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF California)
)
COUNTY OF Sacramento)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 22nd day of August, 1978, by Louis A. Hoskinson.

My Commission Expires:

Dec 22, 1981

Etta Ann Lehman
Notary Public in and for
Sacramento County Ca

OFFICIAL SEAL
ETTA ANN LEHMAN
NOTARY PUBLIC · CALIFORNIA
SACRAMENTO COUNTY
My comm. expires DEC 22, 1981

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-15-1978 Frank Dick Harkins

Date: _____ _____

Address: Box 413
Hagerman New Mexico

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF N.M.)
)
COUNTY OF Chaves)

The foregoing instrument was acknowledged before me this 15th day of August, 1978, by Frank Dub Hardin.

My Commission Expires:

10-27-80

Mabel Nail
Notary Public in and for
Chaves County N.M.

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-15-78 John R. Harden

Date: 8/15/78 Mary R. Harden

Address: 3619 W. Griswold
Phoenix, Az

ATTEST:

Elizabeth Anne Owens
4713 W. Waltann La.

By: _____

Date: Aug. 15, 1978

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Arizona)
)
COUNTY OF Maricopa)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 15th day of August, 1978, by John R. Hardin and Mary Hardin, husband and wife.

My Commission Expires:

My Commission Expires June 22, 1980

Marilyn Foster
Notary Public in and for
Maricopa County Arizona

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

403

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico. the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: ATTEST:

George L. Hangs, Secretary

Date: August 11, 1978

PEARL M. & JULIA J. HARMON FOUNDATION, INC.

By: L. A. Leffler, Vice President

Address: P. O. Box 386
Nowata, Oklahoma 74048

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF OKLAHOMA)
)
COUNTY OF NOWATA)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11th day of August, 1978, by L. A. Leffler, Vice President of Pearl M. & Julia J. Harmon Foundation, Inc., an Oklahoma corporation, on behalf of the corporation.

My Commission Expires:

February 24, 1981

Mary Ellen Grant
Notary Public in and for
Nowata County Oklahoma

404

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 14, 1978

David C. Harrell

Date: _____

_____

Address: 127 Yucca Drive
Jackson, Mississippi 39211

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Mississippi I

COUNTY OF Hinds I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by David C. Harrell.

My Commission Expires:

4/8/1982

Jeanette T. Stevenson
Notary Public in and for
Hinds County Mississippi

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

New No. HOU 33900

Date: 8/17/78 — Evelyn Hansen

Date: 8/17/78 — Howard R Hansen

Address: 819 Honeysuckle Rd N.W.
Hamilton Georgia

ATTEST:

_____ — _____

By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Georgia I
I
COUNTY OF Hall I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 17th day of August, 1978, by Evelyn Houser & Howard R. Houser.

My Commission Expires:

Notary Public, Georgia, State at Large
My Commission Expires Feb. 2, 1979

Sue B. Pierce
Notary Public in and for
Hall County Georgia

STATE OF Georgia I
I
COUNTY OF Hall I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 17th day of August, 1978, by Evelyn Houser and Howard R. Houser, husband and wife.

My Commission Expires:

Notary Public, Georgia, State at Large
My Commission Expires Feb. 2, 1979.

Sue B. Pierce
Notary Public in and for
Hall County Georgia

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/30/78 — Ruby M Adams

Date: _____ — _____

Address: 1441 BEXLEY LANE
BREA, CALIFORNIA 92621

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF California)
)
COUNTY OF Orange)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 30th day of August, 1978, by Glenn A. Harris and Ruby M. Harris, husband and wife.

My Commission Expires:

_____

OFFICIAL SEAL
LORETTA PAREDEZ
NOTARY PUBLIC CALIFORNIA
PRINCIPAL OFFICE IN
ORANGE COUNTY
My Commission Expires October 29, 1981

Loretta Paredez
Notary Public in and for
Orange County, California

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: March 16, 1979

William J. Harris

Date: March 16, 1979

Betty Jane Harris

Address: C/O Pat Patterson
200 Nichols Hills Exec. Bldg.
Oklahoma City, Okla. 73116

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEVADA)
)
COUNTY OF CLARK)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of March, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Nevada)
)
COUNTY OF Clark)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 16th day of March, 1978, by William J. Harris and Betty Jane Harris, husband and wife.

My Commission Expires:

June 10 1983

OFFICIAL SEAL
NOTARY PUBLIC-STATE OF NEVADA
CLARK COUNTY
Lynn Ann Bowers
My Commission Expires JAN. 10, 1983

Lynn Ann Bowers
Notary Public in and for
Nevada County of Clark

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

#08

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 6-14-78 _____

Date: 6-14-78 _____

Address: _____

_____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Okla. I
I
COUNTY OF Tulsa I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by Richard L. Harris and Judith A. Harris, husband and wife.

My Commission Expires:

My Commission Expires December 29, 1979

Notary Public in and for
Tulsa County Okla.

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/16/78 [signature]

Date: 8/16/78 Fernanda de M. Hastie

Address: Magnolia Gardens
Rt 4, Charleston, S.C.
29407

ATTEST:

[signature]

By: _____

Date: Aug 16, 1978

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF South Carolina)
)
COUNTY OF Charleston)

The foregoing instrument was acknowledged before me this 17th day of August, 1978, by J. D. Hastie and Fernanda de M Hastie, husband and wife.

My Commission Expires:

1/28/82

J. E. Zaw
Notary Public in and for
Charleston County South Carolina

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

V11

RATIFICATION

NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-22-78

W. M. Hawk.

Date: _____

Address: 2620 S. St. Louis

Tulsa, Oklahoma

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF Oklahoma)
)
COUNTY OF Tulsa)

The foregoing instrument was acknowledged before me this 22nd day of August, 1978, by W. M. Hawk.

My Commission Expires:

5-9-82

Rhonda Allison
Notary Public in and for
Tulsa County Oklahoma

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/14/78 — Amy Vanderlagen Hawkes

Date: _____

Address: 150 Lake Street
White Plains N.Y. 10604

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF NEW YORK)
)
COUNTY OF WESTCHESTER)

The foregoing instrument was acknowledged before me this 14 day of August, 1978, by AMY VARNHAGEN HAWKES.

My Commission Expires:

M. GRACE CARR
NOTARY PUBLIC, State of New York
No. 60-7406933
Qualified in Westchester County
Commission Expires March 30, 19 80

M Grace Carr
Notary Public in and for
WESTCHESTER County N.Y.

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9-16-78 Oris Hawkins

Date: _____ _____

Address: 815 May St.
Ft. Worth, Tex 76104

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas
COUNTY OF TARRANT

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16 day of Sept, 1978, by CRIS HAWKINS.

My Commission Expires:

10-21-80

[illegible], Notary Public
in and for Tarrant County, Texas

Notary Public in and for
Tarrant County Texas

STATE OF _____
COUNTY OF _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____
COUNTY OF _____

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 15, 1978

Robert N. Haynes

Date: August 15, 1978

Marjorie R. Haynes

Address: 521 PRINCETON DR.
TYLER, TX. 75703

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Smith I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 15th day of August, 1978, by Robert D Haynes and Marjorie B Haynes, husband and wife.

My Commission Expires:

7-80

Linda Carter
Notary Public in and for
Smith County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 23, 1978

JACK HAZELTINE

Date: _____

Address: 1 Benjamin Franklin Drive., Apt. 83

Sarasota, Florida 33577

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF TRAVIS I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 23rd day of August, 1978, by JACK HAZELTINE.

My Commission Expires:

Jan. 31 1979

Mary E. Payne

Mary E. Payne Notary Public in and for TRAVIS County ~~Texas~~

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement: and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 9, 1978

Mrs. Anna Claire Beazley Henderson
Mrs. Anna Claire Beazley Henderson

Date: Aug 9, 1978

Richard Henderson
Richard Henderson
Address: P. O. Box 1848
Victoria, Texas 77901

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I
I
COUNTY OF VICTORIA I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 9th day of August, 1978, by Richard Henderson and Mrs. Anna Claire Beazley Henderson, husband and wife.

My Commission Expires:
December 31, 1978

NOTARY PUBLIC COUNTY OF VICTORIA, TEXAS

Ruby M. Mock RUBY M. MOCK
Notary Public in and for
Victoria County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

4/7

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 7-12-79 — Charles E. Hendrick

Date: 7-12-79 — Barbara A. Hendrick

Address: 9713 Nordstrom Ct.
Gaithersburg, Md. 20760

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Maryland I

I

COUNTY OF Montgomery I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 12th day of July, 1978, by Charles E Hendrick and Barbara A Hendrick, husband and wife.

My Commission Expires:

July 1, 1982

Susan R Ehrlich
Notary Public in and for
Montgomery County Maryland

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

Mary Ann Maloney _____

By: John V. Hendrick Jr
Alice M. Hendrick

Date: June 1, 1979

Address: 1733 Lindale Ave
Drexel Hill Pa 19026

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Pennsylvania I
I
COUNTY OF Philadelphia I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 1st day of June, 1978, by John V. and Alice M. Hendricks.

My Commission Expires:
MARY ANN MALONEY, NOTARY PUBLIC
PHILADELPHIA, PHILADELPHIA COUNTY
MY COMMISSION EXPIRES DEC. 10, 1982
Member, Pennsylvania Association of Notaries

Mary Ann Maloney
Notary Public in and for
Philad. County Pa.

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

4/8
4/9

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-11-78

James T. Henry

Date: 8-11-78

Joanne Stearns Henry

Address: P.O. Box 477
Lovington, New Mexico 88260

ATTEST:

Patricia G. Lawson

Patricia G. Lawson, Notary Public

Date: August 11, 1978

By: James T. Henry
James T. Henry

Address: P.O. Box 477
Lovington, New Mexico 88260

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF NEW MEXICO)
)
COUNTY OF LEA)

The foregoing instrument was acknowledged before me this 11th day of AUGUST, 1978, by JAMES T. HENRY and JOANNE STERN HENRY, husband and wife.

My Commission Expires:

January 22, 1982

Notary Public in and for
LEA County, NEW MEXICO

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 15, 1978

J. H. Herd
J. H. Herd

Date: August 15, 1978

Harriet D. Herd
Harriet D. Herd

Address: P.O. Box 130
Midland, Texas 79702

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF TEXAS)
)
COUNTY OF MIDLAND)

The foregoing instrument was acknowledged before me this 15th day of August, 1978, by J. H. Herd and Harriet D. Herd, husband and wife.

My Commission Expires:

7-31-80

Viola F. Campbell
Notary Public in and for
Midland County Texas

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: 10-24-78 Mrs Caron A. Hall

Address: 6821 Charade

Dallas, TX 75214

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF Texas I
I
COUNTY OF Dallas I

The foregoing instrument was acknowledged before me this 24th day of October, 1978, by Mrs Carrie A Hill.

My Commission Expires:

Oct. 13, 1980

Helen B. Collins
Notary Public in and for
Dallas County Texas

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

The Fort Worth National Bank, Trustee for Jennifer Dee Hill Trust #297101

ATTEST:

William L Cleveland
Trust Officer

By: [signature]
Asst. Vice President and Trust Officer

Date: February 8, 1979

Address: P. O. Box 2605
Fort Worth, TX 76101

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Tarrant I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 8th day of February, 1979, by D. A. NOLES, Asst. Vice President & Trust Officer of THE FORT WORTH NATIONAL BANK, a national corporation, on behalf of the corporation.

My Commission Expires:
MY COMMISSION EXPIRES FEBRUARY 3rD, 1980

_____

L. C. Ross
Notary Public in and for
Tarrant County, Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

The Fort Worth National Bank, Trustee for
Joe Dennis Hill Trust #297102

ATTEST:

William L Cleveland
Trust Officer

By: D A Nuckols
Asst. Vice President & Trust Officer

Date: February 8, 1979

Address: P. O. Box 2605
Fort Worth, TX 76101

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas)
)
COUNTY OF Tarrant)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 8th day of February, 1979, by D. A. NOLES, Asst. Vice President & Trust Officer of THE FORT WORTH NATIONAL BANK, a national corporation, on behalf of the corporation.

My Commission Expires:

My Commission Expires February 28, 1981

_____

L C Riggs
Notary Public in and for
Tarrant County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 10/13/78

Marian Hinn Riggs
Marian Hinn Riggs

Date: 10/13/78

Mrs Lochie Hinn
Mrs. Lochie Hinn

Harold Hinn
Harold Hinn

Robert Hinn
Robert Hinn

Virginia Hinn Tudor
Virginia Hinn Tudor

Address: P.O. Box 1000, Plainview, Tx 79072

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Tulsa)
)
COUNTY OF Wale)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 13th day of October, 1978, by Harold Wenn, Robert Wenn, Virginia Wenn Fuller, Marian Wenn Riggs and Lochie Wenn.

My Commission Expires:

[illegible]

[illegible]
Notary Public in and for
Wale County Tulsa

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 12/28/78

Berry Lee Hobbs
Berry Lee Hobbs

Date: 12/28/78

Annie Mae Hobbs
Annie Mae Hobbs
Address: P. O. Box 152
Lovington, New Mexico 88260

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF New Mexico I
I
COUNTY OF Lea I

The foregoing instrument was acknowledged before me this 28th day of December, 1978, by Berry Lee Hobbs and Annie Mae Hobbs, husband and wife.

My Commission Expires:

February 21, 1982

John Holloway
Notary Public in and for
New Mexico County Lea
State of:

CORPORATE ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

FIRST NATIONAL BANK & TRUST CO. OF BEAVER DAM, Trustee
HOBBS OIL SYNDICATE

Date: May 29, 1979

By Dean A. Beck Trust Officer
Dean A. Beck
Address: 120 Park Ave.
Beaver Dam, WI 53916

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Wisconsin I
I
COUNTY OF Dodge I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 29th day of May, 1979, by Dean A. Beck, Trust Officer of First National Bank & Trust Co. of Beaver Dam, a U. S. banking corporation, on behalf of the corporation.

My Commission Expires:

1-23-83

Elaine Bugge
Notary Public in and for
Dodge County, Wisconsin

428

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Nov 6 1978

Mary Hobbs Griffith
Mary Hobbs Griffith
and
First National Bank in Dallas,
Co-Trustees U/W/O Minnie Sanderson Hobbs, Dec'd.

Date: _____

By: _____
Vice President-Trust

ATTEST:

By: _____
Assistant Cashier

P.O. Box 83782
Dallas, Texas 75283

By: _____

Date: 9-12-78

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas

COUNTY OF Dallas

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 12th day of September, 1978, by Harry C. Mayer.

My Commission Expires:

September 1, 1980

Delores C. Polk
Notary Public in and for
Dallas County Texas

STATE OF TEXAS

COUNTY OF Bee

BEFORE ME, on this day personally appeared Mary Hobbs Griffith who stated that he is an officer or authorized representative of the above permittee and is known to me to be the person whose name is subscribed hereto, who being by me first duly sworn, on his oath deposes and says that the information contained in this report is true and correct.

(Affiant Signature & Title)

SWORN TO AND SUBSCRIBED BEFORE ME, THIS THE 6th DAY OF Nov. A.D. 1978

Jim Carlton
Notary Public in and for

Bee
County, Texas

Exp. 1-31-79

STATE OF Texas

COUNTY OF Dallas

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 12th day of September, 1978, by Harry C. Mayer, Vice President of First National Bank in Dallas, a Texas corporation, on behalf of the corporation, in the capacity therein stated.

My Commission Expires:

September 30, 1980

Deloris C. Polk
Notary Public in and for
Dallas County Texas

430

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-15-78

Victor E. Holman

Date: 8-15-78

Ernestine B. Holman

Address: 822 E. Mansur
Guthrie, OK. 73044

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF OKLAHOMA I
I
COUNTY OF LOGAN I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 15TH day of AUGUST, 1978, by VICTOR E. HOLMAN and ERNESTINE B. HOLMAN, husband and wife.

My Commission Expires:

8-17-79

Kay Hudson
Notary Public in and for
Logan County Oklahoma

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

465
431

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 24, 1978 C. G. Kaufman

Date: _____

Address: 801 First National Bank
Midland, Texas 79701

ATTEST: Robert B. Hall

By: _____

Date: August 24, 1978

Address: 801 First National Bank
Midland, Texas 79701

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF MIDLAND I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 24th day of August, 1978, by A. G. KASPAR and ROBERT B. HOLT.

My Commission Expires:

March 31, 1979

Gloria Stephenson
Notary Public in and for
Midland County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

Date: _____

Address: _____

ATTEST:

THE HOME-STAKE OIL & GAS COMPANY

By: _____
Secretary

By: _____
President

Date: 8-10-78

Address: 507 Philtower Bldg., Tulsa, OK 74103

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF OKLAHOMA)
)
COUNTY OF TULSA)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 10th day of August, 1978, by O. Strother Simpson, President of The Home-Stake Oil & Gas Company, an Oklahoma corporation, on behalf of the corporation.

My Commission Expires:

1-7-81

Dora M. Pattison
Notary Public in and for
Tulsa County Oklahoma

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: _____

Address: _____

_____

ATTEST:

THE HOME-STAKE ROYALTY CORPORATION

By: _____
Secretary

By: _____
President

_____

Date: 8-10-78

Address: 507 Philtower Bldg., Tulsa, OK 74103

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF OKLAHOMA I

I

COUNTY OF TULSA I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 10th day of August, 1978, by O. Strother Simpson, President of The Home-Stake Royalty Corporation, a n Oklahoma corporation, on behalf of the corporation.

My Commission Expires:

1-7-81

Dora N. Pattison
Notary Public in and for
Tulsa County Oklahoma

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST: _____

Evangeline H. Williams
Secretary

By: John E. Walters Vice
John E. Walters, Vice President
HOUSTON OIL & MINERALS CORPORATION

Date: March 28, 1979

Address: 242 The Main Building
Houston, Texas 77002

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I
I
COUNTY OF HARRIS I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 29th day of March, 1979, by John E. Walters, Vice President of HOUSTON OIL & MINERALS CORPORATION, a Nevada corporation, on behalf of the corporation.

My Commission Expires:

December 14, 1980

Notary Public in and for
Harris County TEXAS

V 35

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 10, 1978

John Fallenbury, as Surviving Executor of the Last Will and Testament of MARY HOYNES, dec'd.

Address: 140 Nassau Street

New York, NY 10038

Date: _____

ATTEST:

_____

_____

Date: _____

By: _____

_____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF NEW YORK)
)
COUNTY OF NEW YORK)

The foregoing instrument was acknowledged before me this 10th day of August, 1978, by JOHN FALLENBERG, in the capacity therein stated.

My Commission Expires:

Notary Public in and for
County

ROBERT [illegible]
Notary Public, State of New York
No. 30-6731830
Qualified in Nassau County
Commission Expires March 30, 1980

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF)
)
COUNTY OF)

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

Notary Public in and for
County

CORPORATE ACKNOWLEDGMENT

STATE OF)
)
COUNTY OF)

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

Notary Public in and for
County

(440)-1
665

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 16, 1978

E R Hudson

Edward R. Hudson, Jr., Trustee
Account No. 056 259 5

Address: P.O. Box 17105
Fort Worth, Texas 76102

Date: _____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF TARRANT I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16 day of August, 1978, by Edward R. Hudson, Jr., Trustee Acct 056 259 5.

My Commission Expires:

7/31/80

Virginia Cranke
Notary Public in and for
Tarrant County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 9, 1978

HUDSON NEW MEXICO MINERAL TRUST

By _____
Edward R. Hudson, Jr., Trustee

Address: 1000 1st National Bank Bldg
Fort Worth, Texas 76102

Date: _____

ATTEST:

_____

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF TARRANT I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 9 day of August, 1978, by Edward R. Hudson, Jr., Trustee Hudson New Mexico Mineral Trsut

My Commission Expires:

7/31/80

Virginia Clark
Notary Public in and for
Tarrant County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

4424 443

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: December 22, 1978

H. HUFFMAN & CO., a Limited Partnership

Date: _____

By _____
Huston Huffman, General Partner
Address: 2550 Liberty Tower
Oklahoma City, Oklahoma 73102

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF OKLAHOMA)
)
COUNTY OF OKLAHOMA)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 22 day of December, 1978, by HUSTON HUFFMAN In the capacity therein stated.

My Commission Expires:

October 7, 1979

Notary Public in and for
Oklahoma County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

444

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 29, 1978

Natalie S. Shuffman

Date: _____

A Widow

Address: 4044 Valente Court
Lafayette, California 94549

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF California)
)
COUNTY OF Contra Costa)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 29th day of August, 1978, by ***Natalie S. Huffman, a widow***.

My Commission Expires:

September 12, 1981

M.R. Woodard
Notary Public in and for
Contra Costa County California

OFFICIAL SEAL
M.R. WOODARD
NOTARY PUBLIC — CALIFORNIA
ALAMEDA COUNTY
My Commission Expires September 12, 1981

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

444A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: JUL 3 0 1979

Martin DeForest Hulshizer Jr.
MARTIN DEFOREST HULSHIZER

Date: _____

_____

Address: 2367 CHESTNUT, APARTMENT 2
LONG BEACH, CALIFORNIA 90806

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF CALIFORNIA)
)
COUNTY OF LOS ANGELES)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 30 day of JULY, 1978, by Martin DeForest Hulshizer.

My Commission Expires:

OCT. 5, 1982

OFFICIAL SEAL
IRMGARD UMBARGER
Notary Public-California
Principal Office in
Los Angeles County
My Commission Expires Oct. 5, 1982

[signature]
California
Notary Public in and for
LOS ANGELES County

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

445

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 4-19-78

Martin De Forest Hulshizer
Trustee U/W of G. Hulshizer

Address: 2367 Chestnut 2
Long Beach Ca 90806

Date: _____

ATTEST: _____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF California)
)
COUNTY OF Los Angeles)

The foregoing instrument was acknowledged before me this 19th day of Sept., 1978, by Martin De Forest Hulshizer in the capacity therein stated.

My Commission Expires:

March 30, 1982

Mary Leslie
Notary Public in and for
Los Angeles County Calif.

OFFICIAL SEAL
MARY LESLIE
Notary Public-California
Principal Office in
Los Angeles County
My Commission expires March 30, 1982

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

4451

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 23, 1979

Arthur Humble

Arthur Humble

Address: 15325 Orange Avenue, #29C

Paramount, California 90723

Date: _____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF California)
)
COUNTY OF Los Angeles)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 23 day of August, 1979, by Arthur Humble.

My Commission Expires:

July 25, 1981

Mary J. Patton

Notary Public in and for Los Angeles County California

OFFICIAL SEAL
MARY J. PATTON
NOTARY PUBLIC - CALIFORNIA
LOS ANGELES COUNTY
My comm. expires JUL 25, 1981

STATE OF _____)
)
COUNTY OF _____)

~~CORP.~~ ACKNOWLEDGMENT
~~(HUSBAND AND WIFE)~~

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, ~~husband and wife~~.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: January 10, 1979

J. N. Humble

Date: _____

Verdie E. Humble

Address: San Angelo Route

Sterling City, TExas 76951

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Sterling. I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 10th day of January, 1979, 1978, by T.H.Humble and Verdie E. Humble, husband and wife.

My Commission Expires:

8-31-80

Walter B Graham
Notary Public in and for
Sterling County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

(446).1
301

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

ATTEST:

Assistant Trust Officer

Date: August 17, 1978

The First National Bank of Midland, Texas,
Trustee, Trust No. 863

Vice President & Trust Land Manager

Address: P. O. Box 270

Midland, Texas 79702

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I

I

COUNTY OF MIDLAND I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 17th. day of August, 1978, by Windel M. Gibson, Vice President & Trust Land Manager of The First National Bank of Midland, Texas, a banking corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

5-31-79

Jean E. Wilson
Notary Public in and for
MIDLAND County TEXAS

447

RATIFICATION

NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 10, 1978

Dwight L. Hunter, Jr., Individually and
Indpentant Executor-Trustee of
D. L. Hunter

Address: 2111 Mercantile Commerce Building

Dallas, Texas 75201

Date: _____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF Texas I
I
COUNTY OF Dallas I

The foregoing instrument was acknowledged before me this 10th day of August, 1978, by Dwight L. Hunter, Jr., in the capacity therein stated.

My Commission Expires:

September 30, 1978

Notary Public in and for
Dallas County Texas

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

4VC

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 10, 1978

Dwight L. Hunter, Jr., Independent Executor and Trustee U/W of D. L. Hunter and Mary Bland Hunter

Address: 2111 Mercantile Commerce Building

Dallas, Texas 75201

Date: _____

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I

COUNTY OF Dallas I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 10th day of August, 1978, by Dwight L. Hunter, Jr., in the capacity therein stated.

My Commission Expires:

September 30, 1978

Notary Public in and for
Dallas, County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 4-30-79

Dwight L. Hunter, Jr., Independent Executor of the Estate of Mary Bland Hunter

Date: _____

Address: 2111 Mercantile Commerce Building
Dallas, Texas 75201

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF TEXAS)
)
COUNTY OF DALLAS)

The foregoing instrument was acknowledged before me this 20th day of April, 1978, by Dwight J. Hunter, Jr., in the capacity therein stated.

My Commission Expires:
Sept. 30, 1980

Notary Public in and for Dallas County, Texas

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

449A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 14, 1978

Leona S. Huston by Robert H. Huston Jr.
Executor

Date: _____

_____

Address: Box 1082, Hobbs, New Mexico

_____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico I
I
COUNTY OF Lea I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by Robert H. Huston, Jr. In the capacity therein stated.

My Commission Expires:

Nov 4, 1978

Linda Rizzo
Notary Public in and for
Lea County New Mexico

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

450

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 14, 1978

John H. Hutton Agent
Agent For: Mrs. J. F. Hutton, Walter Buckley, James Buckley, Mrs Judy McGregor, Harold Hutton, Beatrice Hutton

Address: 803 Clearwater
Richardson, Texas 75080

Date: _____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
COUNTY OF Dallas I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14 day of August, 1978, by John H. Hutton Agent.

My Commission Expires:

Notary Public
In and for Dallas County, Texas
My commission expires 7-19-80

Bilye Meyer
Notary Public in and for
Richardson County Dallas
Texas

STATE OF _____ I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ a _____ of _____, corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 2-21-79

Andrew L Mahony
Conservator of
Nelle S Hyland

Address: 10220 Lindbrook Dr
Los Angeles Calif

Date: _____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Calif.)
)
COUNTY OF Los Angeles)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 21st day of February, 1978, by Andrew L. Mahoney, Conservator of Nelle P. Hyland.

My Commission Expires:

OFFICIAL SEAL
FREDA L. PHIPPS
NOTARY PUBLIC CALIFORNIA
PRINCIPAL OFFICE IN
LOS ANGELES COUNTY
My Commission Expires June 22, 1981

Freda L. Phipps
Notary Public in and for
Los Angeles County, Calif.

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

(455) 485-2

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-16-78 Gladys Goodkind Jacobson

Date: _____

Address: 3513 Dunedin Dr Apt 103
Chesapeake, Va. 23321

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF VIRGINIA I
CITY I
~~COUNTY~~ OF PORTSMOUTH I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of August, 1978, by GLADYS GOODKIND JACOBSON.

My Commission Expires:

2-9-80

Notary Public in and for
Portsmouth ~~County~~ Virginia

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: March 7, 1979 Edgeworth Closley Bailey

Date: _____

Address: 1071 Santa Helena Park Court
Solana Beach, Ca. 92075

ATTEST:

By: _____

Date: _____ Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF California)
)
COUNTY OF San Diego)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 7th day of March, ~~1978~~ 1979, by Elizabeth Chesley Baity.

My Commission Expires: 3/29/81

OFFICIAL SEAL
NATALIE GIUSTINA
NOTARY PUBLIC - CALIFORNIA
PRINCIPAL OFFICE IN
SAN DIEGO COUNTY
My Commission Expires March 29, 1981

Natalie Giustina
Notary Public in and for
San Diego County California

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept. 13, 1978 Kathaleen W. Baker

Date: _____

Address: 105 Tidewaters
~~Rehoboth, De. 19971~~
Henlopen Acres
De. 19971

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF DELAWARE I
I
COUNTY OF SUSSEX I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 13TH day of SEPTEMBER, 1978, by KATHLEEN W. BAKER.

My Commission Expires:

6-3-80

Notary Public in and for
SUSSEX County DELAWARE

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: aug 21 1978 — Virginia L Barnes

Date: aug 21 1978 — Raymond L Barnes

Address: 1513 WHALEY
OCEANSIDE, Ca 92054

ATTEST:

_____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF California)
)
COUNTY OF San Diego)

The foregoing instrument was acknowledged before me this 21 day of August, 1978, by Virginia I Barnes and Raymond I Barnes, husband and wife.

My Commission Expires:

12/26/80

OFFICIAL SEAL
LILLIAN CONAT
NOTARY PUBLIC - CALIFORNIA
PRINCIPAL OFFICE IN
SAN DIEGO COUNTY
My Commission Expires December 26, 1980

Lillian Conat
Notary Public in and for
California County of San Diego

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9/13/78 — Elizabeth T. Barry

Date: 9/13/78 — Donald L. Barry

Address: 644-24th St. NE
Cedar Rapids Iowa
52402

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF IOWA)
)
COUNTY OF LINN)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 13th day of September, 1978, by Donald S. Barry and Elizabeth T. Barry, husband and wife.

My Commission Expires:

Sept. 30, 1981

W. Howard Smith
Notary Public in and for
Linn County Iowa

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

(34)
30

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 10-24-78 Roy G Barton

Date: _____ _____

Address: Box 978
HOBBS New Mexico 88240

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEW MEXICO)
)
COUNTY OF LEA)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 24th day of October, 1978, by Roy G. Barton.

My Commission Expires:
MY COMMISSION EXPIRES
1-14-81

Notary Public in and for
Lea County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 10-24-78 Ruth Bates

Date: _____ _____

Address: Box 978
Hobbs, N M 88240

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEW MEXICO)
)
COUNTY OF LEA)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 24th day of October, 1978, by Roy G. Barton Jr. Box 978, Hobbs, N.M. 88240.

My Commission Expires:
MY COMMISSION EXPIRES
1-14-81

Notary Public in and for
Lea County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 10-24-78

Roy G Barton

Date: 10-24-78

Opal Barton

Address: Box 978
Hobbs NM 88240

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF NEW MEXICO)
)
COUNTY OF LEA)

The foregoing instrument was acknowledged before me this 24th day of October, 1978, by Roy G.Barton and Opal Barton, husband and wife.

My Commission Expires:
MY COMMISSION EXPIRES
1-14-81

Joan Barbaree
Notary Public in and for
Lea County New Mexico

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: January 9, 1979

Floy T Bates

Date: _____

212 Central Caldwood Drive

Address: Beaumont Texas

77707

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Jefferson I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 9 day of January, 1979, by Floy T. Bates.

My Commission Expires:

9-30-80

Katherine R. Fortenberry
Notary Public in and for
Jefferson County Texas
(Katherine R. Fortenberry)

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: November 8, 1978 Floy Baten

Date: November 8, 1978 [signature]
Executors of the Estate of Gordon
Address: O. Baten, Deceased
1214 Petroleum Bldg.
Beaumont, Texas 77701

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF Texas)
)
COUNTY OF Jefferson)

The foregoing instrument was acknowledged before me this 8th day of November, 1978, by Flora Bates and Rex G. Fitzenberg as Independent Executors of the Estate of Gordon B. Bates, Deceased

My Commission Expires:

9-30-80

Katherine R. Fitzenberg
Notary Public in and for
Jefferson County Texas

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 14. MAY 1979

Mrs Grace Bauer

Date: _____

Address: THE CAST HOUSE
GREENWOODS LANE
PUNNETTS TOWN
HEATHFIELD SUSSEX ENGLAND
TN21-9HU

ATTEST:

By: _____

_____

Date: 14. MAY 1979

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Maryland)
)
COUNTY OF Sussex)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of May, 1978, by Grace Bauer Widow.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 5/16/78 _____ James L. Batter

Date: _____ 144 13-75 Ave

Address: Flushing NY

ATTEST: _____

By: _____

Date: _____ Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF [illegible])
)
COUNTY OF [illegible])

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 6 day of [illegible], 1978, by [illegible].

My Commission Expires:

GRACE N. WINKELSTERN
NOTARY PUBLIC, State of New York
No. 41-5622920
Qualified in Queens County
Commission Expires March 30, 19 [illegible]

[illegible]
Notary Public in and for
[illegible] County [illegible]

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

(45)

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 23, 1978

Mary E. P Estey

Date: _____

_____

Address: 3606 Vista Rey, Apt. 49

Oceanside, California 92054

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF CALIFORNIA)
)
COUNTY OF SAN DIEGO)

The foregoing instrument was acknowledged before me this 23rd day of August, 1978, by Mary E. Beatty.

My Commission Expires:

_____

_____
Notary Public in and for
San Diego County California

OFFICIAL SEAL
JOHN I. LOY
NOTARY PUBLIC - CALIFORNIA
PRINCIPAL OFFICE IN
SAN DIEGO COUNTY
My Commission Expires June 23, 1979

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 10, 1978

Jean D. Beckwith
Jean D. Beckwith

Date: _____

Address: 274 Melrose Avenue
Monrovia, California 91016

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF CALIFORNIA)
)
COUNTY OF LOS ANGELES)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 10th day of August, 1978, by Jean D. Beckwith, a widow.

My Commission Expires:

May 8, 1981

Janice M. Upstone
Notary Public in and for
Los Angeles County California

JANICE M. UPSTONE
NOTARY PUBLIC - CALIFORNIA
PRINCIPAL OFFICE IN
LOS ANGELES COUNTY
My Commission Expires May 8, 1981

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-28-78

Charles Francis Bedford

Date: _____

_____

Address: _____

C. F. BEDFORD
7 WESTOVER ROAD
FORT WORTH, TEXAS 76107

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF TEXAS)
)
COUNTY OF TARRANT)

The foregoing instrument was acknowledged before me this 28 day of August, 1978, by Charles Francis Bedford.

My Commission Expires:

11-30-78

Janell W. Jones
Notary Public in and for
Tarrant County Texas

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 18, 1978 Helen Learmont Bedford (Widows)

Date: _____ _____

Address: 2067 A Via Mariposa East
Laguna Hills, Calif
92653

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF California)
)
COUNTY OF Orange)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of August, 1978, by Helen Rearmont Bedford.

My Commission Expires:

OFFICIAL SEAL
BETTY B. GREEN
NOTARY PUBLIC CALIFORNIA
PRINCIPAL OFFICE IN
ORANGE COUNTY
My Commission Expires Sept. 9, 1979

Betty B. Green
Notary Public in and for
Orange County California

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-25-78 Henry D. Bedford

Date: _____

Address: Henry D. Bedford
1312 No. Richardson
Roswell, New Mexico

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF New Mexico)
COUNTY OF Chaves)

The foregoing instrument was acknowledged before me this 25th day of August, 1978, by Henry de Graffenried Bedford.

My Commission Expires:
May 3, 1982

Delca Jane Hubbard
Notary Public in and for
Chaves County New Mexico

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:
_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:
_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-21-78 W. C. Bednar

Date: 8-21-78 Frances A. Bednar

Address: 1225 Republic Nat. Bk Bldg.
Dallas, TX 75201

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I

I

COUNTY OF Dallas I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 21st day of August, 1978, by W. C. Bednar and Frances A. Bednar, husband and wife.

My Commission Expires:

June 30, 1980

Ruth L. Bryan
Notary Public in and for
Dallas County Texas

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/25/78 J. H. Bennie

Date: 8/25/78 D. M. Kee

Address: Prescott, Ark. 71857

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF ARKANSAS)
)
COUNTY OF NEVADA)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 25th day of August, 1978, by J.H. Bemis and D.L. McRae.

My Commission Expires:

December 7, 1978

Mary Britt Tillery
Notary Public in and for
Nevada County Arkansas

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

54

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-25-78

C E Brickenkamp

Date: 8-25-78

C J Brickenkamp Jr.

Address: 12225 Royal Drive
Midland, Texas 79707

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF Texas I
I
COUNTY OF Ft Bend I

The foregoing instrument was acknowledged before me this 25th day of August, 1978, by C.E. Brakebusch and C.L. Brakebusch.

My Commission Expires:

3-28-80

Hazel Fritz
Notary Public in and for
Ft Bend County Texas

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 9, 1978 _____

Date: Aug 9, 1978 _____

Address: 1005 Twenty-Third Street
Beaumont, Texas 77706

ATTEST:

_____

_____

Date: _____

_____

By: _____

_____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Jefferson I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 9th day of August, 1978, by Charles H. Benckenstein, Jr and Mrs. Charles H. Benckenstein, Jr., husband and wife.

My Commission Expires:

2/18/79

Wayne Humphrey
Notary Public in and for
Jefferson County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-8-78 — Claude L. Renckenstein Jr.

Date: 8-8-78 — David N. Renckenstein

Address: 12726 Royal Dr
Stafford, Tx. 77477

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Fort Bend I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 8th day of August, 1978, by Claude L. Benckenstein Jr.

My Commission Expires:

3-20-80

Notary Public in and for
Ft. Bend County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

Ellen Benckenstein

Date: _____

428-50-5787

Address: P.O. Box 106
Sulphur, La. 70663

ATTEST:

_____

Ellen Benckenstein
Brenda Benckenstein

By: _____

Date: August 16th 1978

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF ~~XXXX~~ La.)
Parish)
COUNTY OF Calcasieu)

The foregoing instrument was acknowledged before me this 27th day of September, 1978, by Ellis Menckenstein.

My Commission Expires:

At death

Notary Public in and for
Calcasieu Parish ~~County~~ La.

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 10, 1978 — Eunice L. Benckenstein

Date: _____ — _____

Address: P.O Box 700
Orange, Texas 77630

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas
COUNTY OF Orange

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 10th day of August, 1978, by Eunice R. Benckenstein.

My Commission Expires:
7-31-80

Notary Public in and for
Orange County Texas

STATE OF _____
COUNTY OF _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____
COUNTY OF _____

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/14/78

F. L. Benckenstein

F. L. BENCKENSTEIN

Date: _____

Address: P. O. Box 150

Beaumont, Texas 77704

ATTEST: _____

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF JEFFERSON I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by F. L. BENCKENSTEIN.

My Commission Expires:

2-19-80

Charlotte I. Goodhue

Notary Public in and for Jefferson County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____

Notary Public in and for _____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____

Notary Public in and for _____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 8, 1978 John H. Beuckenstein

Date: _____ _____

Address: P. O. Box 551
Beaumont, TX 77704

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS)
)
COUNTY OF JEFFERSON)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 8th day of August, 1978, by John H. Benckenstein.

My Commission Expires:

July 26, 1980

Lynda Cain
Notary Public in and for
Jefferson County Texas

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 8, 1978

John H. Benckenstein, Independent Executor of the Estate of A. J. Benckenstein, Deceased.

Date: _____

Address: P.O. Box 669
Beaumont, Texas 77704

ATTEST:

_____

By: _____

_____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF TEXAS I
I
COUNTY OF JEFFERSON I

The foregoing instrument was acknowledged before me this 8th day of August, 1978, by John H. Benckenstein, Independent Executor of the Estate of A. G. Benckenstein, deceased.

My Commission Expires:

July 26, 1980

Lynda Cain
Notary Public in and for
Jefferson County Texas

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-10-78

John H. Benckenstein, Independent Executor of the Estate of Alfred George Benckenstein

Date: _____

Address: P. O. Box 669
Beaumont, Texas 77704

ATTEST:

_____

By: _____

_____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Jefferson I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 10th day of August, 1978, by John H. Benckenstein, in the capacity therein stated.

My Commission Expires:

July 26, 1980

Bobbie Jo Johnson
Notary Public in and for
Jefferson County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

CORPORATE ACKNOWLEDGMENT

COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-12-78

Lekla F. Benckenstein life Estate.

by John H. Benckenstein Independent Executor of the Estate of Alfred George Benckenstein

Date: _____

Address: P. O. Box 669

Beaumont, Texas 77704

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Jefferson I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by John A. Benckenstein in the capacity therein stated.

My Commission Expires:

July 26, 1980

Notary Public in and for
Jefferson County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-21-78

Jessie Ramsey

Address: P. O. Box 15

Archer City, Texas 76351

Date: _____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF ARCHER I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 21 day of August, 1978, by Jessie Benson.

My Commission Expires:

January 1st 1980

NOTARY PUBLIC CITY OF ARCHER, TEXAS

Janice Kay Pippin
Notary Public in and for
Archer County Texas

JANICE KAY PIPPIN

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

6-5A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 14, 1978

Mabelle D. Clarke, Executrix
of Estate of Pearle D. Berry

Address: 461 Rio Conchos Dr., Apt. 90
San Angelo, Tx. 76901

Date: _____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas)
)
COUNTY OF Tom Green)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14 day of August, 1978, by Ma Bekke Q. Clarke, ~~in the capacity therein~~ stated.

My Commission Expires:

Jan. 1-1979

Opal E. Perry
Notary Public in and for
Tom Green County Texas

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 11/6/78

Myriel D. Hess Bubaski
Admx. of Est. of Mary S. Bergman (divorced)

Address: 1129 Ave C.
Bayonne, N.J. 07002

Date: _____

ATTEST:

_____

_____

Date: _____

By: _____

_____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF M.E.)
)
COUNTY OF Knox)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 8th day of November, 1978, by Muriel D. Hall grantor in the capacity therein stated.

My Commission Expires:

_____

Notary Public in and for
Knox County Me.

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

It is expressly agreed and understood that the within named Trustee is not and shall not be personally or individually liable upon any covenants or warranti- expressed or implied, in and by this instrument, and further that all liability of said Trustee, as such, under any such covenants or warranties is and shall be limited to the assets of the trust held by it as such Trustee at the time any such liability is asserted.

IN WITNESS WHEREOF, we sign on this 14th day of August, 1978.

ATTEST:
(SEAL)

Assistant Secretary

THE FIRST NATIONAL BANK OF KANSAS CITY, MISSOURI, SOLE TRUSTEE UNDER WILL OF FRANK M. BERNARDIN, DECEASED

By: Dudley Alexander
Dudley Alexander, Vice President

Date: _____

Address: P. O. Box 38
Kansas City, Missouri 64183

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Missouri)
)
COUNTY OF Jackson)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 17th day of August, 1978, by Dudley Alexander, Vice-President of The First National Bank of KC a Missouri Banking corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

July 18, 1981

Sarah D Lewis
Notary Public in and for
Jackson County Missouri

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 9, 1978 — Mrs. Leroy Clarke Administrator of Estate of Pearle J. Berry

Date: _____

Address: 461 Rio Concho Dr. Apt 90
San Angelo Tex 76901

ATTEST: _____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I

COUNTY OF Tom Green I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 9 day of August, 1978, by Mrs Leroy Clarke in the capacity therein stated.

My Commission Expires:

Jan. 1 - 1979

Notary Public in and for
Tom Green County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 25,1978 _____

Date: _____ _____

Address: Rt.3

Goldthwaite,Texas 76844

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Mills I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 25 day of August, 1978, by Nora Berry.

My Commission Expires:

January 31,1979

Notary Public in and for
Mills County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/10/78 Robert K Black

Date: 8/10/78 [illegible]

Address: 6900 N. Country Club Drive
Okla City Okla 73116

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Oklahoma)
)
COUNTY OF Oklahoma)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 10th day of August, 1978, by Robert K Bleth and Lorraine J. Bleth, husband and wife.

My Commission Expires:
Dec 26, 1978

Gloria C Wade
Notary Public in and for
Oklahoma County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: AUG 9 - 1978

Jane C. Blackford

Date: _____

Address: [illegible] 1776

[illegible] 78110

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF TEXAS)
)
COUNTY OF NAVARRO)

The foregoing instrument was acknowledged before me this 9th day of August, 1978, by Jane C. Blackford.

My Commission Expires:

3-31-79

Emily Stowe
Notary Public in and for
Navarro County Texas

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

THE BLANCO COMPANY

Date: 8-15-78

By: _____
V.Pres.

Date: _____

_____

Address: P.O. Box 1150
Roswell, New Mexico 88201

ATTEST:

_____

_____
Asst. Sec.

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF NEW MEXICO I

COUNTY OF CHAVES I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15 day of August, 1978, by Emmett D. White, Vice President of THE BLANCO COMPANY, a New Mexico corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
Chaves County New Mexico

OFFICIAL SEAL
SIGNATURE: Peggy Ann Voigt
PEGGY ANN VOIGT
NOTARY PUBLIC—NEW MEXICO
NOTARY BOND FILED WITH SECRETARY OF STATE
MY COMMISSION EXPIRES MAY 25, 1982

74

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

Date: _____

ATTEST:

Betty Whitt
Asst. Cashier

Date: 10-27-78

Address: _____

AMERICAN STATE BANK, TRUSTEE
FOR EMMA K. BLEDSOE TRUST

By: John R. Cannon VP&TO

Address: P.O. Box 1401
Lubbock, Texas 79408

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Lubbock I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 31 day of October, 1978, by John R. Cammack, Vice President & Tr. Officer of American State Bank, a _____ corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

4-27-79

Linda Bridges
Notary Public in and for
Lubbock County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 10, 1978 — J. G [signature]

Date: _____ — E. A. Bobb

Address: 1250 Van Cort. Pk. E.
Bronx, N.Y. 10470

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New York)
COUNTY OF New York)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 10th day of August, 1978, by E.A. Rabb.

My Commission Expires:

BERNADETTE H. NAGLE
Notary Public, State of New York
No. 41-2060100
Qualified in Queens County
Commission Expires March 30, 1979

Bernadette H. Nagle
Notary Public in and for
_____ County _____

STATE OF _____)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: November 7, 1978

Date: _____

Frances W. Bogart
4822 Campbell Street
Address: Kansas City Mo.
64110

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Missouri)
COUNTY OF Jackson)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 2th day of November, 1978, by Francis W. Bogart.

My Commission Expires:

Commission Expires July 9, 1979

Thomas F. Carlisle
Notary Public in and for
Jackson County Missouri

STATE OF _____)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 21 Aug, 1978

Hankee
Mildred Bogart

Date: _____

Mildred Hankee Bogart

Address: 2020 Club Drive
Vero Beach Florida
32960

ATTEST:

_____

_____
262 Commercial St. North Sydney
N. S. Canada.

Date: 21 Aug, 1978

By: _____

_____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

PROV. ~~STATE~~ OF NOVA SCOTIA I
I
COUNTY OF CAPE BRETON I

The foregoing instrument was acknowledged before me this 21st day of AUGUST, 1978, by Mildred Hankee Bogart.

My Commission Expires:

UPON DEATH

Notary Public in and for
~~County~~
THE PROVINCE OF NOVA SCOTIA

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Nov. 1, 1978

Charles A. Schoeneck, Jr.

Date: Nov 1, 1978

Chester H. King, Jr.
Executors of the Estate of George H. Bond Jr., #8478-00

REPUBLIC NATIONAL BANK OF DALLAS
Trust Oil & Gas Division
P. O. Box 241
Dallas, Texas 75221

ATTEST:

By: _____

_____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF New York)
: ss.
COUNTY OF Onondaga)

The foregoing instrument was acknowledged before me this 1 day of November, 1978, by Chester H. King Jr. & Charles A. Schwartz Jr. in the capacity therein stated.

My Commission Expires:

_____

Nancy M. Stewart
Notary Public in and for
_____ County _____

NANCY M. STEWART
Notary Public in the State of New York
Qualified in Onon. Co. No. 34-3849715
My Commission Expires March 30, 1979

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
: ss.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
: ss.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

81
915-655-4391

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 1-17-79 Mrs Edith Anson Bachwave

Date: _____

Address: 1104 Montecito Drive
San Angelo, Texas 76901

ATTEST:

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS

COUNTY OF TOM GREEN

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 17th day of January, 1979, by EDITH ANSON BOULWARE.

My Commission Expires:

11-30-78

James H Johnson

Notary Public in and for
Tom Green County Texas

STATE OF _____

COUNTY OF _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____

COUNTY OF _____

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

81582

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-15-78

Ford M. Boulware

Date: 8-15-78

Edith Ann Boulware

Address: FORD M. BOULWARE
Head of the River Ranch
Christoval, Texas 76935

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I
I
COUNTY OF TOM GREEN I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15 day of AUGUST, 1978, by FORDM. BOULWARE AND EDITH A. BOULWARE.

My Commission Expires:

11-30-78

James D Johnson
Notary Public in and for
TOM GREEN County TEXAS

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 5/24/78

Rachel Belford Bower, widow

Date: _____

Address: _____

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF California)
COUNTY OF Orange)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 24 day of August, 1978, by Rachel Bedford Bower, Trustee.

My Commission Expires:

OFFICIAL SEAL
MARGARET M. STEWART
NOTARY PUBLIC - CALIFORNIA
ORANGE COUNTY
My comm. expires JUN 28, 1982

Margaret M. Stewart
Notary Public in and for
County Orange

STATE OF _____)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 12/20/78

J. R. Bower Jr.

Date: _____

Address: 2505 Mercantile Dallas Bldg
Dallas Tx 75201

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Dallas I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 20th day of December, 1978, by J. R. Brown, Jr.

My Commission Expires:

January 3, 1980

Notary Public in and for
Dallas County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Address: _____

_____

By: _____
Trust Officer

Date: 11/14/78

REPUBLIC NATIONAL BANK OF DALLAS and Ann Knight Bower, Co-Trustees of the Kate E. Bower Testamentary Trusts 11-A thru 11-F, #3446-00 thru 3451-00

By: _____
Trust Administrative Officer

Ann Knight Bower, Co-Trustee

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Dallas I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16 day of November, 1978, by Ann Knight Bauer, and in the capacity stated therein.

My Commission Expires:

June 1, 1980

Arlene J. Clark
Notary Public in and for
Dallas County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I
I
COUNTY OF DALLAS I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14 day of NOVEMBER, 1978, by E. L. GAMBLE, TRUST ADMINISTRATIVE OFFICER of REPUBLIC NATIONAL BANK of DALLAS, Dallas, Texas, a _____ corporation, on behalf of the corporation.

My Commission Expires:
IRMA ATKINS
Notary Public, Dallas County, Texas
My Commission Expires January 26, 1979

Irma Atkins
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 9, 1978

Date: _____

Independent Executor and Trustee of Estates of O. L. Brace and Myrtle G. Brace, both deceased.

Address: 777 South Post Oak Road, #808
Houston, Texas 77056

ATTEST:

_____

_____

Date: _____

By: _____

_____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF TEXAS §
§
COUNTY OF HARRIS §

The foregoing instrument was acknowledged before me this 9th day of August, 1978, by Carlyle W. Urban as Independent Executor of the estates of O. L. Brace and Myrtle G. Brace, both deceased.

My Commission Expires:

10-30-79

Brenda A. Shumate
Notary Public in and for
Harris County Texas
BRENDA A. SHUMATE

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____ §
§
COUNTY OF _____ §

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____ §
§
COUNTY OF _____ §

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Address: _____

_____

Date: _____

_____

Address: _____

_____

ATTEST:

James R. McGregor
ASSISTANT SECRETARY

Date: Aug. 11, 1978

BRADLEY RESOURCES CORPORATION

By: Frank E. Jensen
VICE PRESIDENT

Address: 313 N. MAIN ST.
WELLSVILLE, N.Y. 14895

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF NEW YORK)
)
COUNTY OF ALLEGANY)

The foregoing instrument was acknowledged before me this 11th day of August, 1978, by Frank E. Jensen, VICE PRESIDENT of BRADLEY RESOURCES CORPORATION, a NEW YORK corporation, on behalf of the corporation.

My Commission Expires:

March 30, 1979

Myron M. Lineman
Notary Public in and for
ALLEGANY County NEW YORK

MYRON M. LINEMAN
NOTARY PUBLIC, STATE OF NEW YORK
ALLEGANY COUNTY COMMISSION NO. 795
EXPIRES MARCH 30, 19 79

9/92

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 17th, 1978

Vincent M Brannon

Date: Aug 17th 1978

Hilary Brannon

Address: ~~RFD 3~~
~~Putney, Vt. 05346~~
c/o Tucker Anthony Management Corp.
P.O. Box 1250 Boston, Mass. 02104

ATTEST:

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Vermont)
)
COUNTY OF Windham)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 17 day of August, 1978, by Vincent S.R. Brandt and Hi Kyung Brandt, husband and wife.

My Commission Expires:
2/10/79

Beverley S Cook
Notary Public in and for
Windham County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 3-8-79

Nancy Lee Breen

Date: 3-8-79

FORMER Address:
32049 Newcastle Dr.
Warren, Mich. 48093

Address: P.O. BOX 54
WARREN, MICH. 48090

ATTEST:

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I

COUNTY OF TARRANT I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 8th day of MARCH, 1979, by JOE MIKE BREES and NANCY LEE BREES, husband and wife.

My Commission Expires:

3-22-80

Notary Public in and for
TARRANT County, TEXAS

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9-22-78 Hal S Brent

Date: _____ _____

Address: 5310 BELLEVIEW
KANSAS City Mo. 64112

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Missouri I
I
COUNTY OF Jackson I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 22 day of September, 1978, by HAL S BRENT.

My Commission Expires:

May 19, 1982

Lisa A. Ruben
Notary Public in and for
Jackson County Missouri

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: JAN 4 79 _____ [signature]

Date: _____ 8415 Avenida de Los Ondas

Address: La Jolla Calif.

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF California)
)
COUNTY OF San Diego)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 4th day of January, 1978, by George A. Breon.

My Commission Expires:

OFFICIAL SEAL
CHERRI L. VARNEY
NOTARY PUBLIC - CALIFORNIA
Principal Office, San Diego Co. Calif.
My Commission Exp. Jun. 9, 1981

Cherri L Varney
Notary Public in and for
San Diego County Calif.

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-15-78 J. Harold W. Broome

Date: _____ _____

Address: P.O. Box 424
Los Angeles, Texas 76902

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Tom Green I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15 day of August, 1978, by Harold W. Basome.

My Commission Expires:

6-1-79

Notary Public in and for
Tom Green County Texa

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: July 16, 1978

Jackson Sadler Broome
JACKSON SADLER BROOME

Date: July 16, 1978

Mrs. Jackson Sadler Broome
MRS. JACKSON SADLER BROOME

Address: MRS. JACKSON SADLER BROOME
C/O CENTRAL NATIONAL BANK
P. O. Box 2088
San Angelo, TX 76902

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas)
)
COUNTY OF Tom Green)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 16th day of August, 1978, by JACKSON SADLER BROOME and MRS. JACKSON SADLER BROOME, husband and wife.

My Commission Expires:

4-26-79

Maxine Childs
Notary Public in and for
Tom Green County Texas

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

August 31, 1978 — [signature]

Date: September 14, 1978 — John A. Brown

10-3-78 — [signature]

Date: Aug. 31, 1978 — L. Glade Brown

Co-Testamentary Executors of Est. of [illegible] Tax I.D. No. 74-1848952

Address: P.O. Box 400

ORANGE, TEXAS 77630

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I

COUNTY OF Orange I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 31st day of August, 1978, by L. Slade Brown in the capacity therein stated.

My Commission Expires:

January 31, 1979

Jane Perry
Notary Public in and for
Orange County Texas

STATE OF Texas I

COUNTY OF Orange I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 31st day of August, 1978, by E. W. Brown III in the capacity therein stated.

My Commission Expires:

January 31, 1979

Jane Perry
Notary Public in and for
Orange County Texas

STATE OF Texas I

COUNTY OF Dallas I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of September, 1978, by JOHN S. BROWN in the capacity therein stated.

My Commission Expires:

September 16, 1979

John L Connell
Notary Public in and for
Dallas County Texas

STATE OF LOUISIANA I

~~COUNTY~~ PARISH OF OUACHITA I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 3rd day of OCTOBER, 1978, by CHARLES E. BROWN in the capacity therein stated.

My Commission Expires:

AT DEATH

D. P. Smith
Notary Public in and for
OUACHITA ~~County~~ PARISH LOUISIANA

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 11, 1978 — Joyce Ann Brown

Date: _____ — _____

Address: 909 N. Alameda
Las Cruces, New Mexico
88001

ATTEST: _____

_____ — By: _____

_____ — _____

Date: _____ — Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico I
I
COUNTY OF Dona Ana I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11th day of August, 1978, by Joyce Ann Brown.

My Commission Expires:

2-23-81

Kay Ransomell
Notary Public in and for
Dona Ana County New Mexico

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 11, 1978 — Joyce La Brown

Date: _____ — _____

Address: 909 N. Alameda
Las Cruces, New Mexico 88005

ATTEST: _____

_____ — By: _____

_____ — _____

Date: _____ — Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF Dona Ana)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11th day of August, 1978, by Joyce C. Brown.

My Commission Expires:

2-23-81

Kay Ransonett
Notary Public in and for
Dona Ana County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: January 29, 1979

Patsy Vernon Brown

Date: _____

Social Security No. 444-34-6761

Address: Post Office Box No. 57

Okmulgee, OKlahoma 74447

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Oklahoma)
)
COUNTY OF Okmulgee)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 29th day of January, 1979 by Patsy Viersen Brown.

My Commission Expires:

April 24, 1979

Betty May Marten
Notary Public in and for
Okmulgee County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 10, 1978 — Ruth Brewer

Date: _____ — 3369 Park Place

Address: Ft. Worth Texas 76110

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS }
}
COUNTY OF TARRANT }

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 10th day of August, 1978, by Ruth Brown.

My Commission Expires:

9-22-79

Grace C. Hoehler
Notary Public in and for
Tarrant County Texas

STATE OF _____ }
}
COUNTY OF _____ }

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ }
}
COUNTY OF _____ }

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 10, 1978 — Verna Lee Brown

Date: _____ — _____

Address: 107 E. Berry Street

Hobbs, New Mexico 88240

ATTEST:

_____ — By: _____

_____ — _____

Date: _____ — Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF New Mexico)
)
COUNTY OF Lea)

The foregoing instrument was acknowledged before me this 10th day of August, 1978, by Vesna Lee Brown, a widow.

My Commission Expires:

August 8, 1981

Lloyd S. Loomkew
Notary Public in and for
Lea County New Mexico

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 16, 1978

Angelica S. Bryce
Angelica S. Bryce

Date: _____

_____

Address: 1555 Roble Drive
Santa Barbara, California, 93110

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF California)
)
COUNTY OF Santa Barbara)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of August, 1978, by Angelica S. Bryce.

My Commission Expires:

September 27, 1980

Mabel Hartley
Notary Public in and for
County

OFFICIAL SEAL
MABEL HARTLEY
NOTARY PUBLIC CALIFORNIA
PRINCIPAL OFFICE IN
SANTA BARBARA COUNTY
My Commission Expires Sept. 27, 1980
1555 Roble Drive, Santa Barbara, Cal. 93110

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 11/20/78 — J. Hugh Burke Jr.

Date: _____ — Marian Burke

Address: 207 NOB HILL DRIVE
COLGATE WI 53017

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Wisconsin)
)
COUNTY OF Waukesha)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 28 day of December, 1978, by John H. Budde, Jr. and Marian Budde, husband and wife.

My Commission Expires:

My Commission Expires March 11, 1979

Dorothy A. Warren
Notary Public in and for
Waukesha County Wisconsin

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: December 22, 1978

THE BUFFALO CO., a Limited Partnership

By _____
Huston Huffman, General Partner
Address: 2550 Liberty Tower
Oklahoma City, Oklahoma 73102

Date: _____

ATTEST:

_____

By: _____

_____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF OKLAHOMA I

COUNTY OF OKLAHOMA I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 22 day of December, 1978, by HUSTON HUFFMAN in the capacity therein stated.

My Commission Expires:

October 7, 1979

Notary Public in and for
Oklahoma County Oklahoma

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept 11 1978

Mrs Dellia Bugg
Widow of Leslie Bugg.
Address: 4622-18th apt 42A
Lubbock, Tx 79416

Date: _____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Lubbock I

INDIVILUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11th day of September, 1978, by Della Bragg.

My Commission Expires:

9-1-79

Edith L. Duke
Notary Public in and for
Lubbock County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Jan 16, 1979

Finis W. Bigg

Finis W. Bigg

Date: _____

Address: 1809 EISENHOWER
ODESSA, Tex 797[illegible]

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas
COUNTY OF Ector

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16 day of January, 1978, by Finis W. Bug
1979

My Commission Expires:
June 30, 1979

A.O. Pickens
Notary Public in and for
Ector County Texas
A.O. Pickens, Notary

STATE OF _____
COUNTY OF _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____
COUNTY OF _____

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: November 7, 1978 — Henry Bugg

Date: November 7, 1978 — Katherine Bugg

Address: P. O. Box 1127
Tucumcari, New Mexico 88401

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico I
I
COUNTY OF Quay I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 7th day of November, 1978, by Henry Bugg and wife Katherine Bugg.

My Commission Expires:
10-16-82

OFFICIAL SEAL
DON W. CIHAK
NOTARY PUBLIC - NEW MEXICO
Notary Bond Filed with Secretary of State
My Commission Expires: 10-16-82

Signature

Notary Public in and for
Quay County New Mexico

STATE OF NEW MEXICO I
I
COUNTY OF QUAY I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 7th day of November, 1978, by Henry Bugg and Katherine Bugg, husband and wife.

My Commission Expires:

10/16/82

Notary Public in and for
Quay County

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 10-23-78

C. F. Heitmann, Survivor Trustee
of C. F. Heitmann & A. F. Howard Trust under the will of Ernest M. Bull

Date: _____

Address: 17 TAUNTON ROAD
SCARSDALE, N. Y. 10583

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF NEW YORK)
)
COUNTY OF WESTCHESTER)

The foregoing instrument was acknowledged before me this 23 day of OCTOBER, 1978, by C. F. FEITMAN AS TREASURER.

My Commission Expires:

_____

HELEN MORSCHAUSER
NOTARY PUBLIC, State of New York
No. 4503862
Qualified in Putnam County
Commission Expires March 30, 19 77

Helen Morschauser
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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(123)

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: AUGUST 23, 1978

Robert E Burfeind
Robert Burfeind, Independent Executor
of the Estate of Mildred Burfeind
1911 DALE PL. - IRVING, TEXAS 75061
438-2219

Date: _____

Address: 1911 Dale Place,
Irving, Texas 75061

ATTEST:

Lesley Boone
attorney

By: _____

Date: August 23, 1978

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF TARRANT I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 23rd day of August, 1978, by ~~XXXX~~ ROBERT E. BURFEIND as Independent Executor of the Estate of Mildred Maurine Burfeind, Deceased.

My Commission Expires:

October 2, 1979

(Lester C. Boone)

Notary Public in and for TARRANT County, TEXAS

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Nov. 4, 1978 — Irene Burgess

Date: Nov 4, 1978 — Burton J Burgess

Address: 444 E. CAMINO REAL
DUARTE CA. 91010

ATTEST:

_____

By: _____

Date: _____ Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF California)
)
COUNTY OF Los Angeles)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 4th day of November, 1978, by Irene Burgess and Burton S. Burgess, husband and wife.

My Commission Expires:

Sept. 27, 1980

OFFICIAL SEAL
PAUL E. JOYCE
NOTARY PUBLIC — CALIFORNIA
PRINCIPAL OFFICE IN
LOS ANGELES COUNTY
My Commission Expires Sept. 27, 1980

_____
Notary Public in and for
Los Angeles County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 11 1978 — June 7 Burnett

Date: _____ — _____

Address: 2100 Shoreline Dr #2
Walnut Creek Ca 94597

ATTEST: _____

_____ — By: _____

_____ — _____

Date: _____ — Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF California }
COUNTY OF Contra Costa }

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11th day of August, 1978, by June F. Burnett.

My Commission Expires:

5/23/80

JUANITA M. HAMPTON
NOTARY PUBLIC - CALIFORNIA
CONTRA COSTA COUNTY
My Commission Expires May 23, 1980

Juanita M Hampton
Notary Public in and for
Contra Costa County, Calif.

STATE OF _____ }
COUNTY OF _____ }

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ }
COUNTY OF _____ }

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 18, 1978 — Robert Dwayne Burnett

Date: _____ — _____

Address: 6 ROSEMONT AVENUE
BERKELEY, CA. 94708

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF CALIFORNIA)
)
COUNTY OF ALAMEDA)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 18th day of August, 1978, by Robert Dwayne Durrett, A MARRIED MAN DEALING WITH HIS SEPARATE PROPERTY.

My Commission Expires:

Virginia K. Anderson
Notary Public in and for
Alameda County

VIRGINIA K. ANDERSON
NOTARY PUBLIC - CALIFORNIA
ALAMEDA COUNTY
My commission expires Oct. 16, 1978

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 18, 1978

Ronald Nelson Burnett
Ronald Nelson Burnett

Date: August 18, 1978

Carole A. Burnett
Carole A. Burnett
Address: 150 Harvard Avenue
Mill Valley CA 94941

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF California)
)
COUNTY OF Marin)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 18th day of August, 1978, by Ronald Nelson Burnett and Carole A. Burnett, husband and wife.

My Commission Expires:

May 29 1982

OFFICIAL SEAL
Mary Milliken Chapman
NOTARY PUBLIC - CALIFORNIA
MARIN COUNTY
My Comm. Expires May 29, 1982

Mary Milliken Chapman
Notary Public in and for
Marin County California

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: January 8, 1979 — Mr. Claudis Burns

Date: January 8, 1979 — Robbie F. Burns

Address: Box 413
Sterling City, Texas 76951

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF Texas I
I
COUNTY OF Sterling I

The foregoing instrument was acknowledged before me this 8th day of January, 1979, by Robin F. Burns and Mrs. Claudia Burns, husband and wife.

My Commission Expires:

Aug. 31, 1980

Notary Public in and for
Sterling County Texas

CORPORATE ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/29/79 Gerard Burns

Date: _____ _____

Address: 471-8 St.
Bklyn, NY 11215

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New York)
)
COUNTY OF Kings)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 29th day of March, 1978, by Gerard Burns.

My Commission Expires:

March 30, 1979

Gail Munk
Notary Public in and for
N.Y. County Kings

Gail Munk
Notary Public, State of New York
No. 24-4602226
Qualified in Kings County
Commission Expires March 30, 19 79

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 11, 1978 _____ Wm. F. McNeil Bush

Date: _____ _____

Address: 12 Plumas Ave
Goleta, California 93014

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF CALIFORNIA)
)
COUNTY OF SANTA BARBARA)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11th day of August, 1978, by MARY F. McADOO BUSH.

My Commission Expires:

August 13, 1979

Marjorie B. Ryczek
Notary Public in and for
Santa Barbara County California

OFFICIAL SEAL
MARJORIE B. RYCZEK
NOTARY PUBLIC - CALIFORNIA
PRINCIPAL OFFICE IN
SANTA BARBARA COUNTY
My Commission Expires August 13, 1979

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-30-1978

Date:

ATTEST:

Assistant Secretary

Date: 8-30-1978

TAX I.D. 73-0539101

BUTTRAM ENERGIES, INC.

PRESIDENT

Address: 6421 AVONDALE, SUITE 204
OKLAHOMA CITY, OKLAHOMA 73116

By:

Address: 6421 Avondale, Suite 204
Oklahoma City, Oklahoma 73116

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF OKLAHOMA I

COUNTY OF OKLAHOMA I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 30 day of August, 1978, by DORSEY BUTTRAM, PRESIDENT of BUTTRAM ENERGIES, INC., a DELAWARE corporation, on behalf of the corporation.

My Commission Expires:

MARLA J. KIRKPATRICK Notary Public
My Commission Expires June 16, 1980

Marla J. Kirkpatrick
Notary Public in and for
OKLAHOMA County OKLAHOMA

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

Date: 2-26-79

Dolona Roberts Cabot

Address: 12 E. Kearney Rd
S-1 87501

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico I
I
COUNTY OF Santa Fe I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 26 day of February, 1979, by Dolona Roberts Cutt.

My Commission Expires:
1/20/84

Notary Public in and for
Santa Fe County New

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

CAREY & CO., a co-partnership

Date: ✓ 8-18-78

By: ✓ A.B. White
Partner

Date: _____

By: ✓ M.J. Rambo
Partner

Address: Post Office Box 867
Tulsa, Oklahoma 74101

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF OHIO)
)
COUNTY OF Franklin)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 18th day of August, 1978, by A. B. White and M. J. Rowlands Partners in CAREY & CO., a co-partnership, on behalf of said partnership.

My Commission Expires:

WALKER R. McCURDY
NOTARY PUBLIC, FRANKLIN COUNTY, OHIO
MY COMMISSION EXPIRES AUG. 27, 1980

Walker R McCurdy
Notary Public in and for
Franklin County Ohio

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 17, 1978

Anderson Curtis

Date: Aug. 17, 1978

Curtis Carter

Address: Box 725

Loving Ton, N. M. 88260

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF New Mexico I
I
COUNTY OF Lea I

The foregoing instrument was acknowledged before me this 17th day of August, 1978, by Anderson Carter and Burldine Carter, husband and wife.

My Commission Expires:

July 8, 1981

Betty A. Kaiser
Notary Public in and for
Lea County New Mexico

CORPORATE ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 5-31-78

Beverly L. Carter

Address: Box 328
Ft. Sumner, N.M. 88119

Date: 5-31-78

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New Mexico I
I
COUNTY OF DeBaca I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 21 day of August, 1978, by Powhatan Carter, Jr. and ~~Powhatan Carter~~ Beverly T. Carter husband and wife.

My Commission Expires:

November 15, 1978

R. E. Lund
Notary Public in and for
De Baca County New Mexico

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

JOHNSON COUNTY NATIONAL BANK AND TRUST COMPANY;
TRUSTEE OF THE CLYDE CASPER TRUST

ATTEST:

Denise A. Smith
asst. trust officer

By: Carl C. Lewelling
Vice President and Real Estate
Investment Trust Officer

Date: 8-24-78

Address: Box 8267
Prairie Village, Kansas 66208

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Kansas)
)
COUNTY OF Johnson)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 24th day of August, 1978, by Carl V. Lewelling, Vice President & REITO of The Johnson County National Bank & Trust Co., a Kansas corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

Aug. 5, 1982

Margaret L. Glass
Notary Public in and for
Johnson County Kansas

MARGARET L. GLASS
NOTARY PUBLIC
JOHNSON COUNTY, KANSAS
My Appointment Expires 8-5-82

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

THE JOHNSON COUNTY NATIONAL BANK AND TRUST CO.,
TRUSTEE UNDER WILL OF CLYDE CASPER, DECEASED

ATTEST:

Denise A. Smith
asst. t.o.

By: Carl V. Leuelling
Vice President and Real Estate
Investment Trust Officer

Date: 8-24-78

Address: Box 8267
Prairie Village, Kansas 66208

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Kansas)
)
COUNTY OF Johnson)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 24th day of August, 1978, by Carl V. Lewelling
Vice President & REITO of The Johnson County National Bank & Trust Co.,
a Kansas corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

Aug. 5, 1982

Margaret L. Glass
Notary Public in and for
Johnson County Kansas

MARGARET L. GLASS
NOTARY PUBLIC
JOHNSON COUNTY, KANSAS
My Appointment Expires 8-5-82

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 15, 1978

Sky M. Caudell

Address: Box FF
Aspen, Colo. 81611

Date: August 15, 1978

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Colorado I

I

COUNTY OF Pitkin I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 15th day of August, 1978, by Samuel J. Caudill Jr. and Joy M. Caudill, husband and wife.

My Commission Expires:

May 12, 1979

_____
Notary Public in and for
Pitkin County _____

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement;

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 3/2/79

Clara Cave
A Single Woman

Date: _____

Address: P.O.Box 962
Lovington, New Mexico

ATTEST:

Patricia J. McCurley

By: _____

Date: 3/2/79

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF Lea)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 2nd day of March, 1978 by Clara Cave, A Single Woman.

My Commission Expires:

8-1-82

Kay Layton
Notary Public in and for
Lea County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9/8/78 — Ann M. Cravens

Date: 9/8/78 — C. John Cravens

Address: 7207 Dewey
Boise, Idaho 83703

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF IDAHO)
)
COUNTY OF ADA)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 8th day of SEPTEMBER, 1978, by C. John Caviness and Joan M. Caviness, husband and wife.

My Commission Expires:

Life

Notary Public in and for
ADA County IDAHO

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Dec 12, 1978

John W. Chadwick
Individually and as trustee u/w/o Glenn B. Chadwick and Grace W. Chadwick, deceased

Date: _____

Address: 2607 Hulfstatler
Fallbrook, Ca.

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Calif I
I
COUNTY OF San Diego I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 12th day of DECEMBER, 1978, by ~~[illegible]~~ John W. Chadwick, in the capacity therein stated.

My Commission Expires:

July 26 1981

Notary Public in and for
San Diego County California

OFFICIAL SEAL
PON MARTINEZ
NOTARY PUBLIC - CALIFORNIA
SAN DIEGO COUNTY
My comm. expires JUL 26, 1981

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 17, 1978

Louise W. Challenger
Louise W. Challenger

Date: August 17, 1978

Edward P. Challenger II
Edward P. Challenger II

Address: 1050 19th Street

Beaumont, Texas 77706

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Jefferson I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 17th day of August, 1978, by Louise W. Challenger and Edward P. Challenger II, husband and wife.

My Commission Expires:

2/11/79

Notary Public in and for
Jefferson County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

Date: OCT 30 1978

Richard T. Chapman

Address: RICHARD T. CHAPMAN
625 PIERREMONT RD.
SHREVEPORT, LA. 71106

Soc. Sec. No. 348-05-9349

WITNESS:

Margaret S. McCann
Diana L. Huckabee

By: _____

Date: OCT 30 1978

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF Louisiana)
PARISH
~~COUNTY~~ OF Caddo)

The foregoing instrument was acknowledged before me this 30th day of October, 1978, by Richard T. Chapman.

My Commission Expires:

JIMI L. SMITH, Notary Public
Caddo Parish, Louisiana
My Commission is for life

Jimi Smith
Notary Public in and for
Caddo Parish County Louisiana

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: January 2, 1979

Date:

Address:

ATTEST:

Senior Vice President
First National Bank,
Fort Dodge, Iowa

Date: January 2, 1979

THE CHARON OIL GROUP
First National Bank, Fort Dodge, Iowa, Administrator

By:
Thomas J. Lose
Vice President & Trust Officer

Address: P.O. Box 658
Fort Dodge, IA 50501

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF IOWA)
)
COUNTY OF WEBSTER)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 2nd day of January, 1979 by Thomas J. Lose, V. Pres. & Trust Officer, First National Bank, Ft. Dodge, IA, Administrator of THE CHARON OIL GROUP, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Louise K. Guderian
Notary Public in and for
Webster County Iowa
LOUISE K. GUDERIAN
Notary Public in and for Webster County, Iowa
My Commission Expires Sept. 30, 1981

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9 August 1978

The Midland National Bank, Trustee

Date: _____

Account Craig, Ltd. Reg.

Address: P. O. Box 2097

Midland, Texas 79702

ATTEST:

Jane Davis

Asst. ~~Cashier~~ TRUST OFFICER

By: James E. Crowder, Jr.

Vice President

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF Texas I
I
COUNTY OF Midland I

The foregoing instrument was acknowledged before me this 10th day of August, 1978, by James E. Crowder Jr., Vice President of Midland National Bank, a Texas corporation, on behalf of the corporation, in the capacity therein stated.

My Commission Expires:

Oct. 14, 1979

Mary H. Shamock
Notary Public in and for
Midland County Texas

1148
1147

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-8-1978

Herve E Chesley
or also "J."
HERVEY E. CHESLEY

Address: Box 187,
Hamilton, Texas

Date: _____

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

(Same person as "Hervey E. Chesley Jr.)

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Hamilton I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 9th day of August, 1978, by Harvey E. Chesley.

My Commission Expires:

Feb. 28 1979

Doris Rast
Notary Public in and for
Hamilton County ~~Hamilton~~ Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 10-27-78 Joseph Fuchs Chesley

Date: 10-27-78 Helen H Chesley

Address: 126 DOUBLE FILE TRACE
LIBERTY HILL, TEXAS 78642

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I

I

COUNTY OF Williamson I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 27th day of October, 1978, by Joseph Eucbe Chesla and Helen H Chesla, husband and wife.

My Commission Expires:

Jan 3 1982

Kathleen Klairmu
Notary Public in and for
Williamson County Texas

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 25, 1978

Josephine L. Chesley

Date: _____

Address: 1726 N. Kingsley #208
Los Angeles Ca. 90027

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF Texas
COUNTY OF Hamilton

The foregoing instrument was acknowledged before me this 25 day of August, 1978, by Josephine L. Chesley.

My Commission Expires:
October 1978

Mavis M. Miller
Notary Public in and for
Hamilton County Texas

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/16/78 — Robert L. Chesley

Date: _____ — _____

Address: C/O PERRY NATIONAL BANK
HAMILTON, TX 76531

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF DISTRICT) INDIVIDUAL ACKNOWLEDGMENT
) ss
COUNTY OF OF COLUMBIA:)

The foregoing instrument was acknowledged before me this 16th day of August, 1978, by Robert E. Chesley.

My Commission Expires:

My Commission Expire June 30, 1978

Notary Public in and for
District of ~~County~~ Columbia:

Notary Public In and For The
District of Columbia
Bonded By: International Risks, Inc.

STATE OF _____) JOINT ACKNOWLEDGMENT
) (HUSBAND AND WIFE)
CCUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____) CORPORATE ACKNOWLEDGMENT
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: March 9, 1979 — Sandra Earle Chidley

Date: _____ — _____

Address: 1726 N. Kingsley PR.
Los Angeles, CA.

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF *California*)
)
COUNTY OF *Los Angeles*)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this *9th* day of *March*, *1979*, by *Sandra Earle Chesley*.

My Commission Expires:

12/8/81

OFFICIAL SEAL
MANUEL A. CANTON
NOTARY PUBLIC — CALIFORNIA
PRINCIPAL OFFICE IN
LOS ANGELES COUNTY
My Commission Expires December 8, 1981

Manuel A. Canton
Notary Public in and for
Los Angeles County *California*

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/18/78 Harold G. Chesnut

Date: _____ _____

Address: _____

HAROLD G. CHESNUT,
6510 [illegible]
OKLAHOMA CITY, OKLA. 73116

ATTEST:

_____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Oklahoma)
)
COUNTY OF Oklahoma)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 18th day of August, 1978, by Harold G. Chesnut.

My Commission Expires:

May 30, 1981

Jimmie Lee Davidson
Notary Public in and for
Oklahoma County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-14-78

Bertha H Christensen

Date: _____

Address: 5455 University Blvd
Dallas Tx 75209

ATTEST:

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF Texas I
I
COUNTY OF Dallas I

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by Beulah H Christensen.

My Commission Expires:

3-31-79

Edna Smithson
Notary Public in and for
Dallas County Texas

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/29/78 B. A. Christmas Jr.

Date: 8/29/78 Pauline Christmas

Address: Chico Route
Raton, N.M.

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New Mexico I
I
COUNTY OF Colfax I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 29 day of Aug., 1978, by B. A. Christmas and Pauline Christmas, husband and wife.

My Commission Expires:

My Commission Expires Feb. 10, 1930

Notary Public in and for
Colfax County New Mexico

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/29/78

B.A. Christmas Jr. Trustee

Date: _____

Under the will of B.A. Christmas Sr.

Address: Chico Route

Raton, N.M.

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New mexico)
)
COUNTY OF Colfax)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 29 day of AUG, 1978, by B.A. Christmas in the capacity therein stated.

My Commission Expires:
My Commission Expires Feb. 15, 1981

Notary Public in and for
Colfax County New mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

2012

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

_____

ATTEST:

_____

ASSISTANT SECRETARY

CITIES SERVICE COMPANY

By: _____
VICE-PRESIDENT

Date: August 31, 1978

Address: P. O. Box 300

Tulsa, Oklahoma 74102

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF OKLAHOMA I
I
COUNTY OF TULSA I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 6th day of November, 1978, by David A. Hentschel, Vice-President of CITIES SERVICE COMPANY, a Delaware corporation, on behalf of the corporation.

My Commission Expires:

July 25, 1980

Evelyn M. Schultz
Notary Public in and for
Tulsa County Oklahoma
Evelyn M. Schultz

1 of 4

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 22 May 1979 — Mary J. Clark

Date: _____ — _____

Address: Box 91
Letonia, Idaho 83452

ATTEST: _____

_____ — By: _____

_____ — _____

Date: _____ — Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF Idaho)
)
COUNTY OF Teton)

The foregoing instrument was acknowledged before me this 22nd day of May , 1979 , 1978, by Mary J. Clark .

My Commission Expires:

July 2, 1979

Notary Public in and for
Teton County Idaho

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Nov 2, 1978 — Bruce M. Chaffee

Date: NOV 2 1978 — [signature]

Address: [illegible] Hill
Friendship, Md. 20758

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

~~STATE OF~~ District of)
)
~~COUNTY OF~~ Columbia)

JOINT ~~ACKNOWLEDGMENT~~
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 2nd day of November 1978, by Bruce M. Clagett and Virginia P. Clagett, husband and wife.

My Commission Expires:

May 14, 1981

Ruth M. Mills
Notary Public in and for
District County of Columbia

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: _____

_____

Address: _____

_____

BANK OF THE SOUTHWEST NATIONAL ASSOCIATION, HOUSTON, Trustee under the Will of Hubert E. Clift, Deceased, but not otherwise.

ATTEST:

Joseph P. Latimer

Ralph P. Latimer
Trust Petroleum & Minerals Officer

By: David V. Boone

David V. Boone
Vice President and Trust Officer

Date: 12-19-78

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF TEXAS I
I
COUNTY OF HARRIS I

The foregoing instrument was acknowledged before me this 19th day of December, 1978, by David V. Boone, Vice President and Trust Officer of Bank of the Southwest National Association, Houston, a _____ corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

_____

Mattie James
Notary Public in and for
Harris County, Texas

MATTIE JAMES
Notary Public in and for Harris County, Texas
My Commission Expires August 1, 1980

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9/67

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: _____

_____

Address: _____

_____

BANK OF THE SOUTHWEST NATIONAL ASSOCIATION,
HOUSTON, Trustee for Jeannette C. Clift,
but not otherwise.

ATTEST:

Ralph B. Latimer
Trust Petroleum & Minerals Officer

By: _____
David V. Boone
Vice President and Trust Officer

Date: 12-19-78

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I

COUNTY OF HARRIS I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 19th day of December, 1978, by David V. Boone, Vice President and Trust Officer of Bank of the Southwest National Association, Houston, a _____ corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

_____

Mattie James
Notary Public in and for
_____ County _____

MATTIE JAMES
Notary Public in and for Harris County, Texas
My Commission Expires August 1, 1980

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/28/78

Bruce E. Clute

Date: _____

_____

Address: 332 S. MICHIGAN AVE.
CHICAGO IL 60604

WITNESS
~~ATTEST~~:

Linda Garner

_____

By: _____

_____

Date: 8/28/78

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Del.)
)
COUNTY OF Kent)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 13 day of Sept, 1978, by BRUCE E. CLINTON.

My Commission Expires:
Oct. 26, 1981

John N. Brucia
Notary Public in and for
Kent County Del.

STATE OF _____)
)
COUNTY OF _____)

JOINT ~~ACKNOWLEDGMENT~~
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: September 8, 1978

Stanford Clinton Jr.

Date: September 8, 1978

Sylpka Clinton

Address: 6000 North Bay Road
Miami Beach, Florida
33140

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Florida)
)
COUNTY OF Dade)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 8 day of September, 1978, by Stanford Clinton, Jr. and Sylpha Clinton, husband and wife.

My Commission Expires:

NOTARY PUBLIC STATE OF FLORIDA AT LARGE
MY COMMISSION EXPIRES APR. 26 1982
BONDED THRU GENERAL INS. UNDERWRITERS

R. Kathleen Garcia
Notary Public in and for
Dade County Florida

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: February 26, 1979

Stanford Clinton, Jr.

Address: Mission Plaza

San Luis Obispo, CA 93401

Date:

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF California)
)
COUNTY OF San Luis Obispo)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 26th day of February, ~~1978~~ 1979, by Stanford Clinton, Jr.

My Commission Expires:

June 7, 1980

OFFICIAL SEAL
MARGARET A. KELLY
Notary Public - California
Principal Office in
San Luis Obispo County
My Commission Expires June 7, 1980

Margaret A. Kelly
Notary Public in and for
San Luis Obispo County California

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: September 27, 1978

ESTATE OF GEORGE H. COATES

Elizabeth H. Coates Maddux
By: Elizabeth H. Coates Maddux

Arthur T. Stieren
By: Arthur T. Stieren

Betty S. Roberts
By: Betty S. Roberts

John R. Harris
By: John R. Harris

Charles V. Richter
By: Charles V. Richter
INDEPENDENT EXECUTORS

Date: _____

ATTEST:

_____

_____

Date: _____

ESTATE OF GEORGE H. COATES
Address: 1610 MILAM BUILDING
SAN ANTONIO, TEXAS 78205

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF BEXAR I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 27th day of September, 1978, by ELIZABETH H. COATES MADDUX, ARTHUR T. STIEREN, BETTY S. ROBERTS, JOHN R. HARRIS and CHARLES V. RICHTER, in the capacities therein stated.

My Commission Expires:

September 30, 1978

Margie Gormley
Notary Public in and for
Bexar County Texas

MARGIE GORMLEY
Notary Public, Bexar County, Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 10, 1978 — Charles H. Call

Date: _____

Address: Rt 2 Box 134
Roswell, New Mexico 88201

ATTEST: _____

_____ By: _____

Date: _____ Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF Chaves)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of August, 1978, by Charles H. Cole.

My Commission Expires:

May 2, 1982

Lisa J. Husband
Notary Public in and for
State of New Mexico County of Chaves

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9/4/78 — James R. Call

Date: 9/6/78 — Marilyn C Call

Address: 1104 Hamilton
Roswell, N.M. 88201

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF N.M.)
COUNTY OF Chaves)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 6th day of Sept, 1978, by James N. Coll and Marilyn E. Coll, husband and wife.

My Commission Expires:
Oct 7, 1978

Sarah Jane Holstein
Notary Public in and for
Chaves County N.M.

STATE OF _____)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, a _____ of _____, corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/30/78

Date: _____

[signature]

336-34-1681

Address: Box 1818 P

Roswell N Mex

ATTEST:

By: Linda F. [signature]

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF Chaves)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 30th day of August, 1978, by Joe Cobb.

My Commission Expires:

May 3, 1982

Debra J. Hubbard
Notary Public in and for
Chaves County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement;

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 14, 1978

Date: _____

ATTEST:

_____

_____

Date: _____

_____

525-66-2531

Address: BOX 9

ALBUQUERQUE NM

87103

By: _____

_____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF Bernalillo)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14 day of August, 1978, by Mat Cook.

My Commission Expires:
2/2/80

Notary Public in and for
Bernalillo County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 31 — Jeannie Collins

Date: _____

Address: 2505 Farmers Branch Lane

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF Texas
COUNTY OF Dallas

The foregoing instrument was acknowledged before me this 31 day of August, 1978, by Jeannie Collins.

My Commission Expires:
9/30/80

A Buentemberger
Notary Public in and for
Dallas County Texas

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:
_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:
_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/11/78 — Willie Marie Collins

Date: _____ — Administratrix Estate of Henry C. Collins

Address: Rt 7 Box 143 A
Paris, Texas 75460

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF [illegible])
)
COUNTY OF [illegible])

The foregoing instrument was acknowledged before me this 11th day of August, 1978, by [illegible], in the capacity therein stated.

My Commission Expires:
Dec 31, 1979

[illegible]
Notary Public in and for
[illegible] County [illegible]

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

WILLIAM J. COLLINS, IND. EXECUTOR OF THE ESTATE OF J. L. COLLINS

Date: August 21, 1978

William J Collins

Address: P.O.BOX 881
CORSICANA, TEXAS &75510

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF NAVARRO I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 21 day of August, 1978, by William J. Collins, Ind. ~~Executor~~ of the estate of J.L.Collins.

My Commission Expires:
9-30-78

Jera Fraser
Notary Public in and for
Navarro County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept 26, 1978

F. H. Collins

Address: 302 S. Glasgow
Dallas, Tx, 75214

Date: _____

ATTEST:

_____

By: Mrs Ethel Collins

_____

Address: 302 S. Glasgow
DALLAS, TX, 75214

Date: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF Texas I
I
COUNTY OF Dallas I

The foregoing instrument was acknowledged before me this 26th day of Sept, 1978, by L N Collins and Edna Collins, husband and wife.

My Commission Expires:
Sept 30, 1978

Robert W. Dubler
Notary Public in and for
Dallas County Texas

CORPORATE ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ W. M. Collins

Date: Aug. 14, 1978 _____

Address: 415 Mt. Auburn
Dallas Texas 75223

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Dallas I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by W. M. Collins.

My Commission Expires:

1-31-79

Fay Newton
Notary Public in and for
Dallas County Texas

FAY NEWTON, Notary Public
in and for Dallas County, Texas
My Commission Expires January 31, 1979

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 10/30/78

x Wilda C. Collins

Date: 10-30-78

x W. L. Collins

Address: Star Rt. 1 Box 101
Union, WASH.
Union Wash. 98592
Star Route 1, Box 101
Union, Washington 98592

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Washington)
)
COUNTY OF Mason)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 20th day of October, 1978, by Wilda C. Collins and W. L. Collins, husband and wife.

My Commission Expires:

10-27-81

Dorothy M. Burnell
Notary Public in and for
Washington County Mason

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: _____

_____

Address: _____

_____

ATTEST:

COLONIAL ROYALTIES COMPANY

M.K. Redwine
Secretary

By: Robert L. Rorschach
Robert L. Rorschach, President

Date: August 9, 1978

Address: Suite 708 - 320 South Boston

Tulsa, Oklahoma 74103

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF Oklahoma)
)
COUNTY OF Tulsa)

The foregoing instrument was acknowledged before me this 9th day of August, 1978, by Robert L. Rorschach, President of Colonial Royalties Company, a Delaware corporation, on behalf of the corporation.

My Commission Expires:
My Commission Expires April 17, 1982
BONNIE L. DIDRICKSON
Suite 708 - 320 S. Boston Tulsa, Okla.

Bonnie L. Didrickson
Notary Public in and for
Tulsa County Oklahoma

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: _____

_____

Address: _____

_____

ATTEST:

_____
Secretary

Date: August 15, 1978

COMMONWEALTH TRUST CO., TRUSTEE
for Underwriters Gp Diversifed Royalty Series "J"

By: _____
President

Address: P.O. Box 350
Wilmington, DE 19899

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Delaware)
)
COUNTY OF New Castle)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15th day of August, 1978, by B. Vinton, Jr., President of Commonwealth Trust Co., a Delaware corporation, on behalf of the corporation, in the capacity therein stated.

My Commission Expires:

4/3/80

Susan A. Peterson
Notary Public in and for
New Castle County Del.

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 16, 1978

Date: _____

Address: C/O First National Bank of Portales
~~P. O. Box 839~~
Portales, New Mexico 88130

ATTEST:

_____

_____

Date: _____

By: _____

_____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF Roosevelt)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of August, 1978, by Charles C. Compton, A Single Man.

My Commission Expires:

MY COMMISSION EXPIRES OCTOBER 20, 1980

Notary Public in and for
Roosevelt County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/10/78 — Mrs. Jean Cone

Date: _____ — _____

Address: 3309 43rd Street

Lubbock, Texas 79413

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I

COUNTY OF Lubbock I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 10th day of August, 1978, by Mrs. Fern Cone.

My Commission Expires:

11/30/78

(R.L. Lawrence)
Notary Public in and for
Lubbock County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: JANUARY 30, 1979

Clifford Cone

CLIFFORD CONE, A SINGLE PERSON

Date: _____

Address: P.O. BOX 6010

LUBBOCK, TEXAS 79413

ATTEST: _____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEW MEXICO)
)
COUNTY OF LEA)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 30TH day of JANUARY, 1979, by CLIFFORD CONE, A SINGLE PERSON.

My Commission Expires:

July 19, 1982

Notary Public in and for
LEA County NEW MEXICO

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

190A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 11/20/78

Douglas L Cone
DOUGLAS L. CONE, A MARRIED MAN DEALING IN HIS SOLE AND SEPARATE PROPERTY

Date: 11/20/78

Marilyn J. Cone
MARILYN J. CONE, WIFE

Address: P.O. Box 6217
LUBBOCK, TX 79413

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I

COUNTY OF LUBBOCK I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 20TH day of NOVEMBER, 1978, by DOUGLAS L. CONE, A MARRIED MAN DEALING IN HIS SOLE and SEPARATE PROPERTY, AND MARILYN J. CONE, husband and wife.

My Commission Expires:

5/26/80

Eda Rummel
Notary Public in and for
LUBBOCK County TEXAS

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: November 20, 1978

Kathleen Cone

Date: _____

_____

Address: P. O. Drawer 1509

Lovington, New Mexico 88260

ATTEST:

_____

_____

Date: _____

By: _____

_____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF Lea)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 20th day of November, 1978, by Kathleen Cone.

My Commission Expires:

April 22, 1981

Mary Frances Bird
Notary Public in and for
Lea County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

191A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: January 29, 1979

Kenneth H. Cone

Address: P. O. Drawer 1509
Lovington, New Mexico 88260

Date: _____

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico I
I
COUNTY OF Lea I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 29th day of January, 1978, by Kenneth G. Cone, his sole and separate property.

My Commission Expires:

April 22, 1981

Mary Frances Bird
Notary Public in and for
Lea County New Mexico

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: 8-10-78 S.E. Pope Jr.

Address: Rt. 2 Box 363
Lubbock, Texas 79415

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF LUBBOCK I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 10th day of August, 1978, by S. E. Cone, Jr.

My Commission Expires:

June 1, 1979

Penny Polk
Notary Public in and for
Lubbock County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 14, 1978

June M. Conley

Date: _____

Address: 375 Center St
Laguna Beach, Ca.
92651

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF (Orange))
)
COUNTY OF California)

The foregoing instrument was acknowledged before me this 14 day of August, 1978, by June M. Conley, a widow.

My Commission Expires:

_____

_____
Notary Public in and for
Orange County California

OFFICIAL SEAL
C. GRANT QUIGEL
Notary Public - California
ORANGE COUNTY
My Commission Expires Sept. 7, 1980

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

1946

206-545 1580

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: March 6-1979

Loraine D. Conley

Date: _____

Earl L Conley

Address: 8704 E. 42nd ave
Puyallup, Wash
98371

ATTEST:

_____

By: _____

_____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF Washington)
) ss.
COUNTY OF Pierce)

The foregoing instrument was acknowledged before me this 6 day of March, 1978, by Lorraine G. & Earl C. Conley.

My Commission Expires:

4-20-81

Notary Public in and for
Pierce County WA.

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
) ss.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
) ss.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 9, 1978

/ Robert M. Sentant

Date: August 9, 1978

/ Mary Lee Sentant

Address: 10,10 Crane ct

Tarpon Springs, Fla

33528

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF Florida)
)
COUNTY OF Pinellas)

The foregoing instrument was acknowledged before me this 9 day of August, 1978, by Robert M. Constant and Mary Lee Constant, husband and wife.

My Commission Expires:

NOTARY PUBLIC STATE OF FLORIDA AT LARGE
MY COMMISSION EXPIRES MAR. 1 1982
BONDED THRU GENERAL INS. UNDERWRITERS

Mari C. Yoby
Notary Public in and for
Pinellas County Fla.

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: April 3, 1979 Warren L. Constant

Date: _____ _____

Address: 401 Lake Street
Bunkie, Louisiana
71322

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Louisiana I
Parish
COUNTY OF Avoyelles I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 3rd day of April, 1978, by Warren h. Constant.

My Commission Expires:

upon my death

Notary Public in and for
Avoyelles County Parish Louisiana

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST: CONTINENTAL OIL COMPANY

_____ By: _____

_____ Ted E. Davis, Attorney-in-Fact

Date: November 15, 1978 Address: P. O. Box 2197

Houston, TX 77001

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I

I

COUNTY OF HARRIS I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15th day of November, 1978, by Ted E. Davis, Attorney-in-Fact of Continental Oil Company, a Delaware corporation, on behalf of the corporation.

My Commission Expires:

Oct. 31, 1980

Patricia Ebersole
Notary Public in and for
Harris County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 14, 1978

I.L. Cook

Date: August 14, 1978

Mrs I.L. Cook

Address: P.O. Box 930
Bristow, Oklahoma 74010

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Oklahoma)
)
COUNTY OF Creek)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by I.L. Cook and Mrs. I.L. Cook and _____, husband and wife.

My Commission Expires:

3-23-81

Donna Murphy
Notary Public in and for
Creek County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Oct 26, 1978 — Ivan V. Cooper

Date: _____ — Ivan V Cooper

Address: 110 Indian Road
Piedmont, Calif 94610

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF California)
)
COUNTY OF Alameda)

The foregoing instrument was acknowledged before me this 26th day of October, 1978, by Ivan V. Cooper and Nona M. Cooper, husband and wife.

My Commission Expires:

_____

OFFICIAL SEAL
MARY E. JOHNSON
NOTARY PUBLIC - CALIFORNIA
COUNTY OF ALAMEDA
My Commission Expires Nov. 21, 1979

Mary E. Johnson
Notary Public in and for
_____ County Alameda

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 15, 1978

James D. Corbett

Date: August 15, 1978

Allis V. Corbett

Address: 6385 County Rd. 250
Durango, Colorado 81301

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF NEW MEXICO I
I
COUNTY OF SAN JUAN I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 15th day of August 15, 1978, by James D. Corbett and Allis V. Corbett, husband and wife.

My Commission Expires:

June 20, 1982

Gail L. Duke
Notary Public in and for
San Juan County New Mexico

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was ackrowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Nov. 7, 1978 — Mary Jane Mohler Corbin

Date: _____ — _____

Address: 7444 S. Zephyr Ct
Littleton, 80123

ATTEST: _____

_____ — By: _____

_____

Date: _____ — Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Colorado)
)
COUNTY OF Arapahoe)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 7th day of November, 1978, by Mary Jane Mohler Corbin.

My Commission Expires:

June 19, 1982

Notary Public in and for
Arapahoe County

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 15, 1978 — Marcella B. Creighton

Date: _____ — _____

Address: P.O. Box 68
MEDIA, PA. 19063

ATTEST: _____

_____ — By: _____

_____ — _____

Date: _____ — Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF PENNSYLVANIA I
I
COUNTY OF DELAWARE I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15th day of AUGUST, 1978, by MARCELLA D. CREIGHTON, WIDOW.

My Commission Expires:

SANDRA F. KIRCH
NOTARY PUBLIC, PHILA., PHILA. CO.
My Commission Expires Jan. 31, 1981

Sandra F. Kirch
Notary Public in and for
PHILA County PHILA

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 22, 1978

Mrs. Libbie Beazley Cowden

Date: August 22, 1978

Frank L. Cowden Jr.

Address: 2745 Ocean Dr.

Corpus Christi, Tx 78404

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I

COUNTY OF Nueces I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 22 day of August, 1978, by Mrs. Gibbs Beasley Crook and Fred L. Crook, Jr., husband and wife.

My Commission Expires:

July 27, 1979

Kay Hunter
Notary Public in and for
Nueces County Texas

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: November 14, 1978

Stanley W. Crosby, III

Date: _____

Address: P. O. Box 1577

Roswell, New Mexico 88201

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico I

COUNTY OF Chaves I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of November, 1978, by Stanley W. Crosby, III.

My Commission Expires:

11-7-81

Jon L. Reeves
Notary Public in and for
Chaves County New Mexico

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 16, 1978

Norman Crough, Personal Representative

of the Estate of Katherine Crough

Address: P.O. Box 21

Florence, AZ 85232

Date: _____

ATTEST:

Secretary

My Commission Expires 7-16-82

By: _____

Date: 8-16-78

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Wyoming)
)
COUNTY OF Sweetwater)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16 day of August, 1978, by Marian Crough, a single person in the capacity therein stated.

My Commission Expires:

7-16-82

Notary Public in and for Sweetwater County Wyoming

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for _____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for _____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept. 1, 1978

John R. Crowe III

Date: _____

_____

Address: 715 Fay Dr.
Clovis, N.M. 88101

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF CALIFORNIA I

COUNTY OF Los Angeles I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 1ST day of September, 1978, by JOHN R. CROWE, III and CIARA B. CROWE, husband and wife.

My Commission Expires:

FEBRUARY 24 1980

Mary Ann Smither
Notary Public in and for
Los Angeles County California

OFFICIAL SEAL
MARY ANN SMITHER
NOTARY PUBLIC — CALIFORNIA
PRINCIPAL OFFICE IN
LOS ANGELES COUNTY
My Commission Expires Feb. 26, 1980

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-11-78

Mary Ann Crowley

Date: 8-11-78

Homer F. Crowley

Address: 6416 Curzon
Forth Worth, Texas 76116

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:.

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Tarrant I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 11th day of August, 1978, by Mary Ann Crowley and Haney F. Crowley, husband and wife.

My Commission Expires:

January 31, 1979

_____
Notary Public in and for
Tarrant County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 11-15-78 Bess Culp

Date: _____

Address: Box 454
Roswell, N. Mex 88201

ATTEST: _____

By: _____

Date: _____ Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF Lea)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15th day of November, 1978, by Bess Culp.

My Commission Expires:

June 16, 1981

Kay Burns
Notary Public in and for
Lea County

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: April 6, 1979

John Patrick Cusack

John Patrick Cusack, Jr., as Trustee under the John Patrick Cusack Testamentary Trust

Date: _____

Address: Box 250

Roswell, New Mexico 88201

ATTEST:

Catherine Cusack

Catherine Cusack

_____

By: _____

_____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico I
I
COUNTY OF Chaves I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 6 day of April, 1978, by John Patrick Cusack, Jr., as trustee under the John Patrick Cusack [illegible].

My Commission Expires:

2/7/80

OFFICIAL SEAL
Signature Betty D. Gross
BETTY D. GROSS
NOTARY PUBLIC - NEW MEXICO
CHAVES COUNTY
My Commission Expires 2/7/80

Notary Public in and for
Chaves County New Mexico

STATE OF Illinois I
I
COUNTY OF Cook I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 16 day of March, 1978, by Catherine Cusack and _____, husband and wife.

My Commission Expires:
My Commission Expires June 3, 1979

Notary Public in and for
Cook County Illinois
My Commission Expires June 3, 1979

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: April 6, 1979

John P Cusack Jr.
John P. Cusack, Jr.
P.O.Box 250
Roswell, New Mexico 88201

Date: _____

Address: _____

ATTEST: _____

_____

By: _____

_____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF Chaves)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 6th day of April, 1978, by John A. Cuenca, Jr.

My Commission Expires:

2/7/80

OFFICIAL SEAL
Betty D Haas
Notary Public in and for
Chaves County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: April 5, 1979

Mary F. Cusack

Mary Frances Cusack
3815 McCart Street
Fort Worth, Texas 76110

Date: _____

Address: _____

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF Chaves)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 5th day of April, 1978, by Mary Frances Cusack.

My Commission Expires:
2/7/80

OFFICIAL SEAL
Betty D. Yates
Notary Public in and for
Chaves County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 3/19/79

Michael P. Cusack
3815 McCart Street
Fort Worth, Texas 76110

Date: _____

Address: 3815 McCart
Ft. Worth

ATTEST:

Judy Cole

By: _____

Date: 3/19/79

Address: 3815 So. Cart
Ft Worth, Tx

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I

COUNTY OF Harris I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 19 day of March, 1978, by Michael H. Gusack.

My Commission Expires:

12-20-79

Notary Public in and for Harris County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for _____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for _____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

Iris C. Damson By Charles G. MacDonatty

Date: 10-9-78

Address: 25 Mamaroneck Rd.
Scarsdale, N.Y. 10583

ATTEST:

Notary Public, State of New York
No. 31-4833879
Qualified in New York County
Commission Expires [illegible]

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New York)
)
COUNTY OF New York)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 7th day of October, 1978, by Charles E. Hoxter as Atty for Iris G. Dawson.

My Commission Expires:

March 30, 1980

Notary Public in and for
New York County New York

NANCY LIST
Notary Public, State of New York
No. 31-4622675
Qualified in New York County
Commission Expires March 30, 1980

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9-29-78

June P. Danglade

June P. Danglade, femme sole

Date: _____

_____

Address: P. O. Drawer 1687
Lovington, New Mexico 88260

_____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEW MEXICO I

COUNTY OF LEA I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 29th day of September, 1978, by June P. Danglade, femme sole.

My Commission Expires:

1-27-81

Notary Public in and for
Lea County New Mexico

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ Estate of Dyer

Date: January 9, 1979 By George L. Kerr Executor

Address: 4120 King Hatherlt
Santa Rosa CA 95405

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF California)
)
COUNTY OF Sonoma)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 1st day of MARCH ~~1978~~, 1979 by George C Davis Executor of the Estate of Davis

My Commission Expires:
8-4-1980

Wm L Ehlert
Notary Public in and for
SONOMA County CALIFORNIA

OFFICIAL SEAL
WM. L. EHLERT
NOTARY PUBLIC · CALIFORNIA
Principal Office in SONOMA County
My Commission Expires Aug. 4, 1980

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST: _____

By: Margaret Marion Dare

_____

Date: [illegible] Address: Box 95
Rodarte, New Mexico

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF Santa Fe)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 26 day of September, 1978, by Margaret Marie Darr.

My Commission Expires:
Sept. 29, 1981

Notary Public in and for
Santa Fe County New Mexico 87501

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 11.10.78 — Charles C Delaney

Date: 11.10.78 — Helen C. Delaney

Address: 29 Cricket Dr.
Warwick RI

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____.

STATE OF Rhode Island I
I
COUNTY OF Providence I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 10th day of November, 1978, by Charles E. Delaney and Helen C. Delaney, husband and wife.

My Commission Expires:

June 30, 1981

Commission Expires June 30, 1981

Gloria L. Cedrone
Notary Public in and for
Providence County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: April 17, 1979 — Edward M. del Valle

Date: April 17, 1979 — Kathleen del Valle

Address: 313-C Sharon Way
Jamesburg, N.J. 08831

ATTEST:

_____

By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New York)
)
COUNTY OF Richmond)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

X

The foregoing instrument was acknowledged before me this 17 day of April, 1978, by EDWARD M. DeVALLE and KATHLEEN DeVALLE, husband and wife.

My Commission Expires:
March 30 1981

Joseph F. Besheers
Notary Public in and for
New York County Richmond

JOSEPH F. BESHEARS
Notary Public, State of New York
No. 43-4510556
Qualified in Richmond County
Commission Expires March 30, 1981

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 6/23/79 Henry V. De Mutt

Date: 6/23/79 Marcella De Mutt

Address: 137 Hartlefield Rd.
Hauppauge N.Y.

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New York)
)
COUNTY OF Suffolk)

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 23rd day of June, 1978, by Henry V. McMath and Marcella De Mutt, husband and wife.

My Commission Expires:

_____

LAUREEN C. [illegible]
NOTARY PUBLIC, State of New York
No. [illegible] - Suffolk County
Commission Expires [illegible] 1987

[signature]
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: August 14, 1978 Dora A. Dennis

Address: 2 Sutton Place South
New York, N.Y. 10022

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF N.Y.)
)
COUNTY OF N.Y.)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14 day of Aug, 1978, by Cora A. Dennis, widow.

My Commission Expires:

3-30-80

Kathleen Pagliaro
Notary Public in and for
County

KATHLEEN PAGLIARO
Notary Public, State of New York
No. 24-9221946
Qualified in Rockland County
Certificate filed in New York County
Commission Expires March 30, 1980

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST: _____

_____ By: Maria Dever

_____ _____

Date: April 12, 1979 Address: 2715 N. OCEAN BLVD

FT. LAUDERDALE FLA. 33308

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Florida I
I
COUNTY OF Brevard I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 12th day of April, 1978, by Maria Deer.

My Commission Expires:

NOTARY PUBLIC STATE OF FLORIDA AT LARGE
MY COMMISSION EXPIRES DEC. 6 1980
BONDED THRU GENERAL INS. UNDERWRITER

Notary Public in and for Brevard County Florida

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

227A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

Jane B. Cherry

Date: 9-4-78

OK Detrick Foundation, Inc

By: C O Cherry
Vice President

Address: 1622 Hampden Road
Bartlesville Oklahoma
74003

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Oklahoma)
)
COUNTY OF Washington)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 4 day of September, 1978, by C. Q. Cheney, Vice President of O.K. Derrick Foundation, Inc., a Oklahoma corporation, on behalf of the corporation.

My Commission Expires:
JAN 1 1 1980

Elizabeth A. Verdin
Notary Public in and for
Washington County Oklahoma

V

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 15, 1978 — Minnie E. Dickson

Date: _____ — _____

Address: P. O. Box 815
Friona, Texas 79035

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF PARMER I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15th day of August, 1978, by ~~the undersigned~~ Minnie E. Dickson.

My Commission Expires:

1/31/79

Lois Howard

Notary Public in and for

Parmer County Texas

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____

Notary Public in and for

_____ County _____

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____

Notary Public in and for

_____ County _____

235A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 6/2/79 Mrs. Marguerite D. Donovan

Date: _____

Address: 908 Kenwood Apts. W
Lindenwald N.J. 08021

ATTEST: My Commission Expires February 14, 1983
Notary Public of New Jersey
HARRY F. DAHM

Harry F. Dahm

By: HARRY F. DAHM
Notary Public of New Jersey
My Commission Expires February 14, 1983

Date: 6/2/79

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Jersey)
)
COUNTY OF Camden)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 2nd day of June, 1978, by MRS. MARGUERITE V. DONOVAN.

My Commission Expires:

HARRY F. RAHM
Notary Public of New Jersey
My Commission Expires February 14, 1983

Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

AMERAGRUDE INTERNATIONAL INC.
Successor to DOMINION ROYALTY CORPORATION LTD.

By: _____ PRESIDENT

_____

Date: September 18, 1978. Address: 100 Richmond Street West
Suite 444, TORONTO, Ontario.

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

PROVINCE
~~XXXXX~~ OF ONTARIO I

COUNTY OF YORK I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 18 day of September, 1978, by JAMES T. RILEY, PRESIDENT of AMERACRUDE INTERNATIONAL INC., an ONTARIO corporation, on behalf of the corporation.

My Commission Expires:

N/A

Notary Public in and for
~~XXXXXX~~
ONTARIO

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: January 9, 1979 — Mrs. J. D. Doucette

Date: January 9, 1979 — J D Doucette

Address: Bx 167
Kermit, Texas. 79745

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I
I
COUNTY OF ANDREWS I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 9th day of JANUARY, 1978, by J. D. Doucette and Mrs. J. D. Doucette and _____, husband and wife.

My Commission Expires:

August 15, 1979

Evelyn J. Wilson
Notary Public in and for
Andrews County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: AUG 17 1978

Charles S. Douglas

Date: _____

_____

Address: Box 1194
Irving, Texas 75060

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Dallas I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 17 day of Auguat, 1978, by Charles S. Douglas.

My Commission Expires:

6-30-79

Notary Public in and for
Dallas County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: September 14, 1978

Dorothy Dow

Date: _____

Address: Box 327

TULSA OKLAHOMA 74101

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Oklahoma)
)
COUNTY OF Tulsa)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11th day of September, 1978, by Dorothy Dow.

My Commission Expires:

September 22, 1981

Valleu Kidd
Notary Public in and for
Tulsa County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

August 10, 1978

_____
Notary Public in and for
Tulsa County Oklahoma

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-31-78

Charles Brice Dowaliby
CHARLES BRICE DOWALIBY

Date: _____

Address: 600 Woody Drive
Roswell, N.M. 88201

ATTEST:

Joan A. Reeves
Assistant Secretary

By: _____

Date: August 31, 1978

Address: Security National Bank
Roswell,N.M. 88201

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEW MEXICO)
)
COUNTY OF CHAVES)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 31st day of August, 1978, by Charles Brice Dowaliby.

My Commission Expires:

Feb. 20th, 1980

Joyce Merick
Notary Public in and for
Chaves County N.M.

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 10, 1978 — Evelyn Brice Dowalibey

Date: _____

Address: Box 1596
Roswell, N.M. 88201

ATTEST:

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF Chaves)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 10th day of August, 1978, by Evelyn Brice Dowaliby.

My Commission Expires:

February 1, 1979

Lou M Morrison
Notary Public in and for
Chaves County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9/27/78 James M. Jewell, Jr

Date: _____ _____

Address: 2 Church St South B2
New Haven CT 06519

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF CONNECTICUT)
)
COUNTY OF NEW HAVEN)

The foregoing instrument was acknowledged before me this 21st day of SEPTEMBER, 1978, by JAMES M. POWALSKY JR.

My Commission Expires:
3/31/79

Notary Public in and for
NEW HAVEN County CONN

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Nov 2, 1978 — Ann Dowd

Date: _____

Address: 7238 Alameda Space 124
El Paso, Texas 79915

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF ~~SUSAN P. LANCASTER, Notary Public~~)
In and for El Paso County, Texas
COUNTY OF ~~My commission expires Sept. 13, 1980~~)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 2 day of Apr., 1978, by Ann Dowd.

My Commission Expires:
SUSAN P. LANCASTER, Notary Public
In and for El Paso County, Texas
My commission expires Sept. 13, 1980

Susan P. Lancaster
Notary Public in and for
El Paso County Texas

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: SEPT 8, 1978

Date: _____

Address: 26 E. BROAD OAKS
HOUSTON, TEXAS 77056

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Harris I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 8th day of September, 1978, by Wm. Lamar Doyle and Anita F Moore Doyle, husband and wife.

My Commission Expires:

12-31-78

B A Murphy
Notary Public in and for
Harris County Texas

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 10, 1978

James E. O'Brien
Surviviving Executor of Estate of
Frank W. Doyle, deceased

Address: 600 Scranton Life Building
Scranton, PA 18503

Date: _____

ATTEST:

_____

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Pennsylvania }
}
COUNTY OF Lackawanna }

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 10th day of August, 1978, by James E. O'Brien, Surviving Executor of Estate of Frank W. Doyle, deceased.

My Commission Expires:

Anne M. Krieger, Notary Public
Scranton, Lackawanna County, Pa.
My Commission expires Feb. 6, 1979

Anne M. Krieger
Notary Public in and for
Lackawanna County Pennsylvania

STATE OF _____ }
}
COUNTY OF _____ }

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ }
}
COUNTY OF _____ }

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

~ 54

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept. 8, 1978

Betty M. Dreessen
BETTY M. DREESSEN

Date: _____

Address: P. O. Box 817
LOS ALTOS, CALIF.
94022

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF CALIFORNIA)
)
COUNTY OF SANTA CLARA)

The foregoing instrument was acknowledged before me this 8TH day of SEPTEMBER, 1978, by BETTY M. DREESSEN.

My Commission Expires:

6-29-82

JESSIE S. MOWDAY
NOTARY PUBLIC - CALIFORNIA
SANTA CLARA COUNTY
My Commission Expires June 29, 1982

Jessie S. Mowday
Notary Public in and for
SANTA CLARA County

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

BETTY M. DREESSEN AND INGRID POWELL, TRUSTEES OF THE MARIEE I. KYTE REVOCABLE TRUST.

Date: Aug 17 1978

Betty M. Dreessen
BETTY M. DREESSEN
Ingrid Powell, Trustee
INGRID POWELL

Date: Sept 7, 1978

Address: 27457 Edgerton Rd.
Los Altos Hills, Calif.
P.O. Box 747 94022

ATTEST:

_____

By: _____

)
) _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

TO 1944 CA (8-74)
(Individual)

TITLE INSURANCE AND TRUST
A TICOR COMPANY

STATE OF CALIFORNIA }
COUNTY OF Santa Clara } SS.

On August 17, 1978 before me, the undersigned, a Notary Public in and for said State, personally appeared Betty M. Dreessen, Trustee BETTY M. DREESSEN & INGRID POWELL, TRUSTEES OF THE MARIEE I. KYTE REVOCABLE TRUST, known to me to be the person whose name subscribed to the within instrument and acknowledged that she executed the same.

WITNESS my hand and official seal.

Signature Barbara L. Hayes

STAPLE HERE

OFFICIAL SEAL
BARBARA L. HAYES
NOTARY PUBLIC — CALIFORNIA
PRINCIPAL OFFICE IN THE COUNTY OF SANTA CLARA
My Commission Expires November 19, 1978

(This area for official notarial seal)

ACKNOWLEDGMENT

day of

and for

STATE OF _____ }
COUNTY OF _____ }

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF CALIFORNIA }
COUNTY OF SANTA CLARA }

Individual
~~CORPORATE~~ ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 7th day of September, 1978, by Ingrid Powell, a Trustee of the Mariee I. Kyte revocable trust of 10/6/75, ~~of~~ _____, a _____ ~~corporation~~, on behalf of the ~~corporation~~. trust.

My Commission Expires: December 4, 1979

_____

Lillie S. Coe
Notary Public in and for
Santa Clara County, California

OFFICIAL SEAL
LILLIE S. COE
NOTARY PUBLIC - CALIFORNIA
SANTA CLARA COUNTY
My comm. expires DEC 4, 1979

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

The Bank of California, National Association,
Trustee of Betty Kyle Dreesson Trust Nos.
2-2010 and 2-2013

ATTEST:

Marcia J. Driscoll
Evelyn Ramsey

By: Barbara J. Cohn
Barbara J. Cohn, Trust Real Estate Officer

Date: October 6, 1978

Address: Trust Real Estate Operations
P. O. Box 7629
San Francisco, CA 94119

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF CALIFORNIA
COUNTY OF San Francisco } ss.

On this 6th day of October in the year one thousand nine hundred and 78, before me, Bernice Nagy a Notary Public, State of California, duly commissioned and sworn, personally appeared Barbara J. Cohn known to me to be the Trust Real Estate Officer of the corporation described in and that executed the within instrument, and also known to me to be the person..... who executed the within instrument on behalf of the corporation therein named, and acknowledged to me that such corporation executed the same

IN WITNESS WHEREOF I have hereunto set my hand and affixed my official seal in the City and County of San Francisco the day and year in this certificate first above written.

Bernice Nagy
Notary Public, State of California

OFFICIAL SEAL
BERNICE NAGY
NOTARY PUBLIC - CALIFORNIA
PRINCIPAL OFFICE IN
SAN FRANCISCO COUNTY
My Commission Expires November 28, 1978

Cowdery's Form No. 28—Acknowledgment Corporation (C. C. Secs. 1190-1190.1) Printed 5/72

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

SSN 561-72-1291

Date: 5-14-79 — Edward Dreessen Jr.

Date: _____ — EDWARD DREESSEN JR.

Address: P.O. Box 416
Los Altos Calif
94022

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF CALIFORNIA }
}
COUNTY OF SANTA CLARA }

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14TH day of May, 1979, by EDWARD DEBERRY, JR.

My Commission Expires:

July 2, 1979

P. L. Zimmerman
Notary Public in and for
Santa Clara County, Calif.

P. L. ZIMMERMAN
NOTARY PUBLIC-CALIFORNIA
SANTA CLARA COUNTY
My commission expires July 2, 1979

STATE OF _____ }
}
COUNTY OF _____ }

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ }
}
COUNTY OF _____ }

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: September 6 1978 — Thomas R. Dugan

Date: Sept. 6 1978 — Barbara R. Dugan

Address: 47 Five Fields Rd
Madison Ct. 06443

ATTEST:

By: Mary B Woods

Date: Sept 6, 1978

Address: 374 Boston Post Road
Madison, Conn 06443

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Conn)
)
COUNTY OF New Haven)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 6th day of September, 1978, by Thomas L. Dugan and Barbara C. Dugan, husband and wife.

My Commission Expires:

4/1/80

William A. Woods
Notary Public in and for
New Haven County Conn

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-17-78

Lowe Grover Dunham

Date: 8/17/78

Robert L. Dunham

Address: 1538 Kearsarge Road

La Jolla, California 92037

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF CALIFORNIA)
)
COUNTY OF SAN DIEGO)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 17th day of August, 1978, by ROBT. J. DURHAM and JOAN CROWE DURHAM, husband and wife.

My Commission Expires:

OFFICIAL SEAL
E. JUNE SAUNDERS
NOTARY PUBLIC - CALIFORNIA
SAN DIEGO COUNTY
My Comm. Expires Nov. 17, 1980

E. June Saunders
Notary Public in and for
California, County of San Diego

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/14/78

Julia M. Edwards

Address: 35 McKinley Pl
Harrison Pointe, Mich
48236

Date:

ATTEST:

Charlotte Trombley

By:

Date: August 14, 1978

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Michigan I
I
COUNTY OF Wayne I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by Julia M. Eduardo.

My Commission Expires:

July 1, 1981

Notary Public in and for
Wayne County Michigan

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 11, 1978

Date: August 11, 1978

Address: 411 East Beverley Street
Staunton, Virginia 24401

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF Virginia I
I
COUNTY OF Augusta I

The foregoing instrument was acknowledged before me this 11th day of August, 1978, by Genevieve Benckenstein Elder and Fitzhugh Elder, Jr., husband and wife.

My Commission Expires:

July 15, 1979

Bess H. Ellinger
Notary Public in and for
Augusta County Virginia

CORPORATE ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 7-28-78 — Howard Eldridge

Date: _____ — Evelin H Eldridge

Address: 2352 Fieldcrest
Memphis Tenn 38127

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Tenn. I
I
COUNTY OF Shelby I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 28th day of August, 1978, by Howard Eldridge and Esther H. Eldridge, husband and wife.

My Commission Expires:

6-30-81

David Forbes
Notary Public in and for
Shelby County Tenn.

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: SEP 22 1978

Joseph Eldridge

Date: SEP 22 1978

Mark M. Eldridge

Address: 1014 Oxford St
Dawson Texas Tex
60515

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF ILLINOIS I
I
COUNTY OF DU PAGE I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 22ND day of SEPTEMBER, 1978, by JOSEPH ELDRIDGE and NILAH ELDRIDGE, husband and wife.

My Commission Expires:

6/81

Virginia L. Prukoda
Notary Public in and for
DuPage County Illinois

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept. 1, 1978 — William A. Eldridge

Date: Sept. 1, 1978 — _____

Address: 906 LINCOLN RD
MARQUETTE HTS, ILL 61611

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Illinois)
)
COUNTY OF Tazewell)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 1st day of September, 1978, by William A. Eldridge.

My Commission Expires:

11-25-79

Patricia J. Walters
Notary Public in and for
Tazewell County Illinois

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement;

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/16/78

FRANK O. ELLIOTT LIVING TRUST

Frank O. Elliott, Trustee

Clarence E. Hinkle, Trustee

Date: 8/18/78

EDNA IONE HALL LIVING TRUST

Edna Ione Hall, Trustee

ATTEST:

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF Chaves)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 16th day of August, 1978, by Frank O. Elliott and Clarence E. Hinkle, Trustees under the Frank O. Elliott Living Trust.

My Commission Expires:

May 18, 1982

Paul S. Harnden
Notary Public in and for
Chaves County New Mexico

STATE OF Utah)
)
COUNTY OF Weber)

Individual Acknowledgeme

The foregoing instrument was acknowledged before me this 18th day of August, 1978, by Edna Ione Hall, Trustee under the Edna Ione Hall Living Trust.

My Commission Expires:

June 13, 1981

Arlette L. Seppen
Notary Public in and for
Weber County Utah

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

270
271

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 2-8-79 all interest

H. Edson Ellis Jr #4159

Date: _____

H. Edson Ellis Jr

Address: 6350 LBJ Suite #174

Dallas Tx 75240

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas
COUNTY OF Dallas

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 8 day of March, 1978, by N. Elton Ellis.

My Commission Expires:
Oct. 1979

Maxine McInnis
Notary Public in and for
Dallas County Texas

STATE OF _____
COUNTY OF _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____
COUNTY OF _____

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Naomi Engelsman Merrill dec'd Ex of Ralph G. Engelsman
and Estate of Naomi Engelsman Merrill

Date: Aug 30/78 By: _____ Executor
Roy Plaut

Date: August 25, 1978 By: _____ Executor
Ralph G. Engelsman, Jr.

Address: c/o Lipkowitz & Plaut
1290 Avenue of the Americas
New York, NY 10019

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New York)
)
COUNTY OF New York)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 30th day of August, 1978, by Roy Plaut in the capacity therein stated.

My Commission Expires:

JOHN I. LIPKOWITZ
NOTARY PUBLIC, STATE OF NEW YORK
No. 31-7564416
Qualified in New York County
Commission Expires March 30, 1980

Notary Public in and for
County

STATE OF New Jersey)
)
COUNTY OF Morris)

[redacted] ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 25th day of August, 1978, by Ralph G. Engelsman, Jr. in the capacity therein stated.

My Commission Expires:

IRIS A. BURGER
A Notary Public of New Jersey
My Commission Expires Mar. 4, 1982

Notary Public in and for
Morris County N. J.

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

EPISCOPAL ROYALTY COMPANY

Date: August 14, 1978

By James R. Harris
James R. Harris, Vice President

Address: P. O. Box 1335
Oklahoma City, Oklahoma 73101

ATTEST:

Lee O. Teague
Lee O. Teague, Asst. Secretary

By: _____

Date: August 14, 1978

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF OKLAHOMA)
)
COUNTY OF OKLAHOMA)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14 day of AUGUST, 1978, by JAMES R. HARRIS, VICE PRESIDENT of EPISCOPAL ROYALTY COMPANY, a RELIGIOUS corporation, on behalf of the corporation.

My Commission Expires:

August 14, 1978

Ruth Mays
Ruth Mays Notary Public in and for
Oklahoma County Oklahoma

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 26, 1978 — Edna Erker

Date: _____ — _____

Address: 259-15 81st Ave.
Floral Park, N.Y. 11004

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New York)
)
COUNTY OF Queens)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 26 day of August, 1978, by Edna Ecker - Widow.

My Commission Expires:

3-30-80

WALTER F. REISER
NOTARY PUBLIC, State of New York
No. 30-3246550
Qualified in Nassau County
Commission Expires March 30, 19 80

Walter F. Reiser
Notary Public in and for
Queens County N.Y.

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 22, 1978 — Helen Porter Estes

Date: _____

Address: Box 607
Virginia Beach Va.
23451.

ATTEST:
Robert H Bennett

By: _____

Date: Aug 22, 1978

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Va.)
CITY ~~COUNTY~~ OF Va. Beach)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 22nd day of August, 1978, by Helen Porter Estes.

My Commission Expires:
July 14, 1980

Robert H Bennett
Notary Public in and for
City of ~~County~~ Va. Beach

STATE OF _____)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-25-1978 Alma N. Etz

Date: Jean H. Etz

Address: 4005 West Elm St.
Phoenix, Az 85019

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Arizona)
)
COUNTY OF Maricopa)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 25th day of August, 1978, by Alvin N. Ety and Jean W. Ety, husband and wife.

My Commission Expires:

My Commission Expires July 7, 1981

Jean C Agee
Notary Public in and for
Maricopa County Arizona

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

880

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 17-1978 — Bonnie R. Ely

Date: _____

Address: P.O. Box 1992
Roswell, New Mex-
88201

ATTEST: _____

_____ By: _____

_____

Date: _____ Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF Chaves)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 17th day of August, 1978, by Bonnie R Ely widow.

My Commission Expires:

Feb 1 1979

Dudley Echo Hutchens
Notary Public in and for
Chaves County N Mex

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

(2 of)
?2E2

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-29-78

George H. Ertl Trustee

Date: _____

TRUSTEE OF THE GEORGE H ERTL SR TRUST

Address: 2003 17th St.

LUBBOCK, TEXAS 79401

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Lubbock I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 29th day of August, 1978, by Ross H Ely, Jr. in the capacity therein stated.

My Commission Expires:

6-79

Pat Welch
Notary Public in and for
Lubbock County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement;

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

Date: August 28, 1978

Address: P.O. Box 1992
Roswell, New Mexico 88201

ATTEST:

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
COUNTY OF Chaves)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 28 day of August, 1978, by Lewis D. Etz Dingle.

My Commission Expires:

Feb 1 1979

Shelley Echo Hendricks
Notary Public in and for
Chaves County N Mex

STATE OF _____)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST: F. J. Evans Corporation

Nancy Evans Modesitt
Secretary

By: Leland E. Modesitt
President

Date: August 17, 1978

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Colorado)
City &)
COUNTY OF Denver)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 12th day of August, 1978, by Leland E. Modesitt, as President, and D. Penny E. Modesitt, Secretary of E. J. Evans Corporation, a Colorado corporation, on behalf of the corporation.

My Commission Expires:

2-23-82

Monica M. McKenzie
Notary Public in and for
City & County of Denver

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 10/23/78

Date: _____

Charlotte S. Ewing
Charlotte S. Ewing, Co-Executrix Under Will of John Kennedy Ewing

Address: _____

ATTEST:

Lynn J. Pitts
Assistant Secretary

Date: _____

First Pennsylvania Bank, N.A.
Executorship Under Will of John Kennedy Ewing
By: Julien L. Eysmans
Julien L. Eysmans, III Vice-President

Address: First Pennsylvania Bank, N.A.
Real Estate Dept., First Pa. Tower
Philadelphia, Pa. 19101

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Pennsylvania)
)
COUNTY OF Chester)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 23 day of October, 1978, by CHARLOTTE S. EWING, CO. EXECUTRIX UNDER WILL OF JOHN KENNEDY EWING.

My Commission Expires:

Anna Belle France, Notary Public
Eastlawn Township, Chester County
My Commission expires June 8, 1981

Anna Belle France
Notary Public in and for
Chester County Pennsylvania

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Pennsylvania)
)
COUNTY OF Philadelphia)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 26th day of October, 1978, by Julien L. Eysmans, III, _____ of First Pennsylvania Bank, N.A., a Vice President of the corporation, on behalf of the corporation in the capacity therein stated

My Commission Expires:

[illegible]
Notary Public, Phila., Phila. Co.
[illegible] 1982

Toni A. McCabe
Notary Public in and for
Phila. County Penna.

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Nov. 2, 1978

Pardue Farms, a New Mexico Limited Partnership

Date: _____

Bruce D. Pardue

By: Bruce D. Pardue, General Partner

Address: _____

P. O. Box 128 Loving, NM 88256

ATTEST: _____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEW MEXICO)
)
COUNTY OF EDDY)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 2nd day of November, 1978, by Bruce D. Pardue, General Partner of Pardue Farms, a New Mexico Limited Partnership.

My Commission Expires:

12-1-79

Rachel Calderon
Notary Public in and for
~~EDDY~~ New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 22-1978

Lois Eldridge Faulk
A/K/A Lois Ann Faulk
L.E.F.

Date: August 22 1978

Matthew Faulk

Address: 745 Rogers Ave
Downers Grove, Ill 60515

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Illinois)
)
COUNTY OF DuPage)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 22 day of August, 1978, by Lois Rae Fault and Matthew Fault, husband and wife.

My Commission Expires:

May 22 1981

John E Brooks
Notary Public in and for
DuPage County Illinois

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: AUG 10 1978

FEDERATION OF JEWISH PHILANTHROPIES OF NEW YORK

Leonard Goldenson

TREASURER

Date: _____

Address: 130 East 59th Street
New York NY 10022

ATTEST:

_____

By: _____

Date: AUG 10 1978

Address: 130 E. 59th Street
New York NY 10022

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New York I

I

COUNTY OF New York I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 10 day of August, 1978, by Richard Goldowitz, of Federation of Jewish Philanthropies, a Treasurer corporation, on behalf of the corporation.

My Commission Expires:

_____

David Kaplan
Notary Public in and for
_____ County _____

DAVID KAPLAN
NOTARY PUBLIC, State of New York
No. 01KA7157141
Qualified in the Counties of New York City
Commission Expires March 30, 1980

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 11, 1978 Juliette R. Finch

Date: _____

Address: Box 668
Kerrville, Tex 78028

SIGNATURES GUARANTEED BY:
THE CHAS. SCHREINER BANK

BY: Carol Lander Admn. Officer
~~VICE PRESIDENT ASST. CASHIER~~

ATTEST:

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas)
)
COUNTY OF Kerr)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11th day of August, 1978, by Juliette R. Finch.

My Commission Expires:

4/25/80

Notary Public in and for
Kerr County

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

295

(214)-874-4711

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-29-78 Peggy Flynn

Date: 8-29-78 Verna Howard

Address:

First National Bank and Joseph Edward Stroube
Trustees for Elizabeth Stroube and Susan Stroube
Trust No. 493

ATTEST:

Pat Cone

Asst. Cashier

By: Walter Holmes
Walter Holmes, Vice President and Trust Office

Joseph Edward Stroube
Joseph Edward Stroube

Date: 8-28-78

Address: P.O. Box 613
Corsicana, TX 75110
ID 75 6229751

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas)
)
COUNTY OF Navarro)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 29th day of August, 1978, by Joseph Edward Stroube.

My Commission Expires:

10-31-78

Erla M. Haynie
Notary Public in and for
Navarro County Texas

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas)
)
COUNTY OF Navarro)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 28th day of August, 1978, by Walter Holmes, Vice President & Trust Officer of the First National Bank of Corsicana, TX, a banking corporation, on behalf of the corporation in the capacit therein stated.

My Commission Expires:

10-31-78

Erla M. Haynie
Notary Public in and for
Navarro County Texas

296

210-870-U711

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-29-78

Peggy Hymel

Date: 8-29-78

Verna Howard

Address: _____

ATTEST:

Pat Conner
asst. Cashier

First National Bank in Corsicana and H. R. Stroube, Jr., Co-Trustees of H. R. Stroube Jr. Trust 375

ID 75 6162066

By: Walter Holmes
Walter Holmes, Vice President and Trust Officer

H. R. Stroube, Jr.

Date: 8-28-78

Address: P. O. Box 613
Corsicana, TX 75110

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas }
}
COUNTY OF Navarro }

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 29th day of August, 1978, by H. R. Stroube, Jr. in the capacity therein stated.

My Commission Expires:

10-31-78

Eula M. Haynie
Notary Public in and for
Navarro County Texas

STATE OF _____ }
}
COUNTY OF _____ }

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas }
}
COUNTY OF Navarro }

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 28th day of August, 1978, by Walter Holmes, Vice President & Trust Officer of the First National Bank of Corsicana, TX, a banking corporation, on behalf of the corporation, in the capacity therein stated.

My Commission Expires:

10-31-78

Eula M. Haynie
Notary Public in and for
Navarro County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Address: _____

_____

First National Bank in Corsicana, Trustee of
Jack A. Stroube, Trust No. 376

ATTEST:

Pat Carnes
Asst. Cashier

By: Walter E Holmes
Walter E. Holmes, Vice President and Trust Officer

Date: 9-19-78

Address: P O Box 613
Corsicana Tx 75110

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I

I

COUNTY OF Navarro I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 18th day of August, 1978, by Walter Holmes, Vice Pres. & Trust Officer of First National Bank, Corsicana, a banking corporation, on behalf of the corporation, in the capacity therein stated.

My Commission Expires:

9-30-78

Peggy Hymel
Notary Public in and for
Navarro County Texas

297A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

Pat Carver
Asst. Cashier

Date: 8-18-78

The First National Bank/Corsicana
Trustee Susan Jane Wheelock Trust 247

By: Walter E. Holmes
Walter E. Holmes
Vice President and Trust Officer

Address: PO Box 613
Corsicana Texas

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Navarro I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 18th day of August, 1978, by Walter Holmes, Vice Pres. & Trust Officer of First National Bank, Corsicana, a Banking corporation, on behalf of the corporation, in the capacity therein stated.

My Commission Expires:

9-30-78

Notary Public in and for
Navarro County Texas

299

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Executed by First National Bank in Dallas on condition that it shall have no liability in its individual capacity on any agreement, warranty or indemnity herein contained.

Date: _____

First National Bank in Dallas, Trustee of the Annette C. Griffith Trust

Date: 9-11-78

By: Ernest M. Barnett
Vice President-Trust

Address: P.O. Box 83782
Dallas, Texas 75283

ATTEST:

By: Edward K. Duncan
Assistant Cashier

Date: 9-11-78

By: _____

Address: _____

297

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I

COUNTY OF Dallas I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11th day of September, 1978, by ERNEST M. DARNETT, VICE PRESIDENT-TRUST of First National Bank in Dallas, a National Banking corporation, on behalf of the corporation.

My Commission Expires:

_____

Lattie Grooms
Notary Public in and for
_____ County _____

LITTIE GROOMS, Notary Public
in and for Dallas County, Texas
My commission expires September 30, 1979

299A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Executed by First National Bank in Dallas on condition that it shall have no liability in its individual capacity on any agreement, warranty or indemnity herein contained.

Date:

Date: 9-11-78

First National Bank in Dallas, Trustee of the Charles Hobbs Griffith Trust

By: Ernest M. Barnett
Vice President-Trust

Address: P.O. Box 83782
Dallas, Texas 75283

ATTEST:

By: [signature]
Assistant Cashier

Date: 9-11-78

By:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I

COUNTY OF Dallas I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11th day of September, 1978, by ERNEST M. BARNETT, VICE PRESIDENT-TRUST, of First National Bank in Dallas, a National Banking corporation, on behalf of the corporation.

My Commission Expires:

_____

Littie Grooms
Notary Public in and for
_____ County _____

LITTIE GROOMS, Notary Public
In and for Dallas County, Texas
My commission expires [illegible] 1978

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Executed by First National Bank in Dallas on condition that it shall have no liability in its individual capacity on any agreement, warranty or indemnity herein contained.

Date: _____

Date: 9-11-78

ATTEST:

By: Edward A. [illegible]
Assistant Cashier

Date: 9-11-78

First National Bank in Dallas, Trustee of the Mary Hobbs Griffith Foundation

By: Ernest M. Barnett
Vice President-Trust

Address: P.O. Box 83782

Dallas, Texas 75283

By: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I

I

COUNTY OF Dallas I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11th day of September, 1978, by ERNEST M. BARNETT
VICE PRESIDENT-TRUST
of First National Bank in Dallas,
a National Banking corporation, on behalf of the corporation.

My Commission Expires:

_____

Littie Grooms
Notary Public in and for
_____ County _____

LITTIE GROOMS, Notary Public
in and for Dallas County, Texas
My commission expires September 30, 1978

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

First National Bank in Dallas, Trustee
of the Winfield H. Perdun Trust

Date: August 18, 1978

By: Ernest M. Barnett
Vice President-Trust

Address: P.O. Box 83782

Dallas, Texas 75283

ATTEST:

By: Edward B. Summerlin
Assistant Cashier

Date: 18 August 1978

By: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I
I
COUNTY OF Dallas I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 18th day of August, 1978, by ERNEST M. BARNETT, VICE PRESIDENT-TRUST of First National Bank in Dallas, a National banking corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

_____

Little Grooms
Notary Public in and for
_____ County _____

LITTIE GROOMS, Notary Public
in and for Dallas County, Texas
My commission expires September 30, 1978

19630

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Executed by First National Bank in Dallas on condition that it shall have no liability in its individual capacity on any agreement, warranty or indemnity herein contained.

Date: _____

Earl Fain

Earl Fain III

and James B. Fain

James B. Fain

and

First National Bank in Dallas

By: Ernest M. Barnett
Vice President-Trust

Co-Trustees of the Kate E. Bower Testamentary Trusts 1A and 1B

Date: 9-12-78

ATTEST:

By: Edward B. Cummings
Assistant Cashier

Address: P.O. Box 83782
Dallas, Texas 75283

Date: 9-12-78

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Dallas I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 5 day of Sept, 1978, by James B Fair in the capacity therein stated.

My Commission Expires:

BRUCE H. MORGAN, Notary Public
In and for Dallas County, Texas
My commission expires May 13, 1979

Bruce H Morgan
Notary Public in and for
Dallas County Texas

STATE OF Texas I
I
COUNTY OF Dallas I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 7 day of Sept, 1978, by Earl Fair III in the capacity therein stated.

My Commission Expires:

12-30-79

Shirley L. Thomas
Notary Public in and for
Dallas County Texas

STATE OF Texas I
I
COUNTY OF Dallas I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 12th day of September, 1978, by ERNEST M. BARNETT, VICE PRESIDENT-TRUST of First National Bank in Dallas, a National Banking corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

Littie Grooms
Notary Public in and for
County

LITTIE GROOMS, Notary Public
in and for Dallas County, Texas
My commission expires September 30, 1978

(302)
298

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Executed by First National Bank in Dallas on condition that it shall have no liability in its individual capacity on any agreement, warranty or indemnity herein contained.

First National Bank in Dallas, Trustee
of the Mary Hobbs Griffith Family Trust

Date: 9-11-78

By: Ernest M Barnett
Vice President-Trust

Address: P.O. Box 83782

Dallas, Texas 75283

ATTEST:

By: [signature]
Assistant Cashier

By: _____

Date: 9-11-78

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____ I
I
COUNTY OF _____ I

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF Texas I
I
COUNTY OF Dallas I

The foregoing instrument was acknowledged before me this 11th day of September, 1978, by ERNEST M. BARNETT, VICE PRESIDENT-TRUST of First National Bank in Dallas, a National Banking corporation, on behalf of the corporation.

My Commission Expires:

_____

Littie Grooms
Notary Public in and for
_____ County _____

LITTIE GROOMS, Notary Public
In and for Dallas County, Texas
My commission expires September 1, 1979

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ _____

Date: _____ _____

Address: _____

_____

ATTEST:

[signature]

Trust Officer

Date: November 17, 1978

The First National Bank of Fort Worth,
Trustee U/W/O Eusebia Stonestreet, #587

By: [signature]

Vice President and Trust Officer

Address: P.O. Box 2546
Fort Worth, TX 76113

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF TEXAS)
)
COUNTY OF TARRANT)

The foregoing instrument was acknowledged before me this 17th day of November, 1978, by Billy R. Henson, Vice President and Trust Officer of The First National Bank of Fort Worth, a _____ corporation, on behalf of the corporation, and in the capacity therein stated.

My Commission Expires:

September 21, 1980

Notary Public in and for
Tarrant County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: _____

Address: _____

_____

ATTEST:

THE FIRST NATIONAL BANK OF GUTHRIE, OKLAHOMA
TRUSTEE OF THE FRED A. HOLMAN TRUST

Helen Landis

Assistant Cashier

By: Kay Hudson

Vice President & Trust Officer

Date: 8-14-78

Address: P.O. Box 160, Guthrie, Oklahoma 73044

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Oklahoma I

I

COUNTY OF Logan I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by Kay Hudson, Vice President of The First National Bank, Guthrie, Oklahoma, a national banking corporation, on behalf of the corporation, in the capacity therein stated.

My Commission Expires:

9-30-79

Sharon Hallman
Notary Public in and for
Logan County Oklahoma

306 4307

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

ATTEST: [signature]
Assistant Trust Officer

Date: August 17, 1978

The First National Bank of Midland, Texas,
Trustee, Trust No. 862

[signature]
Vice President & Trust Land Manager
Address: P. O. Box 270
Midland, Texas 79702

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I
I
COUNTY OF MIDLAND I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 17th day of August, 1978, by Windel M. Gibson, Vice President & Trust Land Manager of The First National Bank of Midland, Texas, a Banking corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

5-31-79

Jean E. Wilson
Notary Public in and for
MIDLAND County TEXAS

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

ATTEST: Carolyn M. McKee
Assistant Trust Officer

Date: 8-17-78

The First National Bank of Midland, Texas
& Jessie B. Crump, Co-Trustees, Trust 1069

Violet M. Gibson
Vice President & Trust Land Manager
Address: _____

_____

ATTEST:

_____

_____

Date: _____

Jessie B. Crump
Jessie B. Crump, Co-Trustee

By: P. O. Box 270

Midland, Texas 79702

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS I

COUNTY OF MIDLAND I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15th. day of September, 1978, by Jessie B. Crump in the capacity therein stated.

My Commission Expires:

5-31-79

Notary Public in and for MIDLAND County TEXAS

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

Notary Public in and for _____ County _____

STATE OF TEXAS I

COUNTY OF MIDLAND I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 17th. day of August, 1978, by Windel M. Gibson, Vice President & Trust Land Manager of The First National Bank of Midland, Texas, a Banking corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

5-31-79

Notary Public in and for MIDLAND County TEXAS

3/21
(3)

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

ATTEST:

Assistant Trust Officer

Date: 5-17-78

The First National Bank of Midland, Texas,
Trustee, Trust No. 283

Vice President & Trust Land Manager

Address: P. O. Box 270

Midland, Texas 79702

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I

I

COUNTY OF MIDLAND I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 17th. day of August, 1978, by Windel M. Gibson, Vice President & Trust Land Manager of The First National Bank of Midland, Texas, a Banking corporation, on behalf of the corporation, in the capacity therein stated.

My Commission Expires:

5-31-79

Jean E. Wilson
Notary Public in and for
MIDLAND County TEXAS

312A / 305

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

ATTEST:

[signature]
Assistant Trust Officer

Date: August 17, 1978

The First National Bank of Midland, Texas,
Trustee of Trust No. 23

[signature]
Vice President & Trust Land Manager
P. O. Box 270

Midland, Texas 79702

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____

Notary Public in and for

_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT

(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____

Notary Public in and for

_____ County _____

STATE OF TEXAS I

I

COUNTY OF MIDLAND I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 17th day of Augant, 1978, by Windel M. Gibson, Vice President & Trust Land Manager of The First National Bank of Midland, Texas, a Banking corporation, on behalf of the corporation, in the capacity therein stated.

My Commission Expires:

5-31-79

Joan E. Wilson

Notary Public in and for

MIDLAND County TEXAS

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

Date: _____

The First National Bank and Trust Company

of Oklahoma City, Conservator of the Estate
of Harriett A. Emerson - 8401342
Address: P. O. Box 25189

Oklahoma City, Oklahoma 73125

ATTEST:

Fern Morris
Assistant Cashier

By: Rodolph D. [illegible]
Vice President and Trust Officer

Date: August 22, 1978

Address: P.O. Box 25189

Oklahoma City, Oklahoma 73125

THIS INSTRUMENT IS EXECUTED BY THE FIRST NATIONAL BANK AND TRUST COMPANY OF OKLAHOMA CITY ON CONDITION THAT IT SHALL HAVE NO LIABILITY IN ITS INDIVIDUAL CAPACITY ON ANY AGREEMENT, WARRANTY OR INDEMNITY HEREIN CONTAINED

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF OKLAHOMA)
)
COUNTY OF OKLAHOMA)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 22nd day of August, 1978, by Randolph D. Royse, Vice President and Trust Officer of The First National Bank and Trust Company of Oklahoma City, a _____ corporation, on behalf of the corporation, as Conservator.

My Commission Expires:

September 27, 1981

Barbara L. Hoffman
Notary Public in and for
Oklahoma County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Address: _____

_____

Date: _____

_____

Address: _____

_____

ATTEST:

_____
Cashier

Date: 8-10-78

THE FIRST NATIONAL BANK OF ROSWELL
ROSWELL, NEW MEXICO
M. LEE TRUSTEE, ALLIE

By: _____
BY
~~VICE PRESIDENT AND TRUST OFFICER~~
SENIOR VICE PRESIDENT & TRUST OFFICER

Address: Box 1977
Roswell, N. M. 88201

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New Mexico)
)
COUNTY OF Chaves)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 10th day of August, 1978, by A. D. Neck, Sr. Vice Pres & Trust Off. of The First Nat'l Bank of Roswell, a New Mexico corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

May 9, 1981

David E. Boyd
Notary Public in and for
Chaves County New Mexico

3/4A

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: _____

_____

Address: _____

_____

ATTEST:

Glenna Jarvis
Vice President & Trust Officer

Date: 8-25-78

First National Bank, Trustee under the Will of M. A. Sanchez, Deceased

By: Charles B. Bate
Senior Vice President and Trust Officer

Address: P. O. Box 609

Santa Fe, New Mexico 87501

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF NEW MEXICO I
I
COUNTY OF SANTA FE I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 25th day of August, 1978, by CHARLES D. BATTS, Sr. Vice Pres. and Trust Officer of THE FIRST NATIONAL BANK OF SANTA FE, a national banking corporation, on behalf of the corporation, ~~in the capacity~~ therein stated.

My Commission Expires:
March 14, 1981

Cynthia J Baca
Notary Public in and for
Santa Fe County New Mexico

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: October 30, 1978
I.D. No. 72-6076583

Date: _____

FIRST NATIONAL BANK OF SHREVEPORT,
AGENT, DONNER PROPERTIES

By: Nicholas J. Roppolo
Nicholas J. Roppolo
Vice President & Trust Officer
Address: P. O. Box 21116, Trust Dept.
Shreveport, LA 71154

WITNESSES:
~~XXXXXX~~

Richard K. Chapman
Margaret S. McCann

Date: _____

By: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____ X
X
COUNTY OF _____ X

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____ X
X
COUNTY OF _____ X

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF LOUISIANA X

PARISH OF CADDO X

BEFORE ME, the undersigned Notary Public in and for said Parish and State, on this, the 30th day of October, 1978 personally came and appeared NICHOLAS J. ROPPOLO, who declared and acknowledged that he is the identical person who executed the foregoing instrument in writing; that his signature thereto is his own true and genuine signature, and that he executed said instrument in his capacity as Vice President and Trust Officer of THE FIRST NATIONAL BANK OF SHREVEPORT, of his own free will and accord and as the act and deed of FIRST NATIONAL BANK OF SHREVEPORT, AGENT, DONNER PROPERTIES for the purposes and considerations therein set forth and expressed.

My Commission Expires:
JIM L. SMITH, Notary Public
Caddo Parish, Louisiana
My Commission is for Life

Jim L. Smith
NOTARY PUBLIC

317
318
319
320

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8/21/78

David J. Flackman

Date: _____

DAVID J. FLACKMAN
c/o THE BANK OF NEW YORK
BOX 11,200
NEW YORK, N.Y. 10049

Address: _____

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF CONN.)
COUNTY OF FAIRFIELD)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 21 day of August, 1978, by DAVID J. FLACKDAN

My Commission Expires:

CONDIT HOWER
NOTARY PUBLIC
STATE OF CONNECTICUT
MY COMMISSION EXPIRES MARCH 31, 1979

Notary Public in and for
County

STATE OF)
COUNTY OF)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

Notary Public in and for
County

STATE OF)
COUNTY OF)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this ____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

Notary Public in and for
County

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: SEPTEMBER 5, 1978 — Sadiel Hackmann

Date: _____ — _____

Address: C/O THE BANK OF NEW YORK
BOX 11,200
NEW YORK, N.Y. 10049

ATTEST: _____

_____ — By: _____

_____ — _____

Date: _____ — Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF Connecticut)
) Greenwich, Conn
COUNTY OF Fairfield)

The foregoing instrument was acknowledged before me this 5th day of September, 1978, by Sofie Fleckman.

Jean W. Zaccardo
Notary Public in and for
Fairfield County Conn.

My Commission Expires:

JEAN W. ZACCARDO
NOTARY PUBLIC
FAIRFIELD COUNTY, CONNECTICUT
MY COMMISSION EXPIRES MARCH 31, 1979

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

Date: _____

Address: _____

ATTEST:

Dale Stice

Dale Stice, Assistant Secretary

Date: April 2, 1979

FEAG-REDFERN OIL COMPANY

By: John J. Redfern

John J. Redfern, Jr., President

Address: P. O. Drawer 2280
Midland, Texas 79702

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I
I
COUNTY OF MIDLAND I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 2nd day of April, 1979, by John J. Redfern, Jr.
President of FLAG-REDFERN OIL COMPANY,
a Delaware corporation, on behalf of the corporation.

My Commission Expires:

July 10, 1980

Angie Lloyd
Notary Public in and for
Midland County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-23-78 Louise Truett Flanagan

Date: _____ _____

Address: 612 Randy Place
Hobbs, N. Mex.

ATTEST:

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico I
I
COUNTY OF Lea I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 23 day of August, 1978, by Louise Troutt Flanagan.

My Commission Expires:

7-21-80

D A Cochran
Notary Public in and for
Lea County N.M.

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-11-78

Dr. E. L. Flowers

Date: _____

Address: Box 57
Giddings Tex
78942

ATTEST:

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Lee I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 11th day of August, 1978, by Mr. C. L. Flowers.

My Commission Expires:

12-31-78

Deanna Michelek
Notary Public in and for
Lee County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLFDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, and if the undersigned had executed a counterpart of the agreement, the same in each case as if a counterpart in each case is hereby acknowledged by the undersigned. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

Address: _____

Date: _____

FLUOR OIL AND GAS CORPORATION

By: _____
Leroy Esterak, Vice President

APPROVED
LAW DEPT.

ATTEST:

_____
Assistant Secretary

Address: 615 Midland Tower Building
Midland, TX 79701

Date: August 15, 1978

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas)
COUNTY OF Midland)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15th day of August, 1978, by Leroy Esterak, Vice President of Fluor Oil and Gas Corporation, a California corporation, on behalf of the corporation.

My Commission Expires:

5-15-80

C. L. Ware
C. L. Ware, Notary Public in and for
Midland County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 10-21-78

Elizabeth H. Flynn

Date: _____

Address: 35 Chilsen Rd
New Rochelle NY 10805

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF NEW YORK I

COUNTY OF NEW YORK I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 21ST day of OCTOBER, 1978, by JOHN J. FLYNN JR and ELIZABETH M FLYNN, husband and wife.

My Commission Expires:

_____

Meneal Zucker
Notary Public in and for
_____ County _____

MENDEL ZUCKER
Notary Public, State of New York
No. 31-9812700
Qualified in New York County
Commission Expires March 30, 19 80

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ or _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug. 11, 1978

R. F. Fort

Date: Aug. 11, 1978

Juanell Fort

Address: P. O. Box 2044
Midland Texas
79702

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I

COUNTY OF MIDLAND I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 11 day of August, 1978, by R. F. Fort and Juanell Fort, husband and wife.

My Commission Expires:

October 26, 1979

Brenda Haney (Brenda Haney)
Notary Public in and for
Midland County, Texas

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

_____

Date: _____

_____

Address: _____

_____

ATTEST:

FOSTER PETROLEUM CORPORATION

L. R. Taylor
Secretary

By: _____
Charles F. Doornbos, President

Date: August 14, 1978

Address: P.O. Box 729
Bartlesville, Oklahoma 74003

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF OKLAHOMA)
)
COUNTY OF WASHINGTON)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by Charles F. Doornbos, President of Foster Petroleum Corporation, a Delaware corporation, on behalf of the corporation.

My Commission Expires:
MY COMMISSION EXPIRES JUNE 11, 1979

Mary E. McDowell
Notary Public in and for
WASHINGTON County OKLAHOMA

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: January 24, 1979

Clara Fowler

Clara E. Fowler

Date: _____

Address: Box 612

Hobbs, New Mexico 88240

ATTEST:

_____

By: _____

_____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
COUNTY OF Lea)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 24 day of January, 1979, by Clara E. Fowler.

My Commission Expires:

9/1/82

OFFICIAL SEAL
Signature Janice K. Ripley
JANICE K. RIPLEY
NOTARY PUBLIC - NEW MEXICO
Notary Public in and for
My Commission Expires County New Mexico

Lea

STATE OF _____)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ a _____ of _____, corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: September 19, 1978 — Alberne Fox

Date: September 19, 1978 — Doug W Fry

Address: P. O. Box 41
Rangely, Colorado 81648

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF COLORADO I

I

COUNTY OF RIO BLANCO I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 19th day of September, 1978, by Guy W. Fox and Charene Fox, husband and wife.

My Commission Expires:

July 9, 1979

Notary Public in and for
Rio Blanco County Colorado

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____ Twyla Bugg Francis

Date: 10-18-78 2817 Coleman St

Address: San Angelo, Texas 76901

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I

I

COUNTY OF TOM GREEN I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 17 day of OCT, 1978, by Twyla Busq Francis and [illegible], husband and wife.

My Commission Expires:

6-79

Cowboe
Notary Public in and for
Tom Green County Tex.

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-14-78

Paul D. Zuller

Address: 4917 Birdewood Rd
Lorraine, Calif. 90505

Date:

ATTEST:

By:

Address:

Date:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF CALIFORNIA)
)
COUNTY OF LOS ANGELES)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by ~~Arlyne P. Schumacher~~ PAUL D. FULLER.

My Commission Expires:

3-9-80

OFFICIAL SEAL
ARLYNE P. SCHUMACHER
NOTARY PUBLIC — CALIFORNIA
PRINCIPAL OFFICE IN
LOS ANGELES COUNTY
My Commission Expires March 9, 1980

Arlyne P. Schumacher
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

John R. Stuart

Date: 10-16-78

Elsie Pat Stuart

Address: 1155 Mercantile Dallas Bldg.
Dallas Texas 75201

ATTEST:

_____

By: _____

_____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I

COUNTY OF Dallas I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 16th day of October, 1978, by John K. Fonk and Elsie Pitt Fonk, husband and wife.

My Commission Expires:

6-30-80

Notary Public in and for
Dallas County Texas

STATE OF _____ I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: _____

ATTEST:

_____
Assistant Trust Officer

Date: 8/22/78

Address: _____

Alamo National Bank, Trustee of Edward Galt Trust

By: _____
JOHN FLANNERY, JR.
VICE PRESIDENT & TRUST OFFICER

Address: P.O. Box 900, San Antonio, Tx 78293

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Texas I

COUNTY OF Bexar I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 22 day of August, 1978, by John Flannery, Jr. Vice President and Trust Officer of Alamo National Bank, a Texas corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

6-19-80

Wanda Preston
Notary Public in and for
Bexar County Texas

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 10/21/78

Date: 10/21/78

Address: 865 South Steele St.
Denver, Colo. 80209

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Colorado I
I
COUNTY OF Denver I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 21st day of October, 1978, by Bradley Gaylord and Angela C. Gaylord, husband and wife.

My Commission Expires:

6-5-82

Notary Public in and for
Colorado County Denver

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: April 5, 1979

GETTY OIL COMPANY

Date: _____

by: R James Staruk
ATTORNEY-IN-FACT

Address: _____

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF Oklahoma)
)
COUNTY OF Tulsa)

The foregoing instrument was acknowledged before me this 5th day of April 1979, ~~1978~~, by R. JAMES STARRAK, ATTORNEY-IN-FACT of GETTY OIL COMPANY, a Delaware corporation, on behalf of the corporation.

My Commission Expires:

June 28, 1981

Hester A. Romine
Notary Public in and for
Tulsa County Oklahoma

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-11-1978 — Helen R. Gillett

Date: 8-11-1978 — L W Gillett

Address: 4711 Cumberland Circle
El Paso, Texas 79903

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS)
)
COUNTY OF EL PASO)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 11th day of AUGUST, 1978, by HELEE L. GILLETT and T.W. GILLETT, husband and wife.

My Commission Expires:
6-1-1979

HOLMES & TILL, Notary Public
In and for El Paso, County, Texas
My commission expires June 1, 19 79

_____
Notary Public in and for
EL PASO County TEXAS

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 9, 1978

RB GILMORE and ER SCOTT

By: RB Gilmore (Partner)

Address: 400 ONE ENERGY SQUARE
DALLAS TX 75206

Date: _____

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Dallas I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 9th day of August, 1978, by R. B. Gilmore (Partner), in the capacity therein stated.

My Commission Expires:

10-31-78

Anna Ruth Hardin
Notary Public in and for
Dallas County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 17 AUGUST 1978

x Jacob Goetz

Address: 45-69-158 St
Flushing L.I. N.Y.
11358

Date: _____

ATTEST: _____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF NEW YORK
COUNTY OF QUEENS

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 17 day of AUGUST, 1978, by JACOB GOETZ.

My Commission Expires:

WILLARD L. ROSE, JR.
Notary Public, State of New York
No. 30-[illegible]
Qual. in Nass. Co.-Cert. filed in Qns. Co.
Commission Expires March 30, 18 80

Willard L Rose Jr
Notary Public in and for
County

STATE OF
COUNTY OF

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

Notary Public in and for
County

STATE OF
COUNTY OF

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

Notary Public in and for
County

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 6-15-78

Jennifer Goetz

Date: _____

_____

Address: 7117 Stoneridge
Dallas, Texas
75240

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas)
)
COUNTY OF Dallas)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 15th day of August, 1978, by Jennifer Goetz.

My Commission Expires:

10-7-78

Jane Lynn Painter
Notary Public in and for
Dallas County County

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-14-78 _____

Date: _____ _____

Address: 1310 Petroleum Bldg
Beaumont Texas 77701

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

INDIVIDUAL ACKNOWLEDGMENT

STATE OF TEXAS)
)
COUNTY OF JEFFERSON)

The foregoing instrument was acknowledged before me this 14th day of August, 1978, by J. B. GORDON.

My Commission Expires:

12-31-78

Marnie S. Moore
Notary Public in and for Jefferson County Texas

MARNIE S. MOORE, Notary Public
In and for Jefferson County, Texas

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____)
)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 4/3/79

X [signature]

Address: 584 NEWPORT AVE
PAWTUCKET RI 02861

Date: _____

ATTEST: [signature]
733 CENTRAL AVENUE
PAWTUCKET RI

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF R.I.)
)
COUNTY OF Providence)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 2nd day of April, 1978, by Alice Gousy.

My Commission Expires:

6/30/81

Notary Public in and for
R.I. County Prov.

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Oct 26, 1978 Sue Saunders Graham

Date: _____ _____

Address: P.O. Box 987
Roswell, New Mexico
88201

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF Chaves)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 26th day of October, 1978, by Sue Saunders Graham.

My Commission Expires:

9-2-81

Juanita Bero
Notary Public in and for
Chaves County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT (HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: September 27, 1978

Alice Patricia Gray

Alice Patricia Gray

Date: _____

Address: 347 Brees

Terrell Heights

ATTEST: San Antonio, Texas 78209

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS §
§
COUNTY OF BEXAR §

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 27th day of September, 1978, by Alice Patricia Gray.

My Commission Expires:

June 30, 1980

Charline E. Albach
Notary Public in and for
Bexar County Texas

CHARLINE E. ALBACH
Notary Public, Bexar County, Texas

STATE OF _____ §
§
COUNTY OF _____ §

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ §
§
COUNTY OF _____ §

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: September 27, 1978

Alice Patricia Gray
Alice Patricia Gray
Individually & as Independent Executrix of
the Estate of Justus L. Gray, Deceased

Date: _____

Address: 347 Brees
Terrell Heights
San Antonio, Texas 78209

ATTEST:

_____

By: _____

_____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF TEXAS)
)
COUNTY OF BEXAR)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 27th day of September, 1978, by Alice Patricia Gray.

My Commission Expires:

June 30, 1980

Charline E. Albach
Notary Public in and for
Bexar County Texas

CHARLINE E. ALBACH
Notary Public, Bexar County, Texas

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 11-3-78

Frances Gray
WDS&TCo., Trustee U/A with Frances Gray
Dtd. 6-30-76
By: Thomas B McGaughy

Date: 11-3-78

Address: Bank Plaza
Wheeling, WV 26003

ATTEST:

W Pagani
"TRUST OFFICER AND ASSISTANT SECRETARY"

By: _____

Date: _____

Address: Bank Plaza
Wheeling, WV 26003

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF WEST VIRGINIA)
)
COUNTY OF OHIO)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 3rd day of November, 1978, by Frances Gray.

My Commission Expires:

_____

_____
Notary Public in and for
Ohio County West Virginia

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF WEST VIRGINIA)
)
COUNTY OF OHIO)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 3rd day of November, 1978, by Thomas B. McGaughy of Wheeling Dollar Savings & Trust Company, a banking corporation, on behalf of the corporation in the capacity therein stated.

My Commission Expires:

_____

_____
Notary Public in and for
Ohio County West Virginia

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9-4-1978 Cynthia Gruman Beale

Date: _____ _____

Address: P. O. Box 292
BRENHAM, TEXAS 77833

ATTEST: _____

_____ By: _____

_____ _____

Date: _____ Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Utah)
)
COUNTY OF Washington)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 4th day of September, 1978, by Cynthia Grimes Grebe.

My Commission Expires:

6-30-79

Dorothy Bentke
Notary Public in and for
Washington County Utah

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, hueband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

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RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 24, 1978

New Mexico Bank & Trust Co., Trustee for
Cynthia Grimes Greber
George F. Stanley
George F. Stanley, V.P. & Trust Officer

Date: _____

_____

Address: P. O. Box 400, Hobbs, N. M. 88240

_____

ATTEST:

_____

Janis Collins
Janis Collins, Asst. Trust Officer

By: _____

_____

Date: August 24, 1978

Address: P. O. Box 400, Hobbs, N. M. 88240

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF New Mexico)
)
COUNTY OF Lea)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 24th day of August, 1978, by George F. Stanley.

My Commission Expires:

2/15/82

Virginia Duncan
Notary Public in and for
Lea County New Mexico

STATE OF _____)
)
COUNTY OF _____)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New Mexico)
)
COUNTY OF Lea)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 24th day of August, 1978, by George F. Stanley, Vice President & Trust Officer of New Mexico Bank & Trust Company, a Banking corporation, on behalf of the corporation.

My Commission Expires:

2/15/82

Virginia Duncan
Notary Public in and for
Lea County New Mexico

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____

Notary Public in and for

_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____

Notary Public in and for

_____ County _____

STATE OF NEW MEXICO I

I

COUNTY OF LEA I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 30th day of August, 1979, by R. M. Moran, of MORANCO, a New Mexico corporation, on behalf of the corporation.

My Commission Expires:

Earlene Hiser

Jan 19, 1983

Earlene Hiser

Notary Public in and for

Lea County New Mexico

Added to Shell Eq #12.

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-30-79

Howell Spear

Date: _____

Address: Box 206
Pearlington, Miss
39573

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF Texas I
I
COUNTY OF Midland I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 30th day of August, 1979, by Howell Spear a married man dealing in his sole & separate property.

My Commission Expires:

5/26/81

Carol C. Abernathy CAROL C. ABERNATHY
Notary Public in and for
Midland County Texas

STATE OF _____ I
I
COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____, _____ or _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Sept. 5, 1979

Louise R Whitley

Date: September 5, 1979

Louise R Whitley

Address: 2202 Western Drive

Midland, Texas 79701

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF TEXAS I

I

COUNTY OF MIDLAND I

JOINT ACKNOWLEDGMENT ✓
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 5th day of September, 1978, by Loyd G. Whitley and Louise R. Whitley, husband and wife.

My Commission Expires:

_____

Lottie Arnold
Notary Public in and for
_____ County _____

LOTTIE ARNOLD
Notary Public in and
for Midland Co., Tx
My Commission
Expires: 10-24-80

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

FIRST ROSWELL COMPANY

Date: 8-30-79

By _____
President

Date: _____

_____

Address: P. O. Box 1797
Roswell, New Mexico 88201

ATTEST:

_____

_____

By: _____

_____

Date: _____

Address: _____

_____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Chaves I

COUNTY OF New Mexico I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this 30th day of August, 1977 by T. Z. Jennings, President of First Roswell Company, a New Mexico corporation, on behalf of the corporation.

My Commission Expires:

3-28-82

Jana R. Busch
Notary Public in and for
Chaves County New Mexico

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: Aug 31 1979 Marg[illegible] Laflin

Date: Aug. 31 1979 George P. Laflin

Address: 8716 E. Frontier Pl
Denver, Co. 80237

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF Colorado I

I

COUNTY OF Denver I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 31st day of August, 1979, 1978, by George P. Laflin and Mary Joyce Laflin, husband and wife.

My Commission Expires:

June 29, 1983

Patricia M Blessing
Notary Public in and for
Denver County State of Colorado

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-30-79 — A.T. Williamson

Date: 8-30-79 — Gladys Williamson

Address: 1630 Harvard Ct.
Hobbs, NM 88240

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF NEW MEXICO I

I

COUNTY OF LEA I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 30th day of August, 1979 by A. T. Williamson and Gladys Williamson, husband and wife.

My Commission Expires:

April 1, 1982

Notary Public in and for
Lea County New Mexico

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement;

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9-7-79

J M Dunlavey

Date: 9-7-79

Juliette F Dunlavey

Address: Box 837
Roswell, New Mexico

ATTEST:

Jeanette S Hall
Notary

By:

Date: 9-7-79

Address: Box 2057
Roswell N M 88201

my Commission expires
May 18 1982

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I

I

COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ and _____, husband and wife.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF _____ I

I

COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 8-31-79

R. M. Nolan

Date: 8-31-79

Address: _____

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____)
)
COUNTY OF _____)

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New Mexico)
)
COUNTY OF Lea)

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 31st day of August, 1978, by R.M. and Brenda Anne Moran and _____, husband and wife.

My Commission Expires:

4-1-82

Wayne Swanner
Notary Public in and for
Lea County New Mexico

STATE OF _____)
)
COUNTY OF _____)

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: 9-4-79 Kenneth D. McPhee

Date: 9-4-79 Roselyn McPhee

Address: P.O. Box 1919
HOBBS, NM 88240

ATTEST:

By:

Date:

Address:

(Certificates of acknowledgment are on the reverse side hereof.)

STATE OF _____ I
I
COUNTY OF _____ I

INDIVIDUAL ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978, by _____.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

STATE OF New Mexico I
I
COUNTY OF Lea I

JOINT ACKNOWLEDGMENT
(HUSBAND AND WIFE)

The foregoing instrument was acknowledged before me this 4th day of September, 1979, by K.D. McPETERS and ROSELYN McPETERS, husband and wife.

My Commission Expires:

April 1, 1982

Notary Public in and for
Lea County N.M.

STATE OF _____ I
I
COUNTY OF _____ I

CORPORATE ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 1978. by _____, _____ of _____, a _____ corporation, on behalf of the corporation.

My Commission Expires:

_____

_____
Notary Public in and for
_____ County _____

RATIFICATION
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

WHEREAS, certain agreements entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico" and "Unit Operating Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", are being entered into as of July 1, 1978, between the signatory parties for the purpose of unitizing and conducting unit operations in a portion of the Hobbs (Grayburg-San Andres) Field, in Lea County, New Mexico, the unit boundaries and the tracts comprising the unit area being shown on Exhibit A and said tracts being described in Exhibit B of the exhibits attached to said unit agreement; and

WHEREAS, the undersigned is the owner of a royalty interest or a working interest, or both, as said interests are defined in said unit agreement, in one or more of the tracts described in said Exhibit B, and the undersigned desires to commit said interest or interests to said unit agreement:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that each of the undersigned (whether one or more), for and in consideration of the premises and pursuant to the joinder provisions contained in said agreements, does hereby ratify and agree to be bound by the provisions of the said unit agreement as a party thereto, and if the undersigned is the owner of a working interest, does also hereby ratify and agree to be bound by the provisions of the said unit operating agreement as a party thereto, the same in each case as if the undersigned had executed a counterpart of the agreement. Receipt of a counterpart in each case is hereby acknowledged by the undersigned.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date stated below.

Date: August 30, 1979

MORANCO

Date: _____

By R. W. Nolen
President

Attest: Wayne Summers
Secretary

Address: P. O. Box 1860
Hobbs, New Mexico 88240

ATTEST:

_____

By: _____

Date: _____

Address: _____

(Certificates of acknowledgment are on the reverse side hereof.)

WATERFLOOD FEASIBILITY
AND
UNITIZATION PARAMETERS

NORTH HOBBS
"Grayburg San Andres"
UNIT
Lea County, New Mexico

TECHNICAL COMMITTEE REPORT

APRIL 1977

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INTRODUCTION

The object of this report is to fulfill the charge by the Working Interest Owners with respect to that portion of the Hobbs (Grayburg-San Andres) Field which underlies the proposed North Hobbs Unit Area. That charge was to recommend a plan of depletion, including economic comparisons with continued primary operations, and provide the Working Interest Owners certain parameters for a basis to negotiate, all for the incentive and purpose of pursuing unitized supplemental recovery operations.

An Engineering Subcommittee Report, "Waterflood Feasibility and Unitization Parameters, Hobbs (Grayburg-San Andres) Pool", was published in March, 1972 as a basis for unitizing the entire Grayburg-San Andres reservoirs in the Hobbs Field. However, agreement could not be reached on participation and efforts to unitize the Hobbs Field in its entirety were abandoned. At the Working Interest Owners' meeting held on July 12, 1973, it was agreed to divide the Field into two parts for unitization purposes. Amoco was to act as Unit Expeditor for the South Hobbs Unit and Shell for the North Hobbs Unit. The South Hobbs Unit (operated by Amoco) became effective on January 1, 1975 and includes most of the leases in Township 19 South plus three Amoco tracts (280 acres) in Township 18 South. This unit contains approximately one-third of the OOIP, one-fourth of the cumulative oil production and one-fifth of the current oil production from the Grayburg-San Andres reservoirs. Water injection operations for this unit began in December, 1975.

Where applicable, basic data included in the March 1972 report has been used in the development of this study. A conscious effort has been made to minimize repetition and to concentrate instead on the changes and new work that have been accomplished. The following report includes a description of practically all of the studies made. Although subsequently many of these approaches were not used, in the final analysis, they are recorded here for completeness and understanding of the work performed.

ACKNOWLEDGEMENT

The Chairman of the Technical Committee would like to thank all of the Companies which were represented at the Technical Committee meetings. The technical caliber and spirit of cooperation of those attending were outstanding. We were blessed with large turnouts and an average of thirteen Companies were represented at each work session. Most of the work presented in the following pages was unanimously agreed to by the participating Technical Committee members.

H. J. Swartz

SUMMARY

Cumulative oil production, to January 1, 1977, is 167 MMB or 28.9 percent of the 578 MMB original oil-in-place in the proposed unit area. Primary reserves of 38.1 MMB indicate that the average recovery efficiency will be 35.5 percent by natural means. The proposed unitized water injection operation is economically feasible and will increase the ultimate oil recovery by 55 million barrels.

Tract primary oil reserves have been determined by the use of production decline curve analyses for the Grayburg and upper San Andres stringers and by the use of a mathematical reservoir simulation program for the main San Andres reservoirs. Both methods account for future oil migration.

Waterflood operations will require the drilling of 20.5 Unit wells (15.5 injectors and 5 producers) in order to obtain controlled and balanced water injection despite significant differences in permeability between zones and irregular spacing of wells along lease lines. These numbers include five injectors (2.5 unit wells) which are proposed to be drilled along the common boundary with the Amoco-operated South Hobbs Unit.

CONCLUSIONS

All of the following conclusions refer to only the proposed North Hobbs Unit Area as outlined in Figure 2:

1. The Hobbs (Grayburg-San Andres) Field is comprised of at least four zones (one Grayburg and three San Andres) which are performing as separate reservoirs. The upper San Andres (Zone I) has an active water influx. The remaining zones behave as solution gas drive reservoirs with only localized, minor water encroachment caused by communication with Zone I.

2. The original oil-in-place is 61.6 million barrels in the Basal Grayburg, 171.6 million barrels in the San Andres Zone I and 344.9 million barrels in San Andres Zones II, III_U and III_L. Cumulative oil production to January 1, 1977 is 167 million barrels or 28.9 percent of the original oil in place. Approximately 157 million barrels of this amount has been produced from the San Andres formation.

3. Original gas caps were found in only the upper two reservoirs and contained 45,603 MMCF in the Basal Grayburg and 8609 MMCF in the San Andres Zone I.

4. Ultimate primary recovery will be about 11.5 million barrels (R.E. = 18.7%) from the Basal Grayburg, 104.3 million barrels (R.E. = 60.8%) from the San Andres Zone I, and 89.3 million barrels (R.E. = 25.9%) from San Andres Zones II, III_U and III_L.

5. The strong water influx into Zone I has caused and will continue to cause significant oil migration. The remaining primary tract reserves for all of the main San Andres reservoirs have been determined by the use of a mathematical

reservoir simulation model which incorporated the data developed by the Technical Committee.

6. The proposed water injection program should increase ultimate oil recovery by 55.2 million barrels (6.6 million barrels from the Basal Grayburg and 48.6 million barrels) from the San Andres II, III_U and III_L. No water injection is scheduled for San Andres Zone I.

7. Because of the significant differences in permeability between zones and the irregular well spacing it will be necessary to drill 20.5 wells (5 producers and 15.5 injectors).

8. The proposed project requires an initial capital investment of $23,600,000 and an ultimate capital investment of $24,600,000. The before tax incremental profitability analysis (assuming constant costs and revenues) indicates that the total investment will be repaid in 6.0 years and yield an undiscounted profit of $334 million or 1359 percent. The annual rate of return is 28 percent.

9. The charge by the Working Interest Owners to the Technical Committee (Table 1) has been completed and is presented in this report.

RECOMMENDATIONS

1. It is recommended that the vertical section prorated as the Grayburg - San Andres Field and included in the area outlined in Figure 2 be unitized for the purpose of initiating water injection operations to increase the ultimate oil recovery from the Grayburg and San Andres reservoirs.

2. It is recommended that the source water be obtained from the City of Hobbs industrial process water source.

DISCUSSION

HISTORY

The Hobbs Field discovery well (Amoco State A-5) was completed in mid-1928 for a flowing potential of 700 barrels of clean oil per day. A total of 135 wells were completed and were producing about one million barrels of oil per month by the end of 1930. A high withdrawal rate was continued through 1935 (cumulative oil production of 60 million barrels) when production was greatly curtailed because of reduced demand. The production performance as a function of time is shown for both the Field and the proposed North Unit Area in Graphs 1, 1A and 1B.

A typical early completion in the field was an open hole productive interval with casing set at the top of, or into the Grayburg section with total depth at the "sandy break" which separates San Andres Zones II and III. Open hole packers were used to control gas and/or water production. Some of these packers are still being utilized in existing producers. Primarily because of corrosion, a program of setting liners or full strings of casing was conducted in many wells in the middle 1940's. At this time the first logs were obtained; most were gamma ray-neutron surveys. Concurrent with setting aliner or a full string of casing, numerous wells were deepened to about 614 feet subsea and into the San Andres Zone III_L. Subsequently, there have been a significant number of workovers involving squeezing and reperforating to change completion intervals. As discussed in the following text (PRIMARY PRODUCTION PERFORMANCE TO DATE), many of the wells are now experiencing behind-pipe communication between zones.

In the proposed North Unit Area there are currently 222 producers (368 well zones) and 19 shut in or temporarily abandoned wells. Of these, 130 (59 percent of the active wells) are single zone completions. The number of current

drainage points are: Grayburg 119, San Andres Zone I 88, Zone II 75, Zone III_U 66, and Zone III_L 20. This current well status is detailed in Table 2.

Subsurface disposal of produced water commenced in December 1958. There are currently 3 disposal wells which are operated by Rice Engineering Company. The wells are located in Section 15-T19S and Sections 25 and 29-T18S. Cumulative water injection exceeds 90 million barrels into a lower San Andres zone at depths between 4446 and 5050 feet. The current disposal rate of 22,000 barrels of water per day (on a vacuum) is near the capacity of the system.

GEOLOGY

The Hobbs (Grayburg-San Andres) reservoir is an anticlinal feature about 8 miles long by 3.5 miles wide, trending northwest - southeast. Structure relief is nearly 400 feet above the top of the oil-water transitional zone at 614 feet subsea.

Grayburg: Production from the Grayburg formation is from the lower member, referred to in this study as the Basal Grayburg. The productive member consists of thinly interbedded sandstone, siltstone, and dolomite. Total thickness of the Basal Grayburg varies from 80 feet on the southeast flank to 200 feet on the northwest and southwest flanks. Approximately half of the interval is indicated by logs to be sandstone and/or siltstone. Detailed review of core data from 18 wells and microscopic examination of core slabs from two wells indicate that Grayburg productivity is mostly confined to the sandstone beds. Because of the inability to identify the nonpermeable siltstone beds from logs, the lateral continuity of permeable sandstone is questionable. It is therefore not possible to prepare meaningful continuous pay maps for the Basal Grayburg. Because of the type of logging surveys, it is also not possible to make a meaningful determination of porosity variations across the field. Therefore, only net pay isopach maps have been prepared for the Grayburg.

As shown on the example log (Figure 3), the Basal Grayburg interval is divisible into two zones. The upper zone contains nine sandy units that can be traced over the entire area of study and usually has a total thickness between 80 and 100 feet. However, the zone reaches a thickness of 150 feet on the southwest flank in Sections 30 and 31 and on the northwest area in Sections 13 and 14. This zone probably contains most of the floodable Grayburg oil. Figure 4 is a structure map on the top of the Upper Basal Grayburg Zone.

The lower zone is developed as a "wedge" along the southwest and northwest flanks of the structure where it may reach a thickness of nearly 80 feet. On the crest of the structure it is usually less than 15 feet thick and is often absent. Sands within the lower zone generally show poor continuity. Figure 5 is a structure map of the top of the Lower Basal Grayburg Zone.

Because of differences in the development of these two intervals of the Basal Grayburg, separate net pay maps were prepared. These maps were constructed by utilizing contour maps of the percent net pay to gross thickness ratio for each zone (Figures 6 and 7) in conjunction with gross thickness measurements (Table 3). The percent net pay to gross thickness ratio determinations were made from: (1) core data in 16 wells (using net pay cutoff parameters of 11% porosity and 0.2 millidarcies permeability), and (2) selected log control points for 21 wells with "good quality" logs. Gross thickness measurements were based on consistent field-wide correlations.

The resulting four net pay maps (Figures 8-11) are based on fluid contacts of: gas-oil at 360 feet subsea and oil-water at 614 feet subsea.

San Andres: The San Andres reservoir has been divided into four zones, although it is more thin-bedded than indicated by this zonation. As shown on the example log (Figure 12), there is a significant vertical variation in porosity. Produc-

tion history and bottom hole pressure build up data also indicate a wide vertical variation in permeability.

The upper surface of the San Andres is erosional, which probably affected the pay development of the upper interval, Zone I. Figure 13 is a structure map contoured on the top of the San Andres formation. Although 10-80 feet of basically impermeable dolomite covers the reservoir, the porous lower part of Zone I is highly permeable and is known to be cavernous in many places. This zone usually contains two or three separated porous units. The lowermost unit appears to be the principal route for encroaching water and can be identified on many logs as a zone of higher porosity. Occasionally, especially on the west flank, upper porous units still produce oil and apparently have been bypassed by the water beneath. An attempt was made to sub-divide Zone I into correlatable subzones, but stratigraphic variations in the distribution of porous beds and separating nonporous layers precluded the successful development of a mappable fieldwide subdivision.

Zone I is separated from Zone II by a thin shaly bed. Although this streak is usually not more than five feet thick it is probably an effective permeability barrier over most of the area away from the well bores. A map estimating the effective natural separation of Zones I and II is presented in Figure 14. This map highlights the limited and localized areas where there is no apparent impermeable layer separating the two zones.

Zone II often contains porosity development as good as or better than Zone I, particularly on the crest of the structure. At the base of Zone II is the "sandy break", which consists of 10-20 feet of mostly impermeable sandy dolomite and dolomitic sandstone and/or siltstone. Occasionally this interval contains porous sandstone that has probably yielded some oil, but log interpretation

suggests that the lateral continuity is poor. The "sandy break" is probably a very effective barrier between the Zone II and III_U reservoirs. Figures 15 and 16 are structure maps on the tops of Zones II and III_U respectively.

Zone III was divided into two parts, although both portions appear geologically similar and are generally more thin-bedded than the overlying zones. High porosity beds such as those accentuated on the example log (Figure 12) are less abundant than in the upper zones, but like Zone II, are best developed on the crest of the structure. Figure 17 is a structure map on the top of Zone III lower.

Lateral continuity of porous rock above the cutoff porosities determined for each zone and referred to herein as "pay" has been evaluated between offsetting wells and found to be excellent throughout the proposed unit area. Average percent continuity between pairs of wells approximating 40-acre spacing (1200-1400 feet) ranges from 90 percent in Zone III to 94 percent in Zone I. Pay continuity in Zone II was found to be the most erratic, where continuity varies from a low of 83 percent in the extreme northwest portion of the study area, to greater than 94 percent in the southeast. Continuous pay maps have been prepared for all four San Andres zones (Figures 18-21). Average percent continuity between offsetting wells approximating 40-acre spacing has been added as a "note" on each map. Areal coverage of these maps is limited by the quality of log data, i.e., greater than 90 percent of the open hole porosity logs available for correlating are located on the crest of the structure (Blinebry wells drilled during 1960's). It should be emphasized that this interpretation is largely qualitative as lateral continuity of pay is not only dependent upon porosity, but also upon permeability, for which there is little data, and distance between wells. Spacing between offsetting San Andres wells varies from about 600 feet to nearly 2,000 feet, and the spacing of open hole porosity logs is even more erratic (200-5,000 feet).

The effect upon percent pay continuity of increasing distance between offsetting wells was evaluated and found to be minimal. No discernable reduction in average percent pay continuity was observed when well spacing was increased from 1,200 feet to 2,500 feet. This should not be interpreted to mean that the porosity is uniformly continuous throughout the unit area. Local barriers to fluid flow, particularly in Zone I, are indicated by production performance. Also, wireline log correlations indicate individual zonal low as 50 percent between wells 500 feet apart and as high as 100 percent between wells spaced 5,000 feet. This variability in pay continuity is illustrated in Graph 2, which is a composite of percent total net pay continuity versus distance between wells.

In summary, the San Andres at Hobbs generally exhibits a high degree of lateral continuity. However, localized barriers to fluid flow are evidenced from production performance and wide variations in continuity are indicated from wireline log correlations. Well to well correlations are summarized in Table 4.

RESERVOIR ROCK PROPERTIES

Core Analyses

Core analysis data available in the Township 18 South area are rather limited and are summarized as follows:

	Grayburg	San Andres			
		I	II	III_U	III_L
No. Wells Cored	19	10	5	4	1
Net Pay (Ft.)	296	212	162	89	15
Avg. ø (%)	14.0	14.9	12.9	12.0	14.0
Arithmetic Avg.					
k (mds.)	2.5	143	45	45	170
Geometric Avg.					
k (mds.)	0.9	16	6	4	32

Porosity values determined from selected log data (described in the next section), are:

	Grayburg	San Andres			
		I	II	III_U	III_L
No. Wells Analyzed	-	114	98	88	28
Net Pay (ft.)	-	4097	3741	3911	1059
Avg. ø (%)	-	14.8	14.2	13.6	13.6

Considering the data from these two sources, the average zonal porosity was determined to be: Grayburg, 14.0%; San Andres Zone I, 14.8%; Zone II, 14.1%; III_U, 13.5%; and III_L, 13.6%.

Stratification analyses using the Dykstra-Parsons variance approach were made using all of the available core data. The average coefficient of permeability variation determined by the use of this technique is: Grayburg

0.7, San Andres Zone I 0.8, Zone II 0.9, Zone III_U 0.8 and Zone III_L 0.9. The San Andres weighted average variance factor is 0.8. The significance of this data and how it is used in this study is described in the section on ULTIMATE PRIMARY RECOVERY.

The members of the Technical Committee realize that the statistical averaging technique applied to the core data has a tendency to minimize the effects of high permeability streaks that exist within the field. Because of the limited amount of core data available, however, this method was adopted.

Petrophysical Analyses

An extensive petrophysical study was undertaken in order to volumetrically describe each San Andres zone being studied. Control points were based on only "good quality" data. Ideally, petrophysical field studies from log analysis are founded upon matching log responses to core data. Unfortunately, the total number of Hobbs Field wells cored in the Grayburg-San Andres are few; the number of these with cores that penetrated into or below the main porosity of Zone I is significantly fewer; and the number of these that have reliable logs to match with the core data is essentially nil. (Refer to Table 5). It was necessary, therefore, to derive the basis for log analysis from some less conventional means.

Of the various types of "porosity" logs available in the Hobbs (Grayburg-San Andres) field, the Sidewall Neutron Porosity Log (SNP) was chosen to be the basis for pore volume determinations. A total of six wells, all Blinebry-Drinkard penetrations with very good quality SNP's and micrologs, were studied in detail. At various points within each zone, the porosity value from the SNP (corrected for lithology effect) was matched with the corresponding degree of micro-inverse to micro-normal separation from the microlog. Each microlog

reading was qualitatively categorized as one of the following: (a) good positive separation (b) slight positive separation and (c) no positive separation. Gamma ray response was also used to differentiate between "clean" and "dirty" rock (gamma ray response higher than halfway between maximum gamma reading from the interval just above the top of the San Andres and the minimum deflection from the main porosity of Zone I). Porosity - separation quality graphs were then constructed using only the points coincident with smooth borehole and stable log response. Consistent averaging relationships were then used to arrive at the following cutoff porosities: Basal Grayburg, 11%; San Andres Zone I, 4.5%; San Andres Zone II, 7% ("clean"), 13% ("dirty"); San Andres Zone III_U, 6% ("clean"), 10% ("dirty"); San Andres Zone III_L, 9% ("clean"), 12% ("dirty").

Ten wells with Acoustic - SNP log combinations were used to establish Δt versus ϕ relationships for each rock type by zone. The Δt cutoffs were assessed to coincide with the corresponding porosity cutoffs previously described.

Sufficient density - SNP data does not exist to establish ρ_b versus ϕ relationships. Core analyses indicate a grain density for San Andres dolomites of about 2.83 grams/cm^3. Density logs were analyzed using this value for ρ_{ma} and the ρ_b vs ϕ relationships published in service company literature.

Open-hole GR/neutron logs which have established departure curves were also analyzed, as were selected cased-hole GR/Neutron logs. In addition, several cased hole Compensated Neutron Logs (CNL) were considered to be useable.

Porosity-feet (ϕh) calculations by zone were performed through the San Andres on all logs determined to be useable. Net pay thickness (h) determinations were made for the Basal Grayburg. Analysis was begun at the Basal Grayburg top and was continued through 614 feet subsea (or "first reading" depth on the log in wells that did not penetrate to 614 feet subsea). Extrapolations were made

in zones of wells that partially penetrated that zone, provided that actual penetration amounted to $\geq$ 50% of the total expected productive thickness of that zone.

As previously discussed (GEOLOGY section) Grayburg net pay was determined from the net to gross ratio isopach map determined from core data. The porosity-feet data derived from these log analyses provided sufficient and reliable data to enable the construction of porosity-feet contour maps for each of the four San Andres zones (Figures 22-26).

It is not possible to accurately estimate the connate water saturations by log analysis because of the lack of sufficient resistivity contrast between the oil and formation water. The formation water is relatively fresh (less than 8000 ppm chlorides), and has a resistivity of about 0.45 ohm-meters^2/meter at 70°F. Based on the work done by the previous Engineering Committee average initial water saturations of 30 percent in the Grayburg and 22 percent in the San Andres were used.

In summary, the Technical Committee porosity-feet (ϕh) maps for each of the four San Andres zones are based on core data and selected log control which are summarized on Table 6. The reliability of these interpretations is considered good and such data provide an excellent relative basis for original hydrocarbon-in-place comparisons. At the Technical Committee meeting of September 11-12, 1974, it was unanimously agreed to adopt a January 1, 1975 cutoff date for all well logging data to be used.

kh From Buildup Analyses

Early bottom hole pressure buildup analyses were taken only by Shell Oil Company. This company has taken 83 buildup surveys in 24 different wells. Only 29 of these surveys (in 10 different wells with single zone completions)

are judged to be useable for zonal kh and reservoir pressure determinations In addition, at the request of the Technical Committee, four special buildup surveys were taken around year-end 1974. Three of these surveys were useable for zonal calculations. The average permeabilities calculated from these selected analyses are as follows:

	Grayburg	San Andres			
		I	II	III_U	III_L
No. of wells	1	3	2	7	-
No. of Surveys	2	6	6	18	-
Avg k (mds.)	2	137	12	19	-

Based on the core analyses (considering both arithmetically and geometrically averaged values), buildup analyses and the average zonal permeabilities reported in the fieldwide study, the following reservoir-wide average permeabilities were assigned: Grayburg, 2.4 millidarcies; San Andres Zone I, 85 millidarcies; Zone II, 29 millidarcies; Zone III_U, 23 millidarcies and Zone III_L, 48 millidarcies. It is recognized that the permeability ranges are large within a zone but the above - stated averages are recorded in order to show apparent relative differences in permeabilities between zones. More significant are the observations that little permeability data are available and that which are available indicate large variations both vertically and areally. Also it should be kept in mind that drilling records often reflect a "cavernous" zone, usually in the lower portion of Zone I.

These differences suggest that water injection can best be controlled by careful selection of wells and by isolation of injection zones. The core data does provide a good indication of the degree of stratification and the use of these data for the evaluation of performance will be further explained in later sections.

RESERVOIR FLUID PROPERTIES

The PVT data reported by the previous Engineering Committee were used with one adjustment. The saturation pressure was changed from 1541 psig to 1500 psia on the basis of a subsurface oil sample in Amerada New Mexico State B-2 (Sec.29,G) taken on September 1, 1935. The formation volume factor curve was adjusted accordingly but the same initial solution gas-oil ratio (of 645 cubic feet per barrel of oil) was used.

For the sake of convenience and clarity the solution gas-oil ratio, oil formation volume factor, gas formation volume factor and oil viscosity trends are depicted as functions of pressure in Graphs 3 through 6.

ORIGINAL OIL AND GAS IN PLACE

The original hydrocarbons-in-place have been determined to be 54 BCF of gas in gas caps and 578 million stock tank barrels of oil. The breakdown of these amounts by zone together with other pertinent data are shown in Table 7.

These original in-place values were derived from the four Grayburg net pay isopach maps (Figures 8-11) and the five San Andres porosity-feet (ϕh) maps (Figures 22-26). An average porosity of 14 percent and average connate water saturation of 30 percent was used for the Grayburg whereas all of the San Andres zones were assigned a connate water saturation of 22 percent.

The tract values of original hydrocarbons-in-place were determined by a "gridding" technique using a ten-acre grid. (The results are summarized in (Tables 8 thru 13.) Copies of all maps and tabulations with tract values assigned, were submitted to the Technical Committee representatives of all lease operators for verification.

The fluid contacts used are the same as in the prior report: gas-oil contact at 360 feet subsea and oil-water contact at 614 feet subsea. It should be noted, however, that the "oil-water" contact is in reality the top of the transition zone and is based on the deepest depth from which clean oil was initially produced. Three of the current producers, Exxon Bowers A 35(29D), Getty Hardin 4(19A) and Shell Sanger 6(27D), have intervals open to production that are considerably below 614 feet subsea. It is believed, however, that no significant bottom water influx has occurred and none is expected.

PRIMARY PRODUCTION PERFORMANCE TO DATE

Cumulative oil production to January 1, 1977 is 167,008,194 barrels from the proposed Unit Area. Reliable cumulative values are not available for gas and water but it is estimated that for the entire field the cumulative GOR is about 1950 cubic feet per barrel and the cumulative WOR is about 0.75 barrels of water per barrel of oil produced. During 1976 the wells located in the proposed unit area produced an average of 7488 barrels of oil per day at a GOR of 2758 cubic feet per barrel and a water cut of 68 percent. The historical production performance is depicted in Graphs 1 and 1A for the entire Grayburg-San Andres reservoir complex and in Graph 1B for that portion attributed to wells that are included in the proposed North Unit.

It should be noted that 30 percent of the total oil produced to date was obtained prior to 1936, at rates which were about three times greater than any subsequent rate (Refer to Graph 1). It is also of interest that wells in the proposed North Unit Area have produced more than 73 percent of the cumulative oil and now contribute more than 80 percent of the field's current oil production rate. There are currently 24 top allowable producers in the field; 23 of these are located in this study area.

The productivity of wells completed in Zone I has always been significantly greater than those completed in other zones. Seven of the eight Shell McKinley lease wells (Section 19) continued to produce large volumes of water (greater than 100 BWPD) after being recompleted out of Zone I. Extensive surveying of these wells (radioactive tracer, temperature and spinner surveys) established that the water production was coming from Zone I via behind pipe communication despite repeated attempts to squeeze off production from that zone. Similar observations on other leases, coupled with the knowledge that the usual liner recompletion afforded little shut off protection from a zone that was known to be at a higher pressure than the others and was experiencing a moderately strong water influx, led to the conclusion that most of the field's water production is coming from Zone I. This premise is supported by the fact that a reasonable current water cut map can be constructed for only Zone I. These data for the lower San Andres zones are scattered and erratic, but usually coincide with the Zone I values. Furthermore, in several other instances (i.e., Amerada McKinley 4, 30E) the results of selective testing of wells indicate that in many cases the high water productivity is associated with only the high permeability (cavernous) streak in the lower portion of Zone I. Consequently, the Technical Committee has concluded that all water production in excess of 100 barrels per day is coming from Zone I.

In order to gain additional insight into an understanding of performance to date, the completion history of each well in the field was traced and a chronological allocation of production by zones was made for each well. The basis for estimating a well's production from each completed zone was on the ratio of Øh open to production; permeability-thickness was also considered when the Grayburg formation was involved in the multi-zone completion. This analysis yielded the

following cumulative oil production as of January 1, 1976: Grayburg 10.0 million barrels, San Andres Zone I 58.6 million barrels, Zone II 57.3 million barrels, Zone III_U 30.6 million barrels and Zone III_L 7.8 million barrels. These values are approximate and were not used but do indicate which zones could have had the greatest withdrawals.

Wells which are thought to be effectively completed in only one zone were grouped and analyzed in order to determine if there were any indicated differences in the current producing characteristics of the various zones. This analysis resulted in the following estimates:

Zone	GOR $ft.^3/BO$	WC %
Grayburg	5100	<10%
S.A. I	1800	66%
S.A. II	3400	32%
S.A. III_U	4100	21%
S.A. III_L	2700	15%

BOTTOM HOLE PRESSURE PERFORMANCE

Annual key-well static BHP surveys have been taken since October, 1930. The measurements were taken in flowing wells with a shut in time of 24 hours and adjusted to a subsea datum of 400 feet. The number of surveys greatly diminished after 1953 and the spread between measured values gradually increased and became less indicative of actual reservoir pressure as the gas saturation increased. Nonetheless all of these data were reviewed and are plotted in Graph 7 where the arithmetic averages, minimum and maximum values for the field, northern and southern areas, are shown. These data are considered to be of little value after the year 1947, inasmuch as the 24-hour shut in time is insufficient to record

actual reservoir pressures. Furthermore, these surveys were taken in wells regardless of zone or multiplicity of completion.

A much more definitive analysis is possible by using BHP buildup data. Only Shell Oil Company took this type of survey; the areal coverage therefore is greatly restricted. Horner type analyses were made of 96 buildup surveys which were obtained in 31 wells. The values of P*, $\bar{P}$, kh, skin and P.I. were calculated and compared for consistency and reasonableness with other surveys in the same wells and with what the reservoir pressure was estimated to be at that time. These calculations were chronologically segregated by zone of completion. Only 29 surveys taken in 10 wells are considered to be representative of single zone performance. Fourteen flow tests of 13 Shell wells were also available and useful for estimating productivity indices. In addition the Technical Committee in late 1974 requested and obtained four special buildup surveys with the cooperation of the operators.

Analyses of all of the aforementioned BHP surveys led to the following conclusions:

1. Reservoir pressure is greater in the North Unit Area than in the rest of the field.
2. The useable BHP buildup data are sparse but clearly indicate significant reservoir pressure differences between the Grayburg, San Andres Zone I, Zone II, and III_U-III_L. This is strong evidence that these zones, at least in the North Unit area, are effectively separated and are behaving as different reservoirs.
3. Average reservoir pressure at January 1, 1975, in the North Unit Area, are: Grayburg 400 psig, San Andres Zone I 950 psig, Zone II 870 psig and Zones III_U and III_L 740 psig. The pressure performance, as a function of time, for each of these reservoirs is depicted on Graph 8.

4. Apparently there are no significant pressure gradients within any zone in the North Unit Area.

It should be noted that the four operators which cooperated with the Technical Committee in obtaining special buildup surveys in December, 1974, were advised that every effort would be made to ascertain the amount and make adjustments for any production "lost" to them as a consequence of these operations. These surveys are summarized as follows:

Well	Location	Date Of Survey	Hours SI	Estimated Amount of "Lost" Production (Bbls)
Amerada McKirley 3	30C	1/05/75	67	240
Exxon Fed. Bow. A-10	29L	12/30/74	70	200
Getty McKinley 2	30H	12/13/74	72	0
Marathon Sec. 30 1	30K	12/02/74	67	589

The cumulative oil production shown in the parameter tables have been increased to include the above amounts.

CURRENT OIL AND GAS IN PLACE

The current hydrocarbons-in-place value, by tracts, provides a method for assessing the relative value of each lease to the unit. Distinctions are made on the basis of saturation and storage volume differences. In this analysis tract saturations have been assessed by the use of fractional flow equations, relative permeability curves and current production characteristics.

The Technical Committee constructed a water cut map for Zone I and GOR maps for Zones II, III_U and III_L. These maps were based primarily on data obtained from the 1974 annual GOR tests. It was concluded that there is a moderately strong water influx through Zone I only. All other reservoirs are being produced by solution gas drive (and gas cap expansion in the Grayburg) and there is no

evidence of bottom water encroachment in the North Unit area. Unquestionably there has been localized movement of water into all the other zones by communication with Zone I (behind pipe and due to lack of natural separation between Zones I and II in certain areas). However, it is felt that this invasion of water can be likened to a dump flood in certain portions of the field and cannot be quantified by tracts but rather should be handled as a reservoir average. This thesis is supported by both the differences found in zonal pressures over a large time interval and the fact that most of the water production obtained from non-Zone I completions can be traced directly or indirectly to Zone I.

The most reliable source of GOR and water cut data was judged to be the 1974 Annual GOR tests which were witnessed by Conservation Commission representatives. These data were mapped and contoured. Consideration was given to the current completion interval and results of workovers. An example of this is Amerada McKinley 4(30E) which is completed in the Grayburg and Upper Zone I and produced clean oil during the 1974 State Test. However, this well had produced at about 89 percent water cut in January 1973, when Amerada raised an open hole packer six feet up the hole, thereby removing the lower high porosity portion of Zone I from production and effecting a clean oil completion. Consequently the 1974 State Test control point was ignored and this area's water cut contour reflect instead neighboring control points. Figure 27 is the resulting map. Tract values of average water saturations were interpolated by superimposing a ten-acre grid system. These values were considered to be representative of January 1, 1975 conditions.

In a similar manner the GOR maps were constructed for each of the three lower San Andres zones; these are depicted in Figures 28, 29 and 30. Inasmuch as these maps are less definitive, the tract values were interpolated by using a forty-acre grid system.

As previously discussed (RESERVOIR ROCK PROPERTIES section), the Dykstra-Parsons variance factors were determined from core analyses and average values found to be 0.7 for the Grayburg (20 cores) and 0.8 for the San Andres. This is a qualitative indication of vertical heterogenity or degree of stratification of the net pay. These data were used in the following manner: assuming five layers, the permeability value for each layer was determined by the use of the plots shown in Graphs 9 and 10. The "rock" relative permeability curves published by the previous Engineering Committee were "stratified" into the five layers and the "before" and "after" water-oil relative permeability curves are shown for each formation in Graphs 11 and 12. The producing water cut as a function of water saturation and the producing GOR as a function of gas saturation were calculated with the fractional flow equations and the results are shown in Graphs 13 through 16. It was planned that these relationships, using the "stratified" curves, could then be applied to each tract to determine the current hydrocarbons-in-place. This is basically the same technique that was used in the previous fieldwide Engineering Committee study. However, subsequent work indicated that current conditions and future production performance, by well zone, could better be estimated with the use of a reservoir simulation study.

ULTIMATE PRIMARY RECOVERY

Grayburg &/or Upper San Andres Stringers

There are currently 78 wells which are completed only in the Grayburg and/or Upper San Andres stringers. Most of these wells are located on the flanks of the structure and their locations are shown on Figure 31. These wells are primarily characterized by marginal production, high gas-oil ratios and little or no water production.

The primary oil reserves from these completions (as of January 1, 1977) are estimated to be 1,485,275 barrels. These determinations were based on extrapolations of recent production performance (five-year period between January 1, 1972 and December 31, 1976). The economic limit was assumed to be one barrel of oil per day per well. The individual reserve estimates are summarized on Table 14 and the corresponding production graphs, showing the extrapolated trends, are enclosed under the section labeled "DECLINE CURVES."

As pointed out in the previous discussions, the Grayburg reservoirs are smaller in volume, lower in permeability and lower in current reservoir pressure than the more prolific San Andres reservoirs. Nonetheless the Grayburg represents a valuable asset to the unit and is currently developed by 57 active single zone "Grayburg only" wells and 62 Grayburg plus San Andres active completions.

Because of the significant amount of commingled (Grayburg with San Andres) production it is difficult to estimate actual amounts produced from each zone. However, it is believed that a reasonable definition has been made with the use of a reservoir simulation study of a 40-acre symmetry element. The average reservoir, fluid and producing characteristics of the Grayburg were determined from those wells that were considered to be currently producing from the Grayburg

only. The estimates for January 1, 1975 were 15 BOPD per well with a GOR of 5035 cubic feet per barrel. Fractional flow equations were used in conjunction with pseudo relative permeability curves to relate this GOR to an average gas saturation of 19 percent and an average oil saturation of 51 percent. The pseudo relative permeability curves were constructed using a Dykstra-Parsons variance factor of 0.7 (determined from 256 core samples) and a five-layer stratification. (See Graphs 9, 11, 13 and 15). The average reservoir pressure at January 1, 1975 was estimated to be 400 psig at 400 feet subsea.

The ultimate primary recovery (to an economic limit of one BOPD per well) was computed to be 109 STB per NAF or 18.7 percent of the original oil in place. This recovery efficiency applied to the entire Grayburg volume underlying the proposed unit area is equivalent to an ultimate primary recovery of 11,500,000 barrels of oil. The primary reserves (estimated by decline curve analysis) of 1.5 million barrels indicates that the Grayburg has produced about 10 million barrels of oil to date and is in an advanced stage of depletion (87 percent).

San Andres (Main Zones)

Attempts to form a fieldwide unit were aborted during 1973, primarily because of disagreement over the determination of remaining primary reserves in the main San Andres zones. The main complication for determining tract primary reserves is the existence of a strong water influx into the upper San Andres (Zone I). This water drive is primarily from the west to east; has caused an unusually large amount of oil migration and has maintained the reservoir pressure (and consequently the productivity) of Zone I at higher levels than in the other productive intervals. This is particularly evident along the eastern flank of the proposed North Unit area where the combined cumulative oil production for seven flank leases significantly exceeds the total of their original oil in place.

Two arithmetic approximation methods for allocating tract primary reserves for the San Andres were rejected by the Technical Committee. Subsequent discussions led to the conclusion that the problem would best be resolved with the use of a reservoir simulation study. Consequently Shell made a feasibility study and determined that such a study could be made with an in-house three-dimensional, three phase compressible fluid reservoir simulation program. A 10 by 20 grid system, depicted in Figure 32, was superimposed on all completions in the field using a three-layer representation for the San Andres reservoirs (I, II and III_U/III_L). Only the upper zone has a significant aquifer attached. All of the Technical Committee data were used for the reservoir description of the acreage located in Township 18 South and the reservoir description of the acreage located in Township 19 South was based on the prior published Engineering Report. These include: structure maps (fitted with curvilinear coordinates for a smooth surface as shown in Figure 33), individual well zonal porosity determinations, zonal original hydrocarbons in place and rock relative permeability curves modified to pseudo curves to account for stratification effects.

Oil production history, from initial completion to January 1, 1976, was input for every completion in the field after factoring out a minor amount attributed to the Grayburg formation on the basis of relative permeabilities and hydrocarbon storage differences in the completed intervals. The actual well completion history (zone changes) and production were input in five-year intervals from initial completion thru the year 1971, then the next 3 years, 1 year, eight months and then one year for production through August 31, 1976. As previously decided by the Technical Committee, all wells producing in excess of 100 BWPD but not completed in Zone I were assumed to have behind pipe communication with that zone and thus were treated as having completions in Zone I as well as in their recorded zones.

As noted in the Geology section, there are many indications of preferential flow channels. One obvious example is between the two wells 29P and 28M. Although these wells are located about 700 feet apart and are both apparently completed in equivalent Zone I sections, one is a clean oil producer and the other makes in excess of 70 percent water cut. In view of this and other anomalous production data, it was necessary to establish flow channels (in Zone I only) in order to obtain a satisfactory history match. The transmissibilities of these flow channel boundaries were varied but it was found necessary to use a value of zero for all boundaries. The locations of these flow channels or barrier positions are shown in Figure 34. Also shown are the "windows" between Zones I and II where no natural separation occurs.

To evaluate the quality of the history match, the calculated 1975 zonal water production rates for each well were compared to those reported to the New Mexico Conservation Commission during the year 1975. Attention was also focused on current GOR and zonal and areal reservoir pressure variations. Once a satisfactory history match was obtained, a production prediction was made starting at September 1, 1976. A summary of these tract reserves and equities was transmitted to all Operators with letter dated November 10, 1976.

Assumptions used for the prediction run by the Technical Committee were:

1. Each well retained the current (1976) completion interval throughout its remaining life.
2. A top allowable well was assigned a bottom hole producing pressure of 300 psi at the start of the prediction run whereas all other wells were assumed to have a producing bottom hole pressure of 100 psi.

3. The permeability-thickness product of each zone in each completion had been automatically varied throughout the history match in order to simulate actual performance (varying skin, etc.). The last adjusted zonal kh (based on the actual producing rates during the prior 12 months) for each completion was kept constant throughout the prediction mode. Thus a smooth transition between historical oil rate and the predicted values was assured.
4. The well economic limit was 3 BOPD or 99 percent water cut and the prediction was terminated at end of the year 2024.
5. It was assumed that those wells which contain a Grayburg completion with the main San Andres would not obtain any future primary reserves from the Grayburg because of the significant differences in permeability-thickness products and static reservoir pressures.

The predicted performance of each well was then summed into lease, operator and field totals. The Technical Committee approved a manual adjustment to the computed Zone I primary oil reserves for five directly offsetting wells located on the eastern flank in order to correct for an anomaly in misalignment of the simulator grid in that zone. These wells are: Getty Turner 1 (34F) and Turner 2 (34 C), Shell Turner 1 (34G) and Turner 2 (34B) and Shell Sanger 2 (27N); the computed Zone I oil reserves were equally distributed and is 416,437 barrels per well.

It should be noted that the tract primary oil reserve (as of January 1, 1977) which are summarized in Table 15 are based on a predict mode from actual production through August 31, 1976. The update to January 1, 1977, was done by a simple subtraction of actual production of the ensuing four months. The zonal allocation for each tract's actual production during the last four months of 1976

for this update was based on the allocation made by the simulation program for the first four months of the predict mode.

SECONDARY RECOVERY

The secondary recovery potential for the proposed unit has been evaluated for water injection operations.

Grayburg

The evaluation of the secondary recovery potential by water injection was based on a reservoir simulation study of a 40-acre symmetry element. These results are detailed in the minutes of the March 25, 1976 Technical Committee meeting.

The most significant conclusions derived from the model study are:

1. Because of the low permeability it is necessary to use a pressurized water injection system (1500 psig surface) and a five-spot waterflood pattern. All water injection will be done at less than fracture pressures.
2. Primary ultimate recovery efficiency is 18.7 percent and secondary oil recovery efficiency is 14.4 percent for a symmetrical closed 80-acre five-spot pattern.
3. An 80-acre five-spot pattern waterflood, using existing wells, is economically attractive but will have a long life (36 years) and a relatively low oil response rate. A complete infill drilling program to convert to 40-acre five-spot patterns cannot be economically justified under current oil pricing guidelines.

The model study was based on average reservoir and production characteristics and is described in the "ULTIMATE PRIMARY RECOVERY" section. It was assumed that

water injection would be initiated when the average reservoir pressure would be 220 psig and average oil saturation at that time would be 48.6 percent. The residual oil saturation in the swept zone was assumed to be 35 percent and the sweep efficiency is calculated to be 85 percent.

Application of the results of the reservoir model study to unit-wide operations is based on two published methods: (1) Caudle et al, Petroleum Transactions, AIME (1955) 204, pages 79-85 and (2) the Forrest F. Craig, Jr. SPE Monograph Volume 3, The Reservoir Engineering Aspects of Waterflooding, Chapter 5. The work by Caudle et al indicated that encroachment of injected water beyond the normal well pattern could be approximated by applying a 90 percent efficiency to the area lying outside the last row of wells and within a distance of one well spacing of these wells. The work reported by Craig was used to modify the expected recovery efficiency for incomplete patterns in the North Hobbs Unit. The secondary oil recovery from the Grayburg was therefore calculated on the basis of the following recovery efficiencies: 14.4 percent for closed nearly-symmetrical patterns, 13.4 percent for 3/4 pattern, 12.3 percent for 1/2 of a five-spot and 10.9 percent for reasonably-spaced direct offsets. Consequently the calculated volume of secondary oil reserves for the proposed unit is 6,560,000 barrels for an average recovery efficiency of 10.6 percent of the original oil-in-place. This is equivalent to a secondary reserve to primary ultimate recovery ratio of 0.57 and requires the drilling of one injector at location 29D. Additional drilling for water injectors at selected locations was investigated but could not be justified economically.

The recommended five-spot water injection pattern is depicted on Figures 35 (Upper Zone) and 36 (Lower Zone) and consists of 40 injectors and 44 producers. The forecasted production function for recovery of the 6,560,000

barrels of secondary oil plus the remaining primary reserves is shown in Graph 17. This estimate is dependent on obtaining average water injection rates of 260 BWPD per injector during fillup (5 years) and 125 BWPD afterwards. The total water injection requirement is about 90 million barrels, of which 35 million barrels is makeup water. The peak oil production rate of 1298 barrels of oil per day (average of 30 BOPD per producer) is expected after ten years of water injection. Water breakthrough should rapidly follow oil response and average 80 percent watercut throughout most of the flood life. The final cumulative produced water-oil ratio is 8.3 to 1. The results of additional computer runs indicate that the oil production response could be enhanced (greater response and higher ultimate oil recovery) by shutting-in all Grayburg producers during the fillup period in order to conserve reservoir energy. This is attributed to the fact that a significant portion of the free gas volumes can be trapped with this approach and thereby reduce the residual oil saturation to water flooding.

San Andres

The Technical Committee concluded that the San Andres secondary recovery potential should be determined by analogy with existing San Andres waterfloods in the vicinity of Hobbs that exhibited similar reservoir characteristics.

Performance data on eight such projects were reviewed and volumetrically averaged (on the basis of original oil in place) and reflected an ultimate recovery efficiency of 35 percent with a secondary to primary recovery ratio of 0.85. These floods had been in operation for a reasonable period of time and the cumulative production had already exceeded 60 percent of the total expected volumes. The volumetrically weighted permeability for these projects was 11 millidarcies; only two of the projects had average permeabilities as high as

the North Hobbs Unit average for Zones II, III_U and III_L (28 millidarcies). The ultimate recovery efficiency for those two units are predicted to be 39.4 and 46.4 percent with secondary to primary ultimate recovery ratios of 0.43 and 0.68.

A reservoir simulation study was made on the total Zone III_L reservoir and resulted in a primary recovery efficiency of 24 percent and a secondary recovery efficiency of 20 percent using a modified inverted nine-spot injection pattern. This ultimate recovery efficiency of 44 percent is equivalent to a secondary to primary ratio of 0.82. A residual oil saturation of 35 percent in the swept zone was used in this computer study and the final average residual oil saturation of 39 percent is equivalent to a volumetric sweep efficiency of 89 percent.

Based on the foregoing the Technical Committee determined that the ultimate oil recovery efficiency for the San Andres Zones II, III_U and III_L will be 40 percent. This will result in a secondary recovery reserve for these zones of 48,640,000 barrels of oil. These recoveries are equivalent to an average residual oil saturation of 41.4 percent and a sweep efficiency of 85.1 percent. Tract secondary reserves were allocated on the basis of original oil in place for each of the three zones.

The recommended water injection patterns for each of the three San Andres reservoirs are inverted nine-spot injection patterns (approximately 160-acre spacing) and are shown on Figures 37, 38 and 39. There are 27-1/2 unit injectors (60 well zones) and 116 unit producers (192 well zones). The injectors are selected on the basis of both location and evidence of non-communication, behind pipe, with Zone I. These configurations will require the drilling of five (2-1/2 unit) injectors, along the common boundary with the Amoco-operated South Hobbs Unit; and twelve interior injectors; and five producers. The resulting

expected production function is shown in Graph 18 and is based on the forecasts obtained from the computer study. The expected waterflood recovery of 61.9 million barrels of oil (48.6 secondary and 13.3 primary) should be recovered in 35 years with the peak oil production rate of 9280 barrels of oil per day (average of 80 BOPD per producer) occurring 8 years after the start of water injection and remaining flat for seven years. This prediction is based on an average water injection rate of 2000 barrels per day per injection well during fill up (160 million barrels) and a total water injection requirement of 550 million barrels (80 million barrels makeup volume). The cumulative produced water-oil ratio is expected to be 5 to 1.

The ultimate oil recoveries (both primary and secondary) for each producing zone in the proposed unit area are summarized in Table 16.

Water Source

It is recommended that all makeup water requirements be obtained from the City of Hobbs industrial process water source (filtered sewage effluent). This is the same source that is currently being used by the South Hobbs Unit and is also scheduled to supply the Continental Warren McKee Pool waterflood. Shell, on the behalf of the proposed North Hobbs Unit, presented a letter on August 19, 1976, to the Hobbs Public Works Board requesting an option to purchase water from the City. The Board agreed to the option request and has agreed that the priorities for this supply be set in the same sequence as the initial contact with the City was made Amoco South Hobbs Unit, Continental flood and the Shell North Hobbs Unit. In return the City requested an annual review of future water requirements and a base contract period of five years. The initial purchase price is 1.5 cents per barrel (42 gallons) plus a five percent sales tax.

The total water availability from the City of Hobbs appears to be adequate for currently recognized projects. There is approximately 95,000 barrels per day of treated effluent available now with an estimated additional 35,000 barrels per day available from shallow contaminated underground water adjacent to the treating plant. The estimated average water requirements over the first five years of the three aforementioned projects are as follows:

Project	Make Up Water Requirements
So. Hobbs Unit	33,000 BWPD
Continental	15,000
No. Hobbs Unit	40,000
Totals	88,000 BWPD

ECONOMICS

Capital Investments and Related Costs

The estimated capital investment required to conduct the water injection program, described in the preceding section, is $24,600,000. This amount includes: $11,000,000 for centralized production facilities with fourteen satellite stations, $7,000,000 for the pressurized injection system, $6,000,000 for well work (drilling new wells, conversions to injection, restoring TA wells and larger volume artificial lift equipment) and $600,000 for the source water gathering system. These amounts are based on the assumption that water injection will be commenced in mid-1979. A more detailed breakdown of these costs are listed in Table 17.

A more accurate determination of costs will be made when: the final waterflood plan is designed (a function of well availability and performance), contract bids are received (inflation, timing and design) and additional studies are made to improve the design and locations of injection and production stations (scheduled for the last half of 1977). However, the estimates presented are considered to be reasonable values based on a significant amount of detailed work and are valid for purposes of evaluating the unit waterflood economics.

The related costs include: normal direct operating, remedial work, well conversions, water handling and makeup water purchase. These expenses are summarized in Table 18 (Grayburg Waterflood) and Table 19 (San Andres Waterflood). The normal direct operating costs are based on information obtained from various operators' experience during the year 1975 on 32 Grayburg, 76 low volume San Andres and 26 high volume San Andres wells.

Profitability Analysis

The differential profitability analysis for waterflood operations in the Basal Grayburg and San Andres Zones II, III_U and III_L is summarized as follows:

	Primary Recovery	Primary Plus Secondary	Secondary Recovery
Reserves - MMB (1/1/79)			
Grayburg	1.0	7.6	6.6
San Andres III, III_U, III_L	13.3	61.9	48.6
Total	14.3	69.5	55.2
Capital Investment - MM$			
1979	0	23.6	23.6
1984 - 1999	0	1.0	1.0
Total	0	24.6	24.6
Profitability - MM$ (Before FIT)			
Profit Undiscounted - $	32.7	367.1	334.4
- (%)	-	(1492)	(1359)
Profit Discounted @ 10% - $	17.1	97.0	79.9
- (%)	-	(425)	(350)
Payout Time - Yrs.			6.0
Earning Power - %			27.6

This analysis is based on constant dollars (no inflation after 1979) and constant revenue (no price escalation). The oil revenue was based on the following pricing categories: stripper oil - $13.00 per barrel; Upper Tier oil - $11.40 per barrel, Lower Tier oil - $5.20 per barrel and gas - $0.37 per MCF. The Grayburg revenue averaged $11.40 per barrel of oil for both the waterflood and continued primary operations. The San Andres revenue averaged $8.50 per barrel of oil for secondary recovery operations.

An attempt was made to evaluate the contribution of the Grayburg secondary recovery operations. For these purposes it was estimated that the additional capital investment requirements would be $4,200,000 (17 percent of the total cost). This amount is considered to be high side because the different waterflood response times will tend to smooth the peak requirements of produced and injected volumes and therefore not increase the capital and operating costs by the direct ratios of volumes. Nonetheless, with constant revenue, the undiscounted profit from the Grayburg contribution is about $33,000,000 and the discounted profit (at a 10% rate) exceeds $6,000,000. Rather than attempt to refine these values it was assumed that these economics are sufficiently attractive to warrant the extension of facilities to include the Grayburg waterflood operations.

It is interesting to note that the adjacent Moranco waterflood projects (Rice Lease in Section 13 and Hardin Lease in Section 18) are apparently experiencing response to water injection as evidenced by increasing oil production rates and gas-oil ratio decreases with no reported water production through the end of 1976. Water injection was started into the Rice lease in August 1971 and into the Hardin lease in April 1974. A total of 507,807 barrels had been injected into three wells by the end of 1976. The 1974 oil production rate from both leases averaged 20 barrels per day with a gas-oil ratio of 9952 cubic feet per barrel. Comparable averages for 1976 are 38 barrels per day with a gas-oil ratio of 4835 cubic feet per barrel.

UNITIZATION PARAMETERS

Definition of Unitized Formation

The unitized formation shall mean that subsurface portion of the unit area known as the Grayburg and San Andres formation of Permian Age and located in the stratigraphic interval between the depths of 3698 feet and 5347 feet as measured on the Borehole Compensated Sonic-Gamma Ray Log run in Shell Oil Company State A-7 on July 9, 1969. This well is located 1930 feet FNL and 660 feet FEL of Section 32-T18S-R38E, Lea County, New Mexico. The unitized interval thus defined is depicted in Figure 40.

Description of Unitization Parameters

The tract locations and working interest ownerships are shown in Table 20. Each working interest owner should verify the equities shown.

Parameters for possible use in unitization formulae have been determined and are tabulated in Tables 21, 22, 23 and 24. The tract values are listed in the "A" version, 21A, 22A, 23A and 24A, whereas the working interest owner values are listed in the "B" version, 21B, 22B, 23B and 24B. A brief discussion of each parameter is as follows:

Table 21

1. USEABLE COMPLETIONS - Wells that are now producing or that have produced from the Grayburg - San Andres and are available for unit use.
2. ACTIVE PRODUCING WELLS - As of January 1, 1977.
3. CUMULATIVE OIL PRODUCTION - As of January 1, 1977. These are based on values published in the "Annual Report of the New Mexico Oil & Gas Engineering Committee" as of January 1, 1976. The next twelve months' production reported in the Monthly Statistical Report have been added. They reflect the production from each proration unit irrespective of

number of wells and operator. A small amount (1029 barrels) has been added to three wells to adjust for shut in time during special BHP surveys requested by the Technical Committee.

4. CURRENT OIL PRODUCTION - Year 1976 (As shown in Monthly Statistical Report compiled and edited by New Mexico Oil Conservation Commission).
5. CURRENT GAS PRODUCTION - Year 1976 (Same source as Number 4).
6. ORIGINAL GAS CAP GAS IN PLACE - Basal Grayburg - Upper Zone.
7. ORIGINAL GAS CAP GAS IN PLACE - Basal Grayburg - Lower Zone.
8. ORIGINAL GAS CAP GAS IN PLACE - Basal Grayburg Totals.
9. ORIGINAL GAS CAP GAS IN PLACE - San Andres Zone I.
10. ORIGINAL GAS CAP GAS IN PLACE - Total Unit.

Table 22

1. PRODUCTIVE ACRES - All acreage originally productive in the Grayburg - San Andres reservoirs (above 614 feet subsea).
2. ORIGINAL OIL IN PLACE - Basal Grayburg, Upper Zone.
3. ORIGINAL OIL IN PLACE - Basal Grayburg, Lower Zone.
4. ORIGINAL OIL IN PLACE - Basal Grayburg, Totals.
5. ORIGINAL OIL IN PLACE - San Andres, Zone I
6. ORIGINAL OIL IN PLACE - San Andres, Zone II
7. ORIGINAL OIL IN PLACE - San Andres, Zone III_U
8. ORIGINAL OIL IN PLACE - San Andres, Zone III_L
9. ORIGINAL OIL IN PLACE - San Andres, Totals
10. ORIGINAL OIL IN PLACE - Total Unit

All of the original hydrocarbon in place determinations are detailed, by proration units, in Tables 8 thru 13.

Table 23

1. PRIMARY OIL RESERVES - GRAYBURG - As of January 1, 1977. Represents the values determined by analysis of decline curves (see Graphs 19-1 to 36) of wells which were considered to be producing from the Basal Grayburg and/or upper San Andres stringers.
2. PRIMARY OIL RESERVES, San Andres Zone I
3. PRIMARY OIL RESERVES, San Andres Zone II
4. PRIMARY OIL RESERVES, San Andres Zone III (Upper and Lower Zones Combined).
5. PRIMARY OIL RESERVES, San Andres Totals
6. PRIMARY OIL RESERVES, Total Unit
7. Ultimate Primary Oil Recovery

The primary oil reserves for the San Andres zones are based on a detailed reservoir simulation study and excludes those wells considered in the decline analysis group (Item 1).

Table 24

1. SECONDARY OIL RESERVES, Grayburg
2. SECONDARY OIL RESERVES, San Andres - Zone II
3. SECONDARY OIL RESERVES, San Andres - Zone III_U
4. SECONDARY OIL RESERVES, San Andres - Zone III_L
5. SECONDARY OIL RESERVES, Total San Andres
6. SECONDARY OIL RESERVES, Total Unit

The tract values for each of these parameters is based on the tracts' percent of original oil in place for each zone considered.

TABULATIONS

TABLE 1

PROPOSED NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT

WORKING INTEREST OWNERS' CHARGE TO THE TECHNICAL COMMITTEE

A. Construct an acceptable base map.

B. Define the vertical interval to be unitized.

C. Recommend a Unit Area or areas.

D. Determine feasibility of waterflooding the Grayburg.

1. Construct Grayburg net pay map and (net Øh, if possible).
2. Determine floodable net acre feet.
3. Determine secondary oil potential.

E. Determine feasibility of waterflooding the San Andres.

1. Review Øh maps.
2. Review GOR and water-cut maps.
3. Construct continuous pay maps by zone.
4. Determine remaining primary production.
5. Establish secondary oil potential by zones.

F. Tabulate the following parameters by tract, by zones, and by Working Interest Owners:

1. Current oil and gas production rate and value for the most recent representative period.
2. Cumulative oil production.
3. Usable completions.
4. Active producing wells.
5. Total acres.
6. Original oil in place.
7. Floodable net acre-feet.
8. Remaining Primary Reserves.
9. Ultimate Primary Oil.
10. Secondary reserves.
11. Any other parameter considered appropriate by the Engineering Subcommittee.

G. Develop recommended plans of depletion including economic comparisons versus continued primary operations.

TABLE 2

PROPOSED NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT
WELL STATUS AS OF 1/1/77 (INTERVALS OPEN TO PRODUCTION)

* = Perforated
(OH) = Open Hole

				GRAYBURG				I				II				IIIB				IIIL				DATE			
LOC.	WELL		ELEV.	TOP	SUBSEA	BOTTOM	SUBSEA	TOP	SUBSEA	BOTTOM	SUBSEA	TOP	SUBSEA	BOTTOM	SUBSEA	TOP	SUBSEA	BOTTOM	SUBSEA	TOP	SUBSEA	BOTTOM	SUBSEA	TEMP. ABDN.	TD	CSG	LNR
18M	Amerada Hendrix	1	3673	*3953	280	4039	366																	1/76	4393	8 5/8-3923	6 5/8 4166
18P	Amerada Hendrix	2	3670	*3992	322	4052	382									*4235	565	4285	615					6/73	4323	7" 3937	4" 4303
18L	Amerada Hendrix	3	3676	(OH)4011	335	4046(PB)	370																	6/73	4180	7" 4136	4 1/2 4011
18K	Amerada Hendrix	5	3676	*4006	330	4064	388																	6/73	4290	6¼" 4200	
30D	Amerada McKinley	1	3642	(OH)3831	189	4023	381	(OH)4023	381	4130(?)	488														4230	6 @ 3831	
30F	Amerada McKinley	2	3665	(OH)3851	186	4041	376	(OH)4041	376	4106	441	(OH)4106	441	4186	521	(OH)4186	521	4208(TD)	543						4208	6 5/8 @ 3851	
30C	Amerada McKinley	3	3660													(OH)4193	533	4227(TD)	567						4227	6 5/8 @ 3872	
30E	Amerada McKinley	4	3662	(OH)3994	332	4066	404	(OH)4066	404	*4114	452														4198	7" @ 3994	
32D	Amerada State A	1	3653	(OH)3939	286	3964	311	(OH)3964	311	4030	377	(OH)4030	377	4092	439	(OH)4092	439	4160(TD)	507						4160	6 5/8" 3939	
32A	Amerada State A	2	3658													(OH)4095	437	4160(TD)	502						4160	7" @ 3930	
29P	Amerada State B	1	3653									*4175	522	4178	525	*4178	525	4185	532						4214	5½ @ 3907	4½ @ 4213
29O	Amerada State B	2	3652	(OH)3995	343	4058	406	(OH)4058	406	4118	466	(OH)4118	466	4196	544	(OH)4196	544	4207(TD)	555						4207	6 5/8 @ 3995	
29N	Amerada State B	3	3653	*4044	391	4110	457																		4269	7" @ 4000	3½ @ 4236
29M	Amerada State B	4	3656	*4125	469	4150	494	*4180	524	4200	544	(OH)4228	572	4253(TD)	597										4253	7" @ 4000	3½ @ 4220
32A	Amerada State C	1	3658	(OH)4064	406	4167(PB)	509																		4236	7" @ 4062	
32B	Amerada State C	2	3658	*4044	386	4209	551																		4210	5½" @ 4210	
32G	Amerada State C	3	3663	*4156	493	4262	599																	10/74	4293	5½" @ 4286	
24E	Amerada State E	1	3682	*4094	412	4115	433	*4140	458	4150	468	(Zone I Bonus)													4319	7" @ 4053	5" @ 4249
24D	Amerada State E	2	3685	*4054	369	4054	369	*4082	397	4148	463														4273	7" @ 3990	3½ @ 4208
14O	Amerada State [illegible]	1	3688	(OH)4143	455	4176(TD)	488																		4176	5½" @ 4143	
14K	Amerada State [illegible]	2	3698	*4156	458	4228	530																	6/73	4250	5½" @ 4240	
33E	Amoco State G	1	3640																	*4208	568	4223	583		4279	7" 3931	4½ @ 4279
33F	Amoco State G	2	3643																	*4203	560	4214	571		[illegible]	7" [illegible]	[illegible]
21J	Antweil Rubbs CF	1	3647	4185	538	4206	559																				
20D	Atlantic Grimes	1	3643	4037	394	4158	515																		4268	7" @ 4037	4½ @ 4268
20E	Atlantic Grimes NCT	1	3643									*4139	496	4198	555	*4210	567	4243	600						4250	7" @ 3942	4½ @ 4250
20F	Atlantic Grimes NCT	2A	3646									*4164	518	4209	563	*4223	577	4240	594						4266	7" @ 4266	
20B	Atlantic Grimes NCT	3	3646	*4109	463	4121	475																		4280	7" @ 3996	4½ @ 4236
20C	Atlantic Grimes NCT	4	3649	(OH)4036	387	4163	514	(OH)4163	514	4206	557	(OH)4206	557	4220(TD)	571										4220	7" @ 4036	
20B	Byron Holt St.	1	3662	*4114	452	4168	506																		4225	@ 4225	
20F	Chevron McKinley	1	3644									*4227	583	4236	592										4290	7" @ 4027	4½ @ 4290
20K	Chevron McKinley	2	3648									*4216	568	4224	576										5391	7" @ 4036	4½ @ 4291
17L	Chevron State 17	1	3668	*4127	459	4187	519																	6/73	4207	7" @ 4206	
29P	Chevron State 29	3	3652					*4020	368	4028	376					*4150	498	4190	538	(OH)4190	538	4220(TD)	568		4218	7" @ 3949	5" @ 4173
29O	Chevron State 29	4	3643					*4010	367	4035	392					(OH)4160	517	4140	497	(OH)4209	566	4220(TD)	577		4220	7" @ 3934	5" @ 4180
31A	Cities Ser. Fowler	1	3645	(OH)3938	293	4035	390	(OH)4035	390	4093	448	(OH)4093	448	4145	500	(OH)4145	500	4175(TD)	530						4175	6 5/8 @ 3938	
31B	Cities Ser. Fowler	2	3649	*3991	342	4042	393																	3/75	4201	@ 3951	5" @ 4194
31G	Cities Ser. Fowler	3	3644	(OH)3957	313	4099	455	(OH)4099	455	4162	518	(OH)4162	518	4212(TD)	568										4212	6 5/8 @ 3957	
31H	Cities Ser. Fowler	4	3651									*4103	452	4123	472										4190	7" @ 3939	5" @ 4190
31A	Cities Ser. Fowler	9	3651	*4047	396	4057	406	*4066	415	4106	455	*4115	464	4151	500										4260	5" @ 4255	
19P	Cities Ser. Hardin	1	3661	(OH)3991	330	4054	393	(OH)4054	393	4139	478	(OH)4139	478	4209(TD)	548										4209	7" @ 3991	
19B	Cities Ser. Hardin	2	3666													*4230	564	4248	582						4230	7" @ 4020	4½ @ 4230
19C	Cities Ser. Hardin	3	3663													*4186	523	4261	598						4254	7" @ 3993	5" @ 4264
15D	Cities Ser. Hardin	4	3672	(OH)3945	273	4008(PB)	336	(JUNK IN HOLE 4016 - TD)																4/52	4206	7" @ 3945	
19D	Cities Ser. Hardin	5	3671													*4242	571	4248	577						4255	5½" @ 4245	
20D	Continental Grimes	1	3642													*4128	486	4226	584	*4226	584	4258	616		4278	7" @ 3975	5" @ 4276
20F	Continental Grimes	2	3642	(OH)4015	373	4040	398	(OH)4040	398	4110	468	(OH)4110	465	4160	518	(OH)4160	512	4220(TD)	578						4220	5½" @ 4015	
20J	Continental Grimes	3	3649	(OH)4015	366	4048	399	(OH)4048	399	4116	467	(OH)4116	467	4175	526	(OH)4175	526	4225(TD)	576						4225	5½" @ 4015	
20K	Continental Grimes	4	3648	(OH)3993	345	4084	436	(OH)4084	436	4156	508	(OH)4156	508	4213	565	(OH)4213	565	4225(TD)	577						4225	5½" @ 3993	
29J	Continental State A29	1	3655					*4044	389	4063	408					*4205	550	4242	587					1/76	4270	7" @ 3929	4½ @ 4270
[illegible]	Continental State A29	2	3645													(OH)4115	470	4184(TD)	539						4184	7" @ 3929	
29K	Continental State A29	3	3650													*4176	526	4190	540						4220	7" @ 3955	5" @ 4220
33M	Continental State A33	1	3635																	*4236	601	[illegible]	616		[illegible]	[illegible]	[illegible]
33L	Continental State A33	2	3635																	*4193	558	4238	603		4263	7" @ 3953	5" @ 4263
33K	Continental State A33	3	3645																	*4198	553	(OH)4259(TD)	614		4259	7" @ 3940	5" @ 4235
33J	Continental State A33	4	3644																	*4181	537	4209	565		4267	7" @ 3937	5" @ 4262
33O	Continental State A33	5	3633																	(OH)4237	606	4247	614		4267	7" @ 3981	5" @ 4237
33N	Continental State A33	6	3637																	(OH)4236	599	(TD)4252	615		4252	7" @ 3971	5½ @ 4236
33N	Continental State A33	7	3648																	*4225	577	4234	586		4264	7" @ 3970	5½ @ 4264
13P	Continental State B13	1	3680	(OH)4002	322	4024	344	(OH)4024	344	4035	355													2/74	4035	5½" @ 4002	
13M	Continental State B13	2	3684	*4002	318	4040	356																		4235	7" @ 4001	5" @ 4235
13F	Continental State B13	4	3688	*4049	361	4152	464																		4180	5½" @ 4159	
13K	Continental State B13	5	3692	*4092	400	(OH)4235(TD)	543																		4235	5½" @ 4199	
13C	Continental State B13	6	3691	*4172	481	4248	557																		4257	5½" @ 4256	
13L	Continental State B13	7	3691	*4002	311	4114	423																		4134	5½" @ 4133	
25C	Continental State B25	1	3673	(OH)4026	353	4108	435	(OH)4108	435	4213	540	4213	540	4225(TD)	552										4225	7" @ 4026	
25D	Continental State B25	2	3675	*4087	412	4180	505																		4200	5½" @ 4199	
31K	Mobil Berry	1	3644	*4094	450	4110	466																		4190	7" @ 3955	5" @ 4190
31N	Mobil Berry	2	3646	*4018	372	4136	490	(OH)4141	495	4155	509														4155	5½" @ 4141	
31L	Mobil Berry	3	3651	*4039	388	(OH)4202	551	(OH)4202	551	4207	556														4207	5" @ 4166	
31M	Mobil Berry	4	3650	*4097	447	4182																			4317	5" @ 4317	

TABLE 2 (CONTINUED)

PROPOSED NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT
WELL STATUS AS OF 1/1/77 (INTERVALS OPEN TO PRODUCTION)

* - Perforated
(OH) - Open Hole

LOC.	WELL		ELEV.	GRAYBURG TOP	SUBSEA	BOTTOM	SUBSEA	I TOP	SUBSEA	BOTTOM	SUBSEA	II TOP	SUBSEA	BOTTOM	SUBSEA	IIIU TOP	SUBSEA	BOTTOM	SUBSEA	IIIL TOP	SUBSEA	BOTTOM	SUBSEA	DATE TEMP. ABDN.	TD	CSG	LNR
30J	Exxon Bowers A Fed.	2	3654					*4068	416	4092	438														4230	7 @ 3960	5½ @ 4230
29N	Exxon Bowers A Fed.	3	3644					(PKR)4052	408	4072(PKR)	428														4202	7 @ 3960	5½ @ 3941
30P	Exxon Bowers A Fed.	4	3644					(PKR)4035	389	4060(PKR)	414														4206	7 @ 3910	
30I	Exxon Bowers A Fed.	5	3652	(OH)3975	323	4026	374	(OH)4026	374	4062(PKR)	410														4210	7 @ 3975	
29O	Exxon Bowers A Fed.	7	3645													*4183	518	4189	524						4201	7 @ 3106	4½ @ 4201
30O	Exxon Bowers A Fed.	8	3654					(PKR)4069	415	4104(BP)	450													9/73	4237	7 @ 3976	
29L	Exxon Bowers A Fed.	10	3649													*4180	531	4192	543						4220	7 @ 3976	5½ @ 4220
30G	Exxon Bowers A Fed.	36	3655					*4056	401	4077	422														4352	5½ @ 3956	3½ @ 4350
25O	Exxon Bowers A FedCom	35	3662									(PKR)4168	506	4239	577	(OH)4239	577	4250(PB)	585						4331	5½ @ 3903	
29A	Exxon Grimes	1	3647	*4102	455	4127	480	4154	507	4158	511	*4200	553	4214	567										4250	7 @ 7065	5½ @ 4223
25I	Exxon New Mex.State	1	3649	(OH)3977	328	4095(PB)	446																		4215	7 @ 3977	
25O	Exxon New Mex.State	5	3667	*4095	428	4210	543																		4220	5½ @ 4220	
25K	Exxon New Mex.State	6	3670	*4090	420	4156	486																		4253	5½ @ 4252	
25P	Exxon New Mex.State	7	3667	*4024	357	4137	470																		4186	5½ @ 4186	
25J	Exxon New Mex.State	8	3668	*4022	354	4098	430																		4110	5½ @ 4110	
25M	Exxon New Mex.State	9	3672	*4108	436	4238	566																		4240	5½ @ 4240	
29I	Getty Grimes	3	3653									*4155	502	4171	518	*4171	518	4225	572						4236	7 @ 3900	5½ @ 4233
29M	Getty Grimes	4	3647									*4160	513	4170	523	*4218	571	4232	585						4236	7 @ 3900	5½ @ 4236
19G	Getty Hardin	1	3662									*4180	518	4223	561	*4223	561	(OH)4260	598						4260	7 @ 3952	5½ @ 4244
19H	Getty Hardin	2	3665	(OH)3948	283	4135(PB)	470																		4260	7 @ 3948	
19B	Getty Hardin	3	3667	(OH)3952	285	4080	413	(OH)4086	419	4097(PB)	430	(Zone 1 Deeper)													4222	7 @ 3952	
19A	Getty Hardin	4	3662	*3971	309	4108	446	*4128	466	4132	470	*4208	546	4246	584	*4300	638	4306	644						4362	7 @ [illegible]	4½ @ [illegible]
30F	Getty McKinley	1	3654	*4030	376	4060	406	*4130	476	4152	498	*4152	498	4170	516										4180	7 @ 3854	3 @ 4200
30M	Getty McKinley	2	3648									*4114	466	4150	502										4202	7 @ 3858	5½ @ 4202
30D	Getty McKinley	4	3658	(OH)3958	300	4040	382	(OH)4040	382	4112	454	(OH)4112	454	4182	524	(OH)4182	524	4219(TD)	561						4219	7 @ 3958	
30A	Getty McKinley	5	3659	(OH)4042	383	4102	443	(OH)4102	443	4124(PKR)	465														4223	8 5/8 @ 4042	
30A	Getty McKinley	11	3659	*4009	350	4083	424																		7108	7 @ 7106	
14B	Getty State B	1	3681	(OH)4019	338	4180(PB)	499																		4368	5½ @ 4019	
14G	Getty State B	2	3698	*4208	510	4232	534																		4275	5½ @ 4274	
24H	Gulf Graham St. A	1	3671					(OH)4085	414	4116	445	(OH)4116	445	4186	515	(OH)4186	515	4225(TD)	554						4225	7 @ 4085	
24A	Gulf Graham St. A	2	3673	(OH)3975	302	4062	389	(OH)4062	389	4090(PB)	417													7/61	4217	7 @ 3975	
24G	Gulf Graham St. A	3	3671	(OH)3994	323	4056	385	(OH)4056	385	4136	465	(OH)4136	465	4211	540	(OH)4211	540	4219(TD)	548						4219	7 @ 3994	
24B	Gulf Graham St. A	4	3674									(OH)4147(PB)	473	4204	530	(OH)4204	530	4290(TD)	616						4290	7 @ 3976	
24E	Gulf Graham St. A	5	3675													*4224	549	4262	587								
24A	Gulf Graham St. A	6	3676													*4258	582	4260	584						4283	@ 4282	
32F	Gulf Grimes A	2	3644	(OH)3943	299	3972	328	(OH)3972	328	4049	405	(OH)4049	405	4107	463	(OH)4107	463	4155(TD)	511						4155	@ 3943	
32G	Gulf Grimes A	7	3638					(OH)3964(PKR)	326	4046	408	(OH)4046	408	4109	471	(OH)4109	471	4153(TD)	515						4153	@ 3860	
32E	Gulf Grimes A	8	3642	(OH)3954	312	4017	375	(OH)4017	375	4084	442	(OH)4084	442	4140	498	(OH)4140	498	4199(TD)	557						4199	7 @ 3954	
32D	Gulf Grimes A	10	3646													*4188	542	4213	567						4250	4½ @ 4250	
32F	Gulf Grimes A	19	3647													*4158	511	4230	583						(PB)3683	5½ @ 6050	
32K	Gulf Grimes A #2	3	3632													*4109	477	(OH)4204	572	(OH)4204	572	4230(TD)	598		4230	@ 3966	4½ @ 4204
32M	Gulf Grimes A #2	5	3637													*4158	521	4175	538						4192	7 @ 3908	5½ @ 4192
32L	Gulf Grimes A #2	9	3638													*4219	580	4237	598						4250	7 @ 3966	4½ @ 4250
32N	Gulf Grimes A #2	15	3639									(OH)4094	455	4105(TD)	466										4105	7 @ 3966	
32K	Gulf Grimes A #2	20	3628													*4100	472	4210	582						4200	5½ @ 6019	
33I	Gulf Grimes B	1	3640													*4086	446	4109	469						4190	7 @ 3932	5½ @ 4190
33P	Gulf Grimes B	2	3653													*4100	447	4163	510						4166	7 @ 3939	5½ @ 4166
33B	Gulf Grimes B	3	3652													(OH)4086	434	4181	529	(OH)4181	529	4221	569		4221	7 @ 3930	5½ @ 4086
33A	Gulf Grimes B	4	3642									(OH)4077(PKR)	435	4122	480	(OH)4122	480	4175(TD)	533						4175	7 @ 3970	
27H	Gulf Grimes C	1	3650	(OH)4067	417	4164	514	(OH)4164	514	4182(PB)	532														4219	8 5/8 @ 4067	
27P	Gulf Grimes C	2	3646					*4176	530	4203	557														4225	7 @ 4109	@ 4220
27L	Gulf Grimes C	3	3657	(OH)4106	449	4205	548	(OH)4205	548	4235(TD)	578														4235	7 @ 4106	
18O	Gulf Hardin	1	3668	*4005	337	4052(PB)	384																	3/67	4221	6 5/8 @ 4000	5½ @ 4221
18P	Gulf Hardin	2	3665	(OH)4022	357	4110	445	(OH)4110	445	4200	535	(OH)4200	535	4253(TD)	588										4253	8 5/8 @ 4022	
18I	Gulf Hardin	3	3671	*4094	424	4146	476																		4200	@ 4200	
18G	Gulf Hardin	4	3670	*4064	394	4112	442																		4170	4½ @ 4169	
18J	Gulf Hardin	5	3675	*4052	377	4107	432																		[illegible]	4½ @ [illegible]	
18B	Gulf Hardin	6	3673	*4139	466	4168	495																		4177	4½ @ 4177	
18H	Gulf Hardin	7	3680	*4165	485	4186	506																		4200	@ 4200	
18A	Gulf Hardin	8	3681	*4224	543	4246	565																		4270	4½ @ 4270	
18O	Gulf Hardin	9	3672	*3999	327	[illegible]	[illegible]																		[illegible]	@ [illegible]	
30C	Gulf Holt NCT B	1	3670	*3950	280	4038	368																	4/71	4275	5½ @ 4275	
14H	Gulf Lea PO State	1	3697	*4148	451	4220	523																		4300	5½ @ 4300	
30K	Marathon St. 30	1	3662									*4134	472	4160	498										4209	7 @ 3930	5 @ 4200
30N	Marathon St. 30	2	3669									*4167	498	4190	523										4291	7 @ 3988	5 @ 4167
30L	Marathon St. 30	3	3665	*4053	388	4077	412																		4213	7 @ 3900	5 @ 4208
30M	Marathon St. 30	4	3663	*4084	421	4114	451																		4273	5½ @ 4273	
32P	Marathon St. 32	2	3636																	(OH)4236	600	4246(TD)	610		4246	7 @ 3971	5 @ 4236
32I	Marathon St. 32	3	3643																	*4190	547	4220	577		4265	7 @ 3968	5 @ 4244
32J	Marathon St. 32	4	3642													*4184	542	4206	564	*4206	564	4224	582	6/75	4247	7 @ 3940	5 @ 4247
32O	Marathon St. 32	5	3636																	*4200	564	4230	594		4236	7 @ 3933	5 @ 4235
34H	Mesa Hobbs	1	3630	*4236	606	4250	620																		4303	@ 4303	
17E	Mesa State T 17	1	3670	*4182	512	4216	546																		4236	4½ @ 4236	
23E	C & C Shipp A	1	3691	*4065	374	(OH)4308	617																		4308	5½ @ 4268	
31D	Sun Fowler	1	3654	(OH)3964	310	4132	478	(OH)4132	478	4197	543	(OH)4197	543	4224(TD)	570										4224	7 @ 3964	
31E	Sun Fowler	4	3655	(OH)4075	420	4189(TD)	534																		4189	7 @ 4075	

TABLE 2 (CONTINUED)

PROPOSED NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT
WELL STATUS AS OF 1/1/73 (INTERVALS OPEN TO PRODUCTION)

* = Perforated
(OH) = Open Hole

LOC.	WELL		ELEV.	GRAYBURG TOP	SUBSEA	BOTTOM	SUBSEA	I TOP	SUBSEA	BOTTOM	SUBSEA	II TOP	SUBSEA	BOTTOM	SUBSEA	IIIU TOP	SUBSEA	BOTTOM	SUBSEA	IIIL TOP	SUBSEA	BOTTOM	SUBSEA	DATE TEMP. ABDN.	TD	CSG	LNR
20B	Saunders Moon A	1	3647	(OH)4000	353	4126	479	(OH)4126	479	4178	531	(OH)4178	531	4200(TD)	553										4200	7 @ 4000	
20B	Saunders Moon A	2	3650	(OH)4103	453	4162	512	(OH)4162	512	4210	560	(OH)4210	560	4217(TD)	567										4217	7 @ 4103	
20E	Saunders Moon B	1	3648	(OH)4020	372	4140	492	(OH)4140	492	4205	557	(OH)4205	557	4216(TD)	568										4216	7 @ 4020	
20L	Saunders Moon B	2	3645	(OH)4133	488	4175	530	(OH)4175	530	4225(TD)	580														4225	7 @ 4133	
23P	Saunders State B	1	3675	(OH)4037	362	4166(PB)	491																		4343	7 @ 4039	
23E	Saunders State B	2	3667	*4140	473	4236	569																		4260	5½ @ 4260	
34H	Saunders State C	1	3673					*4153	480	4163	490														4188	7 @ 3930	5 @ 4188
34K	Saunders State C	2	3679					*4140	461	4150	471														4171	7 @ 3964	5 @ 4171
34L	Saunders State C	3	3679					*4135	456	4145	466														4200	7 @ 4003	5 @ 4200
34M	Saunders State C	4	3674					*4190	516	4200	526														4218	7 @ 4035	5 @ 4218
34J	Saunders Turner A	1	3630					*4136	506	4144	514	(Additional perfs: 4176-4192 & 4198-4202 are below a pkr. and not producing.)													4215	5 @ 4216	
34O	Saunders Turner A	2	3620					*4136	516	4141	521														4206	7 @ 4060	5 @ 4194
34I	Saunders Turner B	1	3630	(OH)4063	433	4214	584	(OH)4214	584	4241(TD)	611														4241	7 @ 4063	
34P	Saunders Turner B	2	3620	(OH)4150	530	4206	584	(OH)4204	584	4233(TD)	613														4233	7 @ 4066	5½ @ 4150
38P	Shell Berry	1	3635									*4122	487	4136	501	*4166	531	4211	576						4219	6 5/8 @ 3915	5 @ 4219
31J	Shell Berry	2	3642	(OH)3941	299	4100	458	(OH)4100	458	4160	518	(OH)4160	518	4207(PB)	565										4110	7 @ 3941	
31I	Shell Berry	3	3641													*4159	518	4214	573						4225	7 @ 3962	5½ @ 4224
31O	Shell Berry	4	3640									*4161	521	4185	545	*4209	569	4224	584						4229	7 @ 3980	5½ @ 4229
30N	Shell Grimes	1	3647					*4033	386	4040	393														4232	7 @ 3960	5 @ 4228
30L	Shell Grimes	2	3649													*4190	541	4230	581						4236	7 @ 3973	5½ @ 4233
30K	Shell Grimes	3	3651													*4150	499	4223	572						4231	7 @ 3955	5½ @ 4230
30M	Shell Grimes	4	3644					*4002	358	4010	364														4230	7 @ 3935	5½ @ 4229
[illegible]	Shell Grimes	10	3659													*4210	552	4245	581						3112	7" @ 7163	
19N	Shell McKinley A	1	3663									*4155	491	4205	540	*4215	552	4240	577						[illegible]	7 @ [illegible]	5½ @ 4267
19G	Shell McKinley A	2	3658									*4183	525	4193	535	*4193	535	4218	560						4266	7 @ 3975	5½ @ 4265
19F	Shell McKinley A	3	3657									*4185	528	4236	579										4262	6 5/8 @ 3962	5 @ 4261
[illegible]	Shell McKinley A	4	[illegible]									*4146	483	4180	521	*4180	521	4230	569						4266	7 @ 3975	5½ @ 4246
19J	Shell McKinley A	5	3661									*4148	486	4220	559										4255	7 @ 3975	5½ @ 4255
19K	Shell McKinley A	6	3663									*4130	467	4161	498	*4200	537	4235	572						4267	7 @ 3975	5½ @ 4266
19L	Shell McKinley A	7	3667									*4106	439	4133	466	*4193	526	4242	575						4267	7 @ [illegible]	5½ @ 4267
19I	Shell McKinley A	10	3663									*4197	530	4238	571										4206	4½ @ 4206	
19M	Shell McKinley A	11	3666													*4192	526	4197	531						4334PB	9 5/8 @ 3974	5½ @ 7183
20K	Shell McKinley B	1	3657	(OH)4025	368	4157	500	(OH)4157	500	4210(TD)	553													3/10/65	4210	7 @ 4025	
20N	Shell McKinley B	2	3652									*4237	585	4264	614										4330	7 @ 3985	5 @ 4327
20K	Shell McKinley B	3	3657									*4210	553	(OH)4252	595										4252	7 @ 3980	5 @ 4220
20K	Shell McKinley B	4	3656									*4230	574	4252	596										4330	7 @ 4095	5 @ 4329
20L	Shell McKinley B	5	3662									*4227	565	4254	592										4276	5½ @ 4264	
13P	Shell Rice	1	3673	*4000	327	4046	373									4207	534	4243	570						4298	7 @ 3922	5½ @ 4250
13O	Shell Rice	2	3678													*4195	517	4247	569						4283	7 @ 3959	5 @ 4262
13I	Shell Rice	3	3676													*4223	547	4271	595						4300	7 @ 3960	4½ @ 4299
[illegible]	Shell Rice	4	3679	*3948	269	4084	405																		4263	5½ @ 4263	
27O	Shell Ranger	1	3644					*4110	466	4130	486	*4160	516	4185	541										4229	7 @ 4060	5½ @ 4223
27N	Shell Ranger	2	3643	(OH)4060	417	4150	507	(OH)4150	507	4208	565	(OH)4208	565	4229(TD)	595										4228	7 @ 4060	
27L	Shell Ranger	3	3638	(OH)4075	437	4133	495	(OH)4133	495	4189	551	(OH)4189	551	4223(TD)	585										4223	7 @ 4073	
27K	Shell Ranger	4	3636	(OH)4108	472	4187	551	(OH)4187	551	4221	585														4221	7 @ 4108	
27K	Shell Ranger	5	3639	(OH)4093	454	4209	570	(OH)4209	570	4239	600														4239	7 @ 4093	
27D	Shell Ranger	6	3641	(OH)4222	581	4260	613	(OH)4260	619	4297	656	(OH)4297	656	4360(TD)	719										4360	5½ @ 4222	
33B	Shell State A	2	3628	(OH)3950	322	3955	327	(OH)3955	327	4026	398	(OH)4026	398	4087	459	(OH)4087	459	4185(TD)	557						4185	6 5/8 @ 3950	
33M	Shell State A	3	3636																	*4212	576	4218	582		4219	7 @ 3959	5½ @ 4216
33B	Shell State A	4	3637									*4064	427	4078	441										4248	7 @ 3960	5½ @ 4218
33D	Shell State B	1	3631																	*4186	535	4201	550		4236	7 @ 3968	5½ @ 4236
33C	Shell State B	2	3647													*4122	475	4176	529	*4182	535	4222	575		4227	7 @ 3930	5½ @ 4226
34F	Shell State D	1	3673					*4123	450	4125	452	*4151	484	4220	546										4260	7 @ 4030	5½ @ 4259
34C	Shell State D	2	3675					*4099	424	4101	426														4260	7" @ 4010	5½ @ 4260
23O	Shell State F	2	3688	*4106	418	4158	470																		4265	5½ @ 4265	
23B	Shell State F	3	3686	*3932	246	4119	433																		4126	5½ @ 4126	
34G	Shell Turner	1	3635	(OH)4065	430	4140	505	(OH)4140	505	4190	555	(OH)4190	555	4220(TD)	585										4220	6 5/8 @ 4065	
34B	Shell Turner	2	[illegible]	(OH)4134	493	4226	585	(OH)4226	585	4241(TD)	600														4241	7 @ 4134	
31C	Shelly Fowler	1	3651									*4186	535	4196	545										4210	5 @ 4210	
31F	Shelly Fowler	2	3646	*4104	458	4120	474	*4128	482	4140	494														4215	5 @ 4215	
24A	Shelly Hobbs E	1	3679	*4163	484	4199	520	*4214	535	4241	562	(OH)4256	577	4276	597										4276	5½ @ 4256	
20B	Shelly McKinely	1	3662									*4266	604	4270	608										4365	7 @ 4040	5½ @ 4365
17N	Shelly State A	1	3664	(OH)4056	392	4198(PB)	534																		4260	7 @ 4037	
34E	Shelly Turner	1	3637					*4102	465	4115	478	*4130	493	4157	520										4222	5½ @ 4221	
34G	Shelly Turner	2	3642					*4168	526	4176	534	*4188	546	4204	562										4213	5½ @ 4213	
20J	Bill Sweet BowersB2		3654					4198	544	4202	548													PKR 4198	4202	5½ @ 4130	
20I	C.H. Sweet Grimes 1A		3644					*4207	563	4215	571														4252	5½ @ 4252	
20J	C.H. Sweet Grimes 3A		3655	(OH)4050	395	4210(TD)	555																	1/75	4210	7 @ 4050	
20K	C.H. Sweet McKinleyB2		3654					*4252	598	4256	602														4414	5½ @ 4270	
23A	C.H. Sweet State F1		3686	(OH)3915	229	4073(PB)	387																	6/73	4107	5½ @ 3915	
23N	C.H. Sweet State F2		3685	(OH)4000	315	4145	460	(OH)4145	460	4158(TD)	473														4158	5½ @ 4000	
23I	C.H. Sweet State F3		3681	(OH)3993	312	4152	471	(OH)4152	471	4191(TD)	510														4191	5½ @ 3993	
20A	C.H. Sweet State F4		3682	(OH)3990	308	4142	460	(OH)4142	460	4204(TD)	522														4204	5½ @ 3990	
25A	Texaco New Mex.St.1		3670									*4180	510	*4193	523	*4219	549	4223	553						4259	6¼ @ 3970	4½ lnr 4257
25B	Texaco New Mex.St.2		3671	(OH)3932	261	4074(PB)	403																		4210	7 @ 3932	
25G	Texaco New Mex.St.3		3670	*3388	318	4086	416																		4240	7 @ 3332	lnr
25H	Texaco New Mex.St.4		3672	(OH)3932	260	4076	404	(OH)4076	404	4122(PB)	450														4232	7 @ 3232	

TABLE 2 (CONTINUED)

PROPOSED NORTH MOORE (GRAYBURG - SAN ANDRES) UNIT
WELL STATUS AS OF 1/1/77 (INTERVALS OPEN TO PRODUCTION)

* = Perforated
(OH) = Open Hole

LOC.	WELL		ELEV.	GRAYBURG TOP	GRAYBURG SUBSEA	GRAYBURG BOTTOM	GRAYBURG SUBSEA	I TOP	I SUBSEA	I BOTTOM	I SUBSEA	II TOP	II SUBSEA	II BOTTOM	II SUBSEA	IIIU TOP	IIIU SUBSEA	IIIU BOTTOM	IIIU SUBSEA	IIIL TOP	IIIL SUBSEA	IIIL BOTTOM	IIIL SUBSEA	DATE TEMP. ABDN.	TD	CSG	LNR
24P	Texas Pac State G	1	3668	(OH)3885	217	4048	380	(OH)4048	380	4137	469	(OH)4137	469	4211	543	(OH)4211	543	4214(TD)	546						4214	7 @ 3885	
24I	Texas Pac State G	2	3670	(OH)3750	80	(OH)4045	375	(OH)4045	375	4100	430	(OH)4100	430	4100	510	(OH)4100	510	4210(TD)	548						4218	7 @ 3951	STN 3750 - 4218
24J	Texas Pac State G	3	3670	(OH)3878	208	4060	390	(OH)4060	390	4135	465	(OH)4135	465	4227(TD)	557										4227	7 @ 3878	
24O	Texas Pac State G	4	3669	(OH)3896	227	4092	423	(OH)4092	423	4213	544	(OH)4213													4225	7 @ 3896	
14I	Texas Pac State V	1	3690	*4012	322	4136	444																		4162	5½ @ 4162	
14J	Texas Pac State V	2	3691	*4108	417	4246	555																		4325	5½ @ 4325	
23C	Texas Pac State V	3	3689	*4032	331	4212	523																		4297	5½ @ 4297	
23F	Texas Pac State V	4	3689	*4092	403	4236	547																		4304	5½ @ 4306	
23K	Texas Pac State V	5	3690	*4146	457	4256	566																		4330	5½ @ 4330	
23P	Texas Pac State V	6	3686	*4119	433	4162	576																		4390	5½ @ 4390	
21O	Wiser Morris A	1	3649	(OH)4066	417	4202	553	(OH)4202	553	4238(TD)	589														4238	7 @ 4066	4½ @ 4082 To Surface
21P	Wiser Morris B	1	3647	(OH)3900	253	4218	571	(OH)4218	571	4244(TD)	597														4244	7½ @ 4097	4½ @ 4072 To Surface
20B	Wiser State L	2	3683	*4220	535	4204	599																		4329	4½ @ 4329	
23P	Yates Shell State	1	3681	*4124	443	4168	487	*4204	523	4224	543														4225	@ 4225	
23J	Yates Shell State	2	3687	*4148	461	4194	507	*4226	539	4250	571														4283	5½ @ 4283	
23O	Yates Shell State	3	3683	*4144	461	4220	543																		4302	5½ @ 4302	
[illegible]	Yates(Yanger)State	1	3690	4030	340	4128	438																		4150	4½ @ 4149	

TABLE 3

PROPOSED NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT
TABULATION OF GROSS THICKNESSES (FEET)
BASAL GRAYBURG FORMATION

LOC.	OPERATOR - LEASE NAME	WELL NO.	UPPER BASAL GRAYBURG		LOWER BASAL GRAYBURG	
			GAS COLUMN	OIL COLUMN	GAS COLUMN	OIL COLUMN
18 M	Amerada - Hardin	1	87	11	0	15
18 N		2	68	24	0	10
18 L		3	95	0	0	
18 K		5	77	11	0	16
30 D	Amerada - McKinley	1	84	20	0	0
30 C		3	101	0	0	
30 E		4	79	9	0	15
32 B	Amerada - State "A"	1	98	0	0	0
32 B		4	99	0	6	0
32 A		5	96	0	5	0
29 F	Amerada - State "B"	1	75	27	0	10
29 G		2	68	32	0	0
29 B		3	8	94	0	9
29 C		4	0	108	0	11
36 A	Amerada - State "C"	1	0	125	0	39
36 G		3	0	107	0	3
24 E	Amerada - State "E"	1	32	61	0	12
24 D		2	87	7	0	0
14 O	Amerada - State "WHB"	1	0	97	0	65
14 K		2	0	130	0	0
33 E	Amoco - State "G"	1	96	0	8	0
33 F		2	97	0	7	0
33 E		5	98	0	6	0
33 F		6	102	0	0	0
21 J	Antweil - Hobbs CT	1	0	90 est.	NP	NP
20 O	Atlantic - Grimes	1	0	98	0	12
28 E	Atlantic - Grimes SOC	1	33	65	0	0
28 F		2 A	0	94	0	0
28 D		3	0	96	0	5
28 C		4	0	92	0	9
36 B	Byron - Holt State	1	0	115 est.	NP	NP

TABLE 3

PROPOSED NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT
TABULATION OF GROSS THICKNESSES (FEET)
BASAL GRAYBURG FORMATION

LOC.	OPERATOR - LEASE NAME	WELL NO.	UPPER BASAL GRAYBURG		LOWER BASAL GRAYBURG	
			GAS COLUMN	OIL COLUMN	GAS COLUMN	OIL COLUMN
20 E	Chevron - McKinley	1	0	85	0	0
20 F		2	0	87	0	0
17 L	Chevron - State 17	1	0	92	0	10
29 O	Chevron - State "A" 29	5	95	0	5	0
29 P		6	91	0	14	0
31 B	Cities Service - Fowler	2	85	63	0	6
31 G		3	47	80	0	6
31 H		4	105	21	0	8
31 A		9	95	37	0	9
19 E	Cities Service - Hardin	2	79	13	0	4
19 C		3	78	9	0	8
19 D		5	93	0	0	0
28 O	Continental - Grimes	1	86	0	6	0
28 P		3	51	38	0	4
29 J	Continental - State "A29"	1	96	0	12	0
29 N		7	101	0	7	0
29 K		8	97	0	16	0
33 M	Continental - State "A33"	1	89	0	0	0
33 L		2	97	0	2	0
33 K		3	92	0	9	0
33 J		4	87	0	0	0
33 O		5	89	0	3	0
33 N		6	94	0	0	0
33 G		7	117	0	0	0
33 L		12	90	0	5	0
13 D	Continental - N. Hobbs Un	1	0	55	0	0
13 N	Continental - State "B12"	1	89	0	8	0
13 M		2	96	2	0	41
13 F		4	0	103	0	NP
13 E		5	0	117 est.	0	NP
13 C		6	0	135	0	0
13 L		7	49	61	0	NP
25 D	Continental - State "B25"	2	0	96	0	20

TABLE 3

PROPOSED NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT
TABULATION OF GROSS THICKNESSES (FEET)
BASAL GRAYBURG FORMATION

LOC.	OPERATOR - LEASE NAME	WELL NO.	UPPER BASAL GRAYBURG		LOWER BASAL GRAYBURG	
			GAS COLUMN	OIL COLUMN	GAS COLUMN	OIL COLUMN
30 I	Exxon - Bowers "A" FED	1	106	0	15	0
30 J		2	114	0	0	8
29 M		3	102	0	15	0
30 P		4	105	0	16	0
30 I		5	106	0	5	17
29 E		7	94	4	0	18
30 O		8	91	33	0	9
29 E		9	77	20	0	22
29 M		28	99	0	8	0
29 L		29	95	0	15	0
30 P		30	104	0	18	0
29 E		31	88	12	0	12
30 O		32	100	14	0	16
29 D		33	32	89	0	13
30 J		34	110	0	5	9
30 O		36	104	0	13	12
29 D	Exxon - Bowers "A" FED. Com.	35	50	70	0	18
29 A	Exxon - Grimes	1	0	105	0	9
25 P	Exxon - New Mexico State "A"	2	0	105	0	29
25 O		5	0	104	0	20
25 K		6	0	97	0	15
25 P		7	9	90	0	23
25 J		8	15	80	0	42 est.
25 N		9	0	98	0	8
29 I	Getty - Grimes	1	91	0	10	0
29 I		3	81	14	0	11
29 H		4	50	50	0	9
29 I		6	90	0	10	0
19 G	Getty - Hardin	1	38	56	0	6
19 B		3	43	53	0	6
19 A		4	10	89	0	8
30 H	Getty - McKinley	2	95	0	19	4
30 A		5	39	71	0	12
30 H		8	98	0	17	0

TABLE 3

PROPOSED NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT
TABULATION OF GROSS THICKNESSES (FEET)
BASAL GRAYBURG FORMATION

LOC.	OPERATOR - LEASE NAME	WELL NO.	UPPER BASAL GRAYBURG		LOWER BASAL GRAYBURG	
			GAS COLUMN	OIL COLUMN	GAS COLUMN	OIL COLUMN
30 G		9	112	0	0	24
30 B		10	96	2	0	20
30 A		11	57	43	0	18
14 G	Getty - State "B"	2	0	106	0	0
14 F		3	0	55	0	0
24 A	Gulf - Graham - State "A"	2	93	5	0	24
24 B		4	88	0	4	4
24 H		5	91	0	2	7
24 A		6	87	0	8	0
32 D	Gulf - Grimes "A"	1	106	0	0	9
32 K		3	98	0	0	0
32 M		5	95	17	0	3
32 N		6	108	0	0	0
32 C		7	103	0	0	0
32 L		9	93	20	0	12
32 N		15	120	0	0	0
32 D		16	106	0	10	0
32 C		17	98	0	5	0
32 F		18	98	0	5	0
32 E		19	102	12	0	6
32 K		20	101	0	0	0
33 I	Gulf - Grimes "B"	1	87	0	0	0
33 H		2	84	0	5	0
33 A		4	87	6	0	0
33 B		7	91	0	3	0
21	Gulf - Grimes "C"	1	0	88	0	0
21		2	0	86	0	0
21		4	0	92	0	0
18 O	Gulf - Hardin	1	60	32	0	12
18 I		3	0	83	0	12
18 G		4	6	76	0	10
18 J		5	27	59	0	20
18 H		6	0	82 est.	0	NP

TABLE 3

PROPOSED NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT
TABULATION OF GROSS THICKNESSES (FEET)
BASAL GRAYBURG FORMATION

LOC.	OPERATOR - LEASE NAME	WELL NO.	UPPER BASAL GRAYBURG		LOWER BASAL GRAYBURG	
			GAS COLUMN	OIL COLUMN	GAS COLUMN	OIL COLUMN
18 B		7	0	91 est.	0	NP
18 A		8	0	82 est.	0	NP
18 O		9	60	29	0	7
14 N	Gulf - Lea FO State	1	0	132	0	37
30 K	Marathon - State 30	1	101	4	0	19
30 N		2	75	82	0	14
30 L		3	56	47	0	21
30 M		4	18	119	0	16
30 M		9	51	94	0	16
32 P	Marathon - State 32	2	100	0	2	0
32 I		3	92	0	0	0
32 J		4	91	0	0	0
32 O		5	105	0	0	0
32 J		9	95	0	0	0
31 K	Mobil - Berry	1	17	112	0	4
31 N		2	0	134	0	0
31 L		3	0	145	0	11
31 M		4	0	114	0	25
34 H	Moran - Hobbs	1	0	68	0	0
17 E	Moran - State "T" 17	1	0	90	0	NP
23 E	Polaris - Shipp	1	0	87	0	0
25 E	Samedan - State "B"	2	0	98	0	26 est.
24 N	Samedan - State "C"	1	27	62	0	20
24 K		2	64	29	0	18
24 L		3	28	64	0	15
24 M		4	2	90	0	25
34 J	Samedan - Turner "A"	1	0	86	0	6
34 O		2	0	81	0	11
31 P	Shell - Berry	1	80	40	0	7
31 J		2	30	98	0	0

TABLE 3

PROPOSED NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT
TABULATION OF GROSS THICKNESSES (FEET)
BASAL GRAYBURG FORMATION

LOC.	OPERATOR - LEASE NAME	WELL NO.	UPPER BASAL GRAYBURG		LOWER BASAL GRAYBURG	
			GAS COLUMN	OIL COLUMN	GAS COLUMN	OIL COLUMN
31 I	Shell - Grimes	3	88	25	0	6
31 O		4	42	89	0	0
28 M		1	95	0	0	0
28 L		2	59	35	0	0
28 K		3	84	0	13	0
28 N		4	86	0	6	0
28 M		9	88	0	3	0
28 L		10	91	0	8	0
28 N		11	83	0	9	0
19 M	Shell - McKinley "A"	1	65	14	0	8
19 P		3	17	87	0	18
19 N		4	95	0	0	15
19 J		5	41	52	0	0
19 K		6	67	28	0	5
19 L		7	94	0	3	0
19 I		8	0	93	0	0
19 I		10	1	89	0	4
19 N		11	95	0	0	16
19 J		19	12	80	0	0
20 K	Shell - McKinley "B"	1	0	91	0	0
20 N		2	0	101	0	12
20 M		3	0	107	0	11
20 K		4	0	90	0	0
20 L		5	0	90	0	7
13 P	Shell - Rice	1	93	1	0	12
13 O		2	91	0	7	0
13 I		3	90	0	14	27
13 J		4	90	2	0	65
27 M	Shell - Sanger	1	1	81	0	7
27 N		2	0	85	0	3
27 L		3	0	85	0	4
27 E		4	0	76	0	0
27 K		5	0	84	0	5
27 O		6	0	90	0	7

TABLE 3

PROPOSED NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT
TABULATION OF GROSS THICKNESSES (FEET)
BASAL GRAYBURG FORMATION

LOC.	OPERATOR - LEASE NAME	WELL NO.	UPPER BASAL GRAYBURG		LOWER BASAL GRAYBURG	
			GAS COLUMN	OIL COLUMN	GAS COLUMN	OIL COLUMN
32 H	Shell - State "A"	3	100	0	0	0
32 G		4	93	0	0	0
32 G		6	98	0	4	0
32 H		7	95	0	4	0
33 D	Shell - State "B"	1	96	0	6	0
33 D		5	93	0	9	0
33 C		6	90	0	2	0
24 F	Shell - State "D"	1	66	24	0	8
24 C		2	84	1	0	5
23 G	Shell - State "F"	2	0	105	0	35
23 B		3	29	76	0	84
34 G	Shell - Turner	1	0	83	0	9
31 C	Skelly - Fowler	1	53	97	0	7
31 F		2	24	107	0	6
26 A	Skelly - Hobbs "B"	1	0	95	0	10
20 D	Skelly - McKinley	1	0	89	0	0
34 E	Skelly - Turner	1	17	64	0	8
34 C		2	0	87	0	9
31 D	Sun - Fowler	1	18	114	0	4
31 E		4	0	141 est.	0	NP
20 I	C.H. Sweet - Grimes "A"	1	0	87	0	0
20 H	C.H. Sweet - McKinley "B"	2	0	88	0	7
23 A	C.H. Sweet - State "A"	1	51	45	0	19
23 H		2	7	91	0	24
23 I		3	0	95	0	8
25 A	Texaco - State "C"	1	No Log	No Log	0	15
25 H		2	No Log	No Log	0	14
25 G		3	36	61	0	0
25 B		4	50	36	0	9
24 P	Texas Pacific - State "G"	1	80	11	0	9
24 O		4	51	39	0	14

TABLE 3

PROPOSED NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT
TABULATION OF GROSS THICKNESSES (FEET)
BASAL GRAYBURG FORMATION

LOC.	OPERATOR - LEASE NAME	WELL NO.	UPPER BASAL GRAYBURG		LOWER BASAL GRAYBURG	
			GAS COLUMN	OIL COLUMN	GAS COLUMN	OIL COLUMN
14 I	Texas - Pacific - State "V"	1	34	78	0	62 est.
14 J		2	0	115	0	52
23 C	Texas - Pacific - State "V"	3	0	131	0	43
23 F		4	0	102	0	72
23 K		5	0	96	0	35
23 N		6	0	94	0	0
21 O	Wiser - Morris "A"	1	0	91	0	11
26 B	Wiser - State "L"	1	0	82	0	0
23 P	Yates - Shell - State	1	0	93	0	16
23 J		2	0	96	0	12
23 O		3	0	92	0	18
14 P	Yeager (Estes) - State	1	42	68	0	52

TABLE 4

HOBBS SAN ANDRES FIELD
CONTINUOUS PAY CHART

	WELL NAME	NET PAY (FEET) WELL #1	NET PAY (FEET) WELL #2	AVERAGE NET PAY	CONTINUOUS PAY (FEET) WELL #1	CONTINUOUS PAY (FEET) WELL #2	AVERAGE CONTINUOUS PAY	PERCENT CONTINUOUS PAY	ZONE
1.	Amerada	35	46	40.5	33	42	37.5	93	I
	State A #4 (32B)	35	23	29.0	22	23	22.5	78	II
2.	Amerada	54	57	55.5	54	57	55.5	100	III U
	State A #5 (32A)	28	33	30.5	26	33	29.5	97	III L
	1325'			155.5			145	93	Total
1.	Amerada	35	26	30.5	33	24	28.5	93	I
	State A-4	35	22	28.5	32	20	26	91	II
2.	Marathon	54	42	48	52	35	43.5	91	III U
	State #2 (32F)			107			98	91	III L
	4200'								Total
1.	Amerada	35	35	35	33	33	33	94	I
	State A #4	35	36	35.5	35	36	35.5	100	II
2.	Shell	54	57	55.5	54	57	55.5	100	III U
	State A #6 (32G)	28	41	34.5	28	41	34.5	100	III L
	1350'			160.5			158.5	99	Total
1.	Amerada	35	24	29.5	33	23	28	95	I
	State A #4	35	30	32.5	35	30	32.5	100	II
2.	Marathon	54	61	57.5	54	61	57.5	100	III U
	State 32-9 (32J)	28	36	32	28	36	32	100	III L
	2500'			151.5			150	99	Total
1.	Amerada	35	31	33	33	31	32	97	I
	State A #4	35	42	38.5	35	42	38.5	100	II
2.	Shell	54	90	72	54	90	72	100	III U
	State A #7 (32H)	28	48	38	28	48	38	100	III L
	1900'			181.5			180.5	99	Total
1.	Amerada	35	40	37.5	35	40	37.5	100	I
	State A #4	35	33	34	35	33	34	100	II
2.	Gulf Grimes	54	33	43.5	44	28	36	83	III U
	State #17 (32C)	28	14	21	22	13	17.5	83	III L
	1300'			136			125	92	Total

TABLE 4 (CONTINUED)

	WELL NAME	NET PAY (FEET) WELL #1	NET PAY (FEET) WELL #2	AVERAGE NET PAY	CONTINUOUS PAY (FEET) WELL #1	CONTINUOUS PAY (FEET) WELL #2	AVERAGE CONTINUOUS PAY	PERCENT CONTINUOUS PAY	ZONE
1.	Amerada	35	40	37.5	35	36	35.5	95	I
	State A #4	35	25	30	32	25	28.5	95	II
2.	Gulf Grimes	54	36	45	26	25	25.5	57	III U
	State #16(32D)	17*	13	15	11	8	9.5	60	III
	2600'			127.5				78	Total
1.	Amerada	35	25	30	33	27	29	97	I
	State A #4	35	38	36.5	35	38	36.5	100	II
2.	Gulf Grimes			66.5			65.5	98	Total
	State #9 (32L)								
	3800'								
1.	Amerada	35	30	32.5	35	27	31	95	I
	State A #4	35	29	32	35	29	32	100	II
2.	Amerada			64.5			63	98	Total
	State A #1 (32B)								
	500'								
1.	Amoco	29	26	27.5	29	26	27.5	100	I
	State G #5 (33E)	33	25	29	33	20	26.5	91	II
2.	Conoco	67	40	53.5	67	40	53.5	100	III U
	State A-33 #6	32*	39	35.5	29	39	34	96	III L
	3000' (33N)			145.5			141.5	97	Total
1.	Amoco	39	25	32	39	25	32	100	I
	State G #5	33	15	24	33	15	24	100	II
2.	Conoco	67	30	48.5	45	30	37.5	77	III U
	State A-33 #3(33K)	32*	37	34.5	32	37	34.5	100	III L
	1225'			139			128	92	Total

TABLE 4 (CONTINUED)

	WELL NAME	NET PAY (FEET) WELL #1	NET PAY (FEET) WELL #2	AVERAGE NET PAY	CONTINUOUS PAY (FEET) WELL #1	CONTINUOUS PAY (FEET) WELL #2	AVERAGE CONTINUOUS PAY	PERCENT CONTINUOUS PAY	ZONE
1.	Amoco	39	25	32	39	25	32	100	I
	State G #5	33	16	24.5	33	16	24.5	100	II
2.	Conoco	67	35	51	63	35	49	96	III U
	State A-33 #5 (330)	32*	7	19.5	30	7	18.5	95	III L
	3750'			127			124	98	Total
1.	Amoco	29	12	20.5	14	12	13	63	I
	State G #5	33	22	27.5	33	19	26	95	II
2.	Conoco	67	34	50.5	41	34	37.5	74	III U
	State A-33 #2 (33L)	32*	17	24.5	30	17	23.5	96	III L
	1025'			123			100	81	Total
1.	Amoco	29	20	24.5	29	20	24.5	100	I
	State G #5	33	30	31.5	33	26	29.5	94	II
2.	Shell	67	55	61	67	52	59.5	98	III U
	State B #1 (33D)	32*	30	31	32	30	31	100	III L
	1625'			148			144.5	98	Total
1.	Amoco	29	26	27.5	29	23	26	95	I
	State G #5	33	31	32	33	27	30	94	II
2.	Shell B	67	54	60.5	59	53	56	93	III U
	State B #6 (33G)	47	45	46	40	45	42.5	92	III L
	1600'			166			154.5	93	Total
1.	Amoco	29	31	30	29	28	28.5	95	I
	State G #5	33	30	31.5	33	30	31.5	100	II
2.	Amoco	67	65	66	67	65	66	100	III U
	State G #6 (33F)	47	57	52	47	57	52	100	III L
	975'			179.5			178	99	Total
1.	Amoco	29	31	30	29	31	30	100	I
	State G #5	33	42	37.5	33	42	37.5	100	II
2.	Shell	67	90	78.5	63	90	76.5	97	III U
	State A #5 (32H)	47	48	47.5	32	40	36	76	III L
	1200'			193.5			180	95	Total

TABLE 4 (CONTINUED)

	WELL NAME	NET PAY (FEET) WELL #1	NET PAY (FEET) WELL #2	AVERAGE NET PAY	CONTINUOUS PAY (FEET) WELL #1	CONTINUOUS PAY (FEET) WELL #2	AVERAGE CONTINUOUS PAY	PERCENT CONTINUOUS PAY	ZONE
1.	Amoco	29	35	32	29	33	31	97	I
	State G #5	33	36	34.5	33	27	30	87	II
2.	Shell	67	57	62	52	55	53.5	86	III U
	State A #6 (32G)	32*	41	36.5	29	39	34	93	III L
	3000'			165			148.5	90	Total
1.	Amoco	29	40	34.5	29	38	33.5	97	I
	State G #5	33	33	33	33	30	31.5	95	II
2.	Gulf Grimes	67	33	50	52	25	38.5	76	III U
	State #17 (32C)	24*	14	19	19	13	16	84	III L
	4200'			136.5			111.5	88	Total
1.	Amoco	29	43	36	29	33	31	86	I
	State G #5	33	29	31	33	29	31	100	II
2.	Amoco	67	62	64.5	67	59	63	98	III U
	State G #1 (33E)	47	21	34	25	21	23	68	III L
	500'			165.5			148	90	Total
1.	Amoco	29	29	29	29	29	29	100	I
	State G #5	33	28	30.5	33	28	30.5	100	II
2.	Gulf Grimes	54*	34	44	47	34	40.5	92	III U
	State B #2 (33H)			103.5			100	96	Total
	4000'								
1.	Amoco	29	29	29	29	21	25	86	I
	State G #5	33	32	32.5	33	32	32.5	100	II
2.	Gulf Grimes	67	42	54.5	61	42	51.5	94	III U
	State B #1 (32I)			116			109.0	94	Total
	4000'								
1.	Amoco	29	28	28.5	29	28	28.5	100	I
	State G #5	33	34	33.5	33	30	31.5	94	II
2.	Shell Grimes	67	59	63	67	59	63	100	III U
	State #11 (28N)	30*	29	29.5	28	29	28.5	97	III L
	2925'			154.5			151.5	98	Total

TABLE 4 (CONTINUED)

	WELL NAME	NET PAY (FEET) WELL #1	NET PAY (FEET) WELL #2	AVERAGE NET PAY	CONTINUOUS PAY (FEET) WELL #1	CONTINUOUS PAY (FEET) WELL #2	AVERAGE CONTINUOUS PAY	PERCENT CONTINUOUS PAY	ZONE
1.	Amoco	29	24	26.5	29	23	26	98	I
	State G #5	33	30	31.5	33	27	30	95	II
2.	Marathon	67	61	64	67	54	60.5	95	III U
	State 32 #9 (32J)	32*	36	34	32	36	34	100	III L
	2900'			156.0			150.5	97	Total
1.	Amoco	29	26	27.5	29	24	26.5	96	I
	State G #5	33	22	27.5	33	20	26.5	96	II
2.	Marathon	67	42	54.5	67	42	54.5	100	III U
	State 32 #2 (32A)			109.5			107.5	98	Total
	3000'								
1.	Amoco	29	47	38	29	43	36	95	I
	State G #5	33	23	28	33	23	28	100	II
2.	Amerada	67	57	62	67	57	62	100	III U
	State A #5 (32A)	41	36	38.5	35	36	35.5	92	III L
	1850'			166.5			161.5	97	Total
1.	Citco	44	36	40	44	31	37.5	94	I
	Fowler #9 (31A)	26	6	16	9	6	7.5	47	II
2.	Citco			56			45	80	Total
	Fowler #2								
	1650' (31B)								
1.	Citco	44	31	37.5	37	31	34	91	I
	Fowler #9	26	18	22	17	18	17.5	80	II
2.	Citco			59.5			51.5	87	Total
	Fowler #3 (31H)								
	2300'								
1.	Citco	44	28	36	32	28	30	83	I
	Fowler #9	26	25	25.5	26	25	25.5	100	II
2.	Shell			61.5			55.5	90	Total
	Berry #3 (31I)								
	2350'								

TABLE 4 (CONTINUED)

	WELL NAME	NET PAY (FEET) WELL #1	NET PAY (FEET) WELL #2	AVERAGE NET PAY	CONTINUOUS PAY (FEET) WELL #1	CONTINUOUS PAY (FEET) WELL #2	AVERAGE CONTINUOUS PAY	PERCENT CONTINUOUS PAY	ZONE
1.	Citco	44	36	40	37	36	36.5	91	I
	Fowler #9	26	19	22.5	22	19	20.5	91	II
2.	Shell			62.5			57	91	Total
	Berry #4 (310)								
	3400'								
1.	Citco	44	32	38	37	32	34.5	91	I
	Fowler #9	26	27	26.5	22	27	24.5	92	II
2.	Shell			64.5			59.0	91	Total
	Berry #1 (33D)								
	4300'								
1.	Citco	44	36	40	37	36	36.5	91	I
	Fowler #9	26	40	33	24	40	32	97	II
2.	Exxon	56	59	57.5	56	56	56	97	III U
	Bowers #30 (30P)			130.5			123.5	95	Total
	1000'								
1.	Citco	44	33	38.5	37	33	35	91	I
	Fowler #9	26	44	35	26	44	35	100	II
2.	Exxon	56	53	54.5	56	53	54.5	100	III U
	Fowler #32 (300)			128.0			124.5	96	Total
	1650'								
1.	Citco	44	48	46	44	48	46	100	I
	Fowler #9	26	41	33.5	19	35	27	81	II
2.	Exxon	56	68	62	56	68	62	100	III U
	Bowers A #34 (30S)			141.5			135	95	Total
	3000'								
1.	Citco	44	31	37.5	37	30	33.5	89	I
	Fowler #9	26	44	35	26	44	35	100	II
2.	Exxon			72.5			68.5	94	Total
	Bower #5 (30I)								
	3000'								

TABLE 4 (CONTINUED)

	WELL NAME	NET PAY (FEET) WELL #1	NET PAY (FEET) WELL #2	AVERAGE NET PAY	CONTINUOUS PAY (FEET) WELL #1	CONTINUOUS PAY (FEET) WELL #2	AVERAGE CONTINUOUS PAY	PERCENT CONTINUOUS PAY	ZONE
1.	Citco	44	34	39	37	34	35.5	91	I
	Fowler #9	26	36	31	24	36	30	97	II
2.	Chevron	56	51	53.5	50	51	50.5	94	III U
	State A #5 (29O)			123.5			116.0	94	Total
	3900'								
1.	Citco	44	37	40.5	37	37	37	91	I
	Fowler #9	26	44	35	26	41	33.5	96	II
2.	Exxon A	56	50	53	53	46	49.5	93	III U
	Fed. #28 (29M)			128.5			120.0	93	Total
	2100'								
1.	Citco	44	27	35.5	32	27	29.5	83	I
	Fowler #9	26	46	36	26	46	36	100	II
2.	Exxon	56	41	43.5	56	41	43.5	100	III U
	Fed. A #29 (29L)			115.0			109.0	95	Total
	3225'								
1.	Citco	44	36	40	37	34	35.5	89	I
	Fowler #9	26	25	25.5	24	25	24.5	96	II
2.	Gulf Grimes #16 (32D)	56	40	48	46	40	43	90	III U
	1325'			113.5			103.0	91	Total
1.	Citco	44	40	42	37	40	38.5	92	I
	Fowler #9	26	33	29.5	26	33	29.5	100	II
2.	Gulf Grimes (32C) #17	56	30	43	43	20	31.5	73	III U
	2650'			114.5			99.5	87	Total
1.	Citco	44	35	39.5	37	35	36	91	I
	Fowler #9	26	24	25	22	14	18	72	II
2.	Gulf Grimes (32K) #20	56	48	52	43	41	42	81	III U
	3775'			116.5			96	82	Total

TABLE 4 (CONTINUED)

	WELL NAME	NET PAY (FEET) WELL #1	NET PAY (FEET) WELL #2	AVERAGE NET PAY	CONTINUOUS PAY (FEET) WELL #1	CONTINUOUS PAY (FEET) WELL #2	AVERAGE CONTINUOUS PAY	PERCENT CONTINUOUS PAY	ZONE
1.	Conoco	40	34	37	40	34	37	100	I
	State A-29-8(29K)	40	36	38	40	36	38	100	II
2.	Chevron	66	58	62	55	58	56.5	91	III U
	State A #5 (29O)	21	25	23	21	25	23	100	III L
	2200'			160			154.5	96	Total
1.	Conoco	40	36	38	40	36	38	100	I
	State A-29-8	40	29	34.5	40	29	34.5	100	II
2.	Chevron	66	70	68	66	70	68	100	III U
	State A #6 (29P)	21	31	26	21	31	26	100	III L
	3375'			166.5			166.5	100	Total
1.	Conoco	40	20	30	40	20	30	100	I
	State A -29- #8	40	27	33.5	37	27	32	96	II
2.	Conoco	66	42	54	50	42	46	85	III U
	State A #1 (29J)			117.5			108	92	Total
	2000'								
1.	Conoco	40	27	33.5	40	27	33.5	100	I
	State A -29- #8	40	46	43	40	46	43	100	II
2.	Exxon	66	41	53.5	50	41	45.5	85	III U
	Bowers A #29(29L)	21	11	16	19	11	15	94	III L
	800'			146			137	94	Total
1.	Conoco	40	23	31.5	40	23	31.5	100	I
	State A -29- #8	40	35	37.5	40	35	37.5	100	II
2.	Amerada			69			69	100	Total
	State B #1 (29F)								
	1025'								
1.	Conoco	40	29	34.5	40	29	34.5	100	I
	State A -29- #8	40	32	36	40	26	33	92	II
2.	Exxon			70.5			67.5	96	Total
	Bower A #33 (29O)								
	2625'								

TABLE 4 (CONTINUED)

	WELL NAME	NET PAY (FEET) WELL #1	NET PAY (FEET) WELL #2	AVERAGE NET PAY	CONTINUOUS PAY (FEET) WELL #1	CONTINUOUS PAY (FEET) WELL #2	AVERAGE CONTINUOUS PAY	PERCENT CONTINUOUS PAY	ZONE
1.	Conoco	40	40	40	40	39	39.5	99	I
	State A #8	40	41	40.5	40	39	39.5	98	II
2.	Conoco	66	52	59	52	52	52	88	III U
	State A #7 (29E)	21	16*	18.5	21	16	18.5	100	III L
	1500'			158			150.5	95	Total
1.	Conoco	40	40	40	40	38	39	98	I
	State A #8	40	33	36.5	40	33	36.5	100	II
2.	Gulf Grimes	66	33	49.5	42	33	37.5	76	III U
	State #17 (32C)	21	14	17.5	17	14	15.5	89	III L
	2800'			143.5			128.5	89	Total
1.	Conoco	40	37	38.5	40	37	38.5	100	I
	State A #8	24*	19	21.5	20	19	19.5	91	II
2.	Shell			60			58	96	Total
	McKinley B #2 (20N)								
	3500'								
1.	Conoco	40	27	33.5	40	25	32.5	97	I
	State A #8	40	32	36	40	32	36	100	II
2.	Shell McKinley			69.5				98	Total
	4525' B4 (20K)								
1.	Conoco	40	27	33.5	40	27	33.5	100	I
	State A #8	40	33	36.5	40	33	36.5	100	II
2.	Chevron			70			70	100	Total
	McKinley #1 (20F)								
	6200'								
1.	Conoco	40	37	38.5	40	35	37.5	97	I
	State A #8	40	44	42	40	44	42	100	II
2.	Exxon Bowers A	66	53	59.5	53	50	51.5	87	III U
	Fed. #28 (29M)	21	13	17	19	13	16	94	III L
	1700'			158			147	93	Total

TABLE 4 (CONTINUED)

	WELL NAME	NET PAY (FEET) WELL #1	NET PAY (FEET) WELL #2	AVERAGE NET PAY	CONTINUOUS PAY (FEET) WELL #1	CONTINUOUS PAY (FEET) WELL #2	AVERAGE CONTINUOUS PAY	PERCENT CONTINUOUS PAY	ZONE
1.	Conoco	40	47	43.5	40	43	41.5	95	I
	State A #8	40	26	33	21	26	23.5	71	II
2.	Amerada	66	57	61.5	66	57	61.5	100	III U
	State A #5 (32A)	21	20	20.5	21	20	20.5	100	III L
	4000'			158.5			147	93	Total
1.	Conoco	40	39	39.5	40	35	37.5	95	I
	State A #8	40	41	40.5	40	38	39	96	II
2.	Exxon	66	67	66.5	63	67	65	98	III U
	Bowers A	6*	8	7	6	8	7	100	III L
	Fed. #1 (30I)			153.5			148.5	97	Total
	2450'								
1.	Conoco	40	23	31.5	40	23	31.5	100	I
	State A #8	40	29	34.5	40	29	34.5	100	II
2.	Amerada						66	100	Total
	State B #2 (29G)			66					
	2050'								
1.	Conoco	40	33	36.5	40	33	36.5	100	I
	State A #8	40	23	31.5	36	23	29.5	94	II
2.	Conoco			68			66	97	Total
	State A #3 (29K)								
	210'								
1.	Conoco	40	17	28.5	40	15	27.5	96	I
	State A #8	40	47	43.5	40	47	43.5	100	II
2.	Exxon	23*	14	18.5	13	12	12.5	68	III U
	Bowers A #3 (29M)			85.5			78.5	93	Total
	2325'								

TABLE 4 (CONTINUED)

	WELL NAME	NET PAY (FEET) WELL #1	NET PAY (FEET) WELL #2	AVERAGE NET PAY	CONTINUOUS PAY (FEET) WELL #1	CONTINUOUS PAY (FEET) WELL #2	AVERAGE CONTINUOUS PAY	PERCENT CONTINUOUS PAY	ZONE
1.	Gulf Graham	27	44	35.5	27	41	34	96	I
	State #6 (24A)	36	40	38	35	40	37.5	99	II
2.	Gulf Graham	42	41	41.5	41	41	41	99	III U
	State #5 (24H)			115			112.5	98	Total
	950'								
1.	Gulf Graham	27	30	28.5	24	24	24	84	I
	State #6	36	22	29	27	19	23	79	II
2.	Gulf Graham			57.5			47	82	Total
	State #2 (24A)								
	1000'								
1.	Gulf Graham	27	34	30.5	25	28	26.5	87	I
	State #6	36	48	42	36	41	38.5	92	II
2.	Gulf Graham	29*	23	26	29	23	26	100	III U
	State #4 (24B)			98.5			91	92	Total
	1100'								
1.	Gulf Graham	27	23	25	22	23	22.5	90	I
	State #6	36	24	30	29	24	26.5	88	II
2.	Shell			55			49	89	Total
	State D #1 (24F)								
	2250'								
1.	Gulf Graham	27	34	30.5	27	32	29.5	98	I
	State #6	36	39	37.5	36	39	37.5	100	II
2.	TP			68			67	99	Total
	State G #1 (24P)								
	3950'								
1.	Gulf Graham	27	33	30	27	33	30	100	I
	State #6	36	37	36.5	36	37	36.5	100	II
2.	Citco	42	35	38.5	38	35	36.5	95	III U
	Hardin #5 (19D)			105			103	98	Total
	2000'								

TABLE 4 (CONTINUED)

	WELL NAME	NET PAY (FEET) WELL #1	NET PAY (FEET) WELL #2	AVERAGE NET PAY	CONTINUOUS PAY (FEET) WELL #1	CONTINUOUS PAY (FEET) WELL #2	AVERAGE CONTINUOUS PAY	PERCENT CONTINUOUS PAY	ZONE
1.	Gulf Graham	27	43	35	27	30	28.5	81	I
	State #6	36	36	36	36	30	33	92	II
2.	Citco	42	58	50	31	57	44	88	III U
	Hardin #3 (19C) 3350'			121			105.5	87	Total
1.	Gulf Graham	27	27	27	25	25	25	93	I
	State #6	36	26	31	27	17	22	71	II
2.	Getty	10*	3	6.5	8	1	4.5	69	III U
	Hardin #4 (19A) 5000'			64.5			51.5	80	Total
1.	Gulf Graham	27	30	28.5	19	30	24.5	86	I
	State #6	36	30	33	28	28	28	85	II
2.	Shell	29	18	23.5	18	18	18	76	III U
	McKinley A #4 (19N) 5100'			85			70.5	83	Total
1.	Gulf Graham	27	38	32.5	27	32	29.5	91	I
	State #6	36	45	40.5	34	43	38.5	95	II
2.	Shell			73			68	93	Total
	McKinley A #7 (19L) 2350'								
1.	Gulf Graham	27	33	30	27	33	30	100	I
	State #6	36	27	31.5	32	24	28	89	II
2.	Shell			61.5			58	94	Total
	McKinley A #6 (19K) 3800'								
1.	Gulf Graham	27	30	28.5	33	25	28.5	100	I
	State #6	36	28	32	32	26	29	91	II
2.	Shell			60.5			57.5	95	Total
	Rice #1 (13P) 1575'								

TABLE 4 (CONTINUED)

	WELL NAME	NET PAY (FEET) WELL #1	NET PAY (FEET) WELL #2	AVERAGE NET PAY	CONTINUOUS PAY (FEET) WELL #1	CONTINUOUS PAY (FEET) WELL #2	AVERAGE CONTINUOUS PAY	PERCENT CONTINUOUS PAY	ZONE
1.	Gulf Graham	27	24	25.5	19	24	21.5	84	I
	State #6	36	23	29.5	34	22	28	95	II
2.	Shell			55			49.5	90	Total
	Rice #2 (130) 2000'								
1.	Gulf Graham	27	37	32	24	33	28.5	89	I
	State #6	36	35	35.5	22	31	26.5	75	II
2.	Shell	28*	45	36.5	27	32	29.5	81	III U
	Rice #3 (13I) 2800'			104			84.5	81	Total

*Correlation not attempted for entire zone.

TABLE 5

PROPOSED NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT
CORE ANALYSES AVAILABLE FOR LOG CALIBRATIONS

	Cored Wells	Zones Cored	Logs Available
1.	Marathon St. 30 No. 9	G,I,II,III_U	1955 SWS GR/N (O.H.)
2.	Shell Rice No. 4	G, top of I	1957 SWS GR/N (O.H.)
3.	Exxon Bow. "A" Fed. No. 7	G,I,II,III_U	1961 PGAC GR/N (cased) 4 1/2" liner in 6 1/4" hole
4.	Conoco A-29 No. 7	G	1969 SWS SNP
5.	Exxon St. A No. 6	G, top of I	1955 LW GR/N (cased) Model 600-N Poor quality log
6.	Gulf Hardin No. 3	G, Upper I	1975 Halib. GR/N (cased) log-core match very poor
7.	Moran St. T No. 1	G, top of I	1961 SWS Acoustic
8.	Yates Shell St. No. 1	G, top of I	1956 Halib. GR/N log-core match poor
9.	Ralph Lowe Hobbs No. 1	G, I	Log not available Only 6' of scattered analysis in I.
10.	TPOC St. V No. 4	G, Upper I	1959 SWS GR/N (O.H.)
11.	TPOC St. V No. 1	G	1957 SWS GR/N (O.H.)
12.	Moran Hardin No. 1	G	No ϕ log available
13.	Moran Hardin No. 2	G, I	No ϕ log available
14.	Moran St. M-20 No. 1	G	1962 SWS Acoustic
15.	Exxon St. A No. 7	G, I	1955 LW GR/N (cased) Series 600-N tool Poor log-core match
16.	Conoco St. B-13 No. 6	G	1957 Western GR/N 5 1/2" csg in 7 7/8" hole Poor log-core match

TABLE 5 (CONTINUED)

	Cored Wells	Zones Cored	Logs Available
17.	Gulf Holt No. 1	G	1957 Frontier GR/N Poor log-core match
18.	Cactus Amoco St. No. 1	G	1957 SWS GR/N
19.	Amoco St. H No. 2	G, I	1957 Halib. GR/N 5 1/2" csg in 7 7/8" hole Fair-good log-core match
20.	Marathon St. 32 No. 5	III_U, III_L	1954 Wellex GR/N Poor log-core match

TABLE 6

PROPOSED NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT
RESULTS OF PETROPHYSICAL ANALYSES
January 1, 1975

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Section 13

1. Continental St. B-13 #2 (1950 L.W. GRN)
   I. 39' 10.5% Øh = 4.1 Oil
   II. 36' 10.2% Øh = 3.7 x

2. Shell Rice #1 (1957 PGAC GRN)
   I. 35' 8.6% Øh = 3.0 Oil
   II. 55' 12.3% Øh = 6.7
   IIIu. 83' 15.4% Øh = 12.8 x W.L.

3. Shell Rice #2 (1973 D. A. SNP)
   Basal Gbg. h = 40' x Gas
   I. 54' 9.6% Øh = 5.2 Oil
   II. 40' 11.6% Øh = 4.7
   IIIu. 92' 12.8% Øh = 11.8 x W.L.

4. Shell Rice #3 (1974 SWS SNP)
   I. 34' 14.7% Øh = 5.0 Oil
   II. 36' 13.7 Øh = 4.9
   IIIu. 58' 15.4% Øh = 8.9 W.L.

5. Shell Rice #4 (1957 SWS GRN, Gbg core)
   Basal Gbg 9' Oil 15' Gas 24' Total
   I. 26' 12.5% Øh = 3.3
   II. 15' 10.9% Øh = 1.6 x

Section 14

6. Getty St. B #2 (1959 SWS GRN)
   Basal Gbg. 26' x Oil

7. TPOC St. V #1 (Core)
   Basal Gbg 6' Gas 30' x Oil 36' x Total

8. TPOC St. V #2 (1958 SWS GRN)
   Basal Gbg. 40' Oil
   I. 4' 7% Øh = 0.3

Section 23

9. Gato Shipp #1 (1959 SWS GRN)
   Basal GBG 29' x Oil

10. Shell St. F #2 (1957 SWS GRN)
    Basal Gbg 48' Oil
    I. 12' 5.3% Øh = 0.6

11. Shell St. F #3 (1957 SWS GRN)
    Basal Gbg 8' Gas 31' x Oil 39' x Total

TABLE 6 (CONTINUED)

12.	TPOC St. V. #3		(1959 SWS GRN)
	Basal Gbg		25' Oil
13.	TPOC St. V. #4		(1959 SWS GRN, Gbg Core)
	Basal Gbg		20' x Oil
	I. 2'	5.0%	Øh = 0.1
14.	TPOC St. V. #5		(1959 SWS GRN)
	Basal Gbg		49' Oil
	I. 3'	53%	Øh = 0.2
15.	TPOC St. V. #6		(1959 SWS GRN)
	Basal Gbg	22' Oil	
16.	Yates Shell #1		(Core)
	Basal Gbg	38' Oil	
Section 24			
17.	Gulf Graham #2		(1953 SWS GRN)
	Basal Gbg		13' x Gas 15' Oil 28' Total
	I. 54'	8.8	Øh = 4.7
18.	Gulf Graham #1		(1971 Dresser Acoustic)
	Basal Gbg.		31' Gas 1' Oil
	I. 47'	10.4%	Øh = 4.9
	II. 56'	15.8%	Øh = 8.8
	IIIu. 48'	14.2%	Øh = 6.8 x W.L.
19.	Gulf Graham #5		(1969 SWS Acoustic)
	Basal Gbg.		25' Gas
	I. 56'	14.1%	Øh = 7.9 Oil
	II. 46'	13.3%	Øh = 6.1
	III. 61'	12.9%	Øh = 7.9 W.L.
20.	Gulf Graham #6		(1970 Dresser Acoustic)
	Basal Gbg.		16' Gas
	I. 35'	9.3%	Øh = 3.2 Oil
	II. 39'	14.2%	Øh = 5.5
	IIIu. 71'	13.8%	Øh = 11.7 x W.L.
21.	Samadan St. C #2		(1951 L.W. GRN)
	Basal Gbg		3' Gas 18' Oil 21 Total
	I. 53'	11.5%	Øh = 6.1
22.	Shell St. D #1		(1946 L.W. GRN)
	I. 40'	10.7%	Øh = 4.3 Oil
	II. 49'	14.3%	Øh = 7.0
	IIIu. 45'	14.1%	Øh = 6.3 x
23.	Shell St. D #2		(1947 L.W. GRN)
	I. 33'	11.5%	Øh = 3.8 Oil
24.	TPOC St. G #1		(1974 Dresser SNP)
	I. 36'	13.8%	Øh = 5.0 Oil
	II. 38'	12.4%	Øh = 4.7

TABLE 6 (CONTINUED)

25. TPOC St. G #4
Basal Gbg 2' Gas 19' Oil 21' Total
I. 58' 14.3% Øh = 8.3
II. 56' 17.0% Øh = 9.5 x

Section 25
26. Exxon St. A #2 (1957 SWS GRN)
Basal Gbg. 42' Oil
I. 51' 10.5% Øh = 5.4
II. 18' 10.3% Øh = 1.9 W.L

27. Exxon St. A #6 (Gbg. Core)
Basal Gbg. 34' Oil

28. Exxon St. A #7 (Gbg. Core)
Basal Gbg. 5' Gas 38' x Oil 43' x Total

29. Texaco St. C #1 (1969 Dresser GRN)
I. 36' 16.3% Øh = 5.5 Oil

30. Texaco St. C #2 (1969 Dresser GRN)
I. 47' 16.3% Øh = 7.7 Oil
II. 35' 14.9% Øh = 5.2 x

Section 26
31. Cactus Pan Am ST. #1 (Gbg. Core)
Basal Gbg. 12' Oil

32. Skelly Hobbs E #1 (1956 SWS GRN)
Basal Gbg. 27' Oil

Section 36
33. Gulf Holt #1 (Gbg. Core)
Basal Gbg. 31' x Oil

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Section 17
34. Moran St. 17 #1 (1961 SWS Acoustic, Core)
Basal Gbg. 18' x Oil

Section 18
35. Amerada Hardin #1 (1969 Dresser Acoustic)
II. 48' 13.1% Øh = 6.3 x Oil
IIIu. 62' 12.8% Øh = 7.9 W.L.

36. Amerada Hardin #2 (1968 SWS Acoustic)
IIIu. 71' 15.1% Øh = 10.7 W.L. Oil

TABLE 6 (CONTINUED)

37. Amerada Hardin #5 (1959 SWS GRN)
Basal Gbg. 7' Gas 14' Oil 21' Total
I. 45' 8.9% Øh = 4.0
II. 22' 11.7% Øh = 2.6
IIIu. 66' 14.2% Øh = 5.2 x W.L.

38. Gulf Hardin #1 (1951 L.W. GRN)
I. 41' Øh = 4.9 Oil
II. 36' 13.0% Øh = 4.7

39. Gulf Hardin #3 (Gbg Core, 1957 L.W. GRN)
Basal Gbg. 15' Oil
I. 27' 13.6% Øh = 3.7

Section 19

40. Cities Service Hardin #3 (1969 SWS GRN)
Basal Gbg 34' x Gas 11' Oil 45' x Total
I. 49' 10.2% Øh = 5.0
II. 38' 14.5% Øh = 5.5 R
IIIu. 80' 14.3% Øh = 11.5 R

41. Getty Hardin #4 (1961 L.W. GRN)
Basal Gbg 41' Oil
I. 32' 14.4% Øh = 4.6
II. 18' 16.4% Øh = 3.0
IIIu. 2' 8% Øh = 0.2 W.L

42. Shell McKinley A #4 (1968 Dresser GRN)
Basal Gbg. 28' x Gas 3' Oil 31' x Total
I. 36' 12.9% Øh = 4.7

43. Shell McKinley A #6 (1957 L.W. GRN)
Basal Gbg. 16 x Gas 14 Oil 30 x Total
I. 34' of 15.2% Øh = 5.2

44. Shell McKinley A #7 (1957 L.W. GRN)
I. 56' of 13.0% Øh = 7.3 Oil
II. 61' of 14.1% Øh = 8.6

45. Shell McKinley A #8 (1957 PGAC GRN)
I. 47' of 15.3% Øh = 7.2 Oil

46. Shell McKinley A #10 (1968 SWS SNP)
Basal Gbg 16' Oil
I. 51' of 11.2% Øh = 5.7
II. 44' of 10.8% Øh = 4.8
IIIu. 3' of 12 % Øh = 0.4 W.L.

47. Shell McKinley A #11 (1970 SWS SNP)
Basal Gbg 29' Gas
I. 46' of 11.2% Øh = 5.2 Oil
II. 43' of 12.2% Øh = 5.2
IIIu. 43' of 10.3% Øh = 4.4 W.L.

Section 20		
48.	Chevron McKinley #1	(1973 SWS SNP)
	I. 31' of 18.7%	Øh = 5.8 Oil
	II. 40' of 15.7%	Øh = 6.3 W.L.
49.	Chvron McKinley #2	(1973 Welex SNP)
	I. 44' of 14.6%	Øh = 6.4 Oil
	II. 25' of 12/2%	Øh = 3.1 W.L.
50.	Moran St. 20 #1	(1962 SWS Acoustic, Core)
	Basal Gbg. 8' x Oil	
51.	Shell McKinley B #2	(1973 D.A. SNP, Acoustic)
	Basal Gbg. 25' Oil	
	I. 45' of 17.5%	Øh = 7.9
	II. 19' of 12.0%	Øh = 2.3 W.L.
52.	Shell McKinley B #3	(1972 D.A. GRN)
	I. 25' of 17.0%	Øh = 4.2 Oil
	II. 32' of 15.4%	Øh = 4.9 W.L.
53.	Shell McKinley B #4	(1973 SWS SNP)
	BAsal Gbg 23' Oil	
	I. 38' of 11.3%	Øh = 4.3
	II. 34' of 13.6%	Øh = 4.6 W.L.
54.	Skelly McKinley #1	(1974 SWS CNL)
	BAsal Gbg. 32' Oil	
	I. 40' of 17.4%	Øh = 6.9
	II. 26' of 15.0%	Øh = 3.9 W.L.
55.	Sweet McKinley B 1-A-G	(Core) *
	I.	Øh = 3.4 Oil
Section 21		
56.	Gulf Grimes #2	(1953 PGAC GRN)
	I. 24' of 17.0%	Øh = 4.2 x Oil
Section 27		
57.	Shell Sanger #1	(1958 LW GRN)
	I. 32' of 17.1%	Øh = 5.5 Oil
	II. 22' of 8.5%	Øh = 1.9 x
58.	Shell Sanger #2	(1974 SWS SNP) *
	Basal Gbg 15' Oil	
	I. 20' of 18.3%	Øh = 3.7
	II. 24' of 10.3%	Øh = 2.5 x
59	Shell Sanger #3	(1956 PGAC GRN)
	I. 32' of 21. 8%	Øh = 7.0 Oil
	II. 13' of 10.7%	Øh = 1.4 x

TABLE 6 (CONTINUED)

60.	Shell Sanger #5 Basal Gbg 25' Oil I. 31' of 11.0%	(1974 SWS SNP) * Øh = 3.4 x
61.	Shell Sanger #6 Basal Gbg. 10' x Oil	(1974 SWS SNP)
Section 28		
62.	Arco Grimes #2A BAsal Gbg. 13' Oil I. 26' 23.5% II. 34' 11.9%	(1974 SWS CNL) Øh = 6.1 Øh = 4.0
63.	Arco Grimes #3 Basal Cbg. I. 30' of 16.3% II. 26' of 13.5% IIIu. 4' of 12%	(1967 L.W. GRN) 21' Oil Øh = 4.9 Øh = 5.3 Øh = 0.5 W.L.
64.	ARco Grimes #4 Basal Gbg. 16' Oil I. 33' of 17.8%	(1972 SWS GRN) Øh = 5.9
65.	Continental Grimes #1 I. 34' of 18.2% II. 46' of 14.1% IIIu. 48' of 10.7% IIIl. 8' of 13.0%	(1953 PGAC GRN) Øh = 6.2 Oil Øh = 6.5 Øh = 5.1 Øh = 1.0
66.	Continental Grimes #3 I. 37' of 18.8% II. 37' of 12.4% IIIu. 65' of 14.6%	(1959 L.W. GRN) Øh = 7.0 Oil Øh = 4.6 Øh = 9.4 x
67.	Shell Grimes #9 Basal Gbg. 29' Gas I. 9' of 9.2% 21' of 19.0% 30' of 16.1% II. 44' of 14.2% IIIu. 83' of 13.5% IIIl. 35' of 12.2%	(1969 SWS SNP) Øh = .83 Gas Øh = 4.00 Oil Øh = 4.8 Total Zone I Øh = 6.3 Øh = 11.2 Øh = 4.3
68.	Shell Grimes #10 Basal Gbg. 21' Gas I. 35' of 15.7% II. 38' of 13.0% IIIu. 84' of 10.3% IIIl. 4' of 11.0%	(1969 SWS SNP) Øh = 5.4 Oil Øh = 4.9 Øh = 8.7 Øh = 0.4
69.	Shell Grimes #10 Basal Gbg. 10' Gas I. 30' of 19.2% II. 33' of 9.5% IIIu. 66' of 13.2% IIIl. 32' of 11.8%	(1969 SWS SNP) Øh = 5.8 Oil Øh = 3.1 Øh = 8.7 Øh = 3.8

Section 29

70. Amerada St. B #1 (1964 SWS Acoustic)
I. 44' of 13.0% Øh = 5.1 Oil
II. 36' of 16.7% Øh = 6.0

71. Amerada St. B #2 (1973 SWS SNP)
Basal Gbg. 8' x Gas 8' Oil 16' x Total
I. 29' of 14.1% Øh = 4.1
II. 32' of 13.1% Øh = 4.2

72. Chevron St. "I" #5 (1969 SWS SNP)
Basal Gbg. 43' Gas
I. 16' of 13.7% Øh = 2.19 Gas
25' of 22.5% Øh = 5.62 Oil
41' of 19.0% Øh = 7.8 Total
II. 47' of 17.9% Øh = 8.4
IIIu. 82' of 16.0% Øh = 13.2
IIIl. 52' of 13.9% Øh = 7.2

73. Chevron St. "I" #6 (1969 Dresser SNP)
Basal Gbg. h = 40' Gas
I. 35' of 10.9% Øh = 3.80 Gas
16' of 16.3% Øh = 2.61 Oil
51' of 12.6% Øh = 6.4 Total
II. 46' of 14.8% Øh = 6.8
IIIu. 99' of 13.0% Øh = 12.8
IIIl. 66' of 12.4% Øh = 8.2

74. Continental St. A-29 #1 (1974 SWS SNP) *
Basal Gbg. h = 41' x Gas
I. 37' of 14.9% Øh = 5.5 Oil
II. 46' of 15.0% Øh = 6.9
IIIu. 86' of 13.3% Øh = 11.4
IIIl. 10' of 10.5% Øh = 1.1

75. Continental St. A-29 #7 (1969 SWS SNP, Core Gbg)
Basal Gbg. 25' Gas
I. 6' of 7.5% Øh = 0.45 Gas
44' of 18.1% Øh = 7.98 Oil
50' of 16.9% Øh = 8.4 Total
II. 53' of 16.5% Øh = 8.8
IIIu. 81' of 14.5% Øh = 11.8
IIIl. 25' of 12.4% Øh = 3.1

76. Continental St. A-29 #8 (1969 Dresser SNP)
Basal Gbg. 16' GAs
I. 42' of 17.3% Øh = 7.3 Oil
II. 46' of 12.1% Øh = 5.6
IIIu. 69' of 12.7% Øh = 8.8
IIIl. 23' of 12.3% Øh = 2.8

TABLE 6 (CONTINUED)

77. Exxon Bowers #7 (1961 PGAC GRN, Core)
Basal Gbg. 21' Gas
I. 35' of 15.5% Øh = 5.4 Oil
II. 54' of 16.6% Øh = 9.0

78. Exxon Bowers #28 (1969 D. A. Acoustic)
Basal Gbg. 26' Gas
I. 25' of 18.2% Øh = 4.55 Gas
26' of 17.6% Øh = 4.57 Oil
51' of 17.9% Øh = 9.1 Total
II. 53' of 17.0% Øh = 9.0
IIIu. 61' of 12.8% Øh = 7.8
IIIl. 27' of 13.0% Øh = 3.5

79. Exxon Bowers #33 (1969 SWS SNP)
Basal Gbg 18' Oil
I. 31' of 13.3% Øh = 4.1
II. 40' of 12.8% Øh = 5.1
IIIu. 14' of 13.1% Øh = 1.8 W.L.

80. Exxon Bowers #35 (1971 SWS Acoustic)
Basal Gbg. 2' Gas 22' Oil 24' Total
I. 33' of 17.1% Øh = 5.6
II. 60' of 14.9% Øh = 8.9
IIIu. 23' of 14.1% Øh = 3.2

81. Exxon Grimes #1 (1957 PGAC GRN)
I. 31' of 17.4% Øh = 5.4 Oil

82. Getty Grimes #6 (1970 Dresser Acoustic)
Basal Gbg. 20' Gas
I. 28' of 12.3% Øh = 3.4 Oil
II. 38' of 10.7% Øh = 4.1
IIIu. 83' of 11.9% Øh = 9.9
IIIl. 22' of 12.5% Øh = 2.8

Section 30

83. Amerada McKinley #1 (1973 SWS SNP)
I. 34' of 14.8% Øh - 5.0 Oil
II. 49' of 16.3% Øh = 8.0

84. Amerada McKinley #4 (1973 SWS SNP)
I. 44' of 13.6% Øh = 6.0 Oil
II. 36' of 11.9% Øh = 4.3

85. Exxon Bowers #1 (1969 SWS SNP)
I. 50' of 15.8% Øh = 7.9 Oil
II. 53' of 15.8% Øh = 8.4
IIIu. 85' of 13.8% Øh = 11.7
IIIl. 8' of 11.2% Øh = 0.9

86. Exxon Bowers #4 (1969 Dresser SNP)
I. 38' of 14.6% Øh = 5.6 Oil
II. 62' of 19.7% Øh = 12.2
IIIu. 86' of 16.9% Øh = 14.5 x

87. Exxon Bowers #5 (1969 SWS SNP)
I. 39' of 11.9% Øh = 4.6 Oil
II. 55' of 14.3% Øh = 7.9

88. Exxon Bowers #8 (1965 SWS GRN)
Basal Gbg. 18' Gas 13' Oil 31' Total
I. 37' of 13.7% Øh = 5.1
II. 34' of 12.2% Øh = 4.2

89. Getty McKinley #8 (1969 SWS Acoustic)
Basal Gbg. 23' Gas
I. 33' of 12.0% Øh = 6.4 Oil
II. 63' of 15.4% Øh = 9.7
IIIu. 69' of 12.9% Øh = 8.9 W.L.

90. Getty McKinley #10 (1969 SWS SNP)
Basal Gbg. 21' Gas 2' Oil 23' Total
I. 34' of 11.0% Øh = 3.7
II. 38' of 10.5% Øh = 4.0
IIIu. 65' of 10.5% Øh = 6.8 W.L.

91. Getty McKinley #11 (1970 SWS Acoustic)
Basal Gbg. 6' Gas 16' Oil 22' Total
I. 45' of 13.5% Øh = 6.1
II. 56' of 15.2% Øh = 8.5
IIIu. 43' of 12.8% Øh = 5.5 W.L.

92. Marathon ST. 30 #1 (1958 LW GRN)
Basal Gbg. 20' x Gas 4' Oil 24' x Total
I. 40' of 12.2% Øh = 4.9
II. 53' of 15.6% Øh = 8.3

93. Marathon St. 30 #9 (1955 SWS GRN)
I. 38' of 16.5% Øh = 6.3 Oil
II. 50' fo 14.5% Øh = 7.2
IIIu. 18' of 13.9% Øh = 2.5 W.L.

Section 31
94. Cities Service Fowler #2 (1974 SWS CNL, 1969 SWS FDC)
Basal Gbg. 17' Gas 21' Oil 38' Total (FDC)
I. 37' of 10.2% Øh = 3.8
II. 12' of 8.4% Øh = 1.0 x

95. Cities Service Fowler #3 (1974 SWS SNP) *
Basal Gb.g 2' Gas 41' Oil 43' Total
I. 44' of 18.0% Øh = 7.9
II. 34' of 14.6% Øh = 5.0

TABLE 6 (CONTINUED)

96. Cities Service Fowler #9 (1969 SWS FDC)
Basal Gbg. 15' Gas 21' Oil 36' Total
I. 39' fo 19.2% Øh = 7.5
II. 38' of 15.7% Øh = 6.0 R
IIIu. 83' of 13.6% Øh = 11.3 W.L., R

97. Mobil Berry #4 (1950 L.W. GRN)
I. 17' of 11.6% Øh = 2.0 W.L.

98. Shell BErry #2 (1972 SWS SNP)
Basal Gbg. 29' Oil

99. Shell Berry #3 (1974 SWS CNL)
Basal Gbg. 15' x Gas 10' Oil 25' Total

100. Shell Berry #4 (1972 SWS GRN)
I. 39' of 15.3% Øh = 6.0 Oil
II. 39' of 15.3% Øh = 6.0
IIIu. 34' of 12.2% Øh = 4.2 x W.L.

101. Skelly Fowler #1 (1974 Dresser CNL)
I. 38' fo 16.8% Øh = 6.4 Oil
II. 35' of 13.8 % Øh = 4.8 x

102. Skelly Fowler #2 (1955 Welex GRN)
I. 40' of 14.1% Øh = 5.7 Oil
II. 27' of 19.3% Øh = 5.1 x

103. Sun Fowler #1 (1965 L.W. GRN)
I 39' of 13.1% Øh = 5.1 Oil

Section 32
104. Amerada St. A #1 (1974 SWS CNL - FDC) *
I. 9' of 6.8% Øh = .61 Gas
27' of 19.0% Øh = 5.12 Oil
36' of 15.9% Øh = 5.7 Total
II. 40' of 13.9% Øh = 5.5

105. Amerada State A #4 (1969 Dresser SNP, 2"/100')
IIIl. 22' of 11.7% Øh = 2.6 Oil

106. Amerada St. A #5 (1969 Dresser SNP)
Basal Gbg. 38' Gas
I. 34' of 19.0% Øh = 6.46 Gas
13' of 20.6% Øh = 2.68 Oil
47' of 19.4% Øh = 9.1 Total
II. 26' of 12.5% Øh = 3.2
IIIu. 71' of 11.5% Øh = 8.2
IIIl. 34' of 11.2% Øh = 3.8

107. Gulf Grimes A #5 (1957 L.W. GRN)
I. 27' of 16.1% Øh = 4.3 Oil
II. 40' of 15.5% Øh = 6.2
IIIu. 68' of 12.5% Øh = 8.5 x

TABLE 6 (CONTINUED)

108. Gulf Grimes A #7 (1954 SWS GRN)

I.	7' of 7.1%	Øh = 0.50	Gas
	31' of 14.5%	Øh = 4.48	Oil
	38' of 13.1%	Øh = 5.0	Total
II.	50" of 14.7%	Øh = 7.3	
IIIu.	57' of 14.1%	Øh = 8.1 x	

109. Gulf Grimes #9 (1972 SWS Acoustic)
Basal Gbg. 27' x Gas 16' Oil 43' x Total

I.	42' of 18.9%	Øh = 7.9 R
II.	37' of 16.6%	Øh = 6.1 R
IIIu.	59' of 17.3%	Øh = 10.2 x, R

110. Gulf Grimes #16 (1968 SWS Acoustic)
Basal Gbg. 35' Gas

I.	46' of 16.2%	Øh = 7.5 Oil
II.	27' of 13.0%	Øh = 3.5
IIIu.	61' of 11.5%	Øh = 7.0
IIIl.	15' of .2.4%	Øh = 1.9

111. Gulf Grimes #17 (1968 Dresser SNP, Acoustic)

I.	4' of 7 %	Øh = 0.28	Gas
	38' of 18.4%	Øh = 6.99	Oil
	42' of 17.3%	Øh = 7.3	Total
II.	37' of 14.7%	Øh = 5.5	
IIIl.	13' of 14.8%	Øh = 1.9	

112. Marathon St. 32 #2 (1958 Welex GRN)

I.	23' of 20.9%	Øh = 4.8	Oil
II.	30' of 13.3%	Øh = 4.0	
IIIu.	54' of 9.7%	Øh = 5.3	

113. Marathon St. 32 #3 (1954 SWS GRN)

I.	7' of 7.7%	Øh = 0.54	Gas
	20' of 15.3%	Øh = 3.05	Oil
	27' of 13.3%	Øh = 3.6	Total
II.	30' of 14.5%	Øh = 4.4	
IIIu.	72' of 12.2%	Øh = 8.8	
IIIl.	50' of 15.3%	Øh = 7.2 x	

114. Marathon St. Sec. 32 #9 (1969 SWS SNP, Acoustic Gbg)
Basal Gbg. 30' GAs

I.	7' of 9.4%	Øh = 0.66	Gas
	34' of 15.0%	Øh = 5.09	Oil
	41' of 14.0%	Øh = 5.8	Total
II.	37' of 15.2%	Øh = 5.6	
IIIu.	80' of 15.3%	Øh = 12.3	
IIIl.	50' of 15.3%	Øh = 7.7	

TABLE 6 (CONTINUED)

115. Shell St. A #4 (1957 PGAS GRN)

I.	6' of 14.3%	Øh = .86	Gas
	34' of 17.3%	Øh = 5.88	Oil
	40' of 16.9%	Øh = 6.7	Total
II.	34' of 20.7%	Øh = 7.1	
IIIu.	89' of 16.7%	Øh = 14.8	

116. Shell ST. A #6 (1969 Dresser Acoustic)

Basal Gbg. 35' Gas

II.	42' of 17.5%	Øh = 7.4	Oil
IIIu.	80' of 14.7%	Øh = 11.7	
IIIl.	41' of 14.9%	Øh = 6.8	

117. Shell St. A #7 (1969 SWS SNP)

Basal Gbg. 34' Gas

I.	9' of 17.7%	Øh = 1.59	Gas
	22' of 20.5%	Øh = 4.52	Oil
	31' of 19.7%	Øh = 6.1	Total
II.	42' of 16.8%	Øh = 7.0	
IIIu.	90' of 17.2%	Øh = 15.5	
IIIl.	48' of 14.1%	Øh = 6.8	

Section 33

118. Amoco St. G #1 (1961 SWS GRN)

I.	6' of 18.0%	Øh = 1.08	Gas
	21' of 20.4%	Øh = 4.28	Oil
	27' of 19.9%	Øh = 5.4	Total
II.	32' of 15.0%	Øh = 4.8	
IIIu.	69' of 11.5%	Øh = 7.9	

119. Amoco St. G #5 (1969 Dresser Acoustic)

I.	20' of 11.9%	Øh = 2.38	Gas
	11' of 23.2%	Øh = 2.56	Oil
	31' of 15.9%	Øh = 4.9	Total
II.	37' of 14.8%	Øh = 5.5	
IIIu.	68' of 14.3%	Øh = 9.8	
IIIl.	47' of 13.9%	Øh = 6.5	

120. Amoco St. G #6 (1969 Dresser Acoustic)

Basal Gbg. 21' Gas

1.	20' of 16.9%	Øh = 3.37	Gas
	10' of 22.0%	Øh = 2.20	Oil
	30' of 18.4%	Øh = 5.6	Total
II.	36' of 18.1%	Øh = 6.5	
IIIu.	71' of 15.6%	Øh = 11.1	
IIIl.	63' of 13.9%	Øh = 8.8	

121. Continental A-33 #1 (1972 SWS SNP)

I.	8' of 13.3%	Øh = 1.06	Gas
	25' of 19.4%	Øh = 4.85	Oil
	33' of 17.9%	Øh = 5.9	Total
II.	34' of 13.6%	Øh = 4.6	
IIIu.	78' of 15.1%	Øh = 11.7	
IIIl.	69' of 13.8%	Øh = 9.5	

TABLE 6 (CONTINUED)

122. Continental A-33 #4 (1953 PGAC GRN)

I.	1' of 5.0%	Øh = 0.05 Gas
	22' of 23.5%	Øh = 5.16 Oil
	23' of 22.7%	Øh = 5.21 Total
II.	35' of 11.0%	Øh = 3.9

123. Continental A-33 #5 (1957 PGAC GRN)

I.	37' of 14.4%	Øh = 5.3 Oil
II.	34' of 12.7%	Øh = 4.3
IIIu.	76' of 12.9%	Øh = 9.8
IIIl.	45' of 13.1%	Øh = 5.9

124. Continental A-33 #6 (1954 Welex GRN)

I.	30' of 18.2%	Øh = 5.5 Oil
II.	44' of 14.5%	Øh = 6.4
IIIu.	77' of 13.3%	Øh = 10.3

125. Continental A-33 #12 (1969 SWS SNP)

Basal Gbg. 42' Gas

I.	21' of 7.4%	Øh = 1.55 Gas
	18' of 19.3%	Øh = 3.47 Oil
	39' of 12.9%	Øh = 5.0 Total
II.	33' of 14.5%	Øh = 4.8
IIIu.	77' of 12.7%	Øh = 9.8
IIIl.	66' of 14.2%	Øh = 9.4

126. Gulf Grimes B #1 (1956 SWS GRN)

I.	18' of 11.9%	Øh = 2.14 Gas
	20' of 13.9%	Øh = 2.78 Oil
	38' of 12.9%	Øh = 4.9 Total
II.	36' of 13.0%	Øh = 4.7
IIIu.	58' of 11.8%	Øh = 6.8

127. Gulf Grimes B #2 (1956 SWS GRN)

I.	2' of 6%	Øh = 0.12 Gas
	32' of 12.2%	Øh = 3.91 Oil
	34' of 11.9%	Øh = 4.0 Total
II.	35' of 10.7%	Øh = 3.8
IIIu.	57' of 12.4%	Øh = 7.1 x

128. Gulf Grimes B #4 (1956 SWS GRN)

I.	35' of 14.8%	Øh = 5.2 Oil
II.	41' of 9.2%	Øh = 3.8

129. Gulf Grimes B #7 (1970 SWS SNP)

Basal Gbg. 28' Gas

I.	35' of 18.7%	Øh = 6.54 Gas
	6' of 26.7%	Øh = 1.60 Oil
	41' of 19.9%	Øh = 8.1 Total
II.	52' of 15.2%	Øh = 7.9
IIIu.	84' of 15.8%	Øh = 13.2
IIIl.	59' of 15.1%	Øh = 8.9

TABLE 6 (CONTINUED)

130. Shell St. B #1 (1957 PGAC GRN)
I. 16' of 13.5% Øh = 2.16 Gas
12' of 25.9% Øh = 3.11 Oil
28' of 18.8% Øh = 5.3 Total
II. 46' of 15.9% Øh = 7.3
IIIu. 73' of 14.1% Øh = 10.3
IIIl. 64' of 15.3% Øh = 9.8 x

131. Shell St. B #5 (1969 SWS Acoustic, 2"/100')
Basal Gbg. 36' Gas

132. Shell St. B #6 (1969 SWS SNP)
Basal Gbg. 15' Gas
I. 27' of 17.9% Øh = 4.8 Gas
II. 43' of 13.6% Øh = 5.8 Oil
IIIu. 80' of 13.3% Øh = 10.6
IIIl. 61' of 13.1% Øh = 8.0

Section 34

133. Samedan Turner A #1 (1950 L.W. GRN)
I. 26' of 15.4% Øh = 4.0 Oil
II. 40' of 11.6% Øh = 4.6

134. Samedan Turner A #2 (1950 L.W. GRN)
I. 21' of 14.2% Øh = 3.0 Oil
II. 24' of 10.8% Øh = 2.5

135. Moran Hobbs #1 (Core Gbg)
Basal Gbg. 8' Oil

136. Shell Turner #1 (1974 SWS SNP) *
Basal Gbg 17' x Oil
I. 27' of 25.0% Øh = 6.8
II. 32' of 12.0% Øh = 3.8 x

137. Skelly Turner #1 (1 74 SWS CNL) *
Basal Gbg. 3' Gas 26' Oil 29' Total
I. 21' of 21.0% Øh = 4.4
II. 17' of 9.5% Øh = 1.6
IIIu. 46' of 12.6% Øh = 5.9 x W.L.

138. Skelly Turner #2 (1974 SWS CNL) *
Basal Gbg. 14' Oil
I. 25' of 21.6% Øh = 5.4
II. 11' of 9.1% Øh = 1.0 x

* Data received since Septembet 1974 subcommittee meeting
New log replaces previously derived values
R Values revised in accordance with geological correlation study.
Zonal tops originally in error.
W.L. -614' occurs within zone
X Zonal value extrapolated

TABLE 7

PERTINENT DATA SHEET
NORTH HOBBS UNIT

1. RESERVOIR CHARACTERISTICS

Gas - Oil Contact	- 360 ft.
Water - Oil Contact (Top of transition zone)	- 614 ft.
Initial Reservoir Pressure, @ GOC	1515 psia (Ps)
Initial Reservoir Pressure, @ -487 ft.	1556 psia
Principal Reservoir Drive Mechanism - Zone I	Water Drive
Principal Reservoir Drive Mechanism - Gb & Other SA	Solution Gas Drive

2. FLUID CHARACTERISTICS

Type Crude	Sour
Solution Gas - Oil Ratio @ Ps	645 ft^3/BO (Pb=14.7 psia)
Oil Formation Volume Factor @ Ps	1.3 RB/STB
Oil Viscosity @ Ps	0.955 cps.
Oil Gravity	33° to 35° API
Bottom Hole Temperature	100^oF

3. PORE VOLUME & ORIGINAL HC IN PLACE

	Ac x Ø x Ft.	OOIP (STB)	OGIP (MMCF)
Basal Grayburg			
Upper Zone Gas Cap	11,873.46	-	45,357
Upper Zone Oil Column	13,165.27	54,996,396	34,705
Lower Zone Gas Cap	64.29	-	246
Lower Zone Oil Column	1,572.75	6,569,994	4,146
Basal Grayburg Totals	26,675.77	61,566,390	84,454
San Andres			
Zone I Gas Cap	2,022.55	-	8,609
Zone I Oil Column	36,870.13	171,623,081	108,302
Zone II	32,169.27	149,741,518	94,494
Zone III_U	33,383.65	155,394,214	98,061
Zone III_L	8,533.14	39,720,060	25,065
San Andres Totals	112,978.74	516,478,873	334,531
UNIT TOTALS	139,654.51	578,045,263	418,935

TABLE 8

ORIGINAL HYDROCARBONS IN PLACE - BASAL GRAYBURG, UPPER ZONE

Tract Section Unit	Operator - Lease	Original Oil In Place* Productive Acres	Avg. h	NAF	STB	Original Gas In Place** Productive Acres	Avg. h	NAF	MCF
1-14 A	Getty State B	14.5	3.1	45.12		0			-
B		1.3	0.9	1.17		0			-
E		1.6	0.9	1.44		0			-
F		27.5	4.4	120.61		0			-
G		38.5	9.8	378.95		0			-
H		40.0	15.0	599.80		0			-
	Tract Total	123.4		1,147.09	670,857	0		0	0
2-14 K	Amerada Hess State WHB	40.0	15.0	597.90		0			-
L		21.1	4.1	86.83		0			-
M		33.4	5.6	185.47		0			-
O		40.0	22.8	911.00		4.0	2.5	10.00	
	Tract Total	134.5		1,781.20	1,041,706	4.0		10.00	5,348
3-14 N	Gulf Lea FO State	40.0	16.8	673.60	393,944	0		0	0
4-14 I	Texas Pacific	40.0	22.5	901.60		15.8	5.7	90.39	
J	State V AC 1	40.0	23.8	951.60		0	-	0	-
	Tract Total	80.0		1,653.20	1,083,814	15.8		90.39	48,341
5-14 P	Estes State	40.0	17.2	689.60	403,301	37.2	10.5	392.22	209,759
6-13 C	Continental State B-13	40.0	8.3	333.40		0			-
D		33.3	5.3	176.98		0			-
E		40.0	15.3	612.80		6.0	2.0	11.80	
F		40.0	12.2	486.50		19.2	3.9	75.16	
K		39.0	5.0	194.05		40.0	15.0	602.00	
L		40.0	12.4	496.10		39.5	11.5	453.55	
M		33.9	4.2	143.66		40.0	22.0	880.50	
N		3.2	1.0	3.2		40.0	23.0	919.40	
	Tract Total	269.4		2,446.69	1,430,907	184.7		2,942.41	1,573,601

TABLE 8 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - BASAL GRAYBURG, UPPER ZONE

Tract Section Unit	Operator - Lease	Original Oil In Place* Productive Acres	Avg. h	NAF	STB	Original Gas In Place** Productive Acres	Avg. h	NAF	MCF
7-13 I	Shell Rice	15.7	2.2	33.81		40.0	15.9	637.40	
J		30.9	2.4	73.32		40.0	15.8	630.40	
O		0				40.0	23.1	924.90	
P		8.2	0.6	5.21	-	40.0	21.9	874.40	
	Tract Total	54.8		112.34	65,700	160.0		3,067.10	1,640,285
8-18 K	Amerada Hess Hardin	40.0	2.9	116.40		40.0	10.6	425.60	
L		30.5	1.2	36.09		37.6	15.6	586.51	
M		37.5	2.3	85.69		37.6	19.2	720.32	
N		40.0	3.8	153.80		40.0	14.2	565.59	
	Tract Total	148.0		391.98	229,243	155.2		2,298.02	1,228,981
9-18 A	Gulf Hardin	38.9	5.9	228.76		0		0	
B		40.0	9.6	385.10		0		0	
G		40.0	10.6	424.40		18.4	1.8	32.66	
H		40.0	12.0	480.40		0		0	
I		40.0	8.8	353.60		1.7	.5	.85	
J		40.0	5.4	217.60		38.5	3.2	125.03	
O		40.0	6.4	255.60		40.0	7.3	293.30	
P		40.0	11.2	447.60		17.4	1.8	31.71	
	Tract Total	318.9		2,793.06	1,633,476	116.0		483.55	258,603
10-17 E	Moranco State T-17	40.0	7.8	313.90					
F		21.9	2.0	44.67					
	Tract Total	61.9		358.57	209,704	0		0	0
11-17 K	Chevron State 17	40.0	4.4	177.20					
L		40.0	9.5	381.30					
	Tract Total	80.0		558.50	326,630	0		0	0
12-17 M	Getty State A	40.0	10.7	428.40		0			-
N		40.0	6.5	259.30		0			-
	Tract Total	80.0		687.70	402,190	0		0	0

TABLE 8 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - BASAL GRAYBURG, UPPER ZONE

Tract Section Unit	Operator - Lease	Original Oil In Place*				Original Gas In Place**			
		Productive Acres	Avg. h	NAF	STB	Productive Acres	Avg. h	NAF	MCF
13-21 I	Antweil Hobbs CT	40.0	2.6	102.60		0		0	-
J		40.0	5.3	210.00		0			-
	Tract Total	80.0		312.60	182,819	0		0	0
14-21 P	Wiser Morris B	40.0	4.0	161.10	94,217	0		0	0
15-21 O	Wiser Morris A	40.0	6.9	277.60	162,350	0		0	0
16-21 K	Gulf Grimes C	40.0	6.8	270.10		0			
L		40.0	8.1	323.10		0			-
M		40.0	10.5	421.60		0			-
N		40.0	8.7	347.10		0			-
	Tract Total	160.0		1,361.90	796,485	0		0	0
17-20 A	C.H. Sweet McKinley	40.0	4.2	168.20		0			-
B		40.0	5.8	231.60		0			-
G		40.0	8.6	343.10		0			-
H		40.0	6.9	275.80		0			-
	Tract Total	160.0		1,018.70	595,770	0		0	0
18-20 C	Getty McKinley	40.0	8.2	329.10		0			-
D		40.0	12.3	493.10		0			-
	Tract Total	80.0		822.20	480,850	0		0	0
19-20 E	Chevron McKinley	40.0	12.7	508.20		0			-
F		40.0	10.1	403.80		0			-
	Tract Total	80.0		912.00	533,369	0		0	0
20-20 I	C.H. Sweet Grimes	40.0	9.6	384.30	224,752	0		0	0
21-20 J	Bill Sweet Bowers B	40.0	11.2	449.60	262,941	0		0	0
22-20 P	Bill Sweet Bowers B	40.0	12.9	517.10	302,418	0		0	0
23-20 O	Arco Grimes	40.0	14.1	565.60	330,782	0		0	0

TABLE 8 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - BASAL GRAYBURG, UPPER ZONE

Tract Section Unit	Operator - Lease	Original Oil In Place*				Original Gas In Place**			
		Productive Acres	Avg. h	NAF	STB	Productive Acres	Avg. h	NAF	MCF
24-20 K	Shell McKinley B	40.0	12.8	511.30		0		0	-
L		40.0	13.7	546.40		0		0	-
M		40.0	16.8	673.40		4.5	1.0	4.50	
N		40.0	15.6	624.10		0		0	
	Tract Total	160.0		2,355.20	1,377,401	4.5		4.50	2,407
25-19 A	Getty Hardin	40.0	15.4	616.40		14.2	1.7	24.58	
B		40.0	10.8	432.60		40.0	8.2	329.30	
G		40.0	13.2	526.00		35.1	4.2	146.31	
H		40.0	16.1	644.40		0.8	0.7	0.56	
	Tract Total	160.0		2,219.40	1,297,980	90.1		500.75	267,801
26-19 C	Cities Service Hardin	24.7	3.0	74.89		40.0	17.2	688.30	
D		15.0	1.3	19.52		37.6	21.8	820.52	
E		18.5	1.2	21.4		37.7	20.1	757.90	
F		30.0	4.1	123.18		40.0	13.3	533.10	
	Tract Total	88.2		238.99	139,769	155.3		2,799.82	1,497,344
27-19 I	Shell McKinley A	40.0	15.7	627.9		5.7	1.5	8.31	
J		40.0	11.9	474.80		38.1	6.8	260.60	
K		40.0	4.4	173.90		40.0	16.8	672.60	
L		6.5	0.8	4.95		37.7	22.3	841.66	
M		34.2	2.0	69.51		37.8	23.3	880.00	
N		26.5	1.7	44.69		40.0	21.8	870.80	
O		40.0	6.7	269.00		40.0	14.0	559.60	
P		40.0	1.4	580.20		35.0	4.7	165.10	
	Tract Total	267.2		2,244.95	1,312,923	274.3		4,258.67	2,277,537
28-24 A	Gulf Graham State	5.9	0.7	4.13		40.0	23.6	942.00	
B		4.8	0.9	4.32		40.0	24.3	972.00	
G		31.6	2.6	80.86		40.0	23.9	955.10	
H		13.4	1.5	20.33		40.0	24.0	959.80	
	Tract Total	55.7		109.64	64,121	160.0		3,828.90	2,047,696

TABLE 8 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - BASAL GRAYBURG, UPPER ZONE

Tract Section Unit	Operator - Lease	Original Oil In Place* Productive Acres	Avg. h	NAF	STB	Original Gas In Place** Productive Acres	Avg. h	NAF	MCF
29-24 C	Shell State D	27.7	2.8	76.82		40.0	22.6	904.90	
F		40.0	9.5	378.80		40.0	7.7	665.90	
	Tract Total	67.7		455.62	266,462	80.0		1,570.80	840,064
30-24 D	Amerada Hess State E	37.3	10.7	398.04		40.0	18.0	719.80	
E		40.0	20.4	816.40		40.0	7.7	309.70	
	Tract Total	77.3		1,214.44	710,246	80.0		1,029.50	550,577
31-24 I	Texas Pacific State C	120.0	4.1	165.10		40.0	24.3	973.20	
J		40.0	6.2	250.10		40.0	21.6	862.20	
O		40.0	9.9	397.30		40.0	16.2	650.10	
P		40.0	4.4	175.10		40.0	21.1	843.00	
	Tract Total	160.0		927.60	542,492	160.0		3,328.50	1,780,082
32-24 K	Samedan State C	40.0	15.2	606.10		40.0	13.3	532.40	
L		40.0	25.0	1,001.10		30.6	6.0	118.28	
M		40.0	31.2	1,247.40		0	-	0	
N		40.0	20.0	831.60		31.9	6.9	221.59	
	Tract Total	160.0		3,686.20	2,155,814	102.5		872.27	466,490
33-23 A	C.H. Sweet State F	40.0	20.5	820.50		40.0	9.8	391.40	
H		40.0	27.2	1,089.00		15.5	2.5	38.71	
I		40.0	28.6	1,145.30		1.0	0.3	0.30	
	Tract Total	120.0		3,054.80	1,786,550	56.5		430.41	230,183
34-23 B	Shell State F	40.0	17.2	686.00		18.1	3.0	53.97	
G		40.0	18.3	732.00		0		0	
	Tract Total	80.0		1,418.00	829,294	18.1	53.97	53.97	28,863
35-23 O	Texas Pacific State V Ac 2	40.0	12.6	503.60		0			-
F		40.0	9.1	363.60		0			-
K		40.0	13.8	551.10		0			-
L		40.0	6.2	247.30		0			-
M		40.0	8.6	345.80		0			-
N		40.0	18.2	729.20		0			-
	Tract Total	240.0		2,740.60	1,602,796	0		0	0

TABLE 8 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - BASAL GRAYBURG, UPPER ZONE

Tract Section Unit	Operator - Lease	Original Oil In Place*				Original Gas In Place**			
		Productive Acres	Avg. h	NAF	STB	Productive Acres	Avg. h	NAF	MCF
36-23 D	C&C Oper. Shipp A	35.6	4.1	144.61		0			-
E		39.6	3.3	132.18		0			-
	Tract Toal	75.2		276.79	161,876	0		0	0
37-23 J	Yates Shell State	40.0	22.5	900.40		0			-
O		40.0	25.5	1,020.60		0			-
P		40.0	30.9	1,236.70		0			-
	Tract Total	120.0		3,157.70	1,846,730	0		0	-
38-26 B	Wiser State	40.0	18.8	754.10	441,023	0		0	-
39-26 A	Getty Hobbs E	40.0	26.0	1,040.60		0		0	-
H		39.3	11.2	440.32		0		0	-
	Tract Total	79.3		1,480.92	866,092	0		0	0
40-25 C	Continental State B-25	40.0	21.5	859.60		13.7		54.21	
O		40.0	30.0	1,201.90		0		0	
	Tract Total	80.0		2,061.50	1,205,635	13.7		54.21	28,991
41-25 E	Samedan State B	40.0	22.3	891.90		0		0	
F		40.0	23.3	933.60		0.2		0.14	
	Tract Total	80.0		1,825.50	1,067,614	0.2		0.14	75
42-25 A	Texaco NM State	40.0	8.1	323.60		40.0	18.5	738.80	
B		40.0	13.5	540.01		40.0	12.5	499.10	
G		40.0	15.6	624.40		34.1	7.8	266.46	
H		40.0	8.3	333.30		40.0	15.7	626.70	
	Tract Total	160.0		1,821.31	1,065,164	154.1		2,131.06	1,139,691
43-25 I	Exxon NM A State	40.0	15.4	615.80		39.7	8.2	324.40	
J		40.0	20.5	820.90		13.6	4.0	53.86	
K		40.0	23.5	943.90		0		0	-
L		38.3	11.1	424.75		0		0	-
M		19.4	4.8	92.83		0		0	-
N		40.0	17.4	699.90		0		0	-
O		40.0	26.8	1,071.60		0		0	-
P		40.0	25.4	1,015.90		11.0	2.5	27.65	-
	Tract Total	297.7		5,685.58	3,325,119	64.3		405.91	217,081

TABLE 8 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - BASAL GRAYBURG, UPPER ZONE

Tract Section Unit	Operator - Lease	Original Oil In Place* Productive Acres	Avg. h	NAF	STB	Original Gas In Place** Productive Acres	Avg. h	NAF	MCF
44-30 C	Amerada Hess McKinley	2.6	0.3	0.86					
D		34.6	2.9	98.89		40.0	26.7	1,069.60	
E		28.7	2.6	74.30		37.8	24.6	930.26	
F		10.4	1.8	19.18		37.8	22.5	851.81	
	Tract Total	76.3		193.23	113,007	40.0	28.4	1,138.00	
						155.6		3,989.67	2,133,676
45-30 A	Getty McKinley	40.0	10.2	406.00					
B		25.9	2.8	73.30		40.0	12.8	513.60	
G		0.8	0.5	0.40		40.0	21.0	838.60	
H		16.0	4.2	67.39		40.0	26.6	1,062.90	
	Tract Total	82.7		547.09	319,957	40.0	22.3	891.00	
						160.0		3,306.10	1,768,102
46-30 K	Marathon State 30	37.4	7.2	267.38					
L		37.9	13.2	500.26		40.0	23.2	928.30	
M		37.9	24.8	938.58		37.9	15.3	580.95	
N		40.0	19.1	764.80		37.4	9.0	335.27	
	Tract Total	153.2		2,471.02	1,445,136	40.0	18.4	736.70	
						155.3		2,581.22	1,380,436
47-30 I	Exxon Bowers A Fed.	0		0					
J		2.2	1.6	3.44		40.0	26.4	1,057.20	
O		25.4	6.8	172.11		40.0	29.0	1,161.10	
P		0.8	0.8	0.64		40.0	25.1	1,002.30	
29 E		36.6	6.3	229.86		40.0	24.3	973.10	
L		1.0	0.5	0.50		40.0	18.4	735.60	
M		0		0		40.0	20.5	819.60	
	Tract Total	66.0		406.55	237,764	40.0	19.6	782.60	
						280.0		6,531.50	3,493,046
48-29 D	Exxon Bowers A Fed. Com.	40.0	18.6	745.30	435,877	36.7	7.0	256.40	138,192
49-29 B	Amerada Hess State B	40.0	16.4	656.60					
C		40.0	15.4	617.40		15.2	2.3	34.66	
F		40.0	7.6	304.90		20.2	3.3	67.50	
G		40.0	9.2	368.30		40.0	11.8	471.90	
	Tract Total	160.0		1,947.20	1,138,788	40.0	10.2	407.10	
						115.4		981.16	524,724

TABLE 8 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - BASAL GRAYBURG, UPPER ZONE

Tract Section Unit	Operator - Lease	Original Oil In Place* Productive Acres	Avg. h	NAF	STB	Original Gas In Place** Productive Acres	Avg. h	NAF	MCF
50-29 A	Exxon Grimes	40.0	16.3	651.60	381,078	5.3	1.0	5.30	2,834
51-29 J	Continental State A-29	15.3	1.9	29.81		40.0	17.4	695.30	
K		6.5	1.3	8.32		40.0	15.7	627.20	
N		0		0		40.0	16.4	656.00	
	Tract Total	21.8		38.13	22,300	120.0		1,980.50	1,059,171
52-29 H	Getty Grimes	40.0	10.40	416.10		40.0	7.3	290.80	
I		15.9	2.73	43.54*		40.0	15.8	633.90	
	Tract Total	55.9		459.64	268,813	80.0		924.70	494,530
53-29 O	Chevron State 29	0			-	40.0	18.6	744.10	
P		0			-	40.0	17.6	705.90	
	Tract Total	0		0	0	80.0		1,450.00	775,460
54-28 C	Arco Grimes SOC	40.0	10.9	435.60		0			
D		40.0	13.3	533.10		0			
E		40.0	11.5	458.30		31.8	3.8	120.79	
F		40.0	11.2	448.80		13.2	1.6	21.51	
	Tract Total	160.0		1,875.80	1,097,031	45.0		142.30	76,102
55-28 B	Samedan Moon A	40.0	8.6	344.60		0			
G		40.0	9.9	397.60		0.6	0.2	0.12	
	Tract Total	80.0		742.20	434,064	0.6		0.12	64
56-28 A	Samedan Moon B	40.0	5.8	230.10		0			-
H		40.0	6.9	275.80		0			-
	Tract Total	80.0		505.90	295,868	0		0	0
57-28 K	Shell Grimes	34.8	4.0	139.27		40.0	5.9	234.60	
L		20.6	3.9	81.35		40.0	11.6	465.90	
M		0		0	- -	40.0	14.3	572.40	
N		0.7	0.2	0.14		40.0	10.1	403.90	
	Tract Total	56.1		220.76	129,108	160.0		1,676.80	896,753

TABLE 8 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - BASAL GRAYBURG, UPPER ZONE

Tract Section Unit	Operator - Lease	Original Oil In Place* Productive Acres	Avg. h	NAF	STB	Original Gas In Place** Productive Acres	Avg. h	NAF	MCF
58-28 I	Continental Grimes	40.0	7.1	284.20		8.6	1.1	9.49	
J		40.0	6.6	266.10		34.2	2.8	96.36	
O		21.7	1.7	37.52		40.0	7.8	310.80	
P		40.0	5.1	205.10		37.8	3.9	145.86	
	Tract Total	141.7		792.92	463,726	120.6		562.51	300,830
59-27 C	Shell Sanger	13.5	0.7	8.97		0		0	-
D		40.0	2.8	110.06		0		0	-
E		40.0	3.5	137.2		0		0	-
F		30.9	1.0	30.4		0		0	-
J		7.0	0.6	4.42		0		0	-
K		40.0	2.67	106.59		0		0	-
L		40.0	5.14	205.60		0		0	-
M		40.0	7.60	304.10		6.2	1.2	7.24	
N		40.0	5.54	221.60		0		0	-
O		25.4	2.0	50.11		0		0	-
	Tract Total	316.8		1,179.05	689,548	6.2		7.24	3,872
60-34 A	Moranco Hobbs CT	2.9	0.7	1.97		0			
H		18.2	3.1	56.29		0			
	Tract Total	21.1		58.26	34,073	0			0
61-34 B	Shell Turner	39.0	4.2	163.08		0			
G		40.0	8.7	347.70		0			
	Tract Total	79.0		510.78	298,721	0			0
62-34 C	Getty Turner 2	40.0	9.4	374.90	219,254	1.7	0.5	0.85	455
63-34 F	Getty Turner 1	40.0	9.0	357.80	209,254	18.8	1.8	36.01	19,258
64-34 I	Samedan Turner B-1	32.6	3.8	123.04	71,958	0			0
65-34 P	Samedan Turner B-2	36.0	4.0	143.58	83,970	0			0

TABLE 8 (CONTINUED)

ORIGINAL HYDROCARBONS IN PLACE - BASAL GRAYBURG, UPPER ZONE

Tract Section Unit	Operator - Lease	Original Oil In Place* Productive Acres	Avg. h	NAF	STB	Original Gas In Place** Productive Acres	Avg. h	NAF	MCF
66-34 J	Samedan Turner A	40.0	11.0	439.10		0			0
O		40.0	11.9	476.60		0			0
	Tract Total	80.0		915.70	535,532	0			0
67-33 A	Gulf Grimes B	25.6	20.2	55.35		40.0	10.4	415.10	
B		0	-	0		40.0	14.5	581.60	
H		2.4	0.7	1.68		40.0	14.4	577.80	
I		0.5	0.2	0.10		40.0	15.8	631.80	
	Tract Total	28.5		57.13	33,412	160.0		2,206.30	1,179,929
68-33 C	Shell State B	0				40.0	14.9	595.90	
D		0				40.0	17.4	695.40	
	Tract Total	0		0	0	80.0		1,291.30	690,587
69-33 E	Amoco State G	0				40.0	20.9	834.70	
F		0				40.0	20.3	812.90	
	Tract Total	0		0	0	80.0		1,647.60	881,137
70-33 G	Continental State A-33	0			-	40.0	21.6	863.10	
J		0			-	40.0	18.7	748.90	
K		0			-	40.0	18.5	740.60	
L		0			-	40.0	18.7	747.60	
M		0			-	40.0	20.1	804.90	
N		0			-	40.0	19.4	775.50	
O		0			-	40.0	17.4	697.20	
	Tract Total	0		0	0	280.0		5,377.80	2,876,047
71-32 A	Amerada Hess State A	0			-	40.0	20.0	801.30	
B		0			-	40.0	20.6	822.60	
	Tract Total	0		0	0	80.0		1,623.90	868,462
72-32 G	Shell State A	0			-	40.0	21.0	837.80	
H		0			-	40.0	20.9	837.10	
	Tract Total	0		0	0	80.0		1,674.90	895,737

TABLE 8 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - BASAL GRAYBURG, UPPER ZONE

Tract Section Unit	Operator - Lease	Original Oil In Place* Productive Acres	Avg. h	NAF	STB	Original Gas In Place** Productive Acres	Avg. h	NAF	MCF
73-32 C	Gulf Grimes A	0		0	-	40.0	20.0	799.80	
D		9.8	1.4	13.88		40.0	21.1	842.60	
E		32.3	2.2	72.41		40.0	21.6	864.90	
F		1.3	0.2	0.26		40.0	22.3	891.10	
	Tract Total	43.4		86.55	50,617	160.0		3,398.40	1,817,464
74-32 K	Gulf Grimes A	5.1	0.3	1.58		40.0	23.9	954.90	
L		40.0	0.3	120.40		40.0	22.4	897.60	
M		40.0	3.0	118.80		40.0	24.1	964.40	
N		7.8	0.4	3.45		40.0	25.4	1,016.20	
	Tract Total	92.9		244.23	142,834	160.0		3,833.10	2,049,942
75-32 I	Marathon State 32	0			-	40.0	19.5	781.60	
J		0			-	40.0	22.2	888.30	
O		0			-	40.0	24.4	978.10	
P		0			-	40.0	22.2	887.30	
	Tract Total	0		0	0	160.0		3,535.30	1,890,678
76-31 A	Cities Service Fowler	38.6	6.0	230.56		40.0	21.4	854.40	
B		40.0	14.5	579.60		40.0	18.7	749.50	
G		40.0	16.9	676.00		40.0	12.4	497.60	
H		40.0	7.7	309.20		40.0	18.5	741.10	
	Tract Total	158.6		1,795.36	1,049,987	160.0		2,842.60	1,520,222
77-31 C	Getty Fowler	40.0	26.2	1,048.90		39.7	10.1	401.57	
F		40.0	29.2	1,169.80		27.6	4.9	134.44	
	Tract Total	80.0		2,218.70	1,297,571	67.3		536.01	286,658
78-31 D	Sun Fowler	38.0	32.7	1,241.28		16.0	3.8	60.68	
E		38.0	36.7	1,393.77		0	-	0	-
	Tract Total	76.0		2,635.05	1,541,066	16.0		60.68	32,452
79-31 I	Shell Berry	40.0	10.2	408.30		40.0	15.2	609.90	
J		40.0	20.8	831.40		40.0	8.2	327.90	
O		40.0	24.6	985.40		40.0	5.51	220.40	
P		40.0	12.0	478.60		40.0	14.6	582.80	
	Tract Total	160.0		2,703.70	1,581,215	160.0		1,741.00	931,087

TABLE 8 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - BASAL GRAYBURG, UPPER ZONE

Tract Section Unit	Operator - Lease	Original Oil In Place* Productive Acres	Avg. h	NAF	STB	Original Gas In Place** Productive Acres	Avg. h	NAF	MCF
80-31 K	Mobil Berry	40.0	30.85	1,234.10		18.0	2.7	48.59	-
L		38.0	33.50	1,274.35		0	-	0	-
M		38.0	23.04	881.13		0	-	0	-
N		40.0	30.51	1,220.40		6.5	0.8	5.48	-
	Tract Total	156.0		4,609.98	2,696,072	24.5		54.07	28,917
81-36 A	Amerada Hess State C	40.0	33.5	1,340.40		0			-
G		40.0	18.9	756.30		0			-
H		40.0	33.2	1,329.80		0			-
I		40.0	22.6	902.00		0			-
J		30.8	8.6	263.52		0			-
O		5.4	2.5	13.62		0			-
P		37.9	9.8	373.56		0			-
	Tract Total	234.1		4,979.20	2,912,004	0			-
82-36 B	Byrom Holt State	40.0	25.5	1,020.90	597,057	0			-
83-36 C	Gulf Holt NCTD	37.0	9.3	343.10		0			-
F		17.3	4.5	78.23		0			-
	Tract Total	54.3		421.33	246,408	0		0	0
	Unit Totals	7,782.3		94,037.65	54,996,396	5,295.5		84,810.44	45,356,624

Notes: * $OOIP = (7758)(\phi)(1-Sw)/Boi$ = /584.8338 STB/NAF/

$OOIP = (7758)(.14)(1-.3)/(1.3)$

** $OGIP = (.04356)(\phi)(1-Sw)\frac{(Pi)}{(Zi)}\frac{(Tsc)}{(Psc\ Tr)}$

$OGIP = (.04356)(.14)(1-.3)\frac{(1571)}{(.775)}\frac{(520)}{(15.025)(560)}$ = /0.5348 M/NAF/

TABLE 9

ORIGINAL HYDROCARBONS IN PLACE - BASAL GRAYBURG, LOWER ZONE

Tract Section Unit	Operator - Lease	Original Oil In Place* Productive Acres	Avg. h	NAF	STB	Original Gas In Place** Productive Acres	Avg. h	NAF	MCF
1-14 G	Getty State B	2.8	1	2.80		0			
H		22.0	4.0	88.28		0			
	Tract Total	24.8		91.08	53,267	0		0	0
2-14 K	Amerada Hess WHB State	4.5	1.3	5.85		0			
O		40.0	1.0	39.41		0			
	Tract Total	44.5		45.26	26,470	0		0	0
3-14 N	Gulf Lea FO State	23.3	2.9	67.07	39,225	0		0	0
4-14 I	Texas Pacific State V-AC1	40.0	12.0	480.8		0			
J		34.9	5.7	198.33		0			
	Tract Total	74.9		679.13	397,178	0		0	0
5-14 P	Estes State	40.0	12.8	510.40	298,499	0		0	0
6-13 C	Continental State B-13	14.8	2.0	29.31		0		0	
D		2.4	1.0	2.40		0		0	
E		36.9	7.6	281.00		0		0	
F		40.0	6.9	277.30		0		0	
K		40.0	9.6	372.90		0.7	.1	.07	
L		40.0	14.3	570.60		0		0	
M		38.8	8.9	343.80		10.9	.5	5.02	
N		14.0	3.7	52.32		35.7	1.4	49.91	
	Tract Total	226.9		1,929.63	1,128,513	47.3		55.00	29,414
7-13 I	Shell Rice	39.9	1.9	76.19		23.0	.2	4.45	
J		40.0	4.4	174.30		16.0	.1	2.12	
O		9.0	.6	5.40		40.0	1.2	49.00	
P		37.8	1.1	43.12		33.6	.6	21.37	
	Tract Total	126.7		299.01	174,871	112.6		76.94	41,148

TABLE 9 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - BASAL GRAYBURG, LOWER ZONE

Tract Section Unit		Operator - Lease	Original Oil In Place* Productive Acres	Avg. h	NAF	STB	Original Gas In Place** Productive Acres	Avg. h	NAF	MCF
8-18	L	Amerada Hess Hardin	14.5	0.6	9.17		12.8	.1	.81	
	M		25.4	1.0	25.52		3.0	.1	.15	
		Tract Total	39.9		34.69	20,288	15.8		.96	513
24-20	L	Shell McKinley B	4.2	0.2	0.84		0			
	M		32.7	0.5	16.04		0			
		Tract Total	36.9		16.88	9,872	0		0	0
26-19	D	Cities Service Hardin	17.1	0.9	14.98		16.7	.3	5.75	
	E		24.2	0.3	6.26		16.4	.3	4.50	
	F		1.3	0.1	.13		0		0	
		Tract Total	42.6		21.37	12,498	33.1		10.25	5,482
27-19	I	Shell McKinley A	9.0	0.4	3.20		0		0	
	J		11.4	0.3	3.20		0		0	
	K		29.4	0.5	13.68		7.9	.2	1.51	
	L		16.4	0.4	6.90		36.9	.3	11.14	
	M		37.8	1.4	54.10		22.6	.3	6.22	
	N		40.0	1.7	68.90		14.7	.2	2.45	
	O		40.0	1.5	60.10		0		0	
	P		40.0	1.5	59.90		0		0	
		Tract Total	224.0		269.98	157,893	82.1		21.32	11,402
28-24	A	Gulf Graham State	18.4	1.1	20.94		33.0	1.1	37.90	
	B		16.6	1.3	20.82		36.1	1.3	48.24	
	G		39.4	1.8	71.58		18.8	0.7	13.30	
	H		29.8	1.0	31.18		23.4	0.8	19.83	
		Tract Total	104.2		144.52	84,520	111.3		119.27	63,786
29-24	C	Shell State D	23.0	1.6	36.34		17.7	.9	15.49	
	F		40.0	2.4	95.60		0		0	
		Tract Total	63.0		131.94	77,163	17.7		15.49	8,284
30-24	D	Amerada Hess State E	36.3	3.0	108.40		2.8	.3	.84	
	E		40.0	3.3	130.80		0		0	
		Tract Total	76.3		239.20	139,892	2.8		.84	449

TABLE 9 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - BASAL GRAYBURG, LOWER ZONE

Tract Section Unit	Operator - Lease	Original Oil In Place* Productive Acres	Avg. h	NAF	STB	Original Gas In Place** Productive Acres	Avg. h	NAF	MCF
31-24 I	Texas Pacific State G	40.00	1.8	72.80		35.0	.3	11.00	
J		40.00	3.0	121.10		11.8	.2	2.16	
O		40.00	3.3	132.90		4.0	.2	.80	
P		40.00	2.6	103.10		21.2	.2	4.86	
	Tract Total	160.00		429.90	251,420	72.0		18.82	10,065
32-24 K	Samedan State C	40.00	5.0	198.40		0			
L		40.00	4.3	171.10		0			
M		40.00	6.1	245.40		0			
N		40.00	6.1	245.40		0			
	Tract Total	160.00		860.30	503,132	0		0	0
33-23 A	C.H. Sweet State F	40.0	7.5	300.10		0			
H		40.0	4.7	188.60		0			
I		40.0	2.8	112.60		0			
	Tract Total	120.0		601.30	351,661	0		0	0
34-23 B	Shell State F	40.0	9.8	391.10		0			
G		40.0	5.5	219.40		0			
	Tract Total	80.0		610.50	357,041	0		0	0
35-23 C	Texas Pacific State	31.6	3.4	107.42		0			
F		40.0	3.6	142.80		0			
K		32.4	1.5	48.41		0			
L		.7	.2	.14		0			
N		3.4	.2	.68		0			
	Tract Total	108.1		299.45	175,129	0		0	0
36-23 E	C&C Shipp A	5.5	0.4	2.00	1,170	0		0	0
37-23 J	Yates Shell State	40.0	2.2	88.00		0			
O		33.2	1.5	50.60		0			
P		40.0	3.3	131.60		0			
	Tract Total	113.2		270.20	158,022	0		0	0

TABLE 9 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - BASAL GRAYBURG, LOWER ZONE

Tract Section Unit	Operator - Lease	Original Oil In Place* Productive Acres	Avg. h	NAF	STB	Original Gas In Place** Productive Acres	Avg. h	NAF	MCF
38-26 B	Wiser State	3.5	0.4	1.40	819	0		0	0
39-26 A	Getty Hobbs E	31.3	1.4	43.81		0			
H		1.8	.4	0.72		0			
	Tract Total	33.1		44.53	26,043	0		0	0
40-25 C	Continental State B-25	40.0	5.6	222.90		0			
D		40.0	4.9	194.60		0			
	Tract Total	80.0		417.50	244,168	0		0	0
41-25 E	Samedan State B	30.5	2.7	82.04		0			
F		40.0	4.1	146.10		0			
	Tract Total	70.5		246.14	143,951	0		0	0
42-25 A	Texaco State C	40.0	2.5	98.10		0		0	
B		39.1	1.8	71.29		0		0	
G		17.7	1.4	24.00		0		0	
H		40.0	2.3	92.90		1.0	.1	.05	27
	Tract Total	136.8		286.29	167,432	1.0		.05	27
43-25 I	Exxon NM State A	40.0	5.2	208.10		0			
J		40.0	4.2	169.20		0			
K		34.3	1.6	54.42		0			
L		3.0	0.6	1.80		0			
N		8.3	0.7	5.94		0			
O		39.9	2.4	96.00		0			
P		40.0	4.9	197.60		0			
	Tract Total	205.5		733.06	428,718	0		0	0
44-30 C	Amerada Hess McKinley	40.0	2.7	108.40		21.4	.6	11.97	
D		17.9	0.8	14.57		12.9	.5	6.45	
E		37.8	2.7	102.01		23.2	.6	13.42	
F		40.0	3.6	142.10		29.1	.8	23.05	
	Tract Total	135.7		367.08	214,681	86.6		54.89	29,355

TABLE 9 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - BASAL GRAYBURG, LOWER ZONE

Tract Section Unit	Operator - Lease	Original Oil In Place* Productive Acres	Avg. h	NAF	STB	Original Gas In Place** Productive Acres	Avg. h	NAF	MCF
45-30 A	Getty McKinley	40.0	1.9	74.00		0		0	
B		40.0	3.1	122.90		13.6	.5	6.64	
G		40.0	2.9	115.80		32.9	.8	25.68	
H		30.3	1.2	35.16		20.0	.4	8.66	
	Tract Total	150.3		347.86	203,440	66.5		40.98	21,916
46-30 K	Marathon State 30	40.0	3.4	137.60		0			
L		37.9	4.1	154.13		0			
M		37.9	2.6	100.14		0			
N		40.0	2.1	84.10		0			
	Tract Total	155.8		475.97	278,363	0		0	0
47-30 I	Exxon Bowers A Fed.	10.0	0.4	4.46		26.9	.5	13.84	
J		39.2	1.3	52.34		28.2	.7	20.94	
O		39.3	1.1	44.76		12.4	.4	5.14	
P		3.1	0.2	0.55		14.1	.3	4.48	
29 E		2.7	0.3	0.81		0		0	
	Tract Total	94.3		102.92	60,191	81.6		44.40	23,745
48-29 D	Exxon Bowers A Fed/Com.	25.3	0.5	12.90	7,544	0		0	0
76-31 B	Cities Service Fowler	12.4	0.3	3.72	2,176	0			
77-31 C	Getty Fowler	13.3	0.4	5.66		0			
F		19.0	0.7	13.90		0			
	Tract Total	32.3		19.56	11,439	0		0	0
78-31 D	Sun Fowler	38.0	2.2	84.72		0			
E		38.0	3.0	114.62		0			
	Tract Total	76.0		199.34	116,581	0		0	0
80-31 K	Mobil Berry	33.9	0.4	15.20		0			
L		38.0	1.4	51.62		0			
M		36.4	1.2	42.54		0			
N		22.2	0.5	11.54		0			
	Tract Total	130.5		120.90	70,706	0		0	0

TABLE 9 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - BASAL GRAYBURG, LOWER ZONE

Tract Section Unit	Operator - Lease	Original Oil In Place* Productive Acres	Avg. h	NAF	STB	Original Gas In Place** Productive Acres	Avg. h	NAF	MCF
81-36 A	Amerada Hess State C	40.0	4.2	168.30		0			
G		5.0	0.5	2.46		0			
H		36.2	2.3	81.64		0			
I		14.9	0.7	10.55		0			
P		2.4	0.2	0.48		0			
	Tract Totals	98.5		263.43	154,063	0		0	0
82-36 B	Byrom Holt State	27.5	1.4	37.54	21,955	0			
	Unit Totals	3,362.8		11,233.95	6,569,994	730.4		459.21	245,586

Notes: * $OOIP = (7758)(\phi)(1-Sw)/Boi$
$OOIP = (7758)(.14)(1-.3)/1.3 = \overline{/584.8338\ STB/NAF/}$

** $OGIP = (.04356)(\phi)(1-Sw)\ \frac{(Pi)}{(Psc)(Zi)}\ \frac{(Tsc)}{(Tn)}$

$OGIP = (.04356)(.14)(1-.3)\ \frac{(1571)}{(15.025)(.775)}\ \frac{(520)}{(560)} = \overline{/0.5348\ M/NAF/}$

TABLE 10

ORIGINAL HYDROCARBONS IN PLACE - SAN ANDRES, ZONE I

Tract No.	Section & Unit	Operator - Lease	Original Oil In Place* Productive Acres	Ac-øh	STB	Original Gas In Place ** Productive Acres	Ac-øh	MMCF
1	14 H	Getty, State B	4.6	2.56	11,916	0	0	0
2	14 O	Amerada Hess, State WHB	31.1	30.04	139,830	0	0	0
4	14 I	Texas Pacific, State V	38.8	69.04	321,367			
	J		14.5	9.50	44,221			
		Tract Totals	53.3		365,588	0	0	0
5	14 P	Estes State	50.0	112.0	521,338	0	0	0
6	13 C	Continental, State B-13	3.2	1.28	5,958			
	E		24.5	28.79	134,012			
	F		38.7	65.7	305,820			
	K		40.0	140.0	651,672			
	L		40.0	120.0	558,576			
	M		40.0	157.0	730,804			
	N		40.0	177.0	823,900			
		Tract Totals	226.4		3,210,742	0	0	0
7	13 I	Shell Rice	40.0	170.0	791,316			
	J		40.0	150.0	698,220			
	O		40.0	194.0	903,031			
	P		40.0	160.0	744,768			
		Tract Total	160.0		3,137,335	0	0	0
8	18 K	Amerada Hess, Hardin	40.0	157.0	730,804			
	L		37.61	148.4	690,772			
	M		37.60	151.76	706,412			
	N		40.0	182.0	847,174			
		Tract Total	155.21		2,975,162	0	0	0

TABLE 10 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - SAN ANDRES, ZONE I

Tract No.	Section & Unit	Operator - Lease	Original Oil In Place * Productive Acres	Ac-øh	STB	Original Gas In Place ** Productive Acres	Ac-øh	MMCF
9	18 A	Gulf, Hardin	10.9	6.51	30,303			
	B		26.4	27.24	126,797			
	G		40.0	109.0	507,373			
	H		39.8	78.8	366,798			
	I		40.0	144.0	670,291			
	J		40.0	159.0	740,113			
	O		40.0	184.0	856,483			
	P		40.0	170.0	791,316			
		Tract Totals	277.1		4,089,474	0	0	0
10	17 E	Moranco, State	13.7	10.96	51,017	0	0	0
11	17 K	Chevron, State I-17	2.0	0.6	2,793			
	L		36.5	59.9	278,822			
		Tract Total	38.5		281,615	0	0	0
12	17 H	Getty, State A	40.0	129.0	600,469			
	N		23.9	32.77	152,538			
		Tract Total	63.9		753,007	0	0	0
13	21 J	Antweil, Hobbs Cone Towns,	17.2	14.91	69,403	0	0	0
14	21 P	Wiser, Moris B	24.9	30.89	143,787	0	0	0
15	21 O	Wiser, Morris A	40.0	126.0	586,505	0	0	0
16	21 K	Gulf, Grimes C	34.5	51.49	239,676			
	L		40.0	114.0	530,647			
	M		40.0	183.0	851,828			
	N		40.0	152.0	707,530			
		Tract Totals	154.5		2,329,681	0	0	0
17	20 A	C.H. Sweet, McKinley	1.3	.26	1,210			
	B		24.9	32.45	151,048			
	G		40.0	127.0	591,160			
	H		34.7	62.13	289,203			
		Tract Totals	100.9		1,032,621	0	0	0

TABLE 10 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - SAN ANDRES, ZONE I

Tract No.	Section & Unit		Operator - Lease	Original Oil In Place * Productive Acres	Ac-ft	STB	Original Gas In Place ** Productive Acres	Ac-ft	MMCF
18	20	C	Getty, McKinley	40.0	146.0	679,601			
		D		40.0	234.0	1,089,223			
			Tract Totals	80.0		1,768,824	0	0	0
19	20	E	Chevron, McKinley	40.0	260.0	1,210,248			
		F		40.0	199.0	926,305			
			Tract Totals	80.0		2,136,553	0	0	0
20	20	I	C.H. Sweet, Grimes	40.0	181.0	842,519	0	0	0
21	20	J	B.L. Sweet, Bowers B Fed.	40.0	204.0	949,579	0	0	0
22	20	P	C.H. Sweet, Bowers B Fed.	40.0	228.0	1,061,294	0	0	0
23	20	O	ARCO, Grimes	40.0	259.0	1,205,593	0	0	0
24	20	K	Shell, McKinley B	40.0	198.0	921,650			
		L		40.0	217.0	1,010,092			
		M		40.0	186.0	865,793			
		N		40.0	247.0	1,149,735			
			Tract Totals	160.0		3,947,270	0	0	0
25	19	A	Getty, Hardin	40.0	207.0	963,544			
		B		40.0	189.0	879,757			
		G		40.0	216.0	1,005,437			
		H		40.0	261.0	1,214,903			
			Tract Total	160.0		4,063,641	0	0	0
26	19	C	Cities Service, Hardin	40.0	208.0	968,198			
		D		37.62	203.16	945,669			
		E		37.68	251.32	1,169,844			
		F		40.0	222.0	1,033,366			
			Tract Total	155.3		4,117,077	0	0	0

TABLE 10 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - SAN ANDRES, ZONE I

Tract No.	Section & Unit		Operator - Lease	Original Oil In Place * Productive Acres	Ac-ϕh	STB	Original Gas In Place ** Productive Acres	Ac-ϕh	MMCF
27	19	I	Shell, McKinley A	40.0	249.0	1,159,045			
		J		40.0	238.0	1,107,842			
		K		40.0	224.0	1,042,675			
		L		37.72	247.61	1,152,575			
		M		37.78	193.68	901,542			
		N		40.0	204.0	949,579			
		O		40.0	206.0	958,889			
		P		40.0	202.0	940,270			
			Tract Totals	315.5		8,212,417	0	0	0
28	24	A	Gulf, Graham State	40.0	178.0	828,554			
		B		40.0	179.0	833,209			
		G		40.0	217.0	1,010,092			
		H		40.0	266.0	1,238,177			
			Tract Totals	160.0		3,910,032	0	0	0
29	24	C	Shell, State D	40.0	156.0	726,149			
		F		40.0	157.0	730,804			
			Tract Totals	80.0		1,456,953	0	0	0
30	24	D	Amerada Hess, State E	40.0	132.0	614,434			
		E		40.0	114.0	530,647			
			Tract Totals	80.0		1,145,081	0	0	0
31	24	I	Texas Pacific, State G	40.0	281.0	1,307,999			
		J		40.0	283.0	1,317,309			
		O		40.0	298.0	1,387,130			
		P		40.0	235.0	1,093,878			
			Tract Totals	160.0		5,106,316	0	0	0
32	24	K	Samedan, State C	40.0	220.0	1,024,056			
		L		40.0	138.0	642,363			
		M		40.0	154.0	716,839			
		N		40.0	259.0	1,205,593			
			Tract Totals	160.0		3,588,851	0	0	0

TABLE 10 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - SAN ANDRES, ZONE I

Tract No.	Section & Unit		Operator - Lease	Original Oil In Place * Productive Acres	Ac-ft	STB	Original Gas In Place ** Productive Acres	Ac-ft	MMCF
33	23	A	C.H. Sweet, State F	40.0	85.0	395,658			
		H		40.0	74.0	344,455			
		I		40.0	83.0	386,348			
			Tract Totals	120.0		1,126,461	0	0	0
34	23	B	Shell State F	39.9	30.95	144,066			
		G		40.0	36.0	167,573			
			Tract Totals	79.9		311,639	0	0	0
35	23	C	Texas Pacific, State V	10.1	1.81	8,425			
		F		27.8	7.78	36,214			
		K		15.0	3.42	15,919			
			Tract Totals	52.9		60,558	0	0	0
37	23	J	ABO, Shell State	40.0	37.0	172,227			
		O		28.4	13.15	61,211			
		P		40.0	67.0	311,872			
			Tract Totals	108.4		545,310	0	0	0
38	26	B	Wiser State L	2.5	0.50	2,327	0	0	0
39	26	A	Getty, Hobbs E	27.5	22.22	103,430	0	0	0
40	25	C	Continental, State B-25	40.0	209.0	972,853			
		D		40.0	99.0	460,825			
			Tract Totals	80.0		1,433,678	0	0	0
41	25	E	Samedan, State B	16.1	15.21	70,800			
		F		40.0	126.0	586,505			
			Tract Totals	56.1		657,305	0	0	0
42	25	A	Texaco, State C	40.0	247.0	1,149,736			
		B		40.0	267.0	1,242,832			
		G		40.0	225.0	1,047,330			
		H		40.0	266.0	1,238,177			
			Tract Totals	160.0		4,678,075	0	0	0

TABLE 10 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - SAN ANDRES, ZONE I

Tract No.	Section & Unit	Operator - Lease	Original Oil In Place * Productive Acres	Ac-ϕh	STB	Original Gas In Place ** Productive Acres	Ac-ϕh	MMCF
43	25 I	Exxon, State A	40.0	248.0	1,154,391			
	J		40.0	168.0	782,006			
	K		31.2	46.4	215,983			
	L		.2	.02	93			
	N		5.1	3.01	14,011			
	O		38.0	84.4	392,865			
	P		40.0	194.0	903,031			
		Tract Totals	194.5		3,462,380	0	0	0
44	30 C	Amerada Hess, McKinley	40.0	178.0	828,554			
	D		37.81	193.34	899,959			
	E		37.85	216.8	1,009,161			
	F		40.0	195.0	907,686			
		Tract Totals	155.66		3,645,360	0	0	0
45	30 A	Getty, McKinley	40.0	223.0	1,038,020			
	B		40.0	174.0	809,935			
	G		40.0	178.0	828,554			
	H		40.0	229.0	1,065,949			
		Tract Totals	160.0		3,742,458	0	0	0
46	30 K	Marathon, State 30	40.0	212.0	986,818			
	L		37.87	238.05	1,108,075			
	M		37.91	226.67	1,055,104			
	N		40.0	233.0	1,084,568			
		Tract Totals	155.78		4,234,565	0	0	0
47	30 I	Exxon, Bowers A	40.0	259.0	1,205,593	10.4	5.44	23
	J		40.0	193.0	898,376	0	0	0
	O		40.0	206.0	958,889	0	0	0
	P		40.0	245.0	1,140,426	6.8	3.40	15
	29 E		40.0	218.0	1,014,746	0	0	0
	L		40.0	274.0	1,275,415	23.6	23.68	101
	M		40.0	251.0	1,168,355	35.1	62.10	264
		Tract Totals	280.0		7,661,800	75.9	94.62	403

TABLE 10 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - SAN ANDRES, ZONE I

Tract No.	Section & Unit		Operator - Lease	Original Oil In Place * Productive Acres	Ac-ϕh	STB	Original Gas In Place ** Productive Acres	Ac-ϕh	MMCF
48	29	D	Exxon, Bowers B	40.0	200.0	930,960			
49	29	B	Amerada Hess, State B	40.0	239.0	1,112,497			
		C		40.0	223.0	1,038,020			
		F		40.0	202.0	940,270			
		G		40.0	182.0	847,174			
			Tract Totals	160.0		3,937,961			
50	29	A	Exxon, Grimes	40.0	219.0	1,019,401			
51	29	J	Continental, State A-29	40.0	209.0	972,853	1.3	.26	1
		K		40.0	269.0	1,252,141	5.4	2.70	11
		N		40.0	288.0	1,340,582	37.1	36.13	154
			Tract Totals	120.0		3,565,576	43.8		166
52	29	H	Getty, Grimes	40.0	173.0	805,280	0	0	0
		I		40.0	156.0	726,149	9.5	3.80	16
			Tract Totals	80.0		1,531,429	9.5		16
53	29	O	Chevron, State I-29	40.0	220.0	1,024,056	38.5	67.95	289
		P		40.0	137.0	637,708	40.0	102.00	434
			Tract Totals	80.0		1,661,764	78.5		723
54	28	C	ARCO, Grimes SOC	40.0	221.0	1,028,711			
		D		40.0	210.0	977,508			
		E		40.0	197.0	916,996			
		F		40.0	245.0	1,140,426			
			Tract Totals	160.0		4,063,641	0	0	0
55	28	B	Samedan, Moon A	40.0	226.0	1,051,985			
		G		40.0	274.0	1,275,415			
			Tract Totals	80.0		2,327,400	0	0	0
56	29	A	Samedan, Moon B	39.6	134.4	625,605			
		H		40.0	250.0	1,163,700			
			Tract Totals	79.6		1,789,305	0	0	0

TABLE 10 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - SAN ANDRES, ZONE I

Tract No.	Section & Unit	Operator - Lease	Original Oil In Place * Productive Acres	Ac-φh	STB	Original Gas In Place ** Productive Acres	Ac-φh	MMCF
57	29 K	Shell, Grimes	40.0	244.0	1,135,771	0	0	0
	L		40.0	195.0	907,686	3.2	.64	3
	M		40.0	157.0	730,804	36.7	46.02	196
	N		40.0	197.0	916,996	19.3	28.38	121
		Tract Totals	160.0		3,691,257	59.2		320
58	28 I	Continental, Grimes	40.0	279.0	1,298,689	0	0	0
	J		40.0	277.0	1,289,380	0	0	0
	O		40.0	257.0	1,196,284	6.8	7.51	32
	P		40.0	269.0	1,252,141	0	0	0
		Tract Totals	160.0		5,036,494	6.8	7.51	32
59	27 D	Shell Sanger	6.1	6.60	30,722			
	E		28.4	82.82	385,510			
	K		12.6	19.32	89,931			
	L		40.0	212.0	986,818			
	M		40.0	234.0	1,089,223			
	N		33.9	82.95	386,116			
	O		.5	.10	465			
		Tract Totals	161.5		2,968,785	0	0	0
60	34 H	Moranco, Hobbs	0.6	.24	1,117	0	0	0
61	34 B	Shell, Turner	13.9	23.97	111,575			
	G		33.5	115.09	535,721			
		Tract Total	47.4		647,296	0	0	0
62	34 C	Getty, Turner 2	40.0	170.0	791,316	0	0	0
63	34 E	Getty, Turner 1	40.0	208.0	968,198	0	0	0
64	34 I	Samedan, Turner B-1	12.9	13.19	61,397	0	0	0
65	34 P	Samedan, Turner B-2	16.4	15.60	72,615	0	0	0

TABLE 10 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - SAN ANDRES, ZONE I

Tract No.	Section & Unit	Operator - Lease	Original Oil In Place * Productive Acres	Ac-ϕh	STB	Original Gas In Place ** Productive Acres	Ac-ϕh	MMCF
66	34 J	Samedan, Turner	40.0	146.0	679,601			
	O		40.0	121.0	563,231			
		Tract Totals	80.0		1,242,832	0	0	0
67	33 A	Gulf, Grimes B	40.0	200.0	930,960	9.6	10.72	46
	B		40.0	102.0	474,790	40.0	163.00	694
	H		40.0	131.0	609,779	29.7	48.50	206
	I		40.0	149.0	693,565	27.6	28.51	121
		Tract Totals	160.0		2,709,094	106.9		1,067
68	33 C	Shell, State B	40.0	47.0	218,776	40.0	177.0	753
	D		40.0	91.0	423,587	40.0	129.0	549
		Tract Totals	80.0		642,363	80.0		1,302
69	33 E	Amoco, State G	40.0	120.0	558,576	40.0	97.0	413
	F		40.0	83.0	386,348	40.0	135.0	575
		Tract Totals	80.0		944,924	80.0		988
70	33 G	Continental, State A-33	40.0	88.0	409,622	40.0	133.0	566
	J		40.0	153.0	712,185	35.2	45.02	192
	K		40.0	161.0	749,423	40.0	62.0	264
	L		40.0	154.0	716,839	40.0	55.0	234
	M		40.0	195.0	907,686	40.0	33.0	140
	N		40.0	212.0	986,816	16.7	9.67	41
	O		40.0	204.0	949,579	0	0	0
		Tract Totals	280.0		5,432,152	211.9		1,437
71	32 A	Amerada Hess, State A	40.0	134.0	623,743	40.0	187.0	796
	B		40.0	193.0	898,377	40.0	101.0	430
		Tract Totals	80.0		1,522,120	80.0		1,226
72	32 G	Shell, State A	40.0	214.0	996,127	40.0	58.0	247
	H		40.0	171.0	795,971	40.0	82.0	349
		Tract Totals	80.0		1,792,098	80.0		596

TABLE 10 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - SAN ANDRES, ZONE I

Tract No.	Section & Unit		Operator - Lease	Original Oil In Place * Productive Acres	Ac-ϕh	STB	Original Gas In Place ** Productive Acres	Ac-ϕh	MMCF
73	32	C	Gulf, Grimes A	40.0	264.0	1,228,867	35.8	26.16	112
		D		40.0	292.0	1,359,202	7.2	4.32	18
		E		40.0	286.0	1,331,273	0	0	0
		F		40.0	235.0	1,093,878	9.6	1.92	8
			Tract Total	160.0		5,013,220	52.6		138
74	32	K	Gulf, Grimes A	40.0	213.0	991,472	4.3	0.89	4
		L		40.0	262.0	1,219,558	0	0	0
		M		40.0	203.0	944,924	0	0	0
		N		40.0	189.0	879,757	0	0	0
			Tract Total	160.0		4,035,711	4.3		4
75	32	I	Marathon, State 32	40.0	154.0	716,839	37.0	20.4	87
		J		40.0	198.0	921,650	34.5	19.71	84
		O		40.0	184.0	856,483	0	0	0
		P		40.0	187.0	870,448	18.6	4.72	20
			Tract Total	160.0		3,365,420	90.1		191
76	31	A	Cities Service	40.0	279.0	1,298,689			
		B		40.0	225.0	1,047,330			
		G		40.0	290.0	1,349,892			
		H		40.0	308.0	1,433,678			
			Tract Total	160.0		5,129,589	0	0	0
77	31	C	Getty, Fowler	40.0	228.0	1,061,295			
		F		40.0	203.0	944,924			
			Tract Total	80.0		2,006,219	0	0	0
78	31	D	Sun, Fowler	37.95	157.31	732,246			
		E		38.00	90.58	421,632			
			Tract Total	75.95		1,153,878	0	0	0
79	31	I	Shell, Berry	40.0	288.0	1,340,582			
		J		40.0	260.0	1,210,248			
		O		40.0	194.0	903,031			
		P		40.0	212.0	986,818			
			Tract Total	160.0		4,440,679	0	0	0

TABLE 10 (CONTINUED)
ORIGINAL HYDROCARBONS IN PLACE - SAN ANDRES, ZONE I

Tract No.	Section & Unit	Operator - Lease	Original Oil In Place * Productive Acres	Ac-øh	STB	Original Gas In Place ** Productive Acres	Ac-øh	MMCF
80	31 K	Mobil, Berry	40.0	176.0	819,245			
	L		33.3	52.15	242,748			
	M		20.3	21.71	101,056			
	N		40.0	129.0	600,469			
		Tract Total	133.6		1,763,518	0	0	0
81	36 A	Amerada Hess, State C	37.1	86.39	402,128			
	H		12.2	9.18	42,731			
		Tract Total	49.3		444,859	0	0	0
82	36 B	WK Byrom	10.3	9.05	42,126			
		UNIT TOTALS	8,262.9	36,870.13	171,623,081	1,059.5	2,022.55	8,609

Notes: * $OOIP = (7758)(1-Sw)/BO = (7758)(1-.22)/1.3 =$ /4654.8 STB/Ac øh/

** $OGIP = (.04356)(1-Sw)\frac{(Pi)}{(Psc)}\frac{(Tsc)}{(Tr)}\frac{(1)}{(Zi)}$

$OGIP = (.04356)(1-.22)\frac{(1571)}{(15.025)}\frac{(520)}{(560)}\frac{(1)}{(.775)} =$ /4.2566 M/Ac øh/

TABLE 11

ORIGINAL OIL IN PLACE - SAN ANDRES ZONE II

Tract No.	Section & Unit	Operator - Lease	Productive Acres	Ac-øh	STB
2	14 O	Amerada Hess, State WHB	2.6	.76	3,538
4	14 I	Texas Pacific, State V	8.9	5.67	26,393
5	14 P	Estes State	38.2	60.74	282,733
6	13 F	Continental, State B-13	6.8	1.80	8,379
	K		39.9	68.91	320,762
	L		29.6	39.68	184,703
	M		40.0	143.0	665,636
	N		40.0	189.0	879,757
		Tract Total	156.3		2,059,237
7	13 I	Shell, Rice	40.0	157.0	730,803
	J		40.0	92.0	428,242
	O		40.0	209.0	972,853
	P		40.0	236.0	1,098,533
		Tract Total	160.0		3,230,431
8	18 K	Amerada Hess, Hardin	40.0	115.0	535,302
	L		37.61	140.56	654,279
	M		37.6	214.84	1,000,037
	N		40.0	194.0	903,031
		Tract Total	155.21		3,092,649
9	18 A	Gulf, Hardin	2.0	.4	1,862
	B		13.6	4.08	18,992
	G		40.0	44.0	204,811
	H		34.2	23.21	108,038
	I		40.0	72.0	335,146
	J		40.0	98.0	456,170
	O		40.0	159.0	740,113
	P		40.0	101.0	470,135
		Tract Total	249.8		2,335,267
10	17 E	Moranco, State 17	1.6	.32	1,489
11	17 L	Chevron, State I-17	15.7	9.59	44,639
12	17 M	Getty, State A	29.0	29.32	136,479
16	21 M	Gulf, Grimes C	14.4	15.72	73,173
	N		4.6	1.60	7,448
		Tract Total	19.0		80,621
17	20 G	C.H. Sweet, McKinley	16.5	15.26	71,032

TABLE 11 (CONTINUED)

ORIGINAL OIL IN PLACE - SAN ANDRES ZONE II

Tract No.	Section & Unit	Operator - Lease	Productive Acres	Ac-Øh	STB
18	20 C	Getty, McKinley	11.3	11.44	53,251
	D		39.6	90.52	421,352
		Tract Total	50.9		474,603
19	20 E	Chevron, McKinley	40.0	160.0	744,768
	F		39.9	125.82	585,667
		Tract Total	79.9		1,330,435
21	20 J	B. Sweet, Bowers B Fed.	28.2	34.46	160,404
22	20 P	C.H. Sweet, Bowers B	24.9	33.24	154,726
23	20 O	ARCO, Grimes	39.6	65.60	305,355
24	20 K	Shell, McKinley B	40.0	146.0	679,601
	L		40.0	196.0	912,341
	M		40.0	184.0	856,483
	N		40.0	115.0	535,302
		Tract Total	160.0		2,983,727
25	19 A	Getty, Hardin	40.0	123.0	572,541
	B		40.0	169.0	786,661
	G		40.0	176.0	819,245
	H		40.0	164.0	763,387
		Tract Total	160.0		2,941,834
26	19 C	Cities Service, Hardin	40.0	233.0	1,084,568
	D		37.62	241.0	1,121,807
	E		37.68	274.18	1,276,253
	F		40.0	244.0	1,135,771
		Tract Total	155.30		4,618,399
27	19 I	Shell, McKinley A	40.0	187.0	870,448
	J		40.0	197.0	916,996
	K		40.0	248.0	1,154,390
	L		37.72	280.68	1,306,509
	M		37.78	252.34	1,174,592
	N		40.0	222.0	1,033,366
	O		40.0	185.0	861,138
	P		40.0	221.0	1,028,711
		Tract Total	315.50		8,346,150
28	24 A	Gulf, Graham St.	40.0	238.0	1,107,842
	B		40.0	303.0	1,410,405
	G		40.0	302.0	1,405,750
	H		40.0	264.0	1,228,867
		Tract Total	160.0		5,152,864
29	24 C	Shell, State D	40.0	273.0	1,270,761
	F		40.0	264.0	1,228,867
		Tract Total	80.0		2,499,628

TABLE 11 (CONTINUED)
ORIGINAL OIL IN PLACE - SAN ANDRES ZONE II

Tract No.	Section & Unit	Operator - Lease	Productive Acres	Ac-øh	STB
30	24 D	Amerada Hess, State E	40.0	196.0	912,341
	E		40.0	177.0	823,900
		Tract Total	80.0		1,736,241
31	24 I	Texas Pacific, State G	40.0	302.0	1,405,750
	J		40.0	317.0	1,475,572
	O		40.0	329.0	1,531,429
	P		40.0	263.0	1,224,212
		Tract Total	160.0		5,636,963
32	24 K	Samedan, State C	40.0	241.0	1,121,807
	L		40.0	128.0	595,814
	M		33.9	69.13	321,786
	N		40.0	251.0	1,168,355
		Tract Total	153.9		3,207,762
33	23 A	C.H. Sweet, State	40.0	95.0	442,206
	H		40.0	78.0	363,074
	I		27.2	27.43	127,681
		Tract Total	107.2		932,961
34	23 B	Shell, State F	13.3	6.65	30,954
	G		9.0	3.30	15,361
		Tract Total	22.3		46,315
37	23 P	ABO, State	2.8	1.12	5,213
40	25 C	Continental, State B-25	39.8	150.62	701,106
	D		8.0	7.16	33,328
		Tract Total	47.8		734,434
41	25 F	Samedan, State	26.9	32.82	152,770
42	25 A	Texaco, State C	40.0	231.0	1,075,259
	B		40.0	206.0	958,889
	G		40.0	111.0	516,683
	H		40.0	196.0	912,341
		Tract Total	160.0		3,463,172
43	25 I	Exxon, State A	40.0	121.0	563,231
	J		29.6	35.89	167,061
	K		1.7	.51	2,374
	O		6.2	2.38	11,078
	P		37.9	70.32	327,325
		Tract Total	115.4		1,071,069
44	30 C	Amerada Hess, McKinley	40.0	217.0	1,010,092
	D		37.81	263.72	1,227,564
	E		37.85	215.17	1,001,573
	F		40.0	266.0	1,238,177
		Tract Total	155.66		4,477,406

TABLE 11 (CONTINUED)
ORIGINAL OIL IN PLACE - SAN ANDRES ZONE II

Tract No.	Section & Unit	Operator - Lease	Productive Acres	Ac-Øh	STB
45	30 A	Getty, McKinley	40.0	312.0	1,452,298
	B		40.0	214.0	996,127
	G		40.0	317.0	1,475,572
	H		40.0	364.0	1,694,347
		Tract Total	160.0		5,618,344
46	30 K	Marathon State 30	40.0	302.0	1,405,750
	L		37.87	211.67	985,281
	M		37.91	195.70	910,944
	N		40.0	237.0	1,103,188
		Tract Total	155.78		4,405,163
47	30 I	Exxon-Bowers A	40.0	355.0	1,652,454
	J		40.0	305.0	1,419,714
	K		40.0	218.0	1,014,746
	L		40.0	376.0	1,750,205
	29 E	Exxon, Bowers B	40.0	309.0	1,438,333
	L		40.0	354.0	1,647,799
	M		40.0	383.0	1,782,789
		Tract Total	280.0		10,706,040
48	29 D	Exxon, Bowers B #35	40.0	229.0	1,065,949
49	29 B	Amerada Hess, State B	40.0	124.0	577,195
	C		40.0	142.0	660,982
	F		40.0	209.0	972,853
	G		40.0	169.0	786,661
		Tract Total	160.0		2,997,691
50	29 A	Exxon, Grimes #1	40.0	147.0	684,256
51	29 J	Continental, State A-29	40.0	242.0	1,126,462
	K		40.0	258.0	1,200,938
	N		40.0	324.0	1,508,155
		Tract Total	120.0		3,835,555
52	29 H	Getty, Grimes	40.0	166.0	772,697
	I		40.0	191.0	889,067
		Tract Total	80.0		1,661,764
53	29 O	Chevron, State A-29	40.0	306.0	1,424,369
	P		40.0	254.0	1,182,319
		Tract Total	80.0		2,606,688
54	28 C	ARCO, Grimes SOC	39.9	69.92	325,464
	D		40.0	149.0	693,565
	E		40.0	191.0	889,067
	F		40.0	124.0	577,195
		Tract Total	159.9		2,485,291

TABLE 11 (CONTINUED)
ORIGINAL OIL IN PLACE - SAN ANDRES ZONE II

Tract No.	Section & Unit	Operator - Lease	Productive Acres	Ac-Øh	STB
55	28 B	Samedan, Moon A	28.0	22.32	103,895
	G		40.0	76.0	353,765
		Tract Total	68.0		457,660
56	28 A	Samedan, Moon B	4.9	1.45	6,749
	H		37.6	44.8	208,535
		Tract Total	42.5		215,284
57	28 K	Shell, Grimes	40.0	135.0	628,398
	L		40.0	188.0	875,102
	M		40.0	232.0	1,079,914
	N		40.0	174.0	809,935
		Tract Total	160.0		3,393,349
58	28 I	Continental, Grimes	40.0	110.0	512,028
	J		40.0	148.0	688,910
	O		40.0	220.0	1,024,056
	P		40.0	149.0	693,565
		Tract Total	160.0		2,918,559
59	27 E	Shell, Sanger	9.8	6.26	29,139
	K		0.9	0.18	838
	L		35.0	36.84	171,483
	M		40.0	75.0	349,110
	N		15.12	16.2	75,408
		Tract Total	100.82		625,978
61	34 B	Shell, Turner	3.0	1.2	5,586
	G		24.8	46.26	215,331
		Tract Total	27.8		220,917
62	34 C	Getty, Turner #2	37.0	31.5	146,626
63	34 E		40.0	89.0	414,277
64	34 I	Samedan, Turner B #1	2.6	.76	3,538
65	34 P	Samedan, Turner B #2	1.0	.4	1,862
66	34 J	Samedan, Turner A	39.2	112.64	524,317
	O		40.0	88.0	409,622
		Tract Total	79.2		933,939
67	33 A	Gulf, Grimes B	40.0	163.0	758,732
	B		40.0	267.0	1,242,832
	H		40.0	160.0	744,768
	I		40.0	181.0	842,519
		Tract Total	160.0		3,588,851

TABLE 11 (CONTINUED)
ORIGINAL OIL IN PLACE - SAN ANDRES ZONE II

Tract No.	Section & Unit	Operator - Lease	Productive Acres	Ac-Øh	STB
68	33 C	Shell, State B	40.0	245.0	1,140,426
	33 D		40.0	258.0	1,200,938
		Tract Total	80.0		2,341,364
69	33 E	Amoco, State G	40.0	225.0	1,047,330
	33 F		40.0	260.0	1,210,248
		Tract Total	80.0		2,257,578
70	33 G	Continental, State A	40.0	236.0	1,098,533
	33 J		40.0	184.0	856,483
	33 K		40.0	240.0	1,117,152
	33 L		40.0	203.0	944,924
	33 M		40.0	198.0	921,650
	33 N		40.0	239.0	1,112,497
	33 O		40.0	191.0	889,067
		Tract Total	280.0		6,940,306
71	32 A	Amerada Hess, State A	40.0	208.0	968,198
	32 B		40.0	258.0	1,200,939
		Tract Total	80.0		2,169,137
72	32 G	Shell, State A	40.0	271.0	1,261,451
	32 H		40.0	246.0	1,145,081
		Tract Total	80.0		2,406,532
73	32 C	Gulf, Grimes A	40.0	252.0	1,173,010
	32 D		40.0	220.0	1,024,056
	32 E		40.0	211.0	982,163
	32 F		40.0	264.0	1,228,867
		Tract Total	160.0		4,408,096
74	32 K	Gulf, Grimes	40.0	265.0	1,233,522
	32 L		40.0	250.0	1,163,700
	32 M		40.0	243.0	1,131,116
	32 N		40.0	227.0	1,056,640
		Tract Total	160.0		4,584,978
75	32 I	Marathon, State 32	40.0	187.0	870,448
	32 J		40.0	229.0	1,065,949
	32 O		40.0	178.0	828,554
	32 P		40.0	162.0	754,078
		Tract Total	160.0		3,519,029
76	31 A	Cities Service, Fowler	40.0	257.0	1,196,283
	31 B		40.0	179.0	833,209
	31 G		40.0	197.0	916,996
	31 H		40.0	206.0	958,889
		Tract Total	160.0		3,905,377
77	31 C	Getty, Fowler	40.0	165.0	768,042
	31 F		40.0	149.0	693,565
		Tract Total	80.0		1,461,607

TABLE 11 (CONTINUED)
ORIGINAL OIL IN PLACE - SAN ANDRES ZONE II

Tract No.	Section & Unit	Operator - Lease	Productive Acres	Ac-øh	STB
78	31 D	Sun, Fowler	37.5	92.0	428,242
	E		18.0	19.84	92,351
		Tract Total	55.5		520,593
79	31 I	Shell, Berry	40.0	237.0	1,103,188
	J		40.0	184.0	856,483
	O		40.0	158.0	735,458
	P		40.0	230.0	1,070,604
		Tract Total	160.0		3,765,733
80	31 K	Mobil, Berry	39.3	91.23	424,657
	L		3.2	1.82	8,472
	N		29.4	43.30	201,553
		Tract Total	71.9		634,682
81	36 A	Amerada Hess, State C	11.0	9.02	41,986
		UNIT TOTALS	6,912.07	32,169.27	149,741,518

Note: OOIP = (7758)(1-Sw)/Boi = (7758)(1-.22)/1.3 = /4654.8 Ac-øh/

TABLE 12

ORIGINAL OIL IN PLACE - SAN ANDRES ZONE III$_U$

Tract No.	Section & Unit		Operator - Lease	Productive Acres	Ac-øh	STB
5	14	P	Estes, State	2.5	.49	2,281
6	13	K	Continental, State B-13	18.7	39.84	185,447
		L		4.6	3.14	14,616
		M		37.5	60.25	280,452
		N		40.0	206.0	958,889
			Tract Total	100.8		1,439,404
7	13	I	Shell, Rice	40.0	246.0	1,145,081
		J		34.8	152.98	712,091
		O		40.0	390.0	1,815,372
		P		40.0	438.0	2,038,802
			Tract Total	154.8		5,711,346
8	18	K	Amerada Hess, Hardin	40.0	207.0	963,544
		L		37.61	191.81	892,837
		M		37.6	306.96	1,428,837
		N		40.0	347.0	1,615,216
			Tract Total	155.21		4,900,434
9	18	E	Gulf, Hardin	13.8	13.47	62,700
		I		4.0	3.05	14,197
		J		39.0	109.5	509,701
		O		40.0	207.0	963,544
		P		16.3	22.32	103,895
			Tract Total	113.1		1,654,037
24	20	M	Shell, McKinley B	13.0	9.48	44,128
25	19	A	Getty, Hardin	22.5	16.21	75,454
		B		40.0	197.0	916,996
		G		40.0	140.0	651,672
		H		25.5	8.83	41,102
			Tract Total	128.0		1,685,224
26	19	C	Cities Service, Hardin	40.0	404.0	1,880,539
		D		37.62	355.15	1,653,152
		E		37.68	327.39	1,523,935
		F		40.0	349.0	1,624,525
			Tract Total	155.30		6,682,151
27	19	I	Shell, McKinley A	28.5	16.21	75,454
		J		40.0	107.0	498,064
		K		40.0	250.0	1,163,700
		L		37.72	240.32	1,118,642
		M		37.78	164.00	763,387
		N		40.0	190.0	884,412
		O		40.0	149.0	693,565
		P		39.1	76.28	355,068
			Tract Total	303.10		5,552,292

TABLE 12 (CONTINUED)
ORIGINAL OIL IN PLACE - SAN ANDRES ZONE III$_U$

Tract No.	Section & Unit		Operator - Lease	Productive Acres	Ac-Øh	STB
28	24	A	Gulf, Graham State	40.0	438.0	2,038,802
		B		40.0	320.0	1,489,536
		G		40.0	305.0	1,419,714
		H		40.0	325.0	1,512,810
			Tract Total	160.0		6,460,862
29	24	C	Shell, State D	40.0	182.0	847,174
		F		40.0	201.0	935,615
			Tract Total	80.0		1,782,789
30	24	D	Amerada Hess, State E	40.0	76.0	353,765
		E		32.6	54.75	254,850
			Tract Total	72.6		608,615
31	24	I	Texas Pacific, State G	40.0	208.0	968,199
		J		40.0	184.0	856,483
		O		40.0	85.0	395,658
		P		40.0	130.0	605,124
			Tract Total	160.0		2,825,464
32	24	K	Samedan, State C	39.8	107.74	501,508
		L		9.6	7.65	35,609
		N		22.7	20.8	96,820
			Tract Total	72.1		633,937
33	23	A	C.H. Sweet, State F	7.7	3.08	14,337
		H		0.6	.12	558
			Tract Total	8.3		14,895
40	23	C	Continental, State B-25	1.1	.28	1,303
42	25	A	Texaco, State C	40.0	71.0	330,491
		B		32.0	25.52	118,790
		G		1.1	.22	1,024
		H		33.2	33.96	158,077
			Tract Total	106.3		608,382
43	25	I	Exxon, State A	20.9	18.43	85,788
		P		1.8	.72	3,351
			Tract Total	22.7		89,139
44	30	C	Amerada Hess, McKinley	40.0	188.0	875,103
		D		37.81	115.08	535,674
		E		37.85	107.06	498,343
		F		40.0	216.0	1,005,437
			Tract Total	155.66		2,914,557
45	30	A	Getty, McKinley	40.0	208.0	968,198
		B		40.0	265.0	1,233,522
		G		40.0	335.0	1,559,358
		H		40.0	332.0	1,545,394
			Tract Total	160.0		5,306,472

TABLE 12 (CONTINUED)
ORIGINAL OIL IN PLACE - SAN ANDRES ZONE III$_U$

Tract No.	Section & Unit	Operator - Lease	Productive Acres	Ac-Øh	STB
46	30 K	Marathon, State 30	40.0	226.0	1,051,985
	L		37.87	102.74	478,234
	M		30.5	39.94	185,913
	N		40.0	158.0	735,458
		Tract Total	148.37		2,451,590
47	30 I	Exxon Bowers A	40.0	430.0	2,001,564
	J		40.0	349.0	1,624,525
	O		40.0	296.0	1,377,821
	P		40.0	456.0	2,122,589
		Tract Total	160.0		7,126,499
47	29 E	Exxon, Bowers A	40.0	233.0	1,084,568
	L		40.0	370.0	1,722,276
	M		40.0	395.0	1,838,646
		Tract Total	120.0		4,645,490
48	29 D	Exxon, Bowers B	38.9	82.12	382,252
49	29 B	Amerada Hess, State B	16.3	16.3	75,873
	C		20.7	24.22	112,739
	F		40.0	189.0	879,757
	G		40.0	176.0	819,245
		Tract Total	117.0		1,887,614
50	29 A	Exxon, Grimes	14.8	12.6	58,651
51	29 J	Continental, State A-29	40.0	391.0	1,820,027
	K		40.0	370.0	1,722,276
	N		40.0	455.0	2,117,934
		Tract Total	120.0		5,660,237
52	29 H	Getty, Grimes	40.0	169.0	786,661
	I		40.0	377.0	1,754,860
		Tract Total	80.0		2,541,521
53	29 O	Chevron, State I-29	40.0	505.0	2,350,674
	P		40.0	487.0	2,266,388
		Tract Total	80.0		4,617,562
54	28 C	ARCO, Grimes SOC	6.2	2.32	10,799
	D		13.5	8.80	40,962
	E		40.0	144.0	670,291
	F		40.0	101.0	470,135
		Tract Total	99.7		1,192,187
55	28 G	Samedan, Moon A	29.3	49.98	232,647
56	28 H	Samedan, Moon B	3.6	2.16	10,054

TABLE 12 (CONTINUED)
ORIGINAL OIL IN PLACE - SAN ANDRES ZONE III$_U$

Tract No.	Section & Unit	Operator - Lease	Productive Acres	Ac-Øh	STB
57	28 K	Shell, Grimes	40.0	266.0	1,238,177
	L		40.0	324.0	1,508,155
	M		40.0	423.0	1,968,980
	N		40.0	346.0	1,610,561
		Tract Total	160.0		6,325,873
58	28 I	Continental, Grimes	34.5	57.8	269,047
	J		40.0	218.0	1,014,746
	O		40.0	257.0	1,196,284
	P		40.0	147.0	684,256
		Tract Total	154.5		3,164,333
59	27 L	Shell, Sanger	4.5	1.8	8,379
	M		33.0	45.48	211,700
	N		1.0	.3	1,396
		Tract Total	38.5		221,475
61	34 G	Shell, Turner	5.2	3.49	16,245
62	34 C	Getty, Turner 2	18.6	30.1	140,109
63	34 F	Getty Turner 1	38.5	136.15	633,751
66	34 J	Samedan, Turner A	23.6	31.51	146,673
	O		18.2	23.23	108,131
		Tract Total	41.8		254,804
67	33 A	Gulf, Grimes B	40.0	265.0	1,233,522
	B		40.0	450.0	2,094,660
	H		40.0	296.0	1,377,821
	I		40.0	281.0	1,307,999
		Tract Total	160.0		6,014,002
68	33 C	Shell, State B	40.0	429.0	1,996,909
	D		40.0	418.0	1,945,707
		Tract Total	80.0		3,942,616
69	33 E	Amoco, State G	40.0	408.0	1,899,158
	F		40.0	455.0	2,117,934
		Tract Total	80.0		4,017,092
70	33 G	Continental, State A-33	40.0	426.0	1,982,945
	J		40.0	341.0	1,587,287
	K		40.0	387.0	1,801,408
	L		40.0	385.0	1,792,098
	M		40.0	413.0	1,922,432
	N		40.0	416.0	1,936,397
	O		40.0	378.0	1,759,514
		Tract Total	280.0		12,782,081

TABLE 12 (CONTINUED)

ORIGINAL OIL IN PLACE - SAN ANDRES ZONE III$_U$

Tract No.	Section & Unit	Operator - Lease	Productive Acres	Ac-øh	STB
71	32 A	Amerada Hess, State A	40.0	410.0	1,908,468
	B		40.0	417.0	1,941,052
		Tract Total	80.0		3,849,520
72	32 G	Shell, State A	40.0	515.0	2,397,222
	H		40.0	521.0	2,425,151
		Tract Total	80.0		4,822,373
73	32 C	Gulf, Grimes A	40.0	358.0	1,666,418
	D		40.0	339.0	1,577,977
	E		40.0	377.0	1,754,860
	F		40.0	436.0	2,029,493
		Tract Total	160.0		7,028,748
74	32 K	Gulf, Grimes A	40.0	491.0	2,285,507
	L		40.0	427.0	1,987,599
	M		40.0	362.0	1,685,038
	N		40.0	350.0	1,629,180
		Tract Total	160.0		7,587,324
75	32 I	Marathon, State 32	40.0	345.0	1,605,906
	J		40.0	463.0	2,155,172
	O		40.0	279.0	1,298,689
	P		40.0	267.0	1,242,837
		Tract Total	160.0		6,302,599
76	31 A	Cities Service, Fowler	40.0	404.0	1,880,539
	B		40.0	250.0	1,163,700
	G		40.0	159.0	740,113
	H		40.0	289.0	1,345,232
		Tract Total	160.0		5,129,589
77	31 C	Getty Fowler	36.1	82.58	384,393
	F		18.7	22.0	102,406
		Tract Total	54.8		486,799
78	31 D	Sun, Fowler	1.8	.72	3,352
79	31 I	Shell, Berry	40.0	285.0	1,326,618
	J		33.7	82.97	386,209
	O		31.6	35.98	167,480
	P		40.0	229.0	1,065,949
		Tract Total	145.3		2,946,256
80	31 K	Mobil, Berry	0.9	.27	1,257
		UNIT TOTALS	5,196.14	33,383.65	155,394,214

Note: OOIP = (7758)(1-Sw)/Boi = (7758)(1-.22)/1.3 = /4654.8 Ac-øh/

TABLE 13

ORIGINAL OIL IN PLACE - SAN ANDRES ZONE III$_L$

Tract No.	Section & Unit		Operator - Lease	Productive Acres	Ac-Øh	STB
45	30	H	Getty, McKinley	1.4	.28	1,303
47	30	I	Exxon, Bowers A	34.3	33.64	156,587
		J		3.3	.99	4,608
		O		15.4	6.16	28,674
		P		40.0	50.0	232,740
	29	E		3.9	1.03	4,794
		L		40.0	82.0	381,694
		M		40.0	107.0	498,064
			Tract Total	176.9		1,307,161
51	29	J	Continental, State A-29	21.7	42.40	197,364
		K		36.2	95.90	446,395
		N		40.0	163.0	758,732
			Tract Total	97.9		1,402,491
52	29	I	Getty, Grimes	31.2	74.92	348,738
53	29	O	Chevron, State I-29	40.0	222.0	1,033,366
		P		40.0	251.0	1,168,355
			Tract Total	80.0		2,201,721
57	28	K	Shell, Grimes	25.2	8.26	38,449
		L		11.6	36.92	171,855
		M		40.0	206.0	958,889
		N		40.0	137.0	637,708
			Tract Total	116.8		1,806,901
58	28	O	Continental, Grimes	27.4	42.08	195,874
		P		5.4	3.48	16,199
			Tract Total	32.8		212,073
63	34	F	Getty, Turner	1.5	.15	698
67	33	A	Gulf, Grimes B	39.2	104.12	484,658
		B		40.0	259.0	1,205,593
		H		40.0	159.0	740,113
		I		40.0	164.0	763,387
			Tract Total	159.2		3,193,751
68	33	C	Shell, State B	40.0	315.0	1,466,262
		D		40.0	329.0	1,531,429
			Tract Total	80.0		2,997,691
69	33	E	Amoco, State G	40.0	305.0	1,419,714
		F		40.0	341.0	1,587,287
			Tract Total	80.0		3,007,001

TABLE 13 (CONTINUED)

ORIGINAL OIL IN PLACE - SAN ANDRES ZONE III$_L$

Tract No.	Section & Unit		Operator - Lease	Productive Acres	Ac-Øh	STB
70	33	G	Continental State A-33	40.0	227.0	1,289,380
		J		40.0	257.0	1,196,284
		K		40.0	341.0	1,587,287
		L		40.0	363.0	1,689,692
		M		40.0	361.0	1,680,383
		N		40.0	312.0	1,452,297
		O		40.0	228.0	1,061,294
			Tract Total	280.0		9.956,617
71	32	A	Amerada Hess State A	40.0	209.0	972,853
		B		40.0	151.0	702,875
			Tract Total	80.0		1,675,728
72	32	G	Shell, State A	40.0	244.0	1,135,771
		H		40.0	260.0	1,210,248
			Tract Total	80.0		2,346,019
73	32	C	Gulf, Grimes A	40.0	107.0	498,064
		D		40.0	61.0	283,943
		E		40.0	55.0	256,014
		F		40.0	160.0	744,768
			Tract Total	160.0		1,782,789
74	32	K	Gulf Grimes A	40.0	176.0	819,245
		L		39.9	59.92	278,916
		M		37.1	43.64	203,135
		N		40.0	153.0	712,184
			Tract Total	157.0		2,013,480
75	32	I	Marathon State 32	40.0	314.0	1,461,607
		J		40.0	280.0	1,303,344
		O		40.0	249.0	1,159,045
		P		40.0	321.0	1,494,191
			Tract Total	160.0		5,418,187
76	31	A	Cities Service, Fowler	15.8	8.72	40,590
		H		2.6	.52	2,420
			Tract Total	18.4		43,010
79	31	I	Shell, Berry	3.7	1.01	4,701
			UNIT TOTALS	1,796.8	8,533.14	39,720,060

Note: OOIP = (7758)(1-Sw)/Boi = (7758)(1-.22)/1.3 = /4654.8 STB/Ac-Øh/

TABLE 14
RESERVES OF WELLS PRODUCING FROM GRAYBURG &/OR UPPER SAN ANDRES STRINGERS
PROPOSED NORTH HOBBS UNIT
(REVISED 3/2/77)

COMPANY	LEASE	WELL(S)	LOCATION	@ 1/1/77 qo (BOPD)	@ 1/1/77 dy (%)	RESERVES* (BBLS)
Amerada Hess	Hardin	1,2,3,5	18K,L,M,N	0	0	0
" "	State B	3,4	29B,C	48	10	159,358
" "	State C	1,2	36A,H	20	14	43,561
" "	State C	3	36G	0	0	0
" "	State E	1	24E	13	20	19,629
" "	State WHB	1	14O	6.5	14	13,310
			Subtotal	87.5		235,858
Antweil	Hobbs CT	1	21J	8	8	30,642
Atlantic Richfield	Grimes	1	20O	9	14	19,360
" "	Grimes SOC	3	28D	7	14	14,520
			Subtotal	16		33,880
Byrom	Holt State	1	36B	10.5	8	41,586
C&C Oper.	Shipp A	1	23E	2	13	2,621
Chevron	State 17	1	17L	0	0	0
Continental	State B-13	4,5,6,7	13F,E,C,L	10	17	11,753
"	"	1,2	13M,N	0	0	0
"	" B-25	2	25D	12	18	20,232
				22		31,985
Estes	State	1	14P	8	18	12,875
Exxon	New Mex. State	1,5,6,7, 8,9	25I,O,K,P,J,N	90	15	188,655
Getty	Hardin	2	19H	6.5	10	19,054
"	"	3	19B	17	12	45,684
"	State B	1,2	14H,G	5	8	13,132
			Subtotal	28.5		77,870
Gulf	Grimes C	1,2,3	21,L,M,N	17	8	61,284
"	Hardin	3,4,5,6	18I,G,J			
"	"	7,8,9	H,B,A,O	28	11	65,775
"	LeaFO State	1	14N	3.6	9	10,062
			Subtotal	48.6		137,121
Marathon	State 30	9	30M	2.8	18	3,311
Mobil	Berry	2,3,4,1	31N,L,M,K	95	10	315,251
Morenco	Hobbs	1	34H	14	11	40,718
"	State T 17	1	17E	5	10	13,857
			Subtotal	19		54,575
Samedan	State B	1,2	25F,E	8	9	23,221
Shell	Rice	4	13J	3	20	3,271
"	Sanger	6	27D	10	12	25,698
"	State F	2,3	23G,B	3.8	16	3,768
			Subtotal	16.8		32,737
Getty (Skelly)	Hobbs E	1	26A	4.8	14	9,196
"	State A	1	17M	3.3	10	7,968
			Subtotal	8.1		17,164
Sun	Fowler	4	31E	12	10	38,107
Bill Sweet	Bowers B	2	20J	3	8	8,755
C.H. Sweet	Grimes	1A	20I	0	0	0
"	McKinley B	2	20H	3	8	8,755
"	State F	2,3,4	23H,I,A	22	8	83,172
			Subtotal	25		91,927
Texas Pacific	State V Ac 1	1,2	14I,J	12	9	38,702
"	State V Ac 2	3,4,5,6	23C,F,K,N	12	10	27,714
			Subtotal	24		66,416
Wiser	State	1	26B	< 1	-	0
Yates	Shell State	1,2,3	23P,J,O	16	11	40,718
TOTALS		69 Producers 9 TA or SI		550.8		1,485,275 0

Note: * Economic Limit assumed to be one BOPD/well.

TABLE 15

PRIMARY OIL RESERVES - SAN ANDRES (MAIN ZONES)

Operator	Lease	Computed Reserves 9/1/76	Oil Prod. Last 4 Mos. 1976	Updated Reserves			
				Reserves 1/1/77	Zone I 1/1/77	Zone II 1/1/77	Zone III 1/1/77
Amerada	McKinley	1,324,885	26,407	1,298,478	944,937	123,275	230,266
Amerada	State A	565,925	11,927	553,998	141,669	170,628	241,701
Amerada	State B	352,874	8,166	344,708	83,151	169,408	92,149
Amoco	State E	106,872	2,010	104,862	104,862	0	0
Atlantic	State G	702,834	17,430	685,404	177,419	0	507,985
Chevron	Grimes SOC	863,329	7,611	855,718	651,060	146,479	58,179
Chevron	McKinley	173,191	4,631	168,560	0	168,560	0
Cities Ser.	State 29	1,142,056	16,567	1,125,489	1,076,793	0	48,696
Cities Ser.	Fowler	921,575	20,842	900,733	524,565	365,444	10,724
Continental	Hardin	259,169	8,721	250,448	0	0	250,448
Continental	Grimes	1,807,982	6,281	1,801,701	1,552,592	106,703	172,406
Continental	State A-29	811,862	11,768	800,184	0	0	800,184
Continental	State A-33	1,765,244	51,041	1,714,203	0	0	1,714,203
Continental	State B-25	103,967	1,619	102,348	54,617	47,731	0
Exxon	Bowers A	1,273,139	32,340	1,240,799	908,956	0	331,843
Exxon	Bowers AC	231,139	5,196	225,943	0	188,742	37,201
Exxon	Grimes	37,568	1,026	36,542	0	36,542	0
Getty	Fowler (SK)	460,304	13,791	446,513	141,853	304,660	0
Getty	Grimes	338,947	8,306	330,641	114,210	143,847	72,584
Getty	Hardin	67,706	1,925	65,781	55,908	0	9,873
Getty	McKinley	1,458,741	28,715	1,430,026	365,725	978,035	86,266
Getty	McKinley (SK)	369	319	50	0	50	0
Getty	Turner 1 (SK)	457,182	9,783	447,399	407,502	39,897	0
Getty	Turner 2 (SK)	456,957	9,751	447,206	407,539	39,667	0
Gulf	Graham State A-2	566,114	17,604	548,510	90,324	162,132	296,054
Gulf	Grimes A	1,406,889	28,543	1,378,346	1,070,151	185,507	122,688
Gulf	Grimes A-2	733,553	22,638	710,915	38,600	255,433	416,882
Gulf	Grimes B	828,087	22,461	805,626	0	219,842	585,784
Gulf	Hardin	14,210	868	13,342	2,635	10,707	0
Marathon	State 30	722,612	14,831	707,781	215,366	492,415	0
Marathon	State 32	659,767	11,773	647,994	140,555	0	507,439

TABLE 15 (CONTINUED)

PRIMARY OIL RESERVES - SAN ANDRES (MAIN ZONES)

Operator	Lease	Computed Reserves 9/1/76	Oil Prod. Last 4 Mos. 1976	Updated Reserves			
				Reserves 1/1/77	Zone I 1/1/77	Zone II 1/1/77	Zone III 1/1/77
Samedan	Moon A	938,621	12,688	925,933	872,574	53,359	0
Samedan	Moon B	972,510	12,667	959,843	920,565	39,278	0
Samedan	State C	1,170,137	36,784	1,133,353	1,133,353	0	0
Samedan	Turner A	954,858	12,323	942,535	942,535	0	0
Samedan	Turner B-1	122,996	4,020	118,976	118,976	0	0
Samedan	Turner B-2	144,737	3,720	141,017	141,017	0	0
Shell	Berry	902,943	24,811	878,132	213,309	367,941	296,882
Shell	Grimes	1,152,860	21,860	1,131,000	954,358	0	176,642
Shell	McKinley A	1,858,452	57,712	1,800,740	504,764	1,043,410	252,566
Shell	McKinley B	847,220	16,877	830,343	213,028	617,315	0
Shell	Rice	109,209	3,771	105,438	5,350	53,190	46,898
Shell	Sanger	2,574,637	48,249	2,526,388	2,477,975	48,413	0
Shell	State A	327,839	11,425	316,414	71,793	75,898	168,723
Shell	State B	336,907	16,236	320,671	195,800	0	124,871
Shell	State D	243,785	9,073	234,712	179,350	55,362	0
Shell	Turner	892,042	19,618	872,424	814,423	58,001	0
Sun	Fowler	38,160	1,425	36,735	2,104	34,631	0
Texaco	State C	1,208,490	31,655	1,176,835	864,638	293,806	18,391
Texas Pac.	State G	1,763,436	39,031	1,724,405	1,161,692	538,561	24,152
Wiser	Morris A	155,218	2,452	152,766	152,766	0	0
Wiser	Morris B	69,086	1,586	67,500	67,500	0	0
	TOTALS	37,399,192	812,784	36,586,408	21,248,859	7,634,869	7,702,680

TABLE 16

ULTIMATE OIL RECOVERIES (STB)

Zone	OOIP	Primary Recovery: Cumulative Oil @ 1/1/77	Primary Recovery: Reserves @ 1/1/77	Primary Recovery: Ultimate Primary	Secondary Recovery: Reserves	Secondary Recovery: Secondary Primary
Grayburg	61,566,390	10,014,725 (16.3%)	1,485,275 (2.4%)	11,500,000 (18.7%)	6,560,000 (10.7%)	0.57
San Andres Zone I	171,623,081	83,056,854 (48.4%)	21,248,859 (12.4%)	104,305,713 (60.8%)	0	0
San Andres Zone II	149,741,518	34,296,471 (22.9%)	7,634,869 (5.1%)	41,931,340 (28.0%)	18,000,000 (12.0%)	0.43
Zone III_U	155,394,214	31,570,468 (20.3%)	6,134,620 (4.0%)	37,705,088 (24.3%)	24,400,000 (15.7%)	0.65
Zone III_L	39,720,060	8,069,676 (20.3%)	1,568,060 (4.0%)	9,637,736 (24.3%)	6,240,000 (15.7%)	0.65
Subtotal II, III_U, III_L	344,855,792	73,936,615 (21.4%)	15,337,549 (4.5%)	89,274,164 (25.9%)	48,640,000 (14.1%)	0.54
UNIT TOTALS	578,045,263	167,008,194 (28.9%)	38,071,683 (6.6%)	205,079,877 (35.5%)	55,200,000 (9.6%)	0.27

TABLE 17

WATERFLOOD CAPITAL INVESTMENT REQUIERMENTS

I. INJECTION SYSTEM (60,000 BWPD @ 1500 PSIG SURFACE)	
A. Injection Station	
3 Centrifugal Pumps	$ 300,000
3 ∿ 6000 Bbl. Welded Tanks	290,000
Misc. Controllers, Meters, Bldg, Etc.	470,000
Piping, Valves, Fittings	390,000
Labor (Mechanical Inst.)	330,000
Taxes, Transportation, Contingencies	320,000
Subtotal	$ 2,100,000
B. Injection Lines	
270,000' of 3" Line Pipe, Cement Lined	$ 1,100,000
40,000' of 6' Line Pipe, Cement Lined	330,000
13,000' of 8' Line Pipe, Cement Lined	150,000
Labor	1,300,000
System Fittings, Crossings, ROW, Etc.	420,000
Taxes, Transportation, Contingencies	500,000
Subtotal	$ 3,800,000
C. Wellheads, and Manifolds	$ 1,100,000
INJECTION SYSTEM TOTALS	$ 7,000,000
II. PRODUCTION SYSTEM (185 WELLS, 15,000 BOPD & 70,000 BWPD)	
A. Two Central Tank Batteries	
4 ∿3000 Bbl. Welded Coated Tanks	$ 190,000
2 ∿10 ft. by 40 ft. FWKO	260,000
2 ∿10 ft. by 30 ft. Chemelectrics	210,000
LACT Units, Pumps, Transformers, Etc.	370,000
Misc. Pipe, Fittings, Valves	530,000
Labor, Dirt Work, Foundations, Etc.	660,000
Transportation, Taxes, Contingencies	380,000
Subtotal	$ 2,600,000
B. Fourteen New Satellite Stations	
185 Automatic Well Manifolds &.Valves	$ 740,000
14 ∿ 125# Analyzer Separator, Panels	740,000
28 Transfer Pumps, Controls, Fittings, Pipe	700,000
Labor	450,000
Transformers, Transportation, Taxes, Contingencies	470,000
Subtotal	$ 3,100,000
C. Gathering and Distribution Lines	
500,000' of 3" Line Pipe Coated	$ 2,200,000
6" Fiberglass, & Misc. Lines, ROW, Crossing	550,000
Labor	1,170,000
Fittings, Valves, Transportation, Taxes, Contingencies	780,000
Subtotal	$ 4,700,000
D. Additional Electrification	$ 600,000
PRODUCTION SYSTEM TOTALS	$11,000,000

III. SOURCE WATER GATHERING SYSTEM	
32,000' of 12" Class 200 Cement Asbestos Pipe	$ 250,000
Miscellaneous ROW, Damages, Crossing, Etc.	180,000
Transfer Pump, Bldg., Transportation, Taxes, Contingencies	170,000
SOURCE WATER GATHERING SYSTEM TOTALS	$ 600,000
IV. WELL WORK	
Drill and Equip 15½ Unit Injectors	$ 2,325,000
Drill and Equip 5 Producers	950,000
Convert 52 Wells To Injectors	988,000
Restore 19 TA Wells	342,000
Install 5 Large Pumping Units	250,000
Miscellaneous	145,000
WELL WORK TOTALS	$ 5,000,000
INITIAL CAPITAL INVESTMENT (I-IV)	$23,600,000
FUTURE CAPITAL INVESTMENT INSTALL 20 LARGE PUMPING UNIT (THRU 1999)	$ 1,000,000
ULTIMATE WATERFLOOD CAPITAL INVESTMENT	$24,600,000

TABLE 18

OPERATING COSTS FOR GRAYBURG WATERFLOOD - M$

Year	No. Wells I	No. Wells P	DOC	Work Overs	Stiumlation[2]	Water[3]	Totals
1979	44	40	$706	$850[1]	$34	$151	$1,741
1980	44	40	706	17	34	151	908
1981	44	40	706	17	34	151	908
1982	44	40	706	17	34	151	908
1983	44	40	706	17	34	151	908
1984	44	40	706	0	34	100	840
1985	44	40	706		34	95	835
1986	44	40	706		34	89	829
1987	44	40	706		34	89	829
1988	44	40	706		34	89	829
1989	44	30	622		26	93	741
1990	44	30	622		26	93	741
1991	44	30	622		26	93	741
1992	44	30	622		26	93	741
1993	44	30	622		26	93	741
1994	44	30	622		26	93	741
1995	44	30	622		26	93	741
1996	44	30	622		26	93	741
1997	44	30	622		26	93	741
1998	44	30	622		26	93	741
1999	44	20	533		17	93	648
2000 to 2015.0	44	20	538		17	93	648
			538		17	93	648

Notes: (1) Deepen 3 Wells ($99), convert 39 wells to inj. ($546), restore 12 TA ($120), squeeze & reperf 5 wells ($85).

(2) Acidize every inj. every 7 years @ $6/well.

(3) 1.56 ¢/BW purchased and 2.44 ¢/BW produced & injected.

TABLE 19

OPERATING COSTS FOR SAN ANDRES WATERFLOOD - M$

Year	No. Wells I	No. Wells P	DOC	Work Overs	Acidize[2]	Water[3]	Totals
1979	27 1/2	116	$1,623	$1,262[1]	$123	$511	$3,519
1980	27 1/2	116	1,623	170	123	511	2,427
1981	27 1/2	116	1,623	170	123	511	2,427
1982	27 1/2	116	1,623	170	123	511	2,427
1983	27 1/2	116	1,623	85	123	511	2,342
1984	27 1/2	116	1,623	85	123	757	2,588
1985	27 1/2	116	1,623	85	123	677	2,508
1986	27 1/2	116	1,623	85	123	626	2,457
1987	27 1/2	116	1,623	85	123	626	2,457
1988	22 1/2	116	1,581	85	119	626	2,411
1989	22 1/2	116	1,581	85	119	667	2,452
1990	22 1/2	116	1,581	85	119	667	2,452
1991	22 1/2	116	1,581	85	119	667	2,452
1992	22 1/2	116	1,581	85	119	667	2,452
1993	22 1/2	116	1,581	85	119	667	2,452
1994	17 1/2	100	1,347	51	101	660	2,159
1995	17 1/2	100	1,347	51	101	660	2,159
1996	17 1/2	100	1,347	51	101	660	2,159
1997	17 1/2	100	1,347	51	101	660	2,159
1998	17 1/2	100	1,347	51	101	660	2,159
1999	17 1/2	100	1,347	51	101	660	2,159
2000 to 2014.0	17 1/2	100	1,347	51	101	660	2,159
	12 1/2	75	1,005	51	75	607	1,738

Notes: (1) Deepen 10 wells ($330), convert 13 wells ($182), restore 7 TA ($70), squeeze & reperf 40 wells ($680).

(2) Acidize each injector every 7 years @ $6/well.

(3) 1.56 ¢/BW purchased and 2.44 ¢/BW produced & injected.

TABLE 20

TRACT LOCATION AND WORKING INTEREST OWNERSHIP

Tract No.	Location of Tract	Tract Name	Working Interest Owner	Percent W.I.
1	N½ Sec. 14, T18S - R37E	Getty - State B	Getty Oil Company	100.00000
2	SW¼ SE¼ & N½ SW¼ & SW¼ SW¼ Sec. 14, T18S - R37E	Amerada Hess - State WHB	Amerada Hess Corporation	100.00000
3	SE¼ SW¼, Sec. 14, T18S - R37E	Gulf - Lea FO State	Gulf Energy & Minerals Co. - U.S.	100.00000
4	N½ SE¼, Sec. 14, T18S - R37E	Texas Pacific - State V AC1	Texas Pacific Oil Co., Inc.	100.00000
5	SE¼ SE¼, Sec. 14, T18S - R37E	Estes Engrng - Stan. State	Estes, Russell G	6.25000
			Yeager & Armstrong	23.43750
			Armstrong, J M	23.43750
			Anderson, W D and Sons	23.43750
			Anderson Est., Warren D	11.71875
			Anderson Ada A	11.71875
				100.00000
6	W½ Sec. 13, T18S - R37E	Continental - State B 13	Continental Oil Company	100.00000
7	SE¼ Sec. 13, T18S - R37E	Shell - Rice	Shell Oil Company	100.00000
8	SW¼ Sec. 18, T18S - R38E	Amerada Hess - B Hardin	Amerada Hess Corporation	100.00000
9	E½ Sec. 18, T18S - R38E	Gulf - Dan Hardin	Gulf Energy & Minerals Co. - U.S.	100.00000
10	S½ NW¼ Sec. 17, T18S - R38E	Moranco - State T 17	Moranco	9.37500
			Moran, R. M.	28.12490
			Dunlavey, J. N.	4.68750
			First Roswell Company	9.37500
			Getty Oil Company	25.00000
			Laflin, George P.	4.68750
			McPeters, K. D.	7.03130
			Spear Howell	2.34380
			Whitley, Loyd	4.68750
			Williamson, A. T.	4.68750
				100.00000

TABLE 20 (CONTINUED)

TRACT LOCATION AND WORKING INTEREST OWNERSHIP

Tract No.	Location of Tract			Tract Name	Working Interest Owner	Percent W.I.
11	N½ SW¼	Sec. 17,	T18S - R38E	Chevron - State 1 17	Chevron Oil Company	100.00000
12	S½ SW¼	Sec. 17,	T18S - R38E	Getty (Skelly)-State A	Getty Oil Company	100.00000
13	N½ SE¼	Sec. 21,	T18S - R38E	Antweil-Hobbs Cone Towns	Del - Lea, Inc.	100.00000
14	SE¼ SE¼	Sec. 21,	T18S - R38E	Wiser - Morris B	Headley, Kenneth Noel	12.50000
					Two States Oil Co.	37.50000
					Wiser Oil Company, The	50.00000
						100.00000
15	SW¼ SE¼	Sec. 21,	T18S - R38E	Wiser - Morris A	Wiser Oil Company, The	50.00000
					Conrad Mary Daniel	6.25000
					Crile, Herman R.	9.37500
					Headley, Kennety Noel	9.37500
					Hurd, Peter	6.25000
					Judson, Ruby Wanda Conrad	1.25000
					McCarthy, Katheryn L. C.	1.25000
					Murdoch, Nathlyn I. Conrad	1.25000
					Rose, Francis I. Conrad	1.25000
					Treadaway, Bettye Conrad	1.25000
					Yeager Jr. Dr. Henry	4.06746
					Yeager Ruth Anne	3.02580
					Yeager Ruth Henry	1.04167
					Yeager Ruth Peeler	4.36507
						100.00000
16	SW¼	Sec. 21,	T18S - R38E	Gulf - W.D. Grimes NCT C	Gulf Energy & Minerals Co. - U.S.	100.00000
17	NE¼	Sec. 20,	T18S - R38E	C. H. Sweet - McKinley B	Sweet, C. H. Oil Co.	100.00000
18	N½ NW¼	Sec. 20,	T18S - R38E	Getty(Skelly)-H.D. McKinley	Getty Oil Company	100.00000
19	S½ NW¼	Sec. 20,	T18S - R38E	Chevron - H.D. McKinley	Chevron Oil Company	100.00000
20	NE¼ SE¼	Sec. 20,	T18S - R38E	C.H. Sweet - Grimes	Sweet, C. H. Oil Co.	100.00000

TABLE 20 (CONTINUED)

TRACT LOCATION AND WORKING INTEREST OWNERSHIP

Tract No.	Location of Tract	Tract Name	Working Interest Owner	Percent W.I.
21	NW¼ SE¼ Sec. 20, T18S - R38E	Bill Sweet-Bowers B Fed.	Sweet, Bill L.	100.00000
22	SE¼ SE¼ Sec. 20, T18S - R38E	Bill Sweet-Bowers B Fed.	Sweet, Bill L.	100.00000
23	SW¼ SE¼ Sec. 20, T18S - R38E	Atlantic Richfield - Grimes	Atlantic Richfield Co.	100.00000
24	SW¼ Sec. 20, T18S - R38E	Shell - McKinley B	Shell Oil Company	100.00000
25	NE¼ Sec. 19, T18S - R38E	Getty - Boone Hardin	Getty Oil Company	100.00000
26	NW¼ Sec. 19, T18S - R38E	Cities Service - Hardin	Cities Service Oil Co.	100.00000
27	S½ Sec. 19, T18S - R38E	Shell - McKinley A	Shell Oil Company	100.00000
28	NE¼ Sec. 24, T18S - R37E	Gulf - Graham State A	Gulf Energy & Minerals Co. - U.S.	100.00000
29	E½ NW¼ Sec. 24, T18S - R37E	Shell - State D	Shell Oil Company	100.00000
30	W½ NW¼ Sec. 24, T18S - R37E	Amerada Hess - State E	Amerada Hess Corporation Getty Oil Company	50.00000 50.00000 100.00000
31	SE¼ Sec. 24, T18S - R37E	Texas Pacific - State G	Texas Pacific Oil Co., Inc.	100.00000
32	SW¼ Sec. 24, T18S - R37E	Samedan - State C	Samedan Oil Corporation Forbes C. C. Forbes, Ilamae Kemnitz, A. A. Morris, G. D. Noble, Richard L. Potales National Bank Roring John Sea Properties, LTD. Spalding Smith, Est. of Sullivan, E. C. Tate, M. R., Est. of	37.80000 1.90000 1.85000 28.75000 1.25000 15.20000 1.87500 3.75000 .75000 1.25000 1.87500 3.75000 100.00000

TABLE 20 (CONTINUED)

TRACT LOCATION AND WORKING INTEREST OWNERSHIP

Tract No.	Location of Tract	Tract Name	Working Interest Owner	Percent W.I.
33	E½ NE¼ & NE¼ SE¼ Sec. 23, T18S - R37E	C. H. Sweet - State F	Sweet, C. H. Oil Co.	100.00000
34	W½ NE¼ Sec. 23, T18S - R37E	Shell - State F	Shell Oil Company	100.00000
35	E½ NW¼ & SW¼ Sec. 23, T18S - R37E	Texas Pacific - State V AC2	Texas Pacific Oil Co., Inc.	100.00000
36	W½ NW¼ Sec. 23, T18S - R37E	C&C Oper. - Shipp A	C&C Operating Co.	100.00000
37	S½ SE¼ & NW¼ SE¼ Sec. 23, T18S - R37E	John A Yates-Shell State	Yates, John A.	100.00000
38	NW¼ NE¼ Sec. 26, T18S - R37E	Wiser - State L	Wiser Oil Company, The	100.00000
39	E½ NE¼ Sec. 26, T18S - R37E	Getty(Skelly) - Hobbs B	Getty Oil Company	100.00000
40	N½ NW¼ Sec. 25, T18S - R37E	Continental - State B 25	Continental Oil Co.	100.00000
41	S½ NW¼ Sec. 25, T18S - R37E	Samedan - State B	Samedan Oil Corporation	100.00000
42	NE¼ Sec. 25, T18S - R37E	Texaco - N.M. DD B C ST	Texaco, Inc.	100.00000
43	S½ Sec. 25, T18S - R37E	Exxon - N.M. State A	Exxon Company - U.S.A.	100.00000
44	NW¼ Sec. 30, T18S - R38E	Amerada - H. D. McKinley	Amerada Hess Corporation	100.00000
45	NE¼ Sec. 30, T18S - R38E	Getty - H. D. McKinley	Getty Oil Company	100.00000
46	SW¼ Sec. 30, T18S - R38E	Marathon - State Sec. 32	Marathon Oil Company	100.00000
47	SW¼ NW¼ & W½ SW¼ Sec. 29 & SE¼ Sec. 30, T18S - R38E	Exxon - Bowers A Federal	Exxon Company - U.S.A.	100.00000
48	NW¼ NW¼ Sec. 29, T18S - R38E	Exxon - Bowers A Fed. Com.	Exxon Company - U.S.A.	100.00000

TABLE 20 (CONTINUED)

TRACT LOCATION AND WORKING INTEREST OWNERSHIP

Tract No.	Location of Tract	Tract Name	Working Interest Owner	Percent W.I.
49	W½ NE¼ & E½ NW¼ Sec. 29, T18S - R38E	Amerada - State B	Amerada Hess Corporation	100.00000
50	NE¼ NE¼ Sec. 29, T18S - R38E	Exxon - W. D. Grimes	Exxon Company - U. S. A. Cities Service Oil Co.	75.00000 25.00000 100.00000
51	E½ SW¼ & NW¼ SE¼ Sec. 29, T18S - R38E	Continental - State A 29	Continental Oil Co.	100.00000
52	SE¼ NE¼ & NE¼ SE¼ Sec. 29, T18S - R38E	Getty - W. D. Grimes	Getty Oil Company	100.00000
53	S½ SE¼ Sec. 29, T18S - R38E	Chevron - State I 29	Chevron Oil Company	100.00000
54	NW¼ Sec. 28, T18S - R38E	Atlantic - W.D. Grimes SOC	Atlantic Richfield Co.	100.00000
55	W½ NE¼ Sec. 28, T18S - R38E	Samedan - Moon A	Samedan Oil Corporation Cusack, Jr., J. P. Cusack, Michael F. Sea Properties, LTD.	48.50000 25.00000 25.00000 1.50000 100.00000
56	E½ NE¼ Sec. 28, T18S - R38E	Samedan - Moon B	Samedan Oil Corporation Cusack, Jr., J. P. Cusack, Michael F. Sea Properties, LTD.	48.50000 25.00000 25.00000 1.50000 100.00000
57	SW¼ Sec. 28, T18S - R38E	Shell - Grimes	Shell Oil Company	100.00000
58	SE¼ Sec. 28, T18S - R38E	Continental - W.D. Grimes	Continental Oil Co.	100.00000
59	Sec. 27, T18S - R38E	Shell - Sanger	Shell Oil Company	100.00000

TABLE 20 (CONTINUED)

TRACT LOCATION AND WORKING INTEREST OWNERSHIP

Tract No.	Location of Tract	Tract Name	Working Interest Owner	Percent W.I.
60	E½ NE¼ Sec. 34, T18S - R38E	Moranco - Hobbs	Moranco	23.44000
			Moran, R. M.	18.75000
			Del - Lea, Inc.	18.75000
			Lowe, M. Ralph	25.00000
			McPeters, K. D.	4.68000
			Parrish, M. C. Estate	9.38000
				100.00000
61	W½ NE¼ Sec. 34, T18S - R38E	Shell - Turner	Shell Oil Company	100.00000
62	NE¼ NW¼ Sec. 34, T18S - R38E	Getty(Skelly)-B. H. Turner	Getty Oil Company	100.00000
63	SE¼ NW¼ Sec. 34, T18S - R38E	Getty(Skelly)B.H.Turner B 2	Getty Oil Company	100.00000
64	NE¼ SE¼ Sec. 34, T18S - R38E	Samedan - Turner B	Samedan Oil Corporation	62.50000
			Cusack, J. P.	37.50000
				100.00000
65	SE¼ SE¼ Sec. 34, T18S - R38E	Samedan - Turner B Bat 2	Samedan Oil Corporation	62.50000
			Cusack, J. P.	37.50000
				100.00000
66	W½ SE¼ Sec. 34, T18S - R38E	Samedan - Turner A	Samedan Oil Corporation	87.89100
			Cities Service Oil Co.	6.25000
			Williams, Hattie C.	5.85900
				100.00000
67	N½ NE¼ & SE¼ NE¼ & NE¼ SE¼ Sec. 33, T18S - R38E	Gulf - W.D. Grimes NCT B	Gulf Energy & Minerals Co. - U.S.	100.00000
68	N½ NW¼ Sec. 33, T18S - R38E	Shell - State B	Shell Oil Company	100.00000
69	S½ NW¼ Sec. 33, T18S - R38E	Amoco - State G	Amoco Production Co.	100.00000
70	SW¼ NE¼ & SW¼ & W½ SE¼ Sec. 33, T18S - R38E	Continental - State A 33	Continental Oil Co.	100.00000

TABLE 20 (CONTINUED)

TRACT LOCATION AND WORKING INTEREST OWNERSHIP

Tract No.	Location of Tract	Tract Name	Working Interest Owner	Percent W.I.
71	N½ NE¼ Sec. 32, T18S - R38E	Amerada Hess - State A	Amerada Hess Corporation	100.00000
72	S½ NE¼ Sec. 32, T18S - R38E	Shell - State A	Shell Oil Company	100.00000
73	NW¼ Sec. 32, T18S - R38E	Gulf-W.D. Grimes NCT A/2	Gulf Energy & Minerals Co. - U.S.	100.00000
74	SW¼ Sec. 32, T18S - R38E	Gulf-Grimes NCT A Bat 2	Gulf Energy & Minerals Co. - U.S.	100.00000
75	SE¼ Sec. 32, T18S - R38E	Marathon-State Sec. 32	Marathon Oil Company	100.00000
76	NE¼ Sec. 31, T18S - R38E	Cities Service - Fowler	Cities Service Oil Co.	100.00000
77	E½ NW¼ Sec. 31, T18S - R38E	Getty(Skelly)-Clara Fowler	Getty Oil Company	100.00000
78	W½ NW¼ Sec. 31, T18S - R38E	Sun - Clara Fowler	Sun Oil Co. (Delaware)	100.00000
79	SE¼ Sec. 31, T18S - R38E	Shell - Berry	Shell Oil Company	100.00000
80	SW¼ Sec. 31, T18S - R38E	Mobil - Nora Berry	Mobil Oil Corporation	100.00000
81	SE¼ & S½ NE¼ & NE¼ NE¼ Sec. 36, T18S - R37E	Amerada Hess - State C	Amerada Hess Corporation	100.00000
82	NW¼ NE¼ Sec. 36, T18S - R37E	Byrom - J.R. Holt State	Byrom, W. K. Gulf Energy & Minerals Co. - U.S. McPheron, Margarat M. McPheron, Robert L. Wallace, Colleen McPheron	58.59375 6.25000 17.57813 8.78906 8.78906 100.00000
83	E½ NW¼ Sec. 36, T18S - R37E	Gulf - J. R. Holt NCT D	Gulf Energy & Minerals Co. - U.S.	100.00000

TABLE 21 A

UNITIZATION PARAMETERS – WELLS, PRODUCTION AND GAS CAP VOLUMETRICS

TR NO.	TRACT NAME OPERATOR – LEASE	NUMBER OF WELLS 1/1/77 USEABLE NO.	USEABLE %	ACTIVE NO.	ACTIVE %	CUMULATIVE * OIL PROD. 1/1/77 BBLS	%	CURRENT PROD., YEAR 1976 OIL BBLS	OIL %	GAS MCF	GAS %	ORIGINAL GRAYBURG UPPER MCF	GRAYBURG UPPER %	GRAYBURG LWR. MCF	GRAYBURG LWR. %	GI M
1	GETTY – STATE 8	2.00	.82987	2.00	.90090	59348	.03554	1727	.07032	1202	.01591	0	.00000	0	.00000	
2	AMERADA HESS-STATE AHB	2.00	.82987	1.00	.45045	130743	.07830	2188	.07476	12256	[illegible]	5348	.01179	0	.00000	
3	GULF – LEA FO STATE	1.00	.41494	1.00	.45045	69918	.04186	1381	.05039	4246	.05618	0	.00000	0	.00000	
4	TEXAS PACIF-STATE N AC1	2.00	.82987	2.00	.90090	197173	.11806	4577	.14702	39120	.51739	48391	.10668	0	.00000	4
5	ESTES ENGR. – STATE	1.00	.41494	1.00	.45045	75154	.04500	3681	.13432	31014	.41038	209759	.46247	0	.00000	20
6	CONTINENTAL – STATE A 13	6.00	2.48963	5.00	2.25226	844944	.50594	3683	.13439	8716	.11533	1573401	3.46890	29414	11.97707	160
7	SHELL – RICE	4.00	1.65975	4.00	1.80180	1703730	1.02014	15090	.55064	102528	1.35665	1640285	3.61642	41148	16.75503	168
8	AMERADA HESS – B HARDIN	4.00	1.65975	.00	.00000	1819682	1.08961	0	.00000	0	.00000	1228981	2.70960	513	.20889	122
9	GULF – DAN HARDIN	9.00	3.73444	8.00	3.60361	1774997	1.06281	13604	.49642	130845	1.73135	258603	.57015	0	.00000	25
10	MORANCO – STATE T 17	1.00	.41494	1.00	.45045	71881	.04305	1681	.06134	2742	.03628	0	.00000	0	.00000	
11	CHEVRON – STATE 1 17	1.00	.41494	.00	.00000	61888	.03706	0	.00000	0	.00000	0	.00000	0	.00000	
12	GETTY(SKELLY)-STATE A	1.00	.41494	1.00	.45045	291241	.17439	1165	.04251	2149	.02170	0	.00000	0	.00000	
13	ANTWEIL-HOBBS COMB TOWNS	1.00	.41494	1.00	.45045	42923	.02570	3162	.11538	43477	.57529	0	.00000	0	.00000	
14	WISER – MORRIS B	1.00	.41494	1.00	.45045	507021	.30359	4302	.15717	45243	.59872	0	.00000	0	.00000	
15	WISER – MORRIS A	1.00	.41494	1.00	.45045	573247	.34324	8816	.32170	18127	.23986	0	.00000	0	.00000	
16	GULF – A D GRIMES NCT C	3.00	1.24481	3.00	1.35135	1477314	.88461	6387	.23307	20425	.27026	0	.00000	0	.00000	
17	C M SWEET – MCKINLEY B	1.00	.41494	1.00	.45045	96732	.05792	1126	.04109	25699	.34005	0	.00000	0	.00000	
18	GETTY(SKELLY)-MCKINLEY	1.00	.41494	1.00	.45045	604108	.36292	1154	.04211	5495	.07271	0	.00000	0	.00000	
19	CHEVRON – H D MCKINLEY	2.00	.82988	2.00	.90090	1408200	.84319	15031	.54849	25580	.33848	0	.00000	0	.00000	
20	C M SWEET – GRIMES	2.00	.82988	1.00	.45045	293234	.17558	112	.00409	0	.00000	0	.00000	0	.00000	
21	BILL SWEET-BOWERS A FED.	1.00	.41494	1.00	.45045	373039	.22336	1112	.04058	3110	.04115	0	.00000	0	.00000	
22	BILL SWEET-BOWERS B FED.	.00	.00000	.00	.00000	449542	.26917	0	.00000	0	.00000	0	.00000	0	.00000	
23	ATLANTIC RICH.-GRIMES	1.00	.41494	1.00	.45045	865576	.51828	3216	.11735	20072	.26559	0	.00000	0	.00000	
24	SHELL – MCKINLEY B	5.00	2.07469	4.00	1.80180	3705794	2.21867	51070	1.86356	119785	1.58500	2407	.00531	0	.00000	
25	GETTY – BOONE HARDIN	4.00	1.65975	4.00	1.80180	3209069	1.92149	15077	.55017	65683	.86912	267801	.59043	0	.00000	26
26	CITIES SERVICE – HARDIN	5.00	2.07469	5.00	2.25226	3442516	2.06127	27971	1.02068	37303	.49359	1497344	3.30127	5482	2.23221	150
27	SHELL – MCKINLEY A	9.00	3.73444	9.00	4.05406	9350690	5.59891	166619	6.08003	289879	3.83569	2277537	5.02140	11402	4.64277	228
28	GULF-GRAHAM STATE NCT A	6.00	2.48963	5.00	2.25226	2986251	1.78808	81708	2.03282	109209	1.45167	2047694	4.51466	63786	25.97290	211
29	SHELL – STATE D	2.00	.82987	2.00	.90090	1079156	.64617	30411	1.10972	89983	1.19066	840064	1.85213	8204	3.37316	84
30	AMERADA HESS-STATE C	2.00	.82987	2.00	.90090	1025646	.61408	10245	.37385	33592	.44449	550577	1.21386	449	.18283	56
31	TEXAS PACIF.-STATE G	4.00	1.65975	4.00	1.80180	4224573	2.52954	116644	4.25641	137507	1.81950	1780082	3.92463	10065	4.09836	179
32	SAMEDAN – STATE C	4.00	1.65975	4.00	1.80180	3483030	2.08563	111284	4.06090	153191	2.02637	466490	1.02849	0	.00000	46
33	C M SWEET – STATE F	4.00	1.65975	3.00	1.35135	643367	.38523	8527	.31116	111733	1.47846	230183	.50750	0	.00000	23
34	SHELL – STATE F	2.00	.82987	2.00	.90090	127450	.07631	1745	.06368	19411	.25699	28863	.06364	0	.00000	2
35	TEXAS PACIF.-STATE V AC2	4.00	1.65975	4.00	1.80180	299905	.17957	4665	.17023	15187	.20096	0	.00000	0	.00000	
36	CRC OPER. – SMITH A	1.00	.41494	1.00	.45045	18532	.01110	799	.02916	42	.00056	0	.00000	0	.00000	
37	JOHN A YATES-SHELL STATE	3.00	1.24481	3.00	1.35135	423355	.25349	5824	.21252	29571	.39128	0	.00000	0	.00000	
38	WISER – STATE L	1.00	.41494	1.00	.45045	10243	.00615	286	.01044	0	.00000	0	.00000	0	.00000	
39	GETTY(SKELLY) – HOBBS E	1.00	.41494	1.00	.45045	88198	.05281	1802	.06576	5070	.06709	0	.00000	0	.00000	
40	CONTINENTAL – STATE B 25	2.00	.82987	2.00	.90090	977964	.58557	5067	.18453	8290	.10903	28921	.06392	0	.00000	2
41	SAMEDAN – STATE A	2.00	.82987	2.00	.90090	393201	.23544	3074	.11217	13285	.17579	75	.00017	0	.00000	
42	TEXACO – H.M.A. DD B C ST	4.00	1.65975	4.00	1.80180	4474336	2.68029	92971	3.39257	284141	3.75849	1139491	2.51273	27	.01099	113
43	EXXON – N.M. STATE A	6.00	2.48963	6.00	2.70271	3396180	2.03353	36878	1.34570	347471	4.59776	217081	.47861	0	.00000	21
44	AMERADA – H D MCKINLEY	4.00	1.65975	4.00	1.80180	5225113	3.12869	87842	3.20541	152411	2.01671	2133476	4.70422	29355	11.95304	216
45	GETTY – H D MCKINLEY	5.00	2.07469	5.00	2.25226	5381702	3.22240	88127	3.21581	246112	3.25656	1768102	3.89822	21916	8.92396	179
46	MARATHON-STATE SEC. 30	4.00	1.65975	4.00	1.80180	3994627	2.39186	46500	1.69681	107583	1.42354	1380436	3.04352	0	.00000	138
47	EXXON-BOWERS A FEDERAL	8.00	3.31950	7.00	3.15316	9175248	5.49387	105400	3.84611	335605	4.44078	1993096	[illegible]	23745	9.66871	351
48	EXXON-BOWERS A FED COM	1.00	.41494	1.00	.45045	936400	.56069	16198	.59108	19385	.25650	138192	.30468	0	.00000	13
49	AMERADA – STATE B	4.00	1.65975	4.00	1.80180	4921053	2.94660	43173	1.57541	200232	2.64954	524724	1.15688	0	.00000	52
50	EXXON – H D GRIMES	1.00	.41494	1.00	.45045	1162183	.69588	3905	.14250	32741	.43323	2834	.00625	0	.00000	
51	CONTINENTAL-STATE A 29	3.00	1.24481	2.00	.90090	3743702	2.24164	45198	1.64930	115523	1.52861	1059171	2.33521	0	.00000	105
52	GETTY – H D GRIMES	2.00	.82987	2.00	.90090	2706407	1.62051	24984	.91168	166164	2.19869	494530	1.09031	0	.00000	49
53	CHEVRON – STATE 1 29	2.00	.82987	2.00	.90090	2163965	1.29572	52872	1.92933	21547	.28511	776460	1.70969	0	.00000	77
54	ATLANTIC- H D GRIMES SOC	4.00	1.65975	4.00	1.80180	3187125	1.90835	34014	1.24119	201190	2.66215	76102	.16779	0	.00000	7
55	SAMEDAN – HOOD A	2.00	.82987	2.00	.90090	1545624	.92547	41888	1.52706	105887	1.40110	64	.00014	0	.00000	
56	SAMEDAN – HOOD B	2.00	.82987	2.00	.90090	1453867	.87053	37877	1.38216	90341	1.19540	0	.00000	0	.00000	
57	SHELL – GRIMES	5.00	2.07469	5.00	2.25226	3916533	2.34467	73467	2.68086	157142	2.07937	896753	1.97712	0	.00000	89
58	CONTINENTAL – H D GRIMES	4.00	1.65975	4.00	1.80180	3043992	1.82265	51921	1.89463	232045	3.07043	300830	.66325	0	.00000	30
59	SHELL – SANGER	6.00	2.48963	6.00	2.70270	3784672	2.26619	149428	5.45274	396389	5.24504	3872	.00854	0	.00000	
60	MORANCO – HOBBS	1.00	.41494	1.00	.45045	135526	.08115	5419	.19774	25428	.33646	0	.00000	0	.00000	
61	SHELL – TURNER	2.00	.82987	2.00	.90090	1533639	.91830	66731	2.44277	62618	.82729	0	.00000	0	.00000	
62	GETTY(SKELLY)-RM TURNER	1.00	.41494	1.00	.45045	951135	.56951	28955	1.05659	29055	.38446	455	.00100	0	.00000	
63	GETTY(SKELLY)-TURNER #2	1.00	.41494	1.00	.45045	974854	.58371	28184	1.06385	103150	1.36488	19258	.04246	0	.00000	1
64	SAMEDAN – TURNER B	1.00	.41494	1.00	.45045	644673	.38601	12818	.46774	54080	.71559	0	.00000	0	.00000	
65	SAMEDAN – TURNER B BAT 2	1.00	.41494	1.00	.45045	504820	.30227	11183	.40642	20828	.27560	0	.00000	0	.00000	
66	SAMEDAN – TURNER A	2.00	.82988	2.00	.90090	1661673	.99497	41077	1.49893	37888	.50139	0	.00000	0	.00000	
67	GULF – H D GRIMES NCT B	4.00	1.65975	4.00	1.80180	3364575	2.01460	66490	2.43178	233340	3.08763	1179929	2.60145	0	.00000	117
68	SHELL – STATE B	2.00	.82988	2.00	.90090	1605180	.96113	40060	1.46181	127062	1.68129	690587	1.52257	0	.00000	69
69	AMOCO – STATE G	2.00	.82988	2.00	.90090	2327404	1.39370	54984	2.00538	60244	.79716	881137	1.94269	0	.00000	88
70	CONTINENTAL – STATE J 33	7.00	2.90456	7.00	3.15316	7263172	4.34898	150165	5.47962	288012	3.81099	2876047	6.34096	0	.00000	287
71	AMERADA HESS – STATE A	2.00	.82988	2.00	.90090	2488325	1.48764	42063	1.53458	79376	1.05031	868462	1.91474	0	.00000	86
72	SHELL – STATE A	3.00	1.24481	2.00	.90090	2209771	1.32316	33646	1.22776	70556	.93360	895737	1.97403	0	.00000	89
73	GULF – H D GRIMES NCT A/2	5.00	2.07469	5.00	2.25226	4914723	2.94338	82743	3.01924	280481	3.71138	1817644	4.00705	0	.00000	181
74	GULF-GRIMES NCT A BAT 2	5.00	2.07469	5.00	2.25225	4619681	2.76612	69272	2.52778	301535	3.98992	2049942	4.51961	0	.00000	204
75	MARATHON-STATE SEC 32 1A	4.00	1.65975	4.00	1.80180	4887926	2.93273	33483	1.22073	145984	1.93167	1890678	4.16847	0	.00000	169
76	CITIES SERVICE – FOWLER	5.00	2.07469	3.00	1.35135	4227009	2.53100	62607	2.28457	33041	.43720	1520222	3.35171	0	.00000	152
77	GETTY(SKELLY)- FOWLER	2.00	.82988	2.00	.90090	2148424	1.29411	38735	1.41346	51606	.68285	286658	.63201	0	.00000	28
78	SUN – CLARA FOWLER	2.00	.82988	2.00	.90090	901669	.53989	9582	.34965	63931	.84594	32452	.07153	0	.00000	3
79	SHELL – BERRY	4.00	1.65975	4.00	1.80180	3231934	1.93518	77304	2.82102	314808	4.16555	931087	2.05281	0	.00000	93
80	MOBIL – NONA PERRY	4.00	1.65975	4.00	1.80180	1729834	1.03577	36176	1.32001	146136	1.93368	28917	.06375	0	.00000	2
81	AMERADA HESS – STATE C	3.00	1.24481	2.00	.90090	696437	.41405	6681	.24379	24519	.32437	0	.00000	0	.00000	
82	BYRON – J R HOLT STATE	1.00	.41494	1.00	.45045	203697	.12197	3883	.14169	8060	.10666	0	.00000	0	.00000	
83	GULF – J R HOLT NCT O	1.00	.41494	.00	.00000	22926	.01373	0	.00000	0	.00000	0	.00000	0	.00000	
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		241.00	100.00000	222.00	100.00000	167008223	100.00000	2740427	100.00000	7557419	100.00000	45356628	100.00000	245586	100.00000	4540

*INCLUDES AN ADJUSTMENT OF AN ADDITIONAL 1029 BARRELS OF OIL FOR "LOST" PRODUCTION FROM 2 WELLS (#BL, 30C & 30K) WHICH WERE SHUT IN FOR SPECIAL BHP BUILD-UP SURVEYS REQUESTED BY THE TECHNICAL COMMITTEE

GAS CAP GAS IN PLACE

RAYBURG TOTAL.		S.A. ZONE I		UNIT TOTAL		TR
CF	%	MCF	%	MCF	%	NO.
0	.00000	0	.00000	0	.00000	1
5348	.01173	0	.00000	5348	.00967	2
0	.00000	0	.00000	0	.00000	3
48341	.10601	0	.00000	48341	.08817	4
209759	.45998	0	.00000	209759	.38093	5
1463018	3.21157	0	.00000	1463018	2.65687	6
1681923	3.68717	0	.00000	1681923	3.10162	7
1288884	2.82813	0	.00000	1288884	2.34796	8
258403	.56708	0	.00000	258403	.47702	9
0	.00000	0	.00000	0	.00000	10
0	.00000	0	.00000	0	.00000	11
0	.00000	0	.00000	0	.00000	12
0	.00000	0	.00000	0	.00000	13
0	.00000	0	.00000	0	.00000	14
0	.00000	0	.00000	0	.00000	15
0	.00000	0	.00000	0	.00000	16
0	.00000	0	.00000	0	.00000	17
0	.00000	0	.00000	0	.00000	18
0	.00000	0	.00000	0	.00000	19
0	.00000	0	.00000	0	.00000	20
0	.00000	0	.00000	0	.00000	21
0	.00000	0	.00000	0	.00000	22
0	.00000	0	.00000	0	.00000	23
3907	.00858	0	.00000	3907	.00688	24
267801	.58725	0	.00000	267801	.49399	25
1503826	3.29955	0	.00000	1503826	2.77214	26
2286939	5.01934	0	.00000	2286939	4.22225	27
2111682	4.63022	0	.00000	2111682	3.89881	28
848348	1.86032	0	.00000	848348	1.56489	29
551024	1.20833	0	.00000	551024	1.01684	30
1790147	3.92557	0	.00000	1790147	3.30214	31
466490	1.02296	0	.00000	466490	.86050	32
230183	.50476	0	.00000	230183	.42460	33
28843	.06328	0	.00000	28843	.05321	34
0	.00000	0	.00000	0	.00000	35
0	.00000	0	.00000	0	.00000	36
0	.00000	0	.00000	0	.00000	37
0	.00000	0	.00000	0	.00000	38
0	.00000	0	.00000	0	.00000	39
28981	.06357	0	.00000	28981	.05348	40
75	.00016	0	.00000	75	.00014	41
1138718	2.49726	0	.00000	1138718	2.10234	42
217061	.47603	0	.00000	217061	.40043	43
2163031	4.74426	0	.00000	2163031	3.99048	44
1790018	3.92529	0	.00000	1790018	3.30192	45
1380936	3.02913	0	.00000	1380936	2.54840	46
3918580	7.71188	403754	8.47826	3918580	7.23013	47
138192	.30304	0	.00000	138192	.25491	48
824728	1.80966	0	.00000	824728	.94702	49
2834	.00622	0	.00000	2834	.00523	50
1238564	2.71643	144380	3.03270	1238564	2.28471	51
510705	1.08494	14175	.10788	510705	.94206	52
1898869	4.16470	733809	8.40274	1898869	3.50186	53
76102	.16688	0	.00000	76102	.14036	54
48	.00010	0	.00000	48	.00012	55
0	.00000	0	.00000	0	.00000	56
1214148	2.66437	3.8435	3.71017	1214148	2.24038	57
332797	.65368	31967	.37131	332797	.61369	58
3872	.00848	0	.00000	3872	.00714	59
0	.00000	0	.00000	0	.00000	60
0	.00000	0	.00000	0	.00000	61
456	.00100	0	.00000	456	.00084	62
18268	.04023	0	.00000	18268	.03582	63
0	.00000	0	.00000	0	.00000	64
0	.00000	0	.00000	0	.00000	65
0	.00000	0	.00000	0	.00000	66
2287184	5.01679	1047357	12.12673	2287184	4.19523	67
1993107	4.37137	1302520	15.12992	1993107	3.67655	68
1844448	4.04707	1137047	13.17047	1844448	3.40700	69
4313456	9.46030	1937411	19.69625	4313456	7.95674	70
2098363	4.60193	1238901	15.23984	2098363	3.86333	71
1491661	3.27127	595924	6.92196	1491661	2.75186	72
1986178	4.35583	135814	1.60184	1986178	3.66495	73
2053730	4.50527	3788	.04400	2053730	3.78837	74
2081401	4.56603	180823	2.21480	2081401	3.83940	75
1520222	3.33364	0	.00000	1520222	2.80426	76
284488	.62394	0	.00000	284488	.52478	77
32492	.07126	0	.00000	32492	.05994	78
931087	2.04174	0	.00000	931087	1.71761	79
28917	.06341	0	.00000	28917	.05334	80
0	.00000	0	.00000	0	.00000	81
0	.00000	0	.00000	0	.00000	82
0	.00000	0	.00000	0	.00000	83
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45610	100.00000	8608184	100.00000	54211394	100.00000	

TABLE 21 B

UNITIZATION PARAMETERS – WELLS, PRODUCTION AND GAS CAP VOLUMETRICS

WIO	WORKING INTEREST	NO. OF WELLS 1/1/77				CUMULATIVE OIL PROD. 1/1/77		CURRENT PROD., YEAR 1976				ORIGINAL				
		USEABLE		ACTIVE				OIL		GAS		GB UPPER		GB LOWER		
NO.	OWNER	NO.	%	NO.	%	BBLS.	%	BBLS.	%	MCF	%	MCF	%	MCF	%	MI
1	AMERADA HESS CORP.	20.00	8.29875	14.00	6.30631	15788495	9.45367	187029	6.82481	485590	6.42535	5036400	11.10418	30093	12.25355	506
2	AMOCO PRODUCTION CO.	2.00	.82987	2.00	.90090	2327604	1.39370	54954	2.00538	60214	.79715	881137	1.94269	0	.00000	88
3	ANDERSON ADA A	.12	.04979	.12	.05405	8807	.00527	431	.01573	3634	.04809	24581	.05419	0	.00000	2
4	ANDERSON EST., ANNE. D	.12	.04979	.12	.05405	8807	.00527	431	.01573	3634	.04809	24581	.05419	0	.00000	2
5	ANDERSON, W D AND SONS	.23	.09544	.23	.10360	17614	.01055	863	.03149	7269	.09618	49162	.10839	0	.00000	4
6	ARMSTRONG, J. W.	.23	.09544	.23	.10360	17614	.01055	863	.03149	7269	.09618	49162	.10839	0	.00000	4
7	ATLANTIC RICHFIELD CO.	5.00	2.07469	5.00	2.25225	4052701	2.42663	37230	1.35855	221262	2.92775	76102	.16779	0	.00000	7
8	BYRON, W. K.	.59	.24481	.59	.26577	119359	.07146	2275	.08302	4723	.06249	0	.00000	0	.00000	
9	C&C OPERATING CO.	1.00	.41494	1.00	.45045	18532	.01110	799	.02916	42	.00056	0	.00000	0	.00000	
10	CHEVRON OIL COMPANY	5.00	2.07469	4.00	1.80180	3638053	2.17594	67903	2.47782	47177	.62359	775960	1.70969	0	.00000	77
11	CITIES SERVICE OIL CO.	10.38	4.30705	8.38	3.77470	8063921	4.82843	94121	3.43454	80877	1.07043	3018275	6.65454	5482	2.23221	302
12	CONRAD MARY DANIEL	.06	.02490	.06	.02703	35828	.02145	551	.02011	1133	.01499	0	.00000	0	.00000	
13	CONTINENTAL OIL CO.	22.00	9.12863	20.00	9.00901	15913819	9.52870	256024	9.34248	652536	8.63438	5838640	12.87274	29414	11.97707	586
14	CRILE, HERMAN R.	.09	.03734	.09	.04054	53742	.03218	826	.03014	1699	.02248	0	.00000	0	.00000	
15	CUSACK, J. P.	.76	.31535	.76	.34234	431060	.25810	8986	.32791	28090	.37169	0	.00000	0	.00000	
16	CUSACK, JR., J. P.	1.00	.41494	1.00	.45045	749873	.44900	19931	.72730	49057	.64912	14	.00004	0	.00000	
17	CUSACK, MICHAEL F.	1.00	.41494	1.00	.45045	749873	.44900	19931	.72730	49057	.64912	16	.00004	0	.00000	
18	DELWLEA, INC. (ANTWELL)	1.19	.49378	1.19	.53604	68335	.04092	4178	.15246	48245	.63838	0	.00000	0	.00000	
19	DUNLAVEY, J. H.	.05	.02075	.05	.02252	3370	.00202	79	.00288	129	.00171	0	.00000	0	.00000	
20	ESTES, RUSSELL G.	.06	.02490	.06	.02703	4692	.00281	230	.00839	1938	.02564	13110	.02890	0	.00000	1
21	EXXON COMPANY - U.S.A.	15.75	6.53527	14.75	6.64414	14379485	8.60999	161405	5.88977	727217	9.62256	3850445	8.48927	23745	9.66871	387
22	FIRST ROSWELL COMPANY	.09	.03734	.09	.04054	6740	.00404	158	.00577	257	.00340	0	.00000	0	.00000	
23	FORBES C. C.	.08	.03319	.08	.03604	66178	.03962	2114	.07714	2910	.03851	8863	.01954	0	.00000	
24	FORBES, ILAVA	.07	.02905	.07	.03153	64934	.03858	2059	.07513	2833	.03749	8610	.01903	0	.00000	
25	GETTY OIL COMPANY	21.25	8.81743	21.25	9.57207	16963946	10.15719	236623	8.63452	693187	9.17228	3112093	6.86139	22141	9.01558	313
26	GULF ENERGY & MINERALS	35.06	14.13278	31.06	13.99099	19244014	11.52273	296978	10.80043	1081335	14.30787	7353639	16.21292	63786	25.97298	741
27	HEADLEY, KENNETH NOEL	.22	.09129	.22	.09910	117119	.07013	1365	.04981	7357	.09735	0	.00000	0	.00000	
28	HURD, PETER	.06	.02490	.06	.02703	35828	.02145	551	.02011	1133	.01499	0	.00000	0	.00000	
29	JUDSON, RUBY WANDA CONRA	.01	.00415	.01	.00451	7166	.00429	110	.00401	227	.00300	0	.00000	0	.00000	
30	KEMNITZ, A. A.	1.15	.47718	1.15	.51802	1001371	.59959	11995	[illegible]	44028	.58258	134116	.29569	0	.00000	13
31	LAFLIN, GEORGE P.	.05	.02075	.05	.02252	3370	.00202	79	.00288	129	.00171	0	.00000	0	.00000	
32	LOWE, M. RALPH	.25	.10373	.25	.11261	33881	.02029	1355	.04944	6357	.08412	0	.00000	0	.00000	
33	MARATHON OIL COMPANY	8.00	3.31950	8.00	3.60360	8892553	5.32459	79953	2.91754	253567	3.35521	3271114	7.21199	0	.00000	327
34	MCCARTHY, KATHRYN L. C.	.01	.00415	.01	.00451	7166	.00429	110	.00401	227	.00300	0	.00000	0	.00000	
35	MCPETERS, K. D.	.12	.04979	.12	.05405	11397	.00682	372	.01357	1383	.01830	0	.00000	0	.00000	
36	MCPHERON, MARGARAT M.	.18	.07469	.18	.08108	35806	.02144	683	.02492	1417	.01875	0	.00000	0	.00000	
37	MCPHERON, ROBERT L.	.09	.03734	.09	.04054	17903	.01072	341	.01244	708	.00937	0	.00000	0	.00000	
38	MOBIL OIL CORP.	4.00	1.65975	4.00	1.80180	1729839	1.03577	36174	1.32001	146136	1.93368	28817	.06375	0	.00000	2
39	MOHANCO	.32	.13278	.32	.14414	38507	.02306	1428	.05211	6217	.08226	0	.00000	0	.00000	
40	MORAN, W. H.	.47	.19502	.47	.21171	45430	.02732	1489	.05433	5539	.07329	0	.00000	0	.00000	
41	MORRIS, G. D.	.05	.02075	.05	.02252	43538	.02607	1391	.05076	1914	.02533	5831	.01286	0	.00000	
42	MURDOCH, KATHLYN L. CONRA	.01	.00415	.01	.00451	7166	.00429	110	.00401	227	.00300	0	.00000	0	.00000	
43	NOBLE, RICHARD L.	.61	.25311	.61	.27478	529420	.31700	16915	.61724	23277	.30800	70906	.15633	0	.00000	7
44	PARRISH, M.C. ESTATE	.09	.03734	.09	.04054	12712	.00761	504	.01839	2385	.03156	0	.00000	0	.00000	
45	PORTALES NATIONAL BANK	.07	.02905	.07	.03153	65307	.03910	2067	.07616	2871	.03799	8747	.01928	0	.00000	
46	ROKING JOHN	.15	.06224	.15	.06757	130613	.07821	4173	.15228	5743	.07599	17493	.03857	0	.00000	1
47	ROSE, FRANCIS L. CONRAD	.01	.00415	.01	.00451	7166	.00429	110	.00401	227	.00300	0	.00000	0	.00000	
48	SAMEDAN OIL CORP.	8.47	3.51452	8.47	3.81532	6343452	3.79950	134884	4.92200	246460	3.26117	176439	.38900	0	.00000	17
49	SEA PROPERTIES, LTD.	.08	.03734	.09	.04054	71118	.04258	2031	.07411	4092	.05416	3500	.00772	0	.00000	
50	SHELL OIL COMPANY	44.00	18.25726	42.00	18.91892	32449773	19.42993	699966	25.54221	1750281	23.15979	8207192	18.09490	60834	24.77095	826
52	SPALDING SMITH, EST. OF	.05	.02075	.05	.02252	43538	.02607	1391	.05076	1914	.02533	5831	.01286	0	.00000	
53	SPEAR HOWELL	.02	.00830	.02	.00901	1685	.00101	39	.00142	64	.00085	0	.00000	0	.00000	
54	SULLIVAN, C. C.	.07	.02905	.07	.03153	65307	.03910	2067	.07616	2871	.03799	8747	.01928	0	.00000	
55	SUN OIL CO. (DELAWARE)	2.00	.82987	2.00	.90090	901669	.53989	9582	.34965	63931	.84594	32452	.07155	0	.00000	3
56	SWEET, WILL L.	1.00	.41494	1.00	.45045	82564	.04264	1112	.04058	3110	.04116	0	.00000	0	.00000	
57	SWEET, C. W. OIL CO.	7.00	2.90456	5.00	2.25225	1033333	.61873	9765	.35633	137432	1.81851	230183	.50750	0	.00000	23
58	TATE, M. C., EST. OF	.15	.06224	.15	.06757	130613	.07821	4173	.15228	5743	.07599	17493	.03857	0	.00000	1
59	TEXACO, INC.	4.00	1.65975	4.00	1.80180	4476336	2.68029	92971	3.39257	286161	3.78649	1139691	2.51273	27	.01099	113
60	TEXAS PACIFIC OIL CO. INC	10.00	4.14938	10.00	4.50451	4721451	2.82718	125886	4.59366	191414	2.53289	1828423	4.03121	10065	4.09836	183
61	TREADAWAY, BETTYE CONRA	.01	.00415	.01	.00451	7166	.00429	110	.00401	227	.00300	0	.00000	0	.00000	
62	TWO STATES OIL CO.	.38	.15768	.38	.17117	190133	.11385	1615	.05893	16974	.22460	0	.00000	0	.00000	
63	WALLACE, COLLEEN MCPHERO	.09	.03734	.09	.04054	17903	.01072	341	.01244	708	.00937	0	.00000	0	.00000	
64	WHITLEY, LOYD	.05	.02075	.05	.02252	3370	.00202	79	.00288	129	.00171	0	.00000	0	.00000	
65	WILLIAMS, HATTIE C.	.12	.04979	.12	.05405	97358	.05829	2407	.08783	2220	.02937	0	.00000	0	.00000	
66	WILLIAMSON, A. T.	.05	.02075	.05	.02252	3370	.00202	79	.00288	129	.00171	0	.00000	0	.00000	
67	WISER OIL COMPANY, THE	2.00	.82987	2.00	.90090	550396	.31956	6848	.24989	31696	.41940	0	.00000	0	.00000	
68	YATES, JOHN A	3.00	1.24481	3.00	1.35135	433365	.25948	5826	.21262	28571	.38124	0	.00000	0	.00000	
69	YEAGER & ARMSTRONG	.23	.09544	.23	.10360	17614	.01055	863	.03149	7269	.09618	49162	.10839	0	.00000	4
70	YEAGER JACK-HENRY	.08	.03320	.08	.03603	33317	.01994	359	.01310	737	.00975	0	.00000	0	.00000	
71	YEAGER RUTH ANNE	.03	.01245	.03	.01361	17295	.01039	267	.00974	548	.00725	0	.00000	0	.00000	
72	YEAGER RUTH/MC RY	.01	.00415	.01	.00451	5871	.00352	92	.00336	189	.00250	0	.00000	0	.00000	
73	YEAGER RUTH PEELER	.04	.01660	.04	.01802	25023	.01498	385	.01405	791	.01047	0	.00000	0	.00000	
		241.00	100.00000	222.00	100.00000	167008223	100.00000	2740539	100.00000	7557114	100.00000	45354623	100.00000	245586	100.00000	4580

GAS CAP GAS IN PLACE

GB TOTAL		S. A. ZONE I		UNIT TOTAL		WIO NO.
CF	%	MCF	%	MCF	%	
6573	11.11037	1225901	14.23946	6292479	11.60729	1
1137	1.93223	881531	11.47047	1848441	3.44700	2
4581	.05390	0	.00000	24581	.04534	3
4581	.05390	0	.00000	24581	.04534	4
9162	.10781	0	.00000	49162	.09069	5
8143	.10781	0	.00000	58143	.09069	6
6102	.14688	0	.00000	76102	.14038	7
0	.00000	0	.00000	0	.00000	8
0	.00000	0	.00000	0	.00000	9
5840	1.71088	251408	3.27276	1498848	2.76484	10
3757	6.43072	0	.00000	3023757	5.57771	11
0	.00000	0	.00000	0	.00000	12
9054	12.86792	1635768	19.00027	7503822	13.84178	13
0	.00000	0	.00000	0	.00000	14
0	.00000	0	.00000	0	.00000	15
14	.00003	0	.00000	14	.00003	16
14	.00003	0	.00000	14	.00003	17
0	.00000	0	.00000	0	.00000	18
0	.00000	0	.00000	0	.00000	19
3110	.02875	0	.00000	13110	.02418	20
4197	6.49563	402759	4.67825	4276949	7.88939	21
0	.00000	0	.00000	0	.00000	22
8863	.01994	0	.00000	8863	.01635	23
8430	.01853	0	.00000	8430	.01892	24
4234	6.87279	16175	.18788	3150409	6.81134	25
7420	14.26558	1304859	15.08347	8426379	15.91288	26
0	.00000	0	.00000	0	.00000	27
0	.00000	0	.00000	0	.00000	28
0	.00000	0	.00000	0	.00000	29
4114	.29910	0	.00000	134114	.24738	30
0	.00000	0	.00000	0	.00000	31
0	.00000	0	.00000	0	.00000	32
1114	7.17315	190823	2.21650	3961937	6.38600	33
0	.00000	0	.00000	0	.00000	34
0	.00000	0	.00000	0	.00000	35
0	.00000	0	.00000	0	.00000	36
0	.00000	0	.00000	0	.00000	37
8147	.04384	0	.00000	348143	.05334	38
0	.00000	0	.00000	0	.00000	39
0	.00000	0	.00000	0	.00000	40
5831	.01279	0	.00000	5831	.01076	41
0	.00000	0	.00000	0	.00000	42
0904	.15549	0	.00000	78904	.13060	43
0	.00000	0	.00000	0	.00000	44
8747	.01918	0	.00000	87+7	.01613	45
7493	.03836	0	.00000	17493	.03227	46
0	.00000	0	.00000	0	.00000	47
4439	.38691	0	.00000	176439	.32546	48
3500	.09747	0	.00000	35000	.06464	49
8026	18.13076	2217859	26.76154	10485888	19.34759	50
5831	.01278	0	.00000	5831	.01076	51
0	.00000	0	.00000	0	.00000	52
8747	.01918	0	.00000	87+7	.01613	53
2452	.07116	0	.00000	32452	.05986	54
0	.00000	0	.00000	0	.00000	55
0183	.50478	0	.00000	230183	.42460	56
7493	.03836	0	.00000	17493	.03227	57
9718	2.49926	0	.00000	1139718	2.10236	58
8488	3.01156	0	.00000	1038488	1.91533	59
0	.00000	0	.00000	0	.00000	60
0	.00000	0	.00000	0	.00000	61
0	.00000	0	.00000	0	.00000	62
0	.00000	0	.00000	0	.00000	63
0	.00000	0	.00000	0	.00000	64
0	.00000	0	.00000	0	.00000	65
0	.00000	0	.00000	0	.00000	66
0	.00000	0	.00000	0	.00000	67
0	.00000	0	.00000	0	.00000	68
9162	.10781	0	.00000	49162	.09069	69
0	.00000	0	.00000	0	.00000	70
0	.00000	0	.00000	0	.00000	71
0	.00000	0	.00000	0	.00000	72
0	.00000	0	.00000	0	.00000	73
7210	100.00000	8809188	100.00000	54211384	100.00000	

TABLE 22 A

UNITIZATION PARAMETERS – ORIGINAL OIL IN PLACE

TR. NO.	TRACT NAME OPERATOR – LEASE	PRODUCTIVE ACRES ACRES	PRODUCTIVE ACRES %	BASAL GRAYBURG UPPER ZONE STB	UPPER ZONE %	LOWER ZONE STB	LOWER ZONE %	TOTALS STB	TOTALS %	SAN ANDRES ZONE I STB	ZONE I %	ZONE II STB	ZONE II %	ZONE III U STB	ZONE III U %
1	GETTY - STATE F	123.40	1.58567	670857	1.21982	53267	.81076	724124	1.17617	11916	.00694	0	.00000	0	.00000
2	AMERADA HESS-STATE LHB	134.60	1.72930	1054306	1.89418	26470	.40289	1068174	1.73600	139830	.08148	3538	.00236	0	.00000
3	GULF - LEA FD STATE	40.00	.51399	393944	.71631	39225	.59703	433169	.70358	0	.00000	0	.00000	0	.00000
4	TEXAS PACIFIC-STATE Y AC1	80.00	1.02799	1083814	1.97070	397178	6.04533	1480992	2.40652	365648	.21302	26393	.01763	0	.00000
5	ESTES ENGR. - STATE	40.00	.51399	403301	.73332	298499	4.54337	701800	1.13991	521338	.30377	222733	.14881	2281	.00147
6	CONTINENTAL - STATE A 13	269.80	3.46675	1430907	2.60183	1128513	17.17677	2559420	4.15717	3210742	1.87081	2052237	1.37519	1439404	.92420
7	SHELL - RICE	54.80	.70417	65700	.11946	174871	2.66166	240571	.39075	3137335	1.82804	3230431	2.15734	5711346	3.67539
8	AMERADA HESS - H HALDIN	144.00	1.85036	228243	.41683	20286	.30880	249631	.40530	2975162	1.73354	3002449	2.06532	4900434	3.15356
9	GULF - DAN HARDIN	318.90	4.09781	1633476	2.97015	0	.00000	1633476	2.65319	4089474	2.38282	2335267	1.55953	1654037	1.06441
10	MORANCO - STATE T 17	61.80	.79411	208704	.38130	0	.00000	208704	.34061	51017	.02973	1449	.00098	0	.00000
11	CHEVRON - STATE 1 17	80.00	1.02799	376630	.68391	0	.00000	376630	.53053	281615	.16409	44639	.02981	0	.00000
12	GETTY(SKELLY)-STATE A	80.00	1.02799	402190	.73130	0	.00000	402190	.65326	753007	.43874	136479	.09114	0	.00000
13	ANTWEIL-HOWNS COVE TOWNS	80.00	1.02799	182819	.33242	0	.00000	182819	.29695	69403	.04044	0	.00000	0	.00000
14	WISER - MORRIS B	40.00	.51399	94217	.17131	0	.00000	94217	.15303	143787	.08378	0	.00000	0	.00000
15	WISER - MORRIS A	40.00	.51399	162350	.29520	0	.00000	162350	.26370	586505	.34174	0	.00000	0	.00000
16	GULF - W D GRIMES WCT C	160.00	2.05597	286885	.48825	0	.00000	286885	.43370	2129681	1.35744	80431	.05364	0	.00000
17	C H SWEET - MCKINLEY B	160.00	2.05597	595770	1.08329	0	.00000	595770	.96769	1032621	.60168	71032	.04744	0	.00000
18	GETTY(SKELLY)-MCKINLEY	80.00	1.02799	480850	.87433	0	.00000	480850	.78103	1768824	1.03064	474603	.31695	0	.00000
19	CHEVRON - H D MCKINLEY	80.00	1.02799	533369	.96983	0	.00000	533369	.86633	2136553	1.24491	1330435	.88849	0	.00000
20	C H SWEET - GRIMES	40.00	.51399	224762	.40867	0	.00000	224762	.36506	842819	.49091	0	.00000	0	.00000
21	BILL SWEET-HOWERS B FED.	40.00	.51399	262941	.47811	0	.00000	262941	.42709	949579	.55329	160404	.10712	0	.00000
22	BILL SWEET-HOWERS D FED.	40.00	.51399	302418	.54989	0	.00000	302418	.49121	1061294	.61839	154726	.10333	0	.00000
23	ATLANTIC RICH.-GRIMES	40.00	.51399	330782	.60146	0	.00000	330782	.53728	1205593	.70247	305355	.20392	0	.00000
24	SHELL - MCKINLEY A	160.00	2.05597	1372401	2.60453	9872	.15026	1382273	2.25330	3947270	2.29996	2983722	1.99259	44130	.02840
25	GETTY - BOONE HARDIN	160.00	2.05597	1297980	2.36012	0	.00000	1297980	2.10826	4063641	2.36777	2941834	1.96461	1605224	1.03444
26	CITIES SERVICE - HARDIN	88.20	1.13336	139749	.25414	12498	.19023	152247	.24732	4117077	2.39891	4608392	3.08425	6682154	4.30013
27	SHELL - MCKINLEY A	247.20	3.43348	1312923	2.38729	157893	2.40324	1470816	2.38899	8212417	4.78515	8344151	5.57371	5552292	3.57304
28	GULF-GRAHAM STATE WCT A	55.70	.71574	64121	.11659	84520	1.28645	148641	.24143	3910032	2.27827	5112064	3.41117	6460862	4.15772
29	SHELL - STATE D	67.70	.86993	266462	.48451	77163	1.17448	343625	.55814	1456953	.84893	2499628	1.66930	1782789	1.14727
30	AMERADA HESS-STATE I	77.30	.99329	710246	1.29145	139892	2.12926	850138	1.38085	1145081	.66721	1716241	1.15942	608615	.39166
31	TEXAS PACIF.-STATE S	160.00	2.05597	542492	.98641	251420	3.82679	793912	1.28952	5106316	2.97531	5616963	3.76446	2825464	1.81826
32	SAMEDAN - STATE C	160.00	2.05597	2158814	3.91992	503132	7.65803	2661946	4.31883	3588851	2.09112	3217762	2.14220	633937	.40796
33	C H SWEET - STATE F	120.00	1.54198	1784550	3.29849	351661	5.35253	2138211	3.47302	1126461	.65636	932761	.62305	14895	.00959
34	SHELL - STATE	80.00	1.02799	829294	1.60791	352041	5.35832	1184335	1.92492	311439	.18158	46315	.03093	0	.00000
35	TEXAS PACIF.-STATE AC2	240.00	3.08396	1602796	2.91437	175129	2.66559	1777925	2.88782	60558	.03529	0	.00000	0	.00000
36	C&C OPER. - SHIPP	75.20	.96631	141876	.25797	1170	.01781	143046	.23203	0	.00000	0	.00000	0	.00000
37	JOHN A YATES-SHELL STATE	120.00	1.54198	1846730	3.35791	158022	2.40521	2004752	3.25624	545310	.31774	5713	.00349	0	.00000
38	WISER - STATE	40.00	.51399	441023	.80191	819	.01247	441842	.71767	2327	.00136	0	.00000	0	.00000
39	GETTY(SKELLY) - HOWNS C	79.30	1.01899	866092	1.57482	26043	.39639	892135	1.44906	103430	.06027	0	.00000	0	.00000
40	CONTINENTAL - STATE B 25	80.00	1.02799	1208635	2.19324	244168	3.71644	1452803	2.35966	1433678	.83536	744034	.49047	1303	.00084
41	SAMEDAN - STATE H	80.00	1.02799	1067614	1.94124	143951	2.19104	1211565	1.96790	657305	.38299	152776	.10202	0	.00000
42	TEXACO - ... ST	160.00	2.05597	1064164	1.93498	162432	2.58843	1232596	2.00206	4678075	2.72578	3453172	2.31227	608302	.39151
43	EXXON - ... STATE	297.70	3.82540	3325119	6.04607	428718	6.52539	3753837	6.09722	3462380	2.01743	1071069	.71528	89139	.05736
44	AMERADA - ...	76.30	.98044	113007	.20548	214481	3.26460	327488	.53226	3645360	2.12405	4427406	2.96 [illegible]	2914567	1.87559
45	GETTY - ...	82.70	1.06268	319957	.58178	203440	3.09650	523397	.85013	3742458	2.18063	5619344	3.75263	5306477	3.41485
46	MARATHON-STATE SEC. 30	153.20	1.96860	1445136	2.62767	278363	4.23688	1723499	2.79941	4234565	2.46736	4415163	2.94185	2451590	1.57766
47	EXXON-BOWERS A FEDERAL	66.00	.84809	237744	.43233	60191	.91615	297935	.48394	7661800	4.46432	10714640	7.14948	11771949	7.57564
48	EXXON-BOWERS A FED COM	40.00	.51399	435677	.79256	7544	.11483	443421	.72023	930960	.54244	1065949	.71186	382262	.24599
49	AMERADA - STATE B	160.00	2.05597	1138748	2.07064	0	.00000	1138748	1.84967	[illegible]	2.29454	[illegible]	[illegible]	[illegible]	[illegible]
50	EXXON - W D GRIMES	40.00	.51399	381078	.69291	0	.00000	381078	.61897	1019401	.59398	684256	.45696	58651	.03774
51	CONTINENTAL-STATE A 29	21.80	.28013	22300	.04055	0	.00000	22300	.03622	3564674	2.07756	3815556	2.54815	5640237	3.64260
52	GETTY - W D GRIMES	55.90	.71831	268813	.48878	0	.00000	268813	.43662	1531429	.89232	1641764	1.10976	2541521	1.63553
53	CHEVRON - STATE 1 20	.00	.00000	0	.00000	0	.00000	0	.00000	1661749	.96826	2616684	1.74079	4617642	2.97151
54	ATLANTIC- W D GRIMES SOC	140.00	2.05597	1097031	1.99473	0	.00000	1097031	1.78187	4063641	2.36777	2495291	1.65977	1192187	.76720
55	SAMEDAN - MOON A	80.00	1.02799	438044	.79926	0	.00000	438044	.70503	2322400	1.35611	457660	.30563	232647	.14971
56	SAMEDAN - MOON B	80.00	1.02799	295868	.53798	0	.00000	295868	.48057	1789305	1.04258	215284	.14377	10054	.00647
57	SHELL - GRIMES	56.10	.72088	129108	.23474	0	.00000	129108	.20971	3691267	2.15075	3323399	2.26614	6325873	4.07086
58	CONTINENTAL - W D GRIMES	141.70	1.82082	463726	.84319	0	.00000	463726	.75321	5036494	2.93462	2918559	1.94906	3164323	2.03633
59	SHELL - SAUGER	314.80	4.07083	689548	1.25381	0	.00000	689548	1.12001	2968785	1.72983	625978	.41804	221476	.14252
60	MORANCO - HOBBS	21.10	.27113	34073	.06195	0	.00000	34073	.05534	1117	.00065	0	.00000	0	.00000
61	SHELL - TURNER	79.00	1.01514	298721	.54316	0	.00000	298721	.48520	637296	.37136	220917	.14753	16245	.01045
62	GETTY(SKELLY)-W J TURNER	40.00	.51399	219254	.39867	0	.00000	219254	.35613	791318	.46108	146626	.09792	140109	.09016
63	GETTY(SKELLY)-TURNER B2	40.00	.51399	209254	.38049	0	.00000	209254	.33988	768198	.56418	414272	.27666	633751	.40783
64	SAMEDAN - TURNER B	32.60	.41891	71958	.13084	0	.00000	71958	.11688	61397	.03577	3538	.00236	0	.00000
65	SAMEDAN - TURNER B SAT 2	36.00	.46260	83970	.15268	0	.00000	83970	.13639	72416	.04231	1842	.00124	0	.00000
66	SAMEDAN - TURNER /	80.00	1.02799	535532	.97376	0	.00000	535532	.86984	1242032	.72416	933939	.62370	254804	.16397
67	GULF - W D GRIMES WCT A	28.60	.36622	33412	.06075	0	.00000	33412	.05427	2709094	1.57851	3648861	2.39670	6014002	3.87016
68	SHELL - STATE H	.00	.00000	0	.00000	0	.00000	0	.00000	642363	.37429	2341364	1.56360	3942616	2.53717
69	AMOCO - STATE C	.00	.00000	0	.00000	0	.00000	0	.00000	[illegible]	.65050	2252628	1.50765	4017092	2.58510
70	CONTINENTAL - STATE A 33	.00	.00000	0	.00000	0	.00000	0	.00000	5432152	3.16516	6940306	4.63486	12782081	8.22558
71	AMERADA HESS - STATE A	.00	.00000	0	.00000	0	.00000	0	.00000	1522120	.88690	2149137	1.44852	3849520	2.47726
72	SHELL - STATE A	.00	.00000	0	.00000	0	.00000	0	.00000	1792098	1.04421	2406532	1.60712	4822373	3.10332
73	GULF - W D GRIMES WCT A/2	43.40	.55768	50617	.09204	0	.00000	50617	.08222	5013220	2.92106	4418096	2.94380	7028748	4.52317
74	GULF-GRIMES WCT A BAT 2	92.90	1.19375	142834	.25972	0	.00000	142834	.23200	4035711	2.35150	4594978	3.06193	7587324	4.88263
75	MARATHON-STATE SEC 32 1L	.00	.00000	0	.00000	0	.00000	0	.00000	3165420	1.84095	3519029	2.35007	6302599	4.05588
76	CITIES SERVICE - FOWLER	158.60	2.03798	1049987	1.90919	2176	.03312	1052163	1.70899	5129589	2.98887	3905377	2.60808	5129589	3.30102
77	GETTY(SKELLY)- FOWLER	80.00	1.02799	1297571	2.35937	11439	.17411	1309010	2.12618	2006219	1.16897	1461607	.97609	486792	.31327
78	SUN - CLARA FOWLER	76.00	.97659	1541066	2.80212	116581	1.77445	1657647	2.69245	1153878	.67233	520593	.34766	3352	.00216
79	SHELL - BERRY	160.00	2.05597	1581215	2.87513	0	.00000	1581215	2.56831	4430679	2.58746	3765733	2.51482	2946256	1.89599
80	MOBIL - MONA BERRY	156.00	2.00458	2696072	4.90227	70706	1.07620	2766778	4.49397	1763518	1.02755	634682	.42385	1257	.00081
81	AMERADA HESS - STATE C	234.10	3.00815	2912004	5.29490	154063	2.34495	3066067	4.98010	444857	.25921	41986	.02804	0	.00000
82	MYHOM - J W HOLT STATE	40.00	.51399	597057	1.08563	21955	.33417	619012	1.00544	42126	.02455	0	.00000	0	.00000
83	GULF - J W HOLT WCT D	54.30	.69775	284408	.45808	0	.00000	284408	.46023	0	.00000	0	.00000	0	.00000
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		7782.20	100.00000	54994304	100.00000	6569994	100.00000	61564390	100.00000	171623081	100.00000	149741518	100.00000	155394214	100.00000

TR.	UNIT TOTALS		TOTALS		ZONE III
NO.	%	STB	%	STB	%
1	.12733	736040	.00231	11916	.00000
2	.20959	1211944	.02126	109334	.00000
3	.07999	463149	.00000	0	.00000
4	.13202	762273	.01584	191841	.00000
5	.26091	1508152	.15612	806352	.00000
6	.16042	926803	.23804	1209283	.00000
7	.21312	1231968	.23879	1207911Z	.00000
8	.29049	1681372	.12344	1094886	.00000
9	.16801	971285	.16442	807877	.00000
10	.04634	267384	.01013	58504	.00000
11	.11295	652684	.01139	324284	.00000
12	.22394	1291874	.12328	888986	.00000
13	.04363	252222	.01394	69403	.00000
14	.04117	238004	.02184	134283	.00000
15	.12955	748055	.11356	586505	.00000
16	.65474	3768767	.04449	2410203	.00000
17	.29400	1699823	.21349	1103453	.00000
18	.42.129	2414937	.43433	2243027	.00000
19	.49205	4003537	.46727	3946988	.00000
20	.18443	1047321	.14313	892518	.00000
21	.23751	1372924	.21491	1109783	.00000
22	.24249	1611884	.23584	2148020	.00000
23	.31661	1841730	.29259	1510996	.00000
24	.44.647	2432298	.35069	2497548	.00000
25	.17280I	998679	.16826	1069499	.00000
26	.24.9354	1454994	.29851	1541727	.00000
27	.07954	2351673	.28106	2211068	.00000
28	.21128	164.2299	.00849	1152376	.00000
29	.05224	601299	.01124	579370	.00000
30	.75082	43.0078	.04573	1389837	.00000
31	.49449	1435655	.46278	1354607	.00000
32	.70648	1408994	.44846	7431056	.00000
33	.67269	421252	.44016	2074317	.00000
34	.24714	1.6.8348	.04831	352954	.00000
35	.31005	1836483	.01173	60558	.00000
36	.02821	163044	.00000	0	.00000
37	.07469	499205	.10659	255527	.00000
38	.07469	1.4.4.6	.00.0.0	2327	.00000
39	.17223	999565	.02003	103430	.00000
40	.42411	2.1.3.16	.00000	0	.00000
41	.39979	810075	.15685	2028.6	.00000
42	.22489	4.1.9.28	.04.05	4.1.9.28	.00000
43	.49960	4.6.2.56	.08502	4.6.2.56	.00000
44	.94611	1.4.3.2.2	2.1.3.03	1.4.3.2.2	.00000
45	2.62816	1.4.6.5.7.7	2.8.9.11	1.4.6.5.7.7	.00328
46	2.21692	1.3.0.9.1.3.8	2.1.9.7.99	1.3.0.9.1.3.8	.00000
47	5.49128	3.3.2.8.2.3	2.0.8.8.13	3.3.2.8.2.3	.00000
48	.49830	2.3.7.9.1.4.1	.44.6.66	2.3.7.9.1.4.1	.00000
49	1.72290	4.8.2.3.2.4.4	2.7.0.8.36	4.8.2.3.2.4.4	.00000
50	.37080	2.1.4.3.3.8.4	.34.128	1.7.6.2.3.0.8	.00000
51	2.80404	1.4.8.4.3.8.8.4	2.4.8.0.0.4.3	1.4.8.4.3.8.8.4	.00000
52	1.09892	6.3.5.2.2.6.4	1.1.7.7.8.7	6.0.8.3.4.5.2	.00000
53	2.91414	1.1.0.8.7.2.3.6	2.1.4.4.78	1.1.0.8.7.2.3.6	.00000
54	1.52697	6.9.3.8.1.5.0	1.4.9.6.0.3	7.7.4.1.1.1.9	.00000
55	.59715	3.0.8.1.2.2.1	.58.428	3.0.1.1.2.0.7	.00000
56	.39971	2.3.1.0.5.1.1	.39.007	2.0.1.9.6.4.3	.00000
57	2.45409	1.6.3.8.4.6.8	2.9.8.4.3.8	1.8.2.1.2.8.0	.00000
58	2.04.05.3	1.1.7.9.5.1.0.5	2.1.9.3.9.8	1.1.3.3.1.4.5.9	.00000
59	.22997	4.6.0.8.2.8.4	.72.890	3.8.1.4.2.3.8	.00000
60	.00609	35190	.00028	1117	.00000
61	.20469	1.1.8.3.1.2.8	.12.128	8.8.1.4.5.4	.00000
62	.22493	1.2.9.7.3.0.8	.20.878	1.0.7.8.0.5.1	.00000
63	.38512	1.2.2.4.1.2.8	.13.951	2.0.1.4.9.2.4	.00174
64	.02308	136893	.01.257	649.35	.00000
65	.02741	1.6.8.8.4.7	.01.468	3.7.4.2.7	.00000
66	1.59483	2.2.1.4.8.5.8	1.7.8.4.8.8	2.2.1.4.8.5.8	.00000
67	1.96496	1.3.6.7.0.2.2	2.2.0.0.8.7	1.3.6.7.0.2.2	.00000
68	1.71683	492.948	1.9.2.1.48	992403.4	.00000
69	1.42.78	3.4.6.3.0.28	3.9.2.8.0.2	1.0.2.2.1.4.9.3	.00000
70	6.07412	35.1.1.1.56	6.7.9.6.18	35.1.1.1.56	.00000
71	1.59483	2.2.1.4.8.5.8	1.7.8.4.8.8	2.2.1.4.8.5.8	.00000
72	1.96496	1.1.3.6.7.0.2.2	2.2.0.0.8.7	1.1.3.6.7.0.2.2	.00000
73	1.42.78	3.4.6.3.0.28	3.9.2.8.0.2	1.0.2.2.1.4.9.3	.00000
74	3.17697	1.1.3.6.4.9.3.27	3.9.2.8.0.2	1.0.2.2.1.4.9.3	.00000
75	5.04918	1.8.8.5.2.16	1.4.0.2.3.2	1.8.8.5.2.16	.00000
76	2.63968	1.5.2.5.9.7.2.8	2.7.5.0.8.8	1.4.2.0.7.5.4.9	.10828
77	.91059	3.5.5.9.4.2.5	.74.847	3.5.5.9.4.2.5	.00000
78	.87703	1.3.3.5.4.7.0	.32.468	1.6.7.7.0.2.3	.00000
79	2.20373	1.1.3.7.3.4.8	3.1.4.0.28	1.1.3.7.3.4.8	.01788
80	.89379	2.3.9.9.4.5.7	.46.456	2.3.9.9.4.5.7	.00000
81	.41646	3.8.8.2.8.1.2	.02.834	3.8.8.2.8.1.2	.00000
82	.11437	661136	.00818	42126	.00000
83	.09243	2.4.6.8.8	.00000	0	.00000

TABLE 22 B

UNITIZATION PARAMETERS – ORIGINAL OIL IN PLACE

WIO NO.	WORKING INTEREST OWNER	PRODUCTIVE ACRES ACS.	PRODUCTIVE ACRES %	BASAL GRAYBURG UPPER ZONE STB	UPPER ZONE %	LOWER ZONE STB	LOWER ZONE %	TOTALS STB	TOTALS %	SAN ANDRES ZONE I STB	ZONE I %	ZONE II STB	ZONE II %	ZONE III STB	ZONE III %	S
1	AMERADA HESS CORP.	791.55	10.17129	5789871	10.52773	485448	7.38886	6278319	10.19277	13737833	7.71332	13650528	9.11606	13854432	8.91695	16
2	AMOCO PRODUCTION CO.	.00	.00000	0	.00000	0	.00000	0	.00000	981924	.55058	2462538	1.50746	4047062	2.60410	30
3	ANDERSON ADA A	4.69	.06077	47262	.08594	34980	.53242	82242	.13358	61094	.03560	33133	.02213	247	.00017	
4	ANDERSON EST. [illegible]	4.69	.06077	47262	.08594	34980	.53242	82242	.13358	61094	.03560	33133	.02213	247	.00017	
5	ANDERSON, W D AND SONS	9.37	.12140	94524	.17187	69761	1.06486	164485	.26717	122189	.07120	66265	.04425	535	.00034	
6	ARMSTRONG, J.M.	9.37	.12140	94524	.17187	69761	1.06486	164485	.26717	122189	.07120	66265	.04425	535	.00034	
7	ATLANTIC RICHFIELD CO.	200.00	2.56997	1427813	2.59619	0	.00000	1427813	2.31914	5249234	3.07024	2770644	1.96344	1192187	.76720	
8	BYRON, [illegible]	23.45	.30130	348438	.63411	12864	.19580	361302	.58513	24443	.01430	0	.00000	0	.00000	
9	C&C OPERATING CO.	75.20	.96631	161876	.29434	1170	.01781	163046	.26483	0	.00000	0	.00000	0	.00000	
10	CHEVRON OIL COMPANY	160.00	2.05597	858888	1.56174	0	.00000	858888	1.39504	4079932	2.37726	3881742	2.45909	4417562	2.87451	22
11	CITIES SERVICE OIL CO.	261.80	3.36409	1318496	2.39742	14674	.22335	1333170	2.16542	9579193	5.58153	8753211	5.94555	11842378	7.62083	
12	CONNAL MARY DALTEL	2.60	.03212	10147	.01845	0	.00000	10147	.01648	36657	.02136	0	.00000	0	.00000	
13	CONTINENTAL OIL CO.	512.90	6.59060	3122568	5.67777	1372681	20.89318	4495249	7.30147	18678642	10.88352	16498091	11.01104	23047358	14.83154	115
14	CZILE, HERMAN R.	3.25	.04619	15220	.02767	0	.00000	15220	.02472	54985	.03204	0	.00000	0	.00000	
15	CUSACK, J. P.	25.72	.33050	58473	.10632	0	.00000	58473	.09498	50255	.02928	2025	.00135	0	.00000	
16	CUSACK, JR., J. P.	40.00	.51399	182483	.33181	0	.00000	182483	.29640	1029176	.59967	168236	.11235	60675	.03905	
17	CUSACK, MICHAEL F.	40.00	.51399	182483	.33181	0	.00000	182483	.29640	1029176	.59967	168236	.11235	60675	.03905	
18	DEL-LEA, INC. (ANTENELL)	83.96	1.07887	189208	.34404	0	.00000	189208	.30732	69612	.04056	0	.00000	0	.00000	
19	DUNLAVEY, J. [illegible]	2.90	.03726	9830	.01787	0	.00000	9830	.01597	2391	.00139	70	.00005	0	.00000	
20	ESTES, RUSSELL G	2.50	.03212	28204	.05083	18454	.28396	43862	.07124	32584	.01899	17671	.01180	143	.00009	
21	EXXON COMPANY - U.S.A.	433.70	5.57297	4284568	7.79063	496453	7.55637	4781021	7.76563	128[illegible]9691	7.46948	13356250	8.91954	12287348	7.90722	13
22	FIRST ROSWELL COMPANY	5.80	.07453	19660	.03575	0	.00000	19660	.03193	4783	.00279	140	.00009	0	.00000	
23	FORBES C. C.	3.04	.03906	40960	.07448	9560	.14551	50520	.00206	68188	.03973	60947	.04070	12045	.00775	
24	FORBES, [illegible]	2.96	.03804	39883	.07252	9308	.14167	49191	.07990	66394	.03869	59344	.03963	11728	.00756	
25	GETTY OIL COMPANY	875.42	11.24900	6440367	11.71053	364135	5.54239	6804502	11.05230	16335733	9.51255	13724077	9.16515	11098184	7.14195	3
26	GULF ENERGY & MINERALS	796.20	10.23104	3398611	6.17970	125117	1.90437	3523730	5.72336	22039845	12.84114	20150677	13.45647	28744973	18.49810	49
27	HEADLEY, KENNETH [illegible]	8.75	.11244	24997	.04909	0	.00000	24997	.04385	72958	.04251	0	.00000	0	.00000	
28	HURD, PETER	2.60	.03212	10187	.01845	0	.00000	10147	.01648	36657	.02136	0	.00000	0	.00000	
29	JUDSON, [illegible] WANDA COHRA	.50	.00643	2029	.00369	0	.00000	2029	.00330	7331	.00427	0	.00000	0	.00000	
30	KEMNITZ, A. A.	86.00	[illegible]	[illegible]	1.12498	144650	2.20168	[illegible]	1.24146	1031795	.60120	122232	[illegible]	182267	.11729	
31	LAFLIN, GEORGE P.	2.90	.03726	9830	.01787	0	.00000	9830	.01597	2391	.00139	70	.00005	0	.00000	
32	LANE, [illegible] RALPH	6.37	[illegible]	8514	.01548	0	.00000	8514	.01383	279	.00016	0	.00000	0	.00000	
33	MARATHON OIL COMPANY	153.20	1.96859	1445136	2.62769	278363	4.23689	1723499	2.79941	7599985	4.42830	7924192	5.29191	8754189	5.63354	54
34	MCCARTNEY, KATHRYN [illegible]	.60	.00643	3028	.00348	0	.00000	3028	.00330	7331	.00427	0	.00000	0	.00000	
35	MCPETERS, K. P.	5.39	.06462	16340	.02971	0	.00000	16340	.02654	3640	.00212	145	.00007	0	.00000	
36	MCPHERON, MARGARET [illegible]	7.03	.09033	104851	.19083	3859	.05874	108410	.17634	2406	.00431	0	.00000	0	.00000	
37	MCPHERON, ROBERT L.	3.52	.04523	52476	.09542	1930	.02938	54406	.08837	3702	.00216	0	.00000	0	.00000	
38	MOBIL OIL CORP.	156.00	2.00457	2494072	4.80322	20706	.31420	2764778	4.49392	2763518	1.02755	134632	.42305	1267	.00081	
39	MORANCO	10.75	.13814	27646	.05027	0	.00000	27646	.04490	5045	.00294	140	.00009	0	.00000	
40	MORAN, [illegible]	21.37	.27460	65346	.11884	0	.00000	65346	.10617	14557	.00845	412	.00026	0	.00000	
41	MORRIS, G. P.	2.00	.02570	26948	.04900	6289	.09572	33237	.05399	44861	.02614	40047	.02674	7924	.00510	
42	MURDOCH, KATHLYN I. COHRA	.60	.00643	2029	.00369	0	.00000	2029	.00330	7331	.00427	0	.00000	0	.00000	
43	NOBLE, RICHARD L.	24.32	.31251	327684	.59583	76476	1.16402	404160	.65646	545505	.31785	487540	.32561	96359	.06201	
44	PARRISH, MAC ESTATE	1.98	.02544	3196	.00581	0	.00000	3196	.00519	105	.00006	0	.00000	0	.00000	
45	PORTALES NATIONAL BANK	3.00	.03855	40421	.07350	9437	.14359	49858	.08098	67291	.03921	60145	.04017	11896	.00765	
46	RONING JOHN	6.00	.07710	80843	.14700	18867	.28717	99710	.16195	134582	.07842	120291	.08033	23773	.01530	
47	ROSE, FRANCIS I. CONRAD	.60	.00643	2029	.00369	0	.00000	2029	.00330	7331	.00427	0	.00000	0	.00000	
48	SAMEDAN OIL CORP.	331.27	4.25477	2804668	5.09973	334135	5.08577	3138803	5.09824	5186587	3.02208	2515905	1.68017	581248	.37407	
49	SEA PROPERTIES, LTD.	3.60	.04626	27114	.04931	3774	.05744	30888	.05018	88663	.05166	34152	.02281	8395	.00540	
50	SHELL OIL COMPANY	1241.60	15.95436	6550372	11.91055	776840	11.82406	7327212	11.90132	31[illegible]48092	18.20739	29960124	19.99111	31365393	20.18440	71
52	SPALDING SMITH, ESTATE	2.00	.02570	26484	.04800	6289	.09572	33337	.05399	44861	.02614	40027	.02674	7924	.00510	
53	SPEAR MCNELL	1.45	.01863	4915	.00894	0	.00000	4915	.00798	1196	.00070	35	.00002	0	.00000	
54	SULLIVAN, E.C.	3.00	.03855	40420	.07350	9437	.14359	49858	.08098	67291	.03921	60145	.04017	11896	.00765	
55	SUN OIL CO. (DELAWARE)	76.00	.97659	1541066	2.80212	116581	1.77448	1657647	2.69245	1153878	.67233	520593	.34766	3352	.00216	
56	SWEET, BILL L.	80.00	1.02799	546389	1.02290	0	.00000	546389	.91824	2010873	1.17168	316130	.21095	0	.00000	
57	SWEET, C.H. OIL CO.	370.00	4.11195	2607072	4.74044	351661	5.35253	2958733	4.80576	3001601	1.74895	1003993	.67049	14895	.00959	
58	TATE, M.E., EST. OF	6.00	.07710	80843	.14700	18867	.28717	99710	.16195	134582	.07842	120291	.08033	23773	.01530	
59	TEXACO, INC.	160.00	2.05597	1065164	1.93679	167432	2.54843	1232596	2.00204	4678075	2.72578	3463172	2.31277	608302	.39151	
60	TEXAS PACIFIC OIL CO. IN	480.00	6.14792	3229109	5.87148	823727	12.53771	4052839	6.58286	5532462	3.22341	5443364	3.78209	2825464	1.81826	
61	TREADAWAY, BETTYE COHRA	.50	.00643	2029	.00369	0	.00000	2029	.00330	7331	.00427	0	.00000	0	.00000	
62	TWO STATES OIL CO.	16.00	.14275	35331	.06424	0	.00000	35331	.05739	53920	.03142	0	.00000	0	.00000	
63	WALLACE, COLLEEN MCPHERON	3.52	.04523	52476	.09542	1930	.02938	54406	.08837	3702	.00216	0	.00000	0	.00000	
64	WHITLEY, LOYD	2.90	.03726	9830	.01787	0	.00000	9830	.01597	2391	.00139	70	.00005	0	.00000	
65	WILLIAMS, HATTIE C.	4.69	.06027	31377	.05705	0	.00000	31377	.05096	72818	.04243	54719	.03654	14929	.00961	
66	WILLIAMSON, A.T.	2.90	.03726	9830	.01787	0	.00000	9830	.01597	2391	.00139	70	.00005	0	.00000	
67	WISER OIL COMPANY, THE	80.00	1.02799	569307	1.03517	819	.01247	570126	.92603	367474	.21412	0	.00000	0	.00000	
68	YATES, JOHN A.	120.00	1.54198	1846730	3.35791	158022	2.40521	2004752	3.25624	545310	.31774	5213	.00348	0	.00000	
69	YEAGER & ARMSTRONG	9.37	.12040	94524	.17187	69761	1.06486	164486	.26717	122189	.07120	66745	.04425	535	.00034	
70	YEAGER, [illegible]	1.63	.02094	6606	.01201	0	.00000	6606	.01073	23884	.01390	0	.00000	0	.00000	
71	YEAGER RUTH ANNE	1.21	.01555	4912	.00893	0	.00000	4912	.00798	17747	.01034	0	.00000	0	.00000	
72	YEAGER RUTH/HENRY	.42	.00540	1491	.00307	0	.00000	1491	.00275	6109	.00356	0	.00000	0	.00000	
73	YEAGER RUTH PEELER	1.75	.02249	7087	.01289	0	.00000	7087	.01151	25601	.01492	0	.00000	0	.00000	
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		7782.20	100.00000	54994386	100.00000	[illegible]	100.00000	[illegible]	100.00000	171623081	100.00000	149741518	100.00000	155394214	100.00000	393

NO.	UNIT		TOTALS		TOTALS		ZONE III	
WIO								
	STB	%	STB	%	STB	%	STB	%
1	9069540	0.42423	42420520	8.21391	42420520	8.21391	9.2145	7572
2	10234698	1.74417	10234698	1.98000	10234698	1.98000	7.5142	37001
3	176734	.030857	176734	.01430	9999	.00000	0	
4	1726736	.030857	1726736	.03430	9999	.00000	0	
5	353474	.061185	353474	.03459	14898	.00000	0	
6	353474	.061185	353474	.03459	18899	.00000	0	
7	10679480	1.84975	10679480	1.79137	925206	.00000	0	
8	387388	.067023	387388	.00468	2648	.00000	0	
9	163044	.028211	163044	.00000	0	.00000	0	
10	7373146	1.27631	7373146	1.44000	14400	.00000	0	
11	31550912	5.45821	31550912	5.09572	3042177	.10426	1	43210
12	446044	.077210	446044	.00721	7446	.00000	0	
13	74280521	12.8503	74280521	13.5117	6979522	20.1310	3	7141
14	70305	.012166	70305	.01066	5488	.00000	0	
15	1107531	.019161	1107531	.01012	52240	.00000	0	
16	1488067	.257521	1488067	.02680	12580	.00000	0	
17	1440570	.249211	1440570	.02359	1258087	.00000	0	
18	2586420	.044736	2586420	.01346	12580	.00000	0	
19	9240	.001613	9240	.00094	2961	.00000	0	
20	9240	.016431	9240	.00094	60378	.00000	0	
21	44551491	7.70727	39770470	7.70031	4923	.00000	0	
22	2586420	.044736	2586420	.00000	4923	.00000	0	
23	1917200	.033161	1917200	.02733	19118	.00000	0	
24	1658687	.028714	1658687	.02446	13744	.00000	0	
25	46303185	8.01585	46303185	8.03492	41978403	.08303	4	
26	9955	.017229	9955	.01413	72958	.00000	0	
27	1658687	.028714	1658687	.00218	7446	.00000	0	
28	2586420	.044736	2586420	.00000	4923	.00000	0	
29	9240	.001613	9240	.00094	7331	.00000	0	
30	2586420	.044736	2586420	.00000	4923	.00000	0	
31	12291	.002127	12291	.00094	2961	.00000	0	
32	6787	.001174	6787	.00000	329	.00000	0	
33	31420052	5.43587	31420052	5.07998	27645543	13.6490	10.87	
34	2586420	.044736	2586420	.00000	4923	.00000	0	
35	7400	.001281	7400	.00118	4109	.00000	0	
36	22699	.003927	22699	.00394	17749	.00000	0	
37	2586420	.044736	2586420	.00000	4923	.00000	0	
38	32688	.005656	32688	.00496	25601	.00000	0	

TABLE 23 A

PRIMARY OIL RESERVES AND ULTIMATE OIL RECOVERY

TR. NO.	TRACT NAME / OPERATOR – LEASE	PRIMARY OIL RESERVES								
		GRAYBURG		S.A. ZONE I		S.A. ZONE II		S.A. ZONE III		S.A.
		BBLS	%	BBLS	%	BBLS	%	BBLS	%	BBLS
1	GETTY - STATE B	13113	.88415	0	.00000	0	.00000	0	.00000	0
2	AMERADA HESS-STATE WNB	13310	.89613	0	.00000	0	.00000	0	.00000	0
3	GULF - LEA FD STATE	10062	.67745	0	.00000	0	.00000	0	.00000	0
4	TEXAS PACIF.-STATE V AC1	38702	2.60571	0	.00000	0	.00000	0	.00000	0
5	ESTES ENGR. - STATE	13875	.84484	0	.00000	0	.00000	0	.00000	0
6	CONTINENTAL - STATE B 13	11783	.79130	0	.00000	0	.00000	0	.00000	0
7	SHELL - RICE	3271	.22023	5350	.02518	53190	.67647	44818	.40885	106428
8	AMERADA HESS - B HARDIN	0	.00000	0	.00000	0	.00000	0	.00000	0
9	GULF - DAN HARDIN	68775	4.62847	2635	.01240	10707	.14024	0	.00000	13342
10	MORANCO - STATE T 17	13857	.93296	0	.00000	0	.00000	0	.00000	0
11	CHEVRON - STATE I 17	0	.00000	0	.00000	0	.00000	0	.00000	0
12	GETTY(SKELLY)-STATE A	7968	.53647	0	.00000	0	.00000	0	.00000	0
13	ANTWELL-HOBBS CONS-TOWNS	30442	2.04305	0	.00000	0	.00000	0	.00000	0
14	WISER -MORRIS B	0	.00000	67500	.31766	0	.00000	0	.00000	67500
15	WISER -MORRIS A	0	.00000	152764	.71894	0	.00000	0	.00000	152764
16	GULF - W.O.GRIMES NCT C	61284	4.12610	0	.00000	0	.00000	0	.00000	0
17	C H SWEET - MCKINLEY B	8761	.58945	0	.00000	0	.00000	0	.00000	0
18	GETTY(SKELLY)- MCKINLEY	0	.00000	0	.00000	50	.00065	0	.00000	50
19	CHEVRON - H.D MCKINLEY	0	.00000	0	.00000	148540	2.80777	0	.00000	148540
20	C H SWEET - GRIMES	0	.00000	0	.00000	0	.00000	0	.00000	0
21	BILL SWEET-BOWERS A FED.	8761	.58945	0	.00000	0	.00000	0	.00000	0
22	BILL SWEET-BOWERS A FED.	0	.00000	0	.00000	0	.00000	0	.00000	0
23	ATLANTIC RICH.-GRIMES	10360	1.30346	0	.00000	0	.00000	0	.00000	0
24	SHELL - MCKINLEY B	0	.00000	213028	1.00254	617315	8.08547	0	.00000	830343
25	GETTY - BOONE HARDIN	6473	.43566	55908	.26314	0	.00000	9813	.12818	65721
26	CITIES SERVICE - HARDIN	0	.00000	0	.00000	0	.00000	250498	3.25144	250498
27	SHELL - MCKINLEY A	0	.00000	504764	2.37549	1043910	13.66638	252546	3.27894	1800790
28	GULF-GRAHAM STATE NCT A	0	.00000	90324	.42508	162132	2.12357	296054	3.84362	548510
29	SHELL - STATE D	0	.00000	179350	.84405	55342	.72513	0	.00000	234712
30	AMERADA HESS-STATE E	19629	1.32157	104862	.49349	0	.00000	0	.00000	104862
31	TEXAS PACIF.-STATE G	0	.00000	1161422	5.46708	538561	7.05397	24922	.31365	1724905
32	SAMEDAN - STATE C	0	.00000	1133353	5.33371	0	.00000	0	.00000	1133353
33	C H SWEET - STATE F	83171	5.59977	0	.00000	0	.00000	0	.00000	0
34	SHELL - STATE F	3768	.25369	0	.00000	0	.00000	0	.00000	0
35	TEXAS PACIF.-STATE V AC2	27714	1.86592	0	.00000	0	.00000	0	.00000	0
36	C&C OPER. - SHIPP A	2621	.17647	0	.00000	0	.00000	0	.00000	0
37	JOHN A YATES-SHELL STATE	40714	2.74146	0	.00000	0	.00000	0	.00000	0
38	WISER - STATE L	0	.00000	0	.00000	0	.00000	0	.00000	0
39	GETTY(SKELLY) - MOBBS C	9194	.61915	0	.00000	0	.00000	0	.00000	0
40	CONTINENTAL - STATE B 25	20232	1.36217	54617	.25704	47731	.62517	0	.00000	102348
41	SAMEDAN - STATE B	21231	1.42941	0	.00000	0	.00000	0	.00000	0
42	TEXACO - N.M. DD B C ST	0	.00000	864638	4.06910	293806	3.84821	18371	.23874	1176835
43	EXXON - N.M. STATE A	18846	1.26916	0	.00000	0	.00000	0	.00000	0
44	AMERADA - H D MCKINLEY	0	.00000	944937	4.44700	123275	1.61463	230246	2.98993	1298458
45	GETTY - H D MCKINLEY	0	.00000	346735	1.63116	878006	11.50101	86236	1.11998	1330976
46	MARATHON-STATE SEC. 30	3311	.22287	218344	1.02734	483415	6.33255	0	.00000	707781
47	EXXON-BOWERS A FEDERAL	0	.00000	908956	4.27767	0	.00000	331843	4.30816	1240799
48	EXXON-BOWERS A FED COM	0	.00000	0	.00000	186743	2.44721	39721	.51574	226943
49	AMERADA - STATE B	159356	10.72919	83151	.39132	169408	2.21887	92149	1.19632	344708
50	EXXON - W D GRIMES	0	.00000	0	.00000	36542	.47862	0	.00000	36542
51	CONTINENTAL-STATE A 29	0	.00000	0	.00000	0	.00000	800184	10.38838	800184
52	GETTY - W D GRIMES	0	.00000	114210	.53748	143417	1.87908	73614	.95532	330641
53	CHEVRON - STATE I 29	0	.00000	1076793	5.06753	0	.00000	48676	.63220	1125469
54	ATLANTIC- W D GRIMES SOC	14830	.97760	651060	3.06394	146429	1.91855	58179	.75631	855718
55	SAMEDAN - MOON A	0	.00000	872574	4.10645	53359	.69889	0	.00000	925933
56	SAMEDAN - MOON B	0	.00000	920565	4.33330	39278	.51446	0	.00000	959843
57	SHELL - GRIMES	0	.00000	954358	4.49134	0	.00000	176642	2.29325	1131000
58	CONTINENTAL - W D GRIMES	0	.00000	1522593	7.16853	1067013	13.98257	173096	2.23824	2801701
59	SHELL - SANGER	25698	1.73013	2477975	11.66168	98413	1.28940	0	.00000	2526388
60	MORANCO - HOBBS	40714	2.74148	0	.00000	0	.00000	0	.00000	0
61	SHELL - TURNER	0	.00000	814923	3.83274	58001	.75969	0	.00000	872924
62	GETTY(SKELLY)-BM TURNER	0	.00000	407539	1.91795	39467	.51715	0	.00000	447006
63	GETTY(SKELLY)-TURNER B2	0	.00000	407502	1.91776	39897	.52256	0	.00000	447399
64	SAMEDAN - TURNER B	0	.00000	114974	.54093	0	.00000	0	.00000	114974
65	SAMEDAN - TURNER B AT 2	0	.00000	141017	.66365	0	.00000	0	.00000	141017
66	SAMEDAN - TURNER A	0	.00000	942536	4.43570	0	.00000	0	.00000	942536
67	GULF - W D GRIMES NCT B	0	.00000	0	.00000	219842	2.87995	585784	7.60494	805626
68	SHELL - STATE B	0	.00000	195800	.92146	0	.00000	124871	1.62119	320671
69	AMOCO - STATE 6	0	.00000	177419	.83496	0	.00000	507985	6.59491	685404
70	CONTINENTAL - STATE A 33	0	.00000	0	.00000	0	.00000	1714203	22.25463	1714203
71	AMERADA HESS - STATE A	0	.00000	141649	.66671	170628	2.23435	241701	3.13788	553978
72	SHELL - STATE A	0	.00000	71793	.33787	76898	.99710	166823	2.16045	316414
73	GULF-W D GRIMES NCT A/2	0	.00000	38600	.18166	255433	3.34561	416882	5.41217	710915
74	GULF-GRIMES NCT A PAT 2	0	.00000	1070481	5.03628	186507	2.44273	132680	1.69280	1389668
75	MARATHON-STATE SEC 32 18	0	.00000	140585	.66147	0	.00000	507409	6.58782	647994
76	CITIES SERVICE - FOWLER	0	.00000	528565	2.48847	346588	4.53851	107168	1.39122	982321
77	GETTY(SKELLY)- FOWLER	0	.00000	141853	.66758	304660	3.99038	0	.00000	446513
78	SUN - CLARA FOWLER	38107	2.56565	21108	.00993	34631	.45359	0	.00000	34735
79	SHELL - BERRY	0	.00000	213309	1.00386	367941	4.81922	296812	3.85421	878132
80	MOBIL - NORA BERRY	31675	2.13209	0	.00000	0	.00000	0	.00000	0
81	AMERADA HESS - STATE C	43561	2.93284	0	.00000	0	.00000	0	.00000	0
82	BYRON - J R HOLT STATE	41581	2.79888	0	.00000	0	.00000	0	.00000	0
83	GULF - J R HOLT NCT D	0	.00000	0	.00000	0	.00000	0	.00000	0
		1485275	100.00000	21248859	100.00000	7624869	100.00000	770260	100.00000	16586408

*INCLUDES AN ADJUSTMENT OF AN ADDITIONAL 6029 BARRELS OF OIL FOR LOST PRODUCTION FROM 3 WELLS (39L, 30C & 30K) WHICH WERE SHUT IN FOR SPECIAL BHP BUILD-UP SURVEYS REQUESTED BY THE TECHNICAL COMMITTEE

TOTAL	UNIT TOTAL		ULTIMATE OIL REC*		TR.
%	BBLS	%	BBLS	%	NO.
.00000	13137	.03899	72480	.03534	1
.00000	13310	.03496	144073	.07026	2
.00000	10082	.02643	78880	.03846	3
.00000	38702	.10164	236875	.11552	4
.00000	12176	.03382	88029	.04292	5
.00000	11753	.03087	856717	.41778	6
.28819	108709	.28554	1812429	.88389	7
.00000	0	.00000	1819582	.88738	8
.03647	29117	.20781	1858116	.90620	9
.00000	13057	.03496	85748	.04181	10
.00000	0	.00000	418836	.03043	11
.00000	7768	.02093	299209	.14590	12
.00000	30442	.08098	738645	.03602	13
.18447	67800	.17730	5748?1	.28014	14
.91755	352764	.90124	7260?3	.35401	15
.00000	61284	.16097	1538498	.75019	16
.00000	8755	.02300	105487	.05144	17
.00013	50	.00013	604158	.29587	18
.46077	168360	.44227?	1576760	.76868	19
.00000	0	.00000	293234	.14298	20
.00000	8755	.02300	387298	.18819	21
.00000	0	.00000	449542	.21920	22
.00000	19360	.05085	884934	.43134	23
2.26959	830343	2.18100	4736139	2.30940	24
.17980	130519	.34282	1339588	1.42885	25
.68959	250448	.65783	3692964	1.80079	26
2.92188	1000740	2.72987	11151430	5.43758	27
1.49922	548510	1.44073	3534761	1.72389	28
.48183	219712	.41450	1313868	.64064	29
.28661	129491	.32699	1150057	.56078	30
2.71324	1229905	3.23236	5948978	2.90080	31
3.09774	1133383	2.97689	4616383	2.25101	32
.00000	83172	.21854	724634	.35349	33
.00000	3768	.00990	131218	.06398	34
.00000	27718	.07278	327418	.15970	35
.00000	3621	.00688	21153	.01031	36
.00000	40748	.10698	444073	.21656	37
.00000	0	.00000	10263	.00500	38
.00000	4496	.02416	97394	.04749	39
.27974	122580	.32197	1100544	.53664	40
.00000	31231	.08098	414433	.20208	41
3.21659	1174835	3.09110	5653171	2.75686	42
.00000	181658	.47753	1584835	1.74801	43
3.64907	1296978	3.41061	6823591	3.32898	44
3.90843	1431034	3.75614	6811738	3.32340	45
1.93488	711082	1.86777	4706749	2.29459	46
3.39142	1240799	3.25911	10416047	5.07900	47
.61766	225943	.59347	1162343	.56679	48
.94217	344066	1.32399	5426156	2.64537	49
.09988	36542	.09598	1194726	.58261	50
2.18711	800164	2.10178	4583886	2.23516	51
.90373	330441	.86847	3037048	1.48090	52
3.07625	1125489	2.95624	3289454	1.60398	53
2.33890	855238	2.28679	4057343	1.97848	54
2.53081	925933	2.43208	2471557	1.20516	55
2.62350	959843	2.52115	2413710	1.17696	56
3.09131	1131000	2.97071	5096733	2.96085	57
2.92451	1070101	2.81232	4845693	2.36388	58
6.90526	2525086	6.70337	6338758	3.09086	59
.00000	407?8	.10696	176244	.08594	60
2.38956	872929	2.29153	2906063	1.17323	61
1.22233	447304	1.17464	139834?	.68185	62
1.22286	447399	1.17515	1922255	.69351	63
.32519	118936	.31251	763649	.37237	64
.38543	141017	.37040	645837	.31492	65
2.57619	942535	2.47569	2604228	1.26985	66
2.20198	805626	2.11609	4170201	2.03344	67
.87648	320671	.84228	1925851	.93907	68
1.87338	685409	1.80030	3013008	1.46918	69
1.68835	617703	1.62257	2977388	1.45206	70
1.51922	555998	1.46514	3038323	1.48182	71
.84484	309119	.81110	2526205	1.23181	72
1.94311	710915	1.86731	5626638	2.74362	73
3.76737	1378346	3.62040	5998027	2.92471	74
1.77113	647994	1.70204	8595920	2.70426	75
2.46193	900733	2.36589	5127737	2.50036	76
1.22043	446513	1.17282	2611139	1.27327	77
.10041	36742	.09658	974511	.47514	78
2.90016	878132	2.30652	4110068	2.00412	79
.00000	315281	.82805	2045085	.99731	80
.00000	43561	.11442	738398	.36005	81
.00000	11584	.10923	248283	.11460	82
.00000	0	.00000	22926	.01118	83
100.00000	38071683	100.00000	205080906	100.00000	

TABLE 23 B
PRIMARY OIL RESERVES AND ULTIMATE OIL RECOVERY

WIO NO.	WORKING INTEREST OWNER	PRIMARY OIL RESERVES								
		GRAYBURG		S. A. ZONE I		S. A. ZONE II		S. A. ZONE III		S. A.
		BBLS.	%	BBLS.	%	BBLS.	%	BBLS.	%	BBLS.
1	ANCHOR HESS CORP.	224044	15.21900	1333,88	5.78178	463911	6.06634	564114	7.32343	3219615
2	AMOCO PRODUCTION CO.	0	.00000	177419	.83496	0	.00000	507965	6.59491	685404
3	ANDERSON ADA A	1509	.10160	0	.00000	0	.00000	0	.00000	0
4	ANDERSON EST., WARREN D	1509	.10160	0	.00000	0	.00000	0	.00000	0
5	ANDERSON, M.B AND SAMB	3018	.20319	0	.00000	0	.00000	0	.00000	0
6	ARMSTRONG, J M	3018	.20319	0	.00000	0	.00000	0	.00000	0
7	ATLANTIC RICHFIELD CO.	33880	2.28106	451040	2.06378	146479	1.91854	58179	.75611	688578
8	BYRON W K	29367	1.69087	0	.00000	0	.00000	0	.00000	0
9	C&C OPERATING CO.	2621	.17647	0	.00000	0	.00000	0	.00000	0
10	CHEVRON OIL COMPANY	0	.00000	1074793	5.06753	168860	2.20777	48696	.63270	12940099
11	CITIES SERVICE OIL CO.	0	.00000	581473	2.74559	374579	4.90116	261172	3.39044	1219224
12	CONRAD MARY DANIEL	0	.00000	9548	.04493	0	.00000	0	.00000	9548
13	CONTINENTAL OIL CO.	31985	2.15347	1677208	7.92256	154834	2.02278	2686793	34.88128	9918936
14	CRILE, HERMAN R.	0	.00000	14322	.06740	0	.00000	0	.00000	14322
15	CUSACK, J. P.	0	.00000	97497	.45883	0	.00000	0	.00000	97497
16	CUSACK, JR., J. P.	0	.00000	448285	2.10949	23160	.30335	0	.00000	471445
17	CUSACK, MICHAEL F.	0	.00000	448285	2.10949	23160	.30335	0	.00000	471445
18	DEL-LEA, INC. (ANTWELL)	38277	2.57710	0	.00000	0	.00000	0	.00000	0
19	DUNLAVEY, J. M.	649	.04370	0	.00000	0	.00000	0	.00000	0
20	ESTES, RUSSELL G	805	.05420	0	.00000	0	.00000	0	.00000	0
21	EXXON COMPANY, U.S.A.	188455	12.70109	901984	4.27247	214148	2.83106	349049	4.79111	1194196
22	FIRST ROSWELL COMPANY	1299	.08746	0	.00000	0	.00000	0	.00000	0
23	FORBES, C. C.	0	.00000	21334	.10134	0	.00000	0	.00000	21334
24	FORBES, ILAMAE	0	.00000	20967	.09867	0	.00000	0	.00000	20967
25	GETTY OIL COMPANY	108313	7.29246	1581148	7.27177	1504154	19.72733	148721	2.19045	3320097
26	GULF ENERGY & MINERALS	139720	9.40701	1201710	5.65591	833621	10.91660	1421408	18.45342	3466739
27	HEADLEY, KENNETH NOEL	0	.00000	22760	.10711	0	.00000	0	.00000	22760
28	HURD, PETER	0	.00000	9548	.04493	0	.00000	0	.00000	9548
29	JUDSON, RUBY MANDA CAMRA	0	.00000	910	.00429	0	.00000	0	.00000	1910
30	KENNITZ, A. A.	0	.00000	325839	1.53344	0	.00000	0	.00000	325839
31	LAFLIN, GEORGE P.	449	.04370	0	.00000	0	.00000	0	.00000	0
32	LOWE, M. RALPH	10179	.68533	0	.00000	0	.00000	0	.00000	0
33	MARATHON OIL COMPANY	3311	.22292	351831	1.65601	492415	6.44985	507435	6.58282	1355072
34	MCCARTHY, KATHRYN L. C.	0	.00000	1910	.00899	0	.00000	0	.00000	1910
35	MCPETERS, F. D.	2880	.19380	0	.00000	0	.00000	0	.00000	0
36	MCPHERON, MARGARET M.	7310	.49217	0	.00000	0	.00000	0	.00000	0
37	MCPHERON, ROBERT L.	3456	.25408	0	.00000	0	.00000	0	.00000	0
38	MOBIL OIL CORP.	315251	21.22509	0	.00000	0	.00000	0	.00000	0
39	MORANCO	10843	.73003	0	.00000	0	.00000	0	.00000	0
40	MORAN, R. M.	11532	.77642	0	.00000	0	.00000	0	.00000	0
41	MORRIS, G. D.	0	.00000	14147	.06667	0	.00000	0	.00000	14147
42	MURDOCH, MATHLYN I. CONRA	0	.00000	1910	.00899	0	.00000	0	.00000	1910
43	NOBLE, RICHARD L.	0	.00000	172369	.81073	0	.00000	0	.00000	172369
44	PARRISH, M.C. ESTATE	3819	.25712	0	.00000	0	.00000	0	.00000	0
45	PORTALES NATIONAL BANK	0	.00000	21250	.10001	0	.00000	0	.00000	21250
46	ROBINS, JOHN	0	.00000	42501	.20002	0	.00000	0	.00000	42501
47	ROSE, FRANCIS I. CONRAD	0	.00000	1910	.00899	0	.00000	0	.00000	1910
48	SANEDAN OIL CORP.	23321	1.56241	2248974	10.57324	44929	.58847	0	.00000	3133907
49	SEA PROPERTIES, LTD.	0	.00000	35397	.16656	1389	.01819	0	.00000	36786
50	SHELL OIL COMPANY	32737	2.20410	5430150	25.54435	2318530	30.36074	1046562	13.84490	9014242
51	SPALDING SMITH, EST. OF	0	.00000	19167	.09447	0	.00000	0	.00000	19167
52	SPEAR HOWELL	328	.02148	0	.00000	0	.00000	0	.00000	0
53	SULLIVAN, E. C.	0	.00000	21250	.10001	0	.00000	0	.00000	21250
54	SUN OIL CO. (DELAWARE)	38107	2.56845	2104	.00990	34631	.45359	0	.00000	34735
55	SWEET, BILL L.	8755	.58945	0	.00000	0	.00000	0	.00000	0
56	SWEET, C.W. OIL CO.	91927	6.18932	0	.00000	0	.00000	0	.00000	0
57	TATE, M.E., EST. OF	0	.00000	42501	.20002	0	.00000	0	.00000	42501
58	TEXACO, INC.	0	.00000	914618	4.30610	203804	2.66831	13361	.17374	1174835
59	TEXAS PACIFIC OIL CO. IN	66416	4.47163	1101492	5.46708	538561	7.05397	29152	.37955	1724906
60	TREADAWAY, BETTYE CAMRA	0	.00000	1910	.00899	0	.00000	0	.00000	1910
61	TWO STATES OIL CO.	0	.00000	25312	.11912	0	.00000	0	.00000	25312
62	WALLACE, COLLEEN MCPHERO	3455	.25408	0	.00000	0	.00000	0	.00000	0
63	WHITLEY, LOYD	649	.04370	0	.00000	0	.00000	0	.00000	0
64	WILLIAMS, HATTIE C.	0	.00000	55223	.25988	0	.00000	0	.00000	55223
65	WILLIAMSON, A.T.	649	.04370	0	.00000	0	.00000	0	.00000	0
66	WISER OIL COMPANY, THE	0	.00000	110133	.51830	0	.00000	0	.00000	110133
67	YATES, JOHN A	40718	2.74145	0	.00000	0	.00000	0	.00000	0
68	YEAGER & ARMSTRONG	3018	.20320	0	.00000	0	.00000	0	.00000	0
69	YEAGER JR., DR. HENRY	0	.00000	6214	.02924	0	.00000	0	.00000	6214
70	YEAGER RUTH ANNE	0	.00000	8422	.03964	0	.00000	0	.00000	8422
71	YEAGER RUTH/HENRY	0	.00000	1591	.00749	0	.00000	0	.00000	1591
72	YEAGER RUTH REELES	0	.00000	4644	.02186	0	.00000	0	.00000	4644
		1485275	100.00000	21218859	100.00000	7634859	100.00000	7702680	100.00000	30586908

* INCLUDES AN ADJUSTMENT OF AN ADDITIONAL 1629 BARRELS OF OIL FOR "LOST" PRODUCTION FROM THREE WELLS (28L, 30C & 30K) WHICH WERE SHUT IN FOR SPECIAL BHP BUILD-UP SURVEYS REQUESTED BY THE TECHNICAL COMMITTEE

TOTAL	UNIT TOTAL		ULTIMATE OIL RECOVERY"		VIIO NO.
%	BBLS.	%	BBLS.	%	
1.87338	685404	1.80030	3013008	1.49910	2
.00000	1509	.00396	10316	.01803	3
.00000	1509	.00396	10316	.01803	4
.00000	3018	.00793	20632	.01006	5
.00000	3018	.00793	20632	.01006	6
8.33690	889898	2.33664	14932299	2.91993	7
.00000	24367	.06400	143721	.01008	8
.00000	2421	.00636	21163	.01031	9
3.53697	1294049	3.39898	4928102	2.45300	10
3.33385	1219224	3.20264	9283185	4.61686	11
.02610	9548	.02508	95376	.02213	12
12.07671	4450921	11.68956	20344235	8.92984	13
.03915	14322	.03762	68064	.03319	14
.24648	97497	.25600	528667	.26273	15
1.28858	471445	1.23831	1221318	.59553	16
1.28858	471445	1.23831	1221318	.59553	17
.00000	28277	.10094	106611	.05198	18
.00000	649	.00170	4019	.00196	19
.00000	805	.00211	5502	.00268	20
4.08169	1492803	3.92009	14042288	7.63117	21
.00000	1299	.00341	8039	.00392	22
.05884	21529	.05654	87712	.04279	23
.05731	20967	.05507	85403	.04169	24
8.80121	3220360	8.74236	30291804	9.89156	25
9.44815	3594459	9.44655	22890475	11.13730	26
.06221	22760	.05978	139879	.06821	27
.02610	9548	.02508	95376	.02213	28
.00522	1910	.00502	9074	.00443	29
.89060	325839	.85586	1327210	.64714	30
.00000	649	.00170	4019	.00196	31
.00000	10179	.02674	94060	.02148	32
3.70868	1357084	3.56481	10281639	4.98883	33
.00522	1910	.00502	9074	.00443	34
.00000	2880	.00757	14277	.00696	35
.00000	7310	.01920	93114	.02102	36
.00000	3465	.00910	21558	.01051	37
.00000	3155251	.82805	20935085	.97731	38
.00000	10843	.02848	69350	.03436	39
.00000	11532	.03029	57162	.02787	40
.03872	14167	.03721	57705	.02814	41
.00522	1910	.00502	9074	.00443	42
.67080	1732369	.45249	7014659	3.42185	43
.00000	38817	.01003	146531	.00818	44
.05606	21250	.05582	86557	.04221	45
.11617	42501	.11163	173114	.08441	46
.00522	1910	.00502	9074	.00443	47
6.37814	2387128	6.19128	37008560	3.75410	48
.10055	36786	.09662	107901	.05261	49
84.64375	30968999	23.76832	41428773	20.23539	50
.03872	14167	.03721	57705	.02814	52
.00000	325	.00085	2010	.00098	53
.05606	21250	.05582	86557	.04221	54
.10041	36832	.09658	974614	.47546	55
.00000	8755	.02300	821338	.40537	56
.00000	21927	.24144	1128240	.54845	57
.11617	42501	.11163	173114	.08441	58
5.21459	1748835	5.09110	8653171	3.75465	59
4.71329	1790821	4.70381	6812472	3.17550	60
.00522	1910	.00502	9074	.00443	61
.06918	25312	.06649	215445	.10508	62
.00000	1485	.00390	21558	.01051	63
.00000	649	.00170	4019	.00196	64
.15098	55233	.14505	152841	.07454	65
.00000	649	.00170	4019	.00196	66
.30102	110133	.28928	444531	.21684	67
.00000	40716	.10695	469073	.22621	68
.00000	1018	.00793	20632	.01004	69
.01498	4214	.01632	29531	.01440	70
.01243	4432	.01216	21967	.01071	71
.00435	1591	.00418	7562	.00369	72
.01833	6668	.01751	31681	.01545	73
100.00000	36071693	100.00000	2050800906	100.00000	

TABLE 24 A

UNITIZATION PARAMETERS – SECONDARY OIL RESERVES

TR NO.	TRACT NAME OPERATOR – LEASE	GRAYBURG UPPER & LOWER BBLS.	GRAYBURG UPPER & LOWER %	SAN ANDRES ZONE II BBLS.	SAN ANDRES ZONE II %	SAN ANDRES ZONE III$_U$ BBLS.	SAN ANDRES ZONE III$_U$ %	SAN ANDRES ZONE III$_L$ BBLS.	SAN ANDRES ZONE III$_L$ %	SAN ANDRES TOTALS BBLS.	SAN ANDRES TOTALS %	UNIT TOTALS BBLS.	UNIT TOTALS %	TR NO.
1	GETTY - STATE B	77157	1.17617	0	.00000	0	.00000	0	.00000	0	.00000	77157	.13978	1
2	AMERADA HESS-STATE WHB	113816	1.73600	425	.00236	0	.00000	0	.00000	425	.00087	114241	.20696	2
3	GULF - LEA FO STATE	46155	.70358	0	.00000	0	.00000	0	.00000	0	.00000	46155	.08361	3
4	TEXAS PACIF.-STATE Y AC1	157802	2.40552	3173	.01763	0	.00000	0	.00000	3173	.00652	160975	.29162	4
5	ESTES ENGR. - STATE	74776	1.13991	33967	.18881	358	.00147	0	.00000	34345	.07061	109123	.19769	5
6	CONTINENTAL - STATE A 13	272710	4.15717	247635	1.37619	226015	.92629	0	.00000	473550	.97358	746260	1.35192	6
7	SHELL - RICE	25633	.39075	388321	2.15734	896795	3.67539	0	.00000	1285116	2.64210	1310749	2.37455	7
8	AMERADA HESS - B HARDIN	26588	.40530	371758	2.06532	769466	3.15356	0	.00000	1141224	2.34627	1167812	2.11560	8
9	GULF - DAN HARDIN	174050	2.65319	280716	1.55953	259717	1.06441	0	.00000	540433	1.11109	714483	1.29435	9
10	MORANCO - STATE T 17	22394	.34061	179	.00099	0	.00000	0	.00000	179	.00037	22573	.04080	10
11	CHEVRON - STATE 1 17	34803	.53053	5366	.02981	0	.00000	0	.00000	5366	.01103	40169	.07277	11
12	GETTY(SKELLY)-STATE	42854	.65326	16406	.09114	0	.00000	0	.00000	16406	.03373	59260	.10735	12
13	ANTWEIL-HOBBS CONE TOWNS	19480	.29695	0	.00000	0	.00000	0	.00000	0	.00000	19480	.03529	13
14	WISER -MORRIS B	10039	.15303	0	.00000	0	.00000	0	.00000	0	.00000	10039	.01819	14
15	WISER -MORRIS A	17299	.26370	0	.00000	0	.00000	0	.00000	0	.00000	17299	.03134	15
16	GULF - W.D.GRIMES NCT C	84867	1.29370	9691	.05384	0	.00000	0	.00000	9691	.01992	94558	.17130	16
17	C H SWEET - MCKINLEY B	63480	.96769	8539	.04744	0	.00000	0	.00000	8539	.01755	72019	.13047	17
18	GETTY(SKELLY)- MCKINLEY	51236	.78103	57051	.31695	0	.00000	0	.00000	57051	.11729	108286	.19617	18
19	CHEVRON - H D MCKINLEY	56831	.86633	159928	.88849	0	.00000	0	.00000	159928	.32880	216759	.39268	19
20	C. K. SWEET - GRIMES	23948	.36506	0	.00000	0	.00000	0	.00000	0	.00000	23948	.04338	20
21	BILL SWEET-BOWERS A FED.	28017	.42709	19282	.10712	0	.00000	0	.00000	19282	.03964	47299	.08548	21
22	BILL SWEET-BOWERS B FED.	32223	.49121	18599	.10333	0	.00000	0	.00000	18599	.03824	50822	.09207	22
23	ATLANTIC RICH.-GRIMES	35245	.53728	36706	.20392	0	.00000	0	.00000	36706	.07546	71951	.13035	23
24	SHELL - MCKINLEY B	147814	2.25330	358665	1.99259	6929	.02840	0	.00000	365594	.75163	513410	.93009	24
25	GETTY - BOONE HARDIN	138302	2.10826	353629	1.96461	264614	1.08448	0	.00000	618243	1.27106	756545	1.37055	25
26	CITIES SERVICE - HARDIN	16224	.24732	555165	3.08425	1049231	4.30013	0	.00000	1604396	3.29851	1620620	2.93591	26
27	SHELL - MCKINLEY A	156718	2.38899	1003267	5.57371	871821	3.57304	0	.00000	1875088	3.85503	2031806	3.68081	27
28	GULF-GRAHAM STATE NCT A	15838	.24143	619411	3.44117	1014484	4.15772	0	.00000	1633895	3.35914	1649733	2.98865	28
29	SHELL - STATE D	36614	.55814	300473	1.66930	279933	1.14727	0	.00000	580406	1.19327	617020	1.11779	29
30	AMERADA HESS-STATE E	90584	1.38085	208709	1.15949	95565	.39166	0	.00000	304274	.62556	394858	.71532	30
31	TEXAS PACIF.-STATE G	84593	1.28952	677603	3.76446	443654	1.81826	0	.00000	1121257	2.30522	1205850	2.18451	31
32	SAMEDAN - STATE C	283315	4.31883	385596	2.14220	99541	.40795	0	.00000	485137	.99740	768452	1.39212	32
33	C H SWEET - STATE F	227830	3.47302	112149	.62305	2339	.00959	0	.00000	114488	.23538	342318	.62014	33
34	SHELL - STATE F	126406	1.92692	5567	.03093	0	.00000	0	.00000	5567	.01145	131973	.23908	34
35	TEXAS PACIF.-STATE V AC2	189441	2.88782	0	.00000	0	.00000	0	.00000	0	.00000	189441	.34319	35
36	C&C OPER. - SHIPP A	17373	.26483	0	.00000	0	.00000	0	.00000	0	.00000	17373	.03147	36
37	JOHN A YATES-SHELL STATE	213610	3.25624	627	.00348	0	.00000	0	.00000	627	.00129	214237	.38811	37
38	WISER - STATE L	47079	.71767	0	.00000	0	.00000	0	.00000	0	.00000	47079	.08529	38
39	GETTY(SKELLY) - HOBBS E	95058	1.44906	0	.00000	0	.00000	0	.00000	0	.00000	95058	.17221	39
40	CONTINENTAL - STATE B 26	154479	2.35486	88284	.49047	205	.00084	0	.00000	88489	.18193	242968	.44014	40
41	SAMEDAN - STATE B	129094	1.96790	18364	.10202	0	.00000	0	.00000	18364	.03776	147458	.26713	41
42	TEXACO - N.M. DD B C ST	131336	2.00206	416298	2.31277	95528	.39151	0	.00000	511826	1.05227	643162	1.16515	42
43	EXXON - N.M. STATE A	399978	6.09722	128750	.71528	13997	.05736	0	.00000	142747	.29348	542725	.98320	43
44	AMERADA - H D MCKINLEY	34916	.53225	538216	2.99009	457644	1.87559	0	.00000	995860	2.04741	1030776	1.86735	44
45	GETTY - H D MCKINLEY	55769	.85013	675365	3.75203	833222	3.41485	205	.00328	1508792	3.10196	1564561	2.83435	45
46	MARATHON-STATE SEC. 30	183642	2.79941	529532	2.94185	384949	1.57766	0	.00000	914481	1.88010	1098123	1.98935	46
47	EXXON-BOWERS A FEDERAL	31748	.48396	1286942	7.14968	1848438	7.57556	205354	3.29093	3340734	6.86829	3372482	6.10957	47
48	EXXON-BOWERS A FED COM	47247	.72023	128135	.71186	60021	.24599	0	.00000	188156	.38683	235403	.42645	48
49	AMERADA - STATE B	121340	1.84969	360344	2.00191	296393	1.21473	0	.00000	656737	1.35020	778077	1.40956	49
50	EXXON - W D GRIMES	40605	.61897	82252	.45696	9209	.03774	0	.00000	91461	.18804	132066	.23925	50
51	CONTINENTAL-STATE A 28	2376	.03622	461061	2.56145	888770	3.64250	220331	3.53094	1570162	3.22813	1572538	2.84880	51
52	GETTY - W D GRIMES	28642	.43662	199756	1.10976	399070	1.63553	54787	.87799	653612	1.34377	682254	1.23597	52
53	CHEVRON - STATE 1 29	0	.00000	313342	1.74079	725050	2.97151	345889	5.54310	1384281	2.84597	1384281	2.50776	53
54	ATLANTIC- W D GRIMES SOC	116890	1.78187	298750	1.65972	187197	.76720	0	.00000	485947	.99907	602837	1.09210	54
55	SAMEDAN - MOON A	46250	.70503	55014	.30563	36530	.14971	0	.00000	91544	.18821	137794	.24963	55
56	SAMEDAN - MOON B	31525	.48057	25879	.14377	1579	.00647	0	.00000	27458	.05645	58983	.10685	56
57	SHELL - GRIMES	13757	.20971	407905	2.26614	993289	4.07086	283863	4.54909	1685057	3.46434	1698814	3.07756	57
58	CONTINENTAL - W D GRIMES	49411	.75321	350832	1.94906	496864	2.03633	33317	.53392	881013	1.81129	930424	1.68555	58
59	SHELL - SANGER	73472	1.12001	75247	.41804	34776	.14252	0	.00000	110023	.22620	183495	.33242	59
60	MORANCO - HOBBS	3631	.05534	0	.00000	0	.00000	0	.00000	0	.00000	3631	.00658	60
61	SHELL - TURNER	31829	.48520	26556	.14753	2551	.01046	0	.00000	29107	.05984	60936	.11039	61
62	GETTY(SKELLY)-BH TURNER	23362	.35613	17625	.09792	22000	.09016	0	.00000	39625	.08147	62987	.11411	62
63	GETTY(SKELLY)-TURNER B2	22294	.33985	49799	.27666	99512	.40783	110	.00176	149421	.30720	171715	.31108	63
64	SAMEDAN - TURNER B	7667	.11688	425	.00236	0	.00000	0	.00000	425	.00087	8092	.01466	64
65	SAMEDAN - TURNER B BAT 2	8947	.13639	224	.00124	0	.00000	0	.00000	224	.00046	9171	.01661	65
66	SAMEDAN - TURNER A	57062	.86984	112266	.62370	40009	.16397	0	.00000	152275	.31307	209337	.37923	66
67	GULF - W D GRIMES NCT B	3560	.05427	431405	2.39670	944319	3.87016	501736	8.04065	1877461	3.85991	1881021	3.40765	67
68	SHELL - STATE B	0	.00000	281449	1.56360	619070	2.53717	470936	7.54705	1371455	2.81960	1371455	2.48452	68
69	AMOCO - STATE 6	0	.00000	271377	1.50765	630744	2.58510	472398	7.57048	1374519	2.82590	1374519	2.49011	69
70	CONTINENTAL - STATE A 33	0	.00000	834274	4.63486	2007042	8.22558	1564179	25.06697	4405495	9.05735	4405495	7.98097	70
71	AMERADA HESS - STATE A	0	.00000	260746	1.44859	604452	2.47726	263256	4.21885	1128454	2.32001	1128454	2.04430	71
72	SHELL - STATE A	0	.00000	289282	1.60712	757209	3.10332	368558	5.90638	1415049	2.90923	1415049	2.56349	72
73	GULF - W D GRIMES NCT A/2	5393	.08222	529885	2.94380	1103654	4.52317	280075	4.48838	1913614	3.93424	1919007	3.47646	73
74	GULF-GRIMES NCT A BAT 2	15219	.23200	551147	3.06193	1191362	4.88263	316317	5.06918	2058826	4.23278	2074045	3.75733	74
75	MARATHON-STATE SEC 35 18	0	.00000	423017	2.35007	979634	4.01484	861174	13.80093	2263840	4.65428	2263840	4.10116	75
76	CITIES SERVICE - FOWLER	112110	1.70899	469454	2.60808	805448	3.30102	6757	.10828	1281659	2.63499	1393769	2.52494	76
77	GETTY(SKELLY)- FOWLER	139477	2.12618	175696	.97609	76437	.31327	0	.00000	252133	.51837	391610	.70944	77
78	SUN - CLARA FOWLER	176626	2.69245	62579	.34766	526	.00216	0	.00000	63105	.12974	239730	.43429	78
79	SHELL - BERRY	168481	2.56831	452668	2.51482	462621	1.89599	738	.01183	916027	1.88328	1084508	1.96469	79
80	MOBIL - NORA BERRY	294805	4.49397	76293	.42385	197	.00081	0	.00000	76490	.15726	371295	.67264	80
81	AMERADA HESS - STATE C	326694	4.98010	5047	.02804	0	.00000	0	.00000	5047	.01038	331741	.60098	81
82	BYRON - J R HOLT STATE	65957	1.00544	0	.00000	0	.00000	0	.00000	0	.00000	65957	.11949	82
83	GULF - J R HOLT NCT B	26255	.40023	0	.00001	0	.00000	0	.00000	0	.00000	26255	.04756	83
		6560000	100.00000	18000000	100.00000	24400000	100.00000	6240000	100.00000	48640000	100.00000	55200000	100.00000	

TABLE 24 B
UNITIZATION PARAMETERS – SECONDARY OIL RESERVES

WIO NO.	WORKING INTEREST OWNER	GRAYBURG UPPER & LOWER		SAN ANDRES								UNIT TOTALS		WIO NO.
				ZONE II		ZONE III$_U$		ZONE III$_L$		TOTALS				
		BBLS.	%	BBLS.	%	BBLS.	%	BBLS.	%	BBLS.	%	BBLS.	%	
1	AMERADA HESS CORP.	669696	10.19277	1690891	9.11636	2175737	8.91695	261256	9.21885	4079884	8.38792	4748530	8.60241	1
2	AMOCO PRODUCTION Co.	0	.00000	271377	1.50716	430749	2.58510	672396	7.57048	1374539	2.83504	1374539	2.49011	2
3	ANDERSON ADA A	8743	.13358	3983	.02213	42	.00017	0	.00000	4025	.00828	12768	.02317	3
4	ANDERSON EST., MARAE O	8743	.13358	3983	.02213	42	.00017	0	.00000	4025	.00828	12768	.02317	4
5	ANDERSON, W D AND SONS	17526	.26717	7966	.04425	84	.00034	0	.00000	8050	.01655	25576	.04633	5
6	ARMSTRONG, J M	17526	.26717	7966	.04425	84	.00034	0	.00000	8050	.01655	25576	.04633	6
7	ATLANTIC RICHFIELD Co.	152136	2.31914	335456	1.86364	187197	.76720	0	.00000	522653	1.07453	674789	1.22244	7
8	BYRON, L K	38447	.58612	0	.00000	0	.00000	0	.00000	0	.00000	38447	.07001	8
9	C&C OPERATING CO.	17373	.26483	0	.00000	0	.00000	0	.00000	0	.00000	17373	.03147	9
10	CHEVRON OIL COMPANY	81438	1.24164	478434	2.65809	735050	3.02151	348489	5.54310	1561973	3.21580	1643208	2.97721	10
11	CITIES SERVICE OIL Co.	142052	2.16542	1052198	5.84555	1859482	7.62083	6757	.10828	2918437	6.00838	3060489	5.54436	11
12	CONRAD MARY DANIEL	1081	.01648	0	.00000	0	.00000	0	.00000	0	.00000	1081	.00196	12
13	CONTINENTAL OIL CO.	478976	7.30146	1981986	11.01104	3618896	14.83154	1817826	29.13183	7418708	15.25228	7897684	14.30740	13
14	CRILE, HERMAN R.	1622	.02472	0	.00000	0	.00000	0	.00000	0	.00000	1622	.00294	14
15	CUSACK, J. P.	6230	.09498	243	.00135	0	.00000	0	.00000	243	.00050	6473	.01173	15
16	CUSACK, W. J. H.	19444	.29640	20223	.11235	9527	.03905	0	.00000	29750	.06117	49194	.08912	16
17	CUSACK, MICHAEL P.	19444	.29640	20223	.11235	9527	.03905	0	.00000	29750	.06117	49194	.08912	17
18	DELHI GAS INC. (ATLANTIC)	20140	.30702	0	.00000	0	.00000	0	.00000	0	.00000	20140	.03652	18
19	DUNLAVEY, JOHN	1047	.01597	8	.00005	0	.00000	0	.00000	8	.00002	1055	.00191	19
20	ESTES, RUSSELL G	4674	.07129	2134	.01180	23	.00009	0	.00000	2157	.00441	6831	.01236	20
21	EXXON COMPANY U.S.A.	509426	7.76564	1605817	8.91954	1929063	7.90722	205354	3.29093	3740234	7.68512	4249660	7.69866	21
22	FIRST NATIONAL COMPANY	2096	.03193	17	.00009	0	.00000	0	.00000	17	.00004	2113	.00383	22
23	FORBES C. C.	5383	.08206	7326	.04070	1891	.00775	0	.00000	9217	.01895	14600	.02645	23
24	FORBES, ILAMAE	5241	.07990	7134	.03963	1842	.00755	0	.00000	8976	.01846	14217	.02576	24
25	GETTY OIL COMPANY	725031	11.05230	1649726	9.16515	1742637	7.14195	50101	.68303	3442464	7.08771	4172495	7.55487	25
26	GULF ENERGY & MINERALS	375459	5.72344	2822265	15.67697	2453534	18.49810	1084430	17.59822	6360229	14.63210	8909379	16.23438	26
27	HEADLEY, KENNETH NOEL	2877	.04385	0	.00000	0	.00000	0	.00000	0	.00000	2877	.00521	27
28	HURD, PETER	1081	.01648	0	.00000	0	.00000	0	.00000	0	.00000	1081	.00196	28
29	JUDSON, RUPY WANDA CO-TR	216	.00330	0	.00000	0	.00000	0	.00000	0	.00000	216	.00039	29
30	KENNITZ, A. A.	81453	1.24164	110869	.61588	28418	.11729	0	.00000	139287	.32075	220930	.40029	30
31	LAFLIN, GEORGE P.	1047	.01597	8	.00005	0	.00000	0	.00000	8	.00002	1055	.00191	31
32	LONE, MARION	908	.01384	0	.00000	0	.00000	0	.00000	0	.00000	908	.00164	32
33	MARATHON OIL COMPANY	183642	2.79941	952544	5.29191	1374583	5.63354	851194	13.64093	3178321	6.53436	3361963	6.09051	33
34	MCCARTHY, KATHRYN L. C.	216	.00330	0	.00000	0	.00000	0	.00000	0	.00000	216	.00039	34
35	MCPETERS, K. D.	1741	.02654	13	.00007	0	.00000	0	.00000	13	.00003	1754	.00318	35
36	MCPHERON, MARGARET M.	11594	.17674	0	.00000	0	.00000	0	.00000	0	.00000	11594	.02100	36
37	MCPHERON, ROBERT L.	5797	.08837	0	.00000	0	.00000	0	.00000	0	.00000	5797	.01050	37
38	MOBIL OIL CORP.	2844805	43.49397	76283	.42365	198	.00081	0	.00000	76491	.15724	171296	.67269	38
39	MORANCO	2946	.04491	17	.00009	0	.00000	0	.00000	17	.00004	2963	.00537	39
40	MORAN, M. M.	6946	.10617	50	.00028	0	.00000	0	.00000	50	.00010	7015	.01271	40
41	MORRIS, G. D.	3541	.05399	4820	.02678	1244	.00510	0	.00000	6064	.01247	9605	.01740	41
42	MURDOCH, KATHLYN L. COMBS	216	.00330	0	.00000	0	.00000	0	.00000	0	.00000	216	.00039	42
43	NOBLE, RICHARD L.	43064	.65646	58611	.32561	15130	.06201	0	.00000	73741	.15160	116805	.21160	43
44	PERRIN, M.C. ESTATE	341	.00519	0	.00000	0	.00000	0	.00000	0	.00000	341	.00062	44
45	PORTALES NATIONAL BANK	5312	.08098	7230	.04017	1866	.00765	0	.00000	9096	.01870	14408	.02610	45
46	RORING JOHN	10624	.16195	14460	.08033	3733	.01530	0	.00000	18193	.03740	28817	.05220	46
47	ROSE, FRANCIS J. COMBS	216	.00330	0	.00000	0	.00000	0	.00000	0	.00000	216	.00039	47
48	SAMEDAN OIL CORP.	334445	5.09824	302430	1.68017	91274	.37407	0	.00000	393704	.80942	728149	1.31911	48
49	SEA PROPERTIES, LTD.	3292	.05017	4105	.02281	1318	.00540	0	.00000	5423	.01115	8715	.01579	49
50	SHELL OIL COMPANY	780724	11.90132	3589400	19.94111	4824994	20.19440	1123096	18.01435	9538490	19.61597	10419216	18.87539	50
51	SPALDING SMITH, EST. OF	3541	.05399	4820	.02678	1244	.00510	0	.00000	6064	.01247	9605	.01740	52
53	SPEAR HOWELL	524	.00798	4	.00002	0	.00000	0	.00000	4	.00001	528	.00096	53
54	SULLIVAN, E. C.	6312	.08098	7230	.04017	1866	.00765	0	.00000	9096	.01870	14408	.02610	54
55	SUN OIL CO. (DELAWARE)	176625	2.69295	62579	.34766	526	.00216	0	.00000	63105	.12974	239730	.43429	55
56	SWEET, BILL L.	60290	.91829	37841	.21023	0	.00000	0	.00000	37841	.07780	98131	.17776	56
57	SWEET, C.H. OIL CO.	315258	4.80576	120687	.67048	2339	.00959	0	.00000	123026	.25293	438284	.79399	57
58	TATE, M.E., EST. OF	10428	.15895	14840	.08243	1733	.01530	0	.00000	18193	.03740	28817	.05220	58
59	TEXACO, INC.	131335	2.00206	416298	2.31277	95528	.39151	0	.00000	511826	1.05227	643161	1.16515	59
60	TEXAS PACIFIC OIL CO., INC.	431836	6.58284	680774	3.78209	443654	1.81826	0	.00000	1124430	2.31174	1556266	2.81932	60
61	TREADAWAY, BETTYE CONNA	216	.00330	0	.00000	0	.00000	0	.00000	0	.00000	216	.00039	61
62	TWO STATES OIL CO.	3745	.05709	0	.00000	0	.00000	0	.00000	0	.00000	3745	.00682	62
63	WALLACE, COLLEEN MCPHERON	5797	.08837	0	.00000	0	.00000	0	.00000	0	.00000	5797	.01050	63
64	WHITLEY, LOYD	1047	.01597	8	.00005	0	.00000	0	.00000	8	.00002	1055	.00191	64
65	WILLIAMS, HATTIE C.	3343	.05096	6578	.03654	2344	.00961	0	.00000	8922	.01834	12265	.02222	65
66	WILLIAMSON, A.T.	1047	.01597	8	.00005	0	.00000	0	.00000	8	.00002	1055	.00191	66
67	WISER OIL COMPANY, THE	60748	.92603	0	.00000	0	.00000	0	.00000	0	.00000	60748	.11005	67
68	YATES, JOHN A	213610	3.25629	427	.00238	0	.00000	0	.00000	427	.00128	214237	.38811	68
69	YEAGER & ARMSTRONG	17526	.26717	7966	.04425	84	.00034	0	.00000	8050	.01655	25576	.04633	69
70	YEAGER JR. ORAMENTY	704	.01073	0	.00000	0	.00000	0	.00000	0	.00000	704	.00128	70
71	YEAGER RUTH ANNE	523	.00798	0	.00000	0	.00000	0	.00000	0	.00000	523	.00095	71
72	YEAGER RUTH/HENRY	180	.00276	0	.00000	0	.00000	0	.00000	0	.00000	180	.00033	72
73	YEAGER RUTH PEELER	755	.01151	0	.00000	0	.00000	0	.00000	0	.00000	755	.00137	73
		6560000	100.00000	48000000	100.00000	24400000	100.00000	6240000	100.00000	48640000	100.00000	55200000	100.00000	

TABLE 21 A

UNITIZATION PARAMETERS – WELLS, PRODUCTION AND GAS CAP VOLUMETRICS

TR	TRACT NAME	NUMBER OF WELLS 1/1/77				CUMULATIVE *		CURRENT PROD., YEAR 1976				ORIGIN…			
		USEABLE		ACTIVE		OIL PROD. 1/1/77		OIL		GAS		GRAYBURG UPPER		GRAYBURG LWR.	
NO.	OPERATOR – LEASE	NO.	%	NO.	%	BBLS	%	BBLS	%	MCF	%	MCF	%	MCF	%
1	GETTY - STATE B	7.00	.82987	2.00	.90090	59348	.03554	1927	.07031	1202	.01584	0	.00000	0	.00000
2	AMERADA HESS-STATE	2.00	.82987	1.00	.45045	130763	.07830	2158	.07874	12256	.16202	5348	.01170	0	.00000
3	GULF - LEA FO STATE	1.00	.41494	1.00	.45045	69918	.04186	1381	.05039	4246	.05613	0	.00000	0	.00000
4	TEXAS PACIFIC-STATE V AC1	2.00	.82987	2.00	.90090	197173	.11806	4577	.16701	39120	.51716	48341	.10458	0	.00000
5	ESTES ENGR. - STATE	1.00	.41494	1.00	.45045	75115	.04498	3642	.13289	31467	.41599	209759	.46247	0	.00000
6	CONTINENTAL - STATE A 13	6.00	2.48963	5.00	2.25226	844964	.50594	3683	.13438	8716	.11522	1573401	3.46846	29415	11.97707
7	SHELL - RICE	4.00	1.65975	4.00	1.80180	1703730	1.02014	15090	.55060	102528	1.35539	1640285	3.61642	41148	16.75503
8	AMERADA HESS - B HARDIN	4.00	1.65975	.00	.00000	1819582	1.08951	0	.00000	0	.00000	1228981	2.70960	513	.20888
9	GULF - DAN HARDIN	9.00	3.73444	8.00	3.60361	1774997	1.06281	13609	.49638	130845	1.72974	258603	.57015	0	.00000
10	MORANCO - STATE 1 17	1.00	.41494	1.00	.45045	71891	.04305	1681	.06134	2742	.03625	0	.00000	0	.00000
11	CHEVRON - STATE 1 17	1.00	.41494	.00	.00000	61888	.03706	0	.00000	0	.00000	0	.00000	0	.00000
12	GETTY(SKELLY)-STATE A	1.00	.41494	1.00	.45045	291241	.17439	1165	.04251	2169	.02867	0	.00000	0	.00000
13	ANTWEIL-MORRIS CONE TOWNS	1.00	.41494	1.00	.45045	42923	.02570	3162	.11537	43477	.57475	0	.00000	0	.00000
14	WISER ANGELL B	1.00	.41494	1.00	.45045	507021	.30359	4307	.15715	48702	.64383	0	.00000	0	.00000
15	WISER MORRIS A	1.00	.41494	1.00	.45045	573247	.34324	8816	.32168	19654	.25982	0	.00000	0	.00000
16	GULF - W D GRIMES NCT C	3.00	1.24481	3.00	1.35135	1477214	.88451	6387	.23305	20426	.27001	0	.00000	0	.00000
17	C H SWEET - MCKINLEY B	1.00	.41494	1.00	.45045	96732	.05792	1126	.04109	25699	.33973	0	.00000	0	.00000
18	GETTY(SKELLY)-MCKINLEY	1.00	.41494	1.00	.45045	606108	.36292	1154	.04211	5496	.07264	0	.00000	0	.00000
19	CHEVRON - H D MCKINLEY	2.00	.82988	2.00	.90090	1408200	.84319	15031	.54845	25580	.33816	0	.00000	0	.00000
20	C H SWEET - GRIMES	2.00	.82988	1.00	.45045	293234	.17558	112	.00409	0	.00000	0	.00000	0	.00000
21	BILL SWEET-HOWERS B FED.	1.00	.41494	1.00	.45045	373039	.22336	1112	.04057	3110	.04111	0	.00000	0	.00000
22	BILL SWEET-HOWERS C FED.	.00	.00000	.00	.00000	449542	.26917	0	.00000	0	.00000	0	.00000	0	.00000
23	ATLANTIC RICH-GRIMES	1.00	.41494	1.00	.45045	865574	.51828	3216	.11735	20072	.26535	0	.00000	0	.00000
24	SHELL - MCKINLEY B	5.00	2.07469	4.00	1.80180	3905796	2.33867	53070	1.93641	119785	1.58353	2407	.00531	0	.00000
25	GETTY - BOONE HARDIN	4.00	1.65975	4.00	1.80180	3209069	1.92149	15077	.55013	65683	.86831	267801	.59043	0	.00000
26	CITIES SERVICE - HARDIN	5.00	2.07469	5.00	2.25226	3442516	2.06127	27971	1.02060	37303	.49314	1497344	3.30127	5482	2.23221
27	SHELL - MCKINLEY A	9.00	3.73444	9.00	4.05406	9350690	5.59890	166619	6.07957	289879	3.83212	2277537	5.02146	11402	4.64277
28	GULF-GRAHAM STATE NCT A	6.00	2.48963	5.00	2.25226	2986251	1.78807	55708	2.03267	109709	1.45032	2047696	4.51466	63786	25.97290
29	SHELL - STATE O	2.00	.82987	2.00	.90090	1079156	.64616	30411	1.10963	89983	1.18955	840064	1.85213	8204	3.37316
30	AMERADA HESS-STATE E	2.00	.82987	2.00	.90090	1025566	.61408	10245	.37382	33592	.44408	550577	1.21386	449	.18283
31	TEXAS PACIFIC-STATE G	4.00	1.65975	4.00	1.80180	4224573	2.52954	116644	4.25609	137507	1.81781	1780082	3.92463	10065	4.09836
32	SAMEDAN - STATE C	4.00	1.65975	4.00	1.80180	3483030	2.08553	111286	4.06059	153141	2.02448	464496	1.02409	0	.00000
33	C W SWEET - STATE F	4.00	1.65975	3.00	1.35135	643367	.38523	8527	.31113	111733	1.47708	230183	.50750	0	.00000
34	SHELL - STATE C	2.00	.82987	2.00	.90090	127450	.07631	1745	.06367	19611	.25925	28863	.06364	0	.00000
35	TEXAS PACIFIC-STATE V AC2	4.00	1.65975	4.00	1.80180	299905	.17957	4665	.17022	15187	.20077	0	.00000	0	.00000
36	C&C OPER. - SHIPP	1.00	.41494	1.00	.45045	18532	.01110	799	.02915	42	.00056	0	.00000	0	.00000
37	JOHN A YATES-SHELL STATE	3.00	1.24481	3.00	1.35135	423601	.25364	6070	.22148	29571	.39092	0	.00000	0	.00000
38	WISER - STATE 1	1.00	.41494	1.00	.45045	10263	.00614	286	.01044	0	.00000	0	.00000	0	.00000
39	GETTY(SKELLY) - MCAPE E	1.00	.41494	1.00	.45045	88198	.05281	1802	.06575	5070	.06702	0	.00000	0	.00000
40	CONTINENTAL - STATE A 25	2.00	.82987	2.00	.90090	977964	.58557	5057	.18452	16267	.21505	28891	.06392	0	.00000
41	SAMEDAN - STATE A	2.00	.82987	2.00	.90090	393201	.23544	3074	.11216	13285	.17562	75	.00017	0	.00000
42	TEXACO - NANA DD A C ST	4.00	1.65975	4.00	1.80180	4476336	2.68029	92971	3.39231	286161	3.78297	1139491	2.51231	27	.01099
43	EXXON - NAPH STATE A	6.00	2.48963	6.00	2.70271	3396180	2.03353	36878	1.34560	347471	4.59347	217081	.47861	0	.00000
44	AMERADA - H D MCKINLEY	4.00	1.65975	4.00	1.80180	5225113	3.12863	87842	3.20517	152411	2.01483	2133676	4.70432	29365	11.95304
45	GETTY - H D MCKINLEY	5.00	2.07469	5.00	2.25226	5381702	3.22239	88127	3.21557	246112	3.25353	1768102	3.89822	21916	8.92396
46	MARATHON-STATE SEC. 30	4.00	1.65975	4.00	1.80180	3994627	2.39186	46500	1.69669	107583	1.42222	1380336	3.04342	0	.00000
47	EXXON-BOWERS A FEDERAL	8.00	3.31950	7.00	3.15316	9175268	5.49386	105400	3.84582	335805	4.43925	3493046	7.70122	23745	9.66871
48	EXXON-BOWERS A FED COM	1.00	.41494	1.00	.45045	936400	.56069	16198	.59103	19385	.25626	139192	.30688	0	.00000
49	AMERADA - STATE M	4.00	1.65975	4.00	1.80180	4921092	2.94659	43173	1.57529	200237	2.64706	524724	1.15688	0	.00000
50	EXXON - W C GRIMES	1.00	.41494	1.00	.45045	1162183	.69588	3905	.14249	32741	.43283	2834	.00625	0	.00000
51	CONTINENTAL-STATE A 28	3.00	1.24481	2.00	.90090	3783702	2.26556	45198	1.64918	115523	1.52718	1059171	2.33521	0	.00000
52	GETTY - W D GRIMES	2.00	.82987	2.00	.90090	2706907	1.62051	24984	.91161	166164	2.19664	494530	1.09031	0	.00000
53	CHEVRON - STATE 1 29	2.00	.82987	2.00	.90090	2163965	1.29571	52872	1.92919	21547	.28485	775460	1.70589	0	.00000
54	ATLANTIC- W D GRIMES SOC	4.00	1.65975	4.00	1.80180	3187125	1.90835	34014	1.24110	201190	2.65968	76102	.16779	0	.00000
55	SAMEDAN - MOON A	2.00	.82987	2.00	.90090	1545624	.92547	41848	1.52694	105887	1.39980	44	.00014	0	.00000
56	SAMEDAN - MOON B	2.00	.82987	2.00	.90090	1453867	.87053	37877	1.38205	90341	1.19428	0	.00000	0	.00000
57	SHELL - GRIMES	5.00	2.07469	5.00	2.25226	3915733	2.34462	73867	2.69525	157162	2.07764	474753	1.97712	0	.00000
58	CONTINENTAL - W D GRIMES	4.00	1.65975	4.00	1.80180	3043992	1.82265	51921	1.89449	232096	3.06767	300830	.66325	0	.00000
59	SHELL - SANGER	6.00	2.48963	6.00	2.70270	3786672	2.26734	149429	5.45235	396389	5.24016	3872	.00854	0	.00000
60	MORANCO - HOBBS	1.00	.41494	1.00	.45045	135526	.08115	5419	.19773	25428	.33615	0	.00000	0	.00000
61	SHELL - TURNER	2.00	.82987	2.00	.90090	1533639	.91829	58721	2.14260	62518	.82647	0	.00000	0	.00000
62	GETTY(SKELLY)-RH TURNER	1.00	.41494	1.00	.45045	951135	.56951	28955	1.05651	29055	.38410	455	.00107	0	.00000
63	GETTY(SKELLY)-TURNER #2	1.00	.41494	1.00	.45045	974856	.58371	29159	1.06377	103150	1.36362	19258	.04246	0	.00000
64	SAMEDAN - TURNER B	1.00	.41494	1.00	.45045	649673	.38401	12818	.46770	54080	.71492	0	.00000	0	.00000
65	SAMEDAN - TURNER A BAT 2	1.00	.41494	1.00	.45045	504820	.30227	11193	.40658	20828	.27534	0	.00000	0	.00000
66	SAMEDAN - TURNER A	2.00	.82988	2.00	.90090	1661693	.99497	41077	1.49881	37888	.50087	0	.00000	0	.00000
67	GULF - W D GRIMES NCT B	4.00	1.65975	4.00	1.80180	3364575	2.01460	66640	2.43155	233360	3.08496	1179929	2.60145	0	.00000
68	SHELL - STATE P	2.00	.82988	2.00	.90090	1605180	.96113	40060	1.46170	128247	1.69539	690587	1.52257	0	.00000
69	AMOCO - STATE G	2.00	.82988	2.00	.90090	2327605	1.39370	54956	2.00523	60244	.79641	881137	1.94269	0	.00000
70	CONTINENTAL - STATE A 33	7.00	2.90456	7.00	3.15316	7263192	4.34897	150165	5.47920	312093	4.12579	2876047	6.34096	0	.00000
71	AMERADA HESS - STATE A	2.00	.82988	2.00	.90090	2489325	1.48759	42053	1.53442	79376	1.04933	868462	1.91474	0	.00000
72	SHELL - STATE A	3.00	1.24481	2.00	.90090	2209791	1.32315	33646	1.22767	70556	.93273	895737	1.97490	0	.00000
73	GULF-W D GRIMES NCT A/2	5.00	2.07469	5.00	2.25226	4915723	2.94338	82743	3.01912	249167	3.29392	1817464	4.00705	0	.00000
74	GULF-GRIMES NCT A BAT 2	5.00	2.07469	5.00	2.25226	4619601	2.76612	69272	2.52759	301535	3.98621	2049942	4.51961	0	.00000
75	MARATHON-STATE SEC 32 1A	4.00	1.65975	4.00	1.80180	4897926	2.93272	33453	1.22063	145984	1.92987	1890478	4.16897	0	.00000
76	CITIES SERVICE - FOWLER	5.00	2.07469	3.00	1.35135	4227004	2.53100	62607	2.28440	33041	.43679	1520222	3.35171	0	.00000
77	GETTY(SKELLY)- FOWLER	2.00	.82988	2.00	.90090	2169626	1.29611	38735	1.41336	51606	.68222	286458	.63201	0	.00000
78	SUN - CLARA FOWLER	7.00	.82988	2.00	.90090	901669	.53989	9582	.34963	63770	.84302	32452	.07155	0	.00000
79	SHELL - BERRY	4.00	1.65975	4.00	1.80180	3231936	1.93518	77308	2.82081	314808	4.16168	931087	2.05281	0	.00000
80	MOBIL - NONA PERRY	4.00	1.65975	4.00	1.80180	1729839	1.03577	36179	1.31991	146136	1.93188	28917	.06375	0	.00000
81	AMERADA HESS - STATE C	3.00	1.24481	2.00	.90090	694037	.41605	6681	.24378	24514	.32407	0	.00000	0	.00000
82	BYRON - J R HOLT STATE	1.00	.41494	1.00	.45045	203697	.12197	3883	.14166	8060	.10655	0	.00000	0	.00000
83	GULF - J R HOLT NCT C	1.00	.41494	.00	.00000	22926	.01373	0	.00000	0	.00000	0	.00000	0	.00000
		241.00	100.00000	222.00	100.00000	167009430	100.00000	2740636	100.00000	7564451	100.00000	45354628	100.00000	245566	100.00000
	REVISED 5/26/77														

*INCLUDES AN ADJUSTMENT OF AN ADDITIONAL 1029 BARRELS OF OIL FOR "LOST" PRODUCTION FROM 3 WELLS (29L, 30C & 30K) WHICH WERE SHUT IN FOR SPECIAL BHP BUILD-UP SURVEYS REQUESTED BY THE TECHNICAL COMMITTEE

AL GAS CAP GAS IN PLACE

GRAYBURG TOTAL		S.A. ZONE I		UNIT TOTAL		TR
MCF	%	MCF	%	MCF	%	NO.
0	.00000	0	.00000	0	.00000	1
5348	.01173	0	.00000	5348	.00987	2
0	.00000	0	.00000	0	.00000	3
48341	.10601	0	.00000	48341	.08917	4
209759	.45998	0	.00000	209759	.38693	5
1403015	3.07821	0	.00000	1403015	2.58897	6
1481933	3.25017	0	.00000	1481933	2.73362	7
1228884	2.69613	0	.00000	1228884	2.26704	8
258603	.56708	0	.00000	258603	.47703	9
0	.00000	0	.00000	0	.00000	10
0	.00000	0	.00000	0	.00000	11
0	.00000	0	.00000	0	.00000	12
0	.00000	0	.00000	0	.00000	13
0	.00000	0	.00000	0	.00000	14
0	.00000	0	.00000	0	.00000	15
0	.00000	0	.00000	0	.00000	16
0	.00000	0	.00000	0	.00000	17
0	.00000	0	.00000	0	.00000	18
0	.00000	0	.00000	0	.00000	19
0	.00000	0	.00000	0	.00000	20
0	.00000	0	.00000	0	.00000	21
0	.00000	0	.00000	0	.00000	22
0	.00000	0	.00000	0	.00000	23
2407	.00528	0	.00000	2407	.00444	24
247801	.54725	0	.00000	247801	.45399	25
1503826	3.29551	0	.00000	1503826	2.77214	26
2288939	5.01936	0	.00000	2288939	4.22225	27
2111582	4.63023	0	.00000	2111582	3.89381	28
848348	1.86032	0	.00000	848348	1.56487	29
551024	1.20833	0	.00000	551024	1.01648	30
1790147	3.92557	0	.00000	1790147	3.30216	31
966490	2.12000	0	.00000	966490	1.78250	32
230183	.50476	0	.00000	230183	.42460	33
28843	.06328	0	.00000	28843	.05321	34
0	.00000	0	.00000	0	.00000	35
0	.00000	0	.00000	0	.00000	36
0	.00000	0	.00000	0	.00000	37
0	.00000	0	.00000	0	.00000	38
0	.00000	0	.00000	0	.00000	39
28991	.06357	0	.00000	28991	.05348	40
75	.00016	0	.00000	75	.00014	41
1139718	2.49924	0	.00000	1139718	2.10234	42
217081	.47603	0	.00000	217081	.40043	43
1463031	3.20826	0	.00000	1463031	2.69899	44
1790018	3.92529	0	.00000	1790018	3.30192	45
1380936	3.02713	0	.00000	1380936	2.54640	46
3519580	7.71988	402768	9.47825	3919580	7.23012	47
138192	.30304	0	.00000	138192	.25491	48
524728	1.15046	0	.00000	524728	.96762	49
2834	.00622	0	.00000	2834	.00523	50
1226541	2.69071	166350	1.91270	1226541	2.26071	51
510705	1.12000	18175	.18780	510705	.94206	52
1498849	3.28684	733819	8.40274	1498849	2.76584	53
76102	.16688	0	.00000	76102	.14038	54
64	.00014	0	.00000	64	.00012	55
0	.00000	0	.00000	0	.00000	56
1214148	2.66337	318415	3.71017	1214148	2.24038	57
332797	.61389	31967	.37131	332797	.61389	58
3872	.00849	0	.00000	3872	.00714	59
0	.00000	0	.00000	0	.00000	60
0	.00000	0	.00000	0	.00000	61
455	.00100	0	.00000	455	.00084	62
19258	.04223	0	.00000	19258	.03552	63
0	.00000	0	.00000	0	.00000	64
0	.00000	0	.00000	0	.00000	65
0	.00000	0	.00000	0	.00000	66
1220929	2.67794	1047267	12.19671	2268196	4.18523	67
1990587	1.51937	1302520	15.12992	1993107	3.67655	68
881137	1.93229	987531	11.47047	1868668	3.44700	69
3760497	8.24682	1937411	16.69625	4313458	7.95674	70
1088962	1.70493	1295901	15.23944	2094363	3.86333	71
1495737	1.94424	595929	6.92196	1991661	2.75156	72
1374488	3.04567	1378914	1.40194	1986378	3.66475	73
2099497	4.49527	3788	.04400	2093730	3.78833	74
1908478	4.18403	1808821	2.21450	2081501	3.83940	75
1520222	3.33366	0	.00000	1520222	2.80425	76
286458	.62841	0	.00000	286458	.52878	77
32452	.07118	0	.00000	32452	.05986	78
931047	2.04174	0	.00000	931047	1.71761	79
28917	.06341	0	.00000	28917	.05334	80
0	.00000	0	.00000	0	.00000	81
0	.00000	0	.00000	0	.00000	82
0	.00000	0	.00000	0	.00000	83
---	---	---	---	---	---	
45602210	100.00000	8408188	100.00000	54211398	100.00000	

TABLE 21-B
UNITIZATION PARAMETERS -- WELLS, PRODUCTION AND GAS CAP VOLUMETRICS

WWW NO.	WORKING INTEREST OWNER	NO. OF WELLS 1/1/77 USEABLE NO.	USEABLE %	ACTIVE NO.	ACTIVE %	CUMULATIVE OIL PROD. 1/1/77 BBLS.	%	CURRENT PROD., YEAR 1976 OIL BBLS.	OIL %	GAS MCF	GAS %	ORIGINAL GB UPPER MCF	GB UPPER %	GB LOWER MCF	GB LOWER %	M
1	AMERADA HESS CORP.	20.00	8.29875	19.00	6.30631	15788495	9.45365	187030	6.82433	485590	6.41937	5036480	11.10418	30093	12.25359	506
2	AMOCO PRODUCTION CO.	1.51	.62656	1.51	.68018	1755028	1.05133	41456	1.51264	45445	.60077	664686	1.46547	0	.00000	66
3	ANDERSON ADA A	.12	.04979	.12	.05405	8802	.00527	427	.01558	3688	.04875	24581	.05419	0	.00000	2
4	ANDERSON EST., WARREN D	.12	.04979	.12	.05405	8802	.00527	427	.01558	3688	.04875	24581	.05419	0	.00000	2
5	ANDERSON, W D AND SONS	.23	.09544	.23	.10360	17605	.01054	854	.03116	7375	.09750	49162	.10839	0	.00000	4
6	ARMSTRONG, J H	.23	.09544	.23	.10360	17605	.01054	854	.03116	7375	.09750	49162	.10839	0	.00000	4
7	ATLANTIC RICHFIELD CO.	7.00	2.90456	7.00	3.15315	6601664	3.89299	53956	1.96877	299254	3.88996	1021491	2.25202	0	.00000	102
8	BYRON W K	.69	.29381	.69	.26577	112354	.07147	2875	.08301	4723	.06244	0	.00000	0	.00000	
9	C&C OPERATING CO.	1.00	.41494	1.00	.45045	18532	.01110	799	.02915	42	.00055	0	.00000	0	.00000	
10	CHEVRON OIL COMPANY	5.00	2.07469	5.00	1.80180	3749053	2.17596	67703	2.47763	47127	.62301	775460	1.70969	0	.00000	77
11	CITIES SERVICE OIL CO.	10.38	4.30705	8.38	3.77478	8063721	4.82842	99121	3.63427	80897	1.06944	3018275	6.65459	5482	2.23221	302
12	CONRAD MARY DANIEL	.06	.02490	.06	.02703	35828	.02145	551	.02010	1228	.01623	0	.00000	0	.00000	
13	CONTINENTAL OIL CO.	22.25	9.23236	20.25	9.12161	16209360	9.70266	257000	9.37738	692829	9.15901	5839349	12.87430	29414	11.97707	586
14	CRILE, HENMAN R.	.09	.03734	.09	.04054	51742	.03218	826	.03017	1842	.02436	0	.00000	0	.00000	
15	CUSACK, J. P.	.76	.31535	.76	.34234	431060	.25810	8786	.32068	28090	.37136	0	.00000	0	.00000	
16	CUSACK, JR., J. P.	1.00	.41494	1.00	.45045	249873	.14900	19731	.72724	49057	.64852	16	.00004	0	.00000	
17	CUSACK, MICHAEL F.	1.00	.41494	1.00	.45045	249873	.14900	19731	.72724	49057	.64852	16	.00004	0	.00000	
18	DEL-LEA, INC. (ANTWEIL)	1.19	.49378	1.19	.53604	68334	.04092	4178	.15244	48245	.63779	0	.00000	0	.00000	
19	DUNLAVEY, J. N.	.05	.02075	.05	.02252	3370	.00202	79	.00288	129	.00170	0	.00000	0	.00000	
20	ESTES, RUSSELL G	.06	.02490	.06	.02703	4695	.00281	228	.00832	1967	.02600	13110	.02890	0	.00000	1
21	EXXON COMPANY - U.S.A.	15.50	6.43154	14.50	6.53154	14088939	8.43601	160928	5.85371	719031	9.50541	3849736	8.48771	23745	9.66671	387
22	FIRST ROSWELL COMPANY	.09	.03734	.09	.04054	6740	.00404	258	.00576	257	.00350	0	.00000	0	.00000	
23	FORBES C. C.	.08	.03319	.08	.03604	66177	.03963	2114	.07713	2910	.03847	8863	.01954	0	.00000	
24	FORBES, BLAMAR	.07	.02905	.07	.03153	64936	.03858	2059	.07513	2833	.03745	8630	.01903	0	.00000	
25	GETTY OIL COMPANY	21.25	8.81743	21.25	9.57207	16963946	10.15718	236623	8.63387	693187	9.16376	3112094	6.86139	22141	9.01556	113
26	GULF ENERGY & MINERALS	34.06	14.13278	31.06	13.99099	17244016	11.52271	295978	10.79961	1049791	13.87795	7453634	16.42292	63786	25.97298	741
27	HEADLEY, KENNETH NOEL	.22	.09129	.22	.09910	117119	.07013	1365	.04980	7931	.10485	0	.00000	0	.00000	
28	HUNT, PETER	.06	.02490	.06	.02703	35828	.02145	551	.02010	1228	.01623	0	.00000	0	.00000	
29	JUDSON, RUBY WANDA CONRA	.01	.00415	.01	.00451	7166	.00429	110	.00401	246	.00325	0	.00000	0	.00000	
30	KENNITZ, A. A.	1.15	.47718	1.15	.51802	1001371	.59959	31995	1.16743	49028	.58204	134116	.29569	0	.00000	13
31	LAFLIN, GEORGE P.	.05	.02075	.05	.02252	3370	.00202	79	.00288	129	.00170	0	.00000	0	.00000	
32	LUNE, M. RALPH	.25	.10373	.25	.11261	33881	.02029	1355	.04944	6357	.08404	0	.00000	0	.00000	
33	MARATHON OIL COMPANY	6.00	2.48963	6.00	2.70270	6493590	3.85822	63226	2.30702	180575	2.38715	2325775	5.12776	0	.00000	232
34	MCCARTHY, ANTHNY L. CO.	.01	.00415	.01	.00451	7166	.00429	110	.00401	246	.00325	0	.00000	0	.00000	
35	MCPETERS, K. D.	.12	.04979	.12	.05405	11398	.00682	372	.01357	1383	.01828	0	.00000	0	.00000	
36	MCPHERON, MARGARET M.	.18	.07469	.18	.08106	35806	.02144	683	.02492	1917	.01873	0	.00000	0	.00000	
37	MCPHERON, ROBERT L.	.09	.03734	.09	.04054	17903	.01072	341	.01244	708	.00936	0	.00000	0	.00000	
38	MOBIL OIL CORP.	4.00	1.65975	4.00	1.80180	1729834	1.03577	36174	1.31991	146136	1.93188	28917	.06375	0	.00000	2
39	MORANCO	.32	.13278	.32	.14414	38507	.02306	1428	.05210	6217	.08219	0	.00000	0	.00000	
40	MORAN, R. M.	.47	.19502	.47	.21171	95630	.02732	1469	.05433	6539	.07322	0	.00000	0	.00000	
41	MORRIS, G. D.	.05	.02075	.05	.02252	43538	.02607	1391	.05075	1914	.02530	5831	.01286	0	.00000	
42	MURDOCH, NATHLYN I. CONRA	.01	.00415	.01	.00451	7166	.00429	110	.00401	246	.00325	0	.00000	0	.00000	
43	NOBLE, RICHARD L.	.61	.25311	.61	.27478	529420	.31700	16915	.61719	23277	.30772	70906	.15633	0	.00000	7
44	PARRISH, H.C. ESTATE	.09	.03734	.09	.04054	18712	.00761	508	.01853	2385	.03153	0	.00000	0	.00000	
45	PORTALES NATIONAL BANK	.07	.02905	.07	.03153	65307	.03910	2087	.07615	2871	.03795	8747	.01928	0	.00000	
46	ROBINS JOHN	.15	.06224	.15	.06757	130614	.07821	4173	.15226	5743	.07592	17493	.03857	0	.00000	1
47	ROSE, FRANCIS I. CONRAD	.01	.00415	.01	.00451	7166	.00429	110	.00401	246	.00325	0	.00000	0	.00000	
48	SAMEDAN OIL CORP.	8.47	3.51452	8.47	3.81532	5143451	3.19949	139884	4.92163	248460	3.25813	176439	.38900	0	.00000	17
49	SLA PROPERTIES, LTD.	.09	.03734	.09	.04054	78115	.04258	2031	.07411	4092	.05409	3500	.00772	0	.00000	
50	SHELL OIL COMPANY	44.00	18.25726	42.00	18.91892	32449773	19.42990	699966	25.54027	1751466	23.15391	9207192	18.09480	60834	24.77095	826
52	1ST NATL BANK/FT. WORTH	.05	.02075	.05	.02252	43538	.02607	1391	.05075	1914	.02530	5831	.01286	0	.00000	
53	SPEAR HOWELL	.02	.00830	.02	.00901	1685	.00101	39	.00142	64	.00085	0	.00000	0	.00000	
54	SULLIVAN, L. C.	.07	.02905	.07	.03153	65307	.03910	2087	.07615	2871	.03795	8747	.01928	0	.00000	
55	SUN OIL CO. (DELAWARE)	2.00	.82987	2.00	.90090	901669	.53989	9582	.34962	63770	.84302	32452	.07155	0	.00000	3
56	SWEET, HILL L.	1.00	.41494	1.00	.45045	822581	.49254	1112	.04057	3110	.04111	0	.00000	0	.00000	
57	SWEET, C. H. OIL CO.	7.00	2.90456	5.00	2.25225	1033333	.61873	9765	.35630	137432	1.81681	230183	.50750	0	.00000	23
58	1ST NATL BANK OF CASPER	.15	.06224	.15	.06757	130614	.07821	4173	.15226	5743	.07592	17493	.03857	0	.00000	1
59	TEXACO, INC.	4.00	1.65975	4.00	1.80180	4476336	2.68029	92971	3.39231	286161	3.78299	1139691	2.51273	27	.00059	113
60	TEXAS PACIFIC OIL CO. IN	10.00	4.14938	10.00	4.50451	4721651	2.82718	125886	4.59331	191814	2.53570	1628423	3.59121	10065	4.09836	183
61	TRLADAWAY, BETTYE CONRA	.01	.00415	.01	.00451	7166	.00429	110	.00401	246	.00325	0	.00000	0	.00000	
62	TWO STATES OIL CO.	.38	.15768	.38	.17117	190133	.11385	1615	.05893	18263	.24143	0	.00000	0	.00000	
63	WALLACE, COLLEEN MCPHERO	.09	.03734	.09	.04054	17903	.01072	341	.01244	708	.00936	0	.00000	0	.00000	
64	WHITLEY, LOYD	.05	.02075	.05	.02252	3370	.00202	79	.00288	129	.00170	0	.00000	0	.00000	
65	WILLIAMS, HATTIE C.	.12	.04979	.12	.05405	97358	.05830	2407	.08782	2220	.02935	0	.00000	0	.00000	
66	WILLIAMSON, A. T.	.05	.02075	.05	.02252	3370	.00202	79	.00288	129	.00170	0	.00000	0	.00000	
67	WISER OIL COMPANY, THE	2.00	.82987	2.00	.90090	850398	.52956	6847	.24987	24178	.45182	0	.00000	0	.00000	
68	YATES, JOHN A.	3.00	1.24481	3.00	1.35135	423601	.25364	6070	.22148	29571	.39092	0	.00000	0	.00000	
69	YEAGER & ARMSTRONG	.23	.09544	.23	.10360	17605	.01054	854	.03116	7375	.09750	49162	.10839	0	.00000	4
70	YEAGER JR., DR., HENRY	.04	.01660	.04	.01802	23316	.01396	359	.01310	799	.01056	0	.00000	0	.00000	
71	YEAGER RUTH ANNE	.03	.01245	.03	.01351	17345	.01039	267	.00974	595	.00787	0	.00000	0	.00000	
72	YEAGER RUTH/HENRY	.01	.00415	.01	.00451	5971	.00357	92	.00336	205	.00271	0	.00000	0	.00000	
73	YEAGER RUTH PELLEH	.04	.01660	.04	.01802	25023	.01498	385	.01406	858	.01134	0	.00000	0	.00000	
74	LANDRETH INTERESTS	.49	.20331	.49	.22072	571776	.34236	13500	.49258	14799	.19564	216451	.47722	0	.00000	21
	REVISED 5/26/77	241.00	100.00000	222.00	100.00000	167009430	100.00000	2740634	100.00000	7564451	100.00000	45356624	100.00000	245586	100.00000	4560

GAS CAP GAS IN PLACE

GB TOTAL		S. A. ZONE I		UNIT TOTAL		WIC NO.
CF	%	MCF	%	MCF	%	
6573	11.11037	1225901	14.23996	6292474	11.60729	1
4686	1.95757	744949	8.65290	1489636	2.60025	2
4581	.05390	0	.00000	24581	.04534	3
4581	.05390	0	.00000	24581	.04534	4
9162	.10781	0	.00000	49162	.09069	5
9162	.10781	0	.00000	49162	.09069	6
1941	2.23989	95411	1.10825	1116852	2.06018	7
0	.00000	0	.00000	0	.00000	8
0	.00000	0	.00000	0	.00000	9
5360	1.70042	723509	8.40276	1498869	2.76986	10
3757	6.63072	0	.00000	3023757	5.57771	11
0	.00000	0	.00000	0	.00000	12
8763	12.80996	1438768	19.00026	7504531	13.84310	13
0	.00000	0	.00000	0	.00000	14
0	.00000	0	.00000	0	.00000	15
16	.00003	0	.00000	16	.00003	16
16	.00003	0	.00000	16	.00003	17
0	.00000	0	.00000	0	.00000	18
0	.00000	0	.00000	0	.00000	19
3110	.02675	0	.00000	13110	.02418	20
3481	8.99908	902759	4.67825	4276290	7.88807	21
0	.00000	0	.00000	0	.00000	22
8863	.01999	0	.00000	8863	.01635	23
8630	.01892	0	.00000	8630	.01592	24
4234	4.87299	16175	.18788	3150409	5.81134	25
7920	14.20598	1208959	14.04247	8626379	15.91248	26
0	.00000	0	.00000	0	.00000	27
0	.00000	0	.00000	0	.00000	28
0	.00000	0	.00000	0	.00000	29
4116	.29410	0	.00000	134116	.24739	30
0	.00000	0	.00000	0	.00000	31
0	.00000	0	.00000	0	.00000	32
5775	5.10014	95412	1.10826	2421187	4.46620	33
0	.00000	0	.00000	0	.00000	34
0	.00000	0	.00000	0	.00000	35
0	.00000	0	.00000	0	.00000	36
0	.00000	0	.00000	0	.00000	37
8917	.06391	0	.00000	28917	.05334	38
0	.00000	0	.00000	0	.00000	39
0	.00000	0	.00000	0	.00000	40
5831	.01279	0	.00000	5831	.01076	41
0	.00000	0	.00000	0	.00000	42
6906	.15549	0	.00000	70906	.13080	43
0	.00000	0	.00000	0	.00000	44
8747	.01918	0	.00000	8747	.01613	45
7493	.03836	0	.00000	17493	.03227	46
0	.00000	0	.00000	0	.00000	47
6439	.38491	0	.00000	176439	.32546	48
3500	.00767	0	.00000	3500	.00646	49
8026	18.13078	2217859	25.76154	10485885	19.34259	50
5831	.01279	0	.00000	5831	.01076	52
0	.00000	0	.00000	0	.00000	53
8747	.01918	0	.00000	8747	.01613	54
2452	.07116	0	.00000	32452	.05986	55
0	.00000	0	.00000	0	.00000	56
0183	.50474	0	.00000	230183	.42460	57
7493	.03836	0	.00000	17493	.03227	58
9718	2.49926	0	.00000	1139718	2.10236	59
8988	9.03158	0	.00000	1838988	3.39133	60
0	.00000	0	.00000	0	.00000	61
0	.00000	0	.00000	0	.00000	62
0	.00000	0	.00000	0	.00000	63
0	.00000	0	.00000	0	.00000	64
0	.00000	0	.00000	0	.00000	65
0	.00000	0	.00000	0	.00000	66
0	.00000	0	.00000	0	.00000	67
0	.00000	0	.00000	0	.00000	68
9162	.10781	0	.00000	49162	.09069	69
0	.00000	0	.00000	0	.00000	70
0	.00000	0	.00000	0	.00000	71
0	.00000	0	.00000	0	.00000	72
0	.00000	0	.00000	0	.00000	73
3451	.47465	242587	2.81777	459038	.84675	74
2210	100.00000	8609189	100.00000	54211394	100.00000	

TABLE 22 A

UNITIZATION PARAMETERS – ORIGINAL OIL IN PLACE

				BASAL GRAYBURG						SAN ANDRES						
TR.	TRACT NAME	PRODUCTIVE ACRES		UPPER ZONE		LOWER ZONE		TOTALS		ZONE I		ZONE II		ZONE III U		[illegible]
NO.	OPERATOR – LEASE	ACRES	%	STB	%	STB	%	STB	%	STB	%	STB	%	STB	%	STB
1	GETTY - STATE R	123.90	1.29050	670857	1.21982	53267	.81076	724124	1.17617	11916	.00694	0	.00000	0	.00000	
2	AMERADA HESS-STATE LMB	139.80	1.35208	1051704	1.89419	14470	.40289	1066174	1.73600	139830	.08148	3518	.00236	0	.00000	
3	GULF - LEA FD STATE	40.00	.40211	393944	.71631	39225	.59703	433169	.70358	0	.00000	0	.00000	0	.00000	
4	TEXAS PACIFIC-STATE W AC1	80.00	.80421	1083814	1.97070	357178	4.04533	1440992	2.40552	365548	.21302	26393	.01763	0	.00000	
5	ESTES ENGR. - STATE	40.00	.40211	403301	.73332	298499	4.54337	701800	1.13991	521338	.30377	282733	.18881	2281	.00147	
6	CONTINENTAL - STATE H 13	313.30	3.14949	1430907	2.60182	1128513	17.17677	2559420	4.15717	3210742	1.87081	2052217	1.37519	1439404	.92629	
7	SHELL - RICE	160.00	1.60842	65700	.11946	174871	2.66166	240571	.39075	3137335	1.82804	3230431	2.15734	5711346	3.67539	
8	AMERADA HESS - H HARDIN	155.20	1.56017	229243	.41683	20288	.30880	249531	.40530	2975142	1.73354	3092619	2.06532	4900434	3.15355	
9	GULF - DAN HARDIN	318.90	3.20579	1633476	2.97015	0	.00000	1633476	2.65319	4089474	2.38282	2335257	1.55953	1654037	1.06441	
10	MORANCO - STATE T 13	61.90	.62226	209708	.38130	0	.00000	209708	.34061	51017	.02973	1449	.00099	0	.00000	
11	CHEVRON - STATE I 17	80.00	.80421	326630	.59391	0	.00000	326630	.53053	281615	.16409	44639	.02981	0	.00000	
12	GETTY(SKELLY)-STATE 4	80.00	.80421	402190	.73130	0	.00000	402190	.65326	753007	.43876	136479	.09114	0	.00000	
13	ANTWEIL-MORRS COMF TOWNS	80.00	.80421	182819	.33242	0	.00000	182819	.29695	69403	.04044	0	.00000	0	.00000	
14	WISER -MORRIS B	40.00	.40211	94217	.17131	0	.00000	94217	.15303	143787	.08378	0	.00000	0	.00000	
15	WISER -MORRIS A	40.00	.40211	162350	.29520	0	.00000	162350	.26370	586505	.34174	0	.00000	0	.00000	
16	GULF - W.D. GRIMES NCT C	160.00	1.60842	786485	1.44825	0	.00000	786485	1.27370	2329481	1.35744	80421	.05364	0	.00000	
17	C.H SWEET - MCKINLEY B	160.00	1.60842	595770	1.08329	0	.00000	595770	.96769	1032621	.61168	71032	.04744	0	.00000	
18	GETTY(SKELLY)- MCKINLEY	80.00	.80421	480850	.87433	0	.00000	480850	.78103	1768029	1.03064	474603	.31695	0	.00000	
19	CHEVRON - W D MCKINLEY	80.00	.80421	533369	.96983	0	.00000	533369	.86633	2136553	1.24491	1330435	.88849	0	.00000	
20	C.W SWEET - GRIMES	40.00	.40211	224762	.40867	0	.00000	224759	.36506	892619	.52091	0	.00000	0	.00000	
21	BILL SWEET-BOWERS B FED.	40.00	.40211	262941	.47811	0	.00000	262941	.42709	949579	.55329	160404	.10712	0	.00000	
22	BILL SWEET-BOWERS D FED.	40.00	.40211	302418	.54989	0	.00000	302418	.49121	1061294	.61839	154726	.10333	0	.00000	
23	ATLANTIC RICH.-GRIMES	40.00	.40211	330782	.60146	0	.00000	330782	.53728	1205593	.70247	305355	.20392	0	.00000	
24	SHELL - MCKINLEY B	160.00	1.60842	1377401	2.50453	9872	.15026	1387273	2.25330	3947270	2.29996	2983722	1.99259	44120	.02840	
25	GETTY - BOONE HARDIN	160.00	1.60842	1297980	2.36012	0	.00000	1297980	2.10826	4063641	2.36777	2941834	1.96461	1605224	1.03448	
26	CITIES SERVICE - HARDIN	155.30	1.56118	139769	.25414	12498	.19023	152267	.24732	4112027	2.39591	4618392	3.08425	6682151	4.30013	
27	SHELL - MCKINLEY A	315.50	3.17161	1312923	2.38729	157893	2.40324	1470816	2.38899	8212417	4.78515	8346150	5.57371	5552292	3.57314	
28	GULF-GRAHAM STATE NCT A	160.00	1.60842	64121	.11659	84520	1.28695	148641	.24143	3910032	2.27827	5152064	3.44117	6460862	4.15772	
29	SHELL - STATE D	80.00	.80421	266462	.48451	77163	1.17448	343625	.55814	1456953	.84893	2499628	1.66930	1782709	1.14727	
30	AMERADA HESS-STATE F	80.00	.80421	710246	1.29144	139892	2.12926	850138	1.38085	1145081	.66721	1736241	1.15947	608616	.39166	
31	TEXAS PACIF.-STATE G	160.00	1.60842	542492	.98641	251420	3.82679	793912	1.28952	5106316	2.97531	5636963	3.76446	2825464	1.81826	
32	SAMEDAN - STATE C	160.00	1.60842	2155814	3.91992	503132	7.65803	2658946	4.31883	3588051	2.09112	3207762	2.14220	633937	.40795	
33	C.H SWEET - STATE F	120.00	1.20632	1786550	3.24849	351661	5.35753	2138211	3.47302	1126461	.65636	932761	.62305	14895	.00959	
34	SHELL - STATE E	80.00	.80421	829284	1.50791	357041	5.43442	1186325	1.92692	311439	.18158	46315	.03093	0	.00000	
35	TEXAS PACIF.-STATE W AC2	240.00	2.41264	1602796	2.91437	175129	2.66559	1777925	2.88782	60558	.03529	0	.00000	0	.00000	
36	C&C OPER. - SHIPP A	75.20	.75596	161876	.29434	1170	.01781	163046	.26483	0	.00000	0	.00000	0	.00000	
37	JOHN A YATES-SHELL STATE	120.00	1.20632	1846730	3.35791	158022	2.40521	2004752	3.25624	545310	.31774	5211	.00348	0	.00000	
38	WISER - STATE 1	40.00	.40211	441023	.80191	819	.01247	441842	.71767	2327	.00136	0	.00000	0	.00000	
39	GETTY(SKELLY) - HOBBS E	79.30	.79718	866092	1.57482	26043	.39639	892135	1.44906	103430	.06027	0	.00000	0	.00000	
40	CONTINENTAL - STATE B 25	80.00	.80421	1205435	2.19221	244168	3.71641	1449603	2.35486	1433478	.83536	734434	.49047	1303	.00084	
41	SAMEDAN - STATE P	80.00	.80421	1067614	1.94129	143951	2.19104	1211565	1.96790	657305	.38299	152770	.10202	0	.00000	
42	TEXACO - N.M. OO A C ST	160.00	1.60842	1065164	1.93678	167432	2.54843	1232596	2.00206	4678075	2.72578	3463172	2.31277	608382	.39151	
43	EXXON - N.M. STATE A	297.70	2.99247	3325119	6.04607	428718	6.52539	3753837	6.09722	3462380	2.01743	1071069	.71528	89139	.05736	
44	AMERADA - W.D. MCKINLEY	155.66	1.56480	113007	.20548	214681	3.26760	327688	.53226	3645360	2.12405	4472406	2.99009	2914557	1.87559	
45	GETTY - W D MCKINLEY	160.00	1.60842	319957	.58178	203440	3.09650	523397	.85013	3742458	2.18063	5610344	3.75203	5306477	3.41485	130
46	MARATHON-STATE SEC. 30	155.78	1.56600	1445136	2.62769	278363	4.23688	1723499	2.79941	4234565	2.45736	4405163	2.94185	2451590	1.57766	
47	EXXON-BOWERS A FEDERAL	280.00	2.81474	237764	.43233	40191	.61615	247955	.48396	7661000	4.45432	10746690	7.13968	11771989	7.57554	130746
48	EXXON-BOWERS A FED COM	40.00	.40211	435877	.79256	7544	.11483	443421	.72023	930960	.54244	1065949	.71186	382252	.24599	
49	AMERADA - STATE B	160.00	1.60842	1138788	2.07066	0	.00000	1138788	1.84969	3937961	2.29459	2997691	2.00191	1887619	1.21473	
50	EXXON - W D GRIMES	40.00	.40211	381078	.69291	0	.00000	381078	.61897	1019401	.59398	684256	.45696	58651	.03774	
51	CONTINENTAL-STATE A 29	120.00	1.20632	22300	.04055	0	.00000	22300	.03622	3565674	2.07756	3835556	2.56146	5660237	3.64250	140349
52	GETTY - W D GRIMES	80.00	.80421	268813	.48878	0	.00000	268813	.43662	1531429	.89232	1661764	1.10976	2541521	1.63553	34873[illegible]
53	CHEVRON - STATE I 20	80.00	.80421	0	.00000	0	.00000	0	.00000	1661749	.96826	2604680	1.74079	4617642	2.97151	22017[illegible]
54	ATLANTIC- W D GRIMES SOC	160.00	1.60842	1097031	1.99473	0	.00000	1097031	1.78187	4063641	2.36777	2485291	1.65972	1192187	.76720	[illegible]
55	SAMEDAN - MOON A	80.00	.80421	434064	.78924	0	.00000	434064	.70503	2327400	1.35611	452660	.30563	232647	.14971	[illegible]
56	SAMEDAN - MOON B	80.00	.80421	295860	.53798	0	.00000	295868	.48057	1789305	1.04258	215784	.14377	10054	.00647	[illegible]
57	SHELL - GRIMES	160.00	1.60842	129108	.23476	0	.00000	129108	.20971	3691257	2.15079	3393342	2.26619	6325873	4.07095	1804901
58	CONTINENTAL - W D GRIMES	160.00	1.60842	463726	.84319	0	.00000	463726	.75321	5036494	2.93462	2918559	1.94906	3164333	2.03633	21207[illegible]
59	SHELL - SALGER	316.80	3.18468	689548	1.25381	0	.00000	689548	1.12001	2968786	1.72983	625978	.41804	221475	.14252	[illegible]
60	MORANCO - HOBBS	21.10	.21211	34073	.06195	0	.00000	34073	.05534	1117	.00065	0	.00000	0	.00000	[illegible]
61	SHELL - TURNER	79.00	.79416	298721	.54316	0	.00000	298721	.48520	647296	.37716	220917	.14753	16245	.01045	[illegible]
62	GETTY(SKELLY)-W J TURNER	40.00	.40211	219254	.39867	0	.00000	219254	.35613	791316	.46108	146626	.09792	140109	.09016	[illegible]
63	GETTY(SKELLY)-TURNER B2	40.00	.40211	209254	.38049	0	.00000	209254	.33988	968290	.56419	414272	.27666	633751	.40783	69[illegible]
64	SAMEDAN - TURNER B	32.60	.32772	71958	.13084	0	.00000	71958	.11688	61397	.03577	3538	.00236	0	.00000	[illegible]
65	SAMEDAN - TURNER B BAT 2	36.00	.36190	83970	.15268	0	.00000	83970	.13639	72615	.04231	1862	.00124	0	.00000	[illegible]
66	SAMEDAN - TURNER A	80.00	.80421	535532	.97376	0	.00000	535532	.86984	1242032	.72416	933939	.62370	254804	.16397	[illegible]
67	GULF - W D GRIMES NCT B	160.00	1.60842	33412	.06075	0	.00000	33412	.05427	2709099	1.57851	3588861	2.39670	6014002	3.87016	3193751
68	SHELL - STATE 4	80.00	.80421	0	.00000	0	.00000	0	.00000	642363	.37429	2341364	1.56360	3942616	2.53717	2997691
69	AMOCO - STATE C	80.00	.80421	0	.00000	0	.00000	0	.00000	994229	.58058	2257578	1.50765	4017092	2.58510	3007001
70	CONTINENTAL - STATE A 33	280.00	2.81474	0	.00000	0	.00000	0	.00000	5432152	3.16516	6940306	4.63486	12782081	8.22558	9954617
71	AMERADA HESS - STATE A	80.00	.80421	0	.00000	0	.00000	0	.00000	1622120	[illegible]	2169132	1.44859	3849520	2.47726	1676728
72	SHELL - STATE A	80.00	.80421	0	.00000	0	.00000	0	.00000	1792098	1.04421	2406532	1.60712	4822373	3.10332	2346019
73	GULF - W D GRIMES NCT A/2	160.00	1.60842	50617	.09204	0	.00000	50617	.08222	5013220	2.92106	4404094	2.94380	7028748	4.52317	1782786
74	GULF-GRIMES NCT A BAT 2	160.00	1.60842	142834	.25972	0	.00000	142834	.23200	4035711	2.35150	4584978	3.06193	7587324	4.88263	2013480
75	MARATHON-STATE SEC 32 1A	160.00	1.60842	0	.00000	0	.00000	0	.00000	3365420	1.96094	3519029	2.35007	6302599	4.05588	5416182
76	CITIES SERVICE - FOWLER	160.00	1.60842	1049987	1.90919	2176	.03312	1052163	1.70899	5129589	2.98887	3905377	2.60808	5129589	3.30192	43010
77	GETTY(SKELLY)- FOWLER	80.00	.80421	1297571	2.35937	11439	.17411	1309010	2.12618	2006219	1.16897	1461607	.97609	486799	.31327	0
78	SUN - CLARA FOWLER	75.90	.76350	1541066	2.80212	116581	1.77445	1657647	2.69245	1153078	.67233	520593	.34766	3352	.00216	0
79	SHELL - BERRY	160.00	1.60842	1581215	2.87512	0	.00000	1581214	2.56831	3990679	2.18746	3765733	2.51482	2946256	1.82599	4201
80	MOBIL - MONA BERRY	156.14	1.56962	2696072	4.90227	70706	1.07620	2766778	4.49397	1763618	1.02755	634682	.42385	1257	.00081	0
81	AMERADA HESS - STATE C	239.10	2.39333	2912004	5.29490	154063	2.34495	3066067	4.98010	949157	.55921	41986	.02804	0	.00000	0
82	BYRON - J W HOLT STATE	40.00	.40211	597057	1.08563	21955	.33417	619012	1.00549	42124	.02455	0	.00000	0	.00000	0
83	GULF - J W HOLT NCT B	54.30	.54586	246408	.44822	0	.00000	246408	.40023	0	.00000	0	.00000	0	.00000	0
		9947.63	100.00000	54994384	100.00000	6569924	100.00000	61564390	100.00000	171623081	100.00000	149741518	100.00000	155395214	100.00000	1932[illegible]
	REVISED 5/26/77															

ZONE III$_L$		TOTALS		UNIT TOTALS		TIL.
	%	STB	%	STB	%	NO.
0	.00000	11916	.00231	736040	.12733	1
0	.00000	143368	.02776	1211544	.20959	2
0	.00000	0	.00000	433169	.07494	3
0	.00000	391984	.07588	1872873	.32402	4
0	.00000	806352	.15612	1508152	.26091	5
0	.00000	4709383	1.28904	9268803	1.60347	6
0	.00000	12079132	2.33874	12319683	2.13127	7
0	.00000	10868288	2.12346	11317774	1.95844	8
0	.00000	8078778	1.56420	9712254	1.68019	9
0	.00000	52604	.01018	243210	.04206	10
0	.00000	326254	.06317	652584	.11295	11
0	.00000	889984	.17228	1291674	.22346	12
0	.00000	69403	.01344	252222	.04363	13
0	.00000	183782	.03558	238004	.04117	14
0	.00000	586506	.11356	748855	.12955	15
0	.00000	2810302	.54404	3206782	.55476	16
0	.00000	1103653	.21369	1699423	.29400	17
0	.00000	2283627	.43437	2748277	.47539	18
0	.00000	3966988	.67127	4000357	.69205	19
0	.00000	842518	.16313	1067271	.18463	20
0	.00000	1109983	.21491	1372924	.23751	21
0	.00000	1216030	.23546	1518838	.26269	22
0	.00000	1610948	.29259	1811730	.31341	23
0	.00000	4975128	1.35085	8342398	1.44367	24
0	.00000	8690499	1.68268	9988679	1.72801	25
0	.00000	15517427	2.98514	15549894	2.69355	26
0	.00000	22110859	4.28108	23581675	4.07956	27
0	.00000	15523758	3.00548	15672399	2.71128	28
0	.00000	5739370	1.11128	6082995	1.05234	29
0	.00000	3989937	.47673	4340028	.75082	30
0	.00000	13568793	2.62716	14362655	2.48469	31
0	.00000	7430560	1.43846	10089496	1.74545	32
0	.00000	2074317	.40163	4212528	.72875	33
0	.00000	157956	.03058	1544249	.26716	34
0	.00000	60558	.01173	1838463	.31805	35
0	.00000	0	.00000	163046	.02821	36
0	.00000	550523	.10659	2555275	.44205	37
0	.00000	2327	.00045	444149	.07684	38
0	.00000	103430	.02003	995565	.17223	39
0	.00000	2169416	.42004	3419218	.59141	40
0	.00000	810075	.15685	2021640	.34974	41
0	.00000	8249439	1.59708	9982236	1.72689	42
0	.00000	4622588	.89507	8376425	1.44900	43
0	.00000	11037323	2.13703	11365011	1.96611	44
3	.00328	14668577	2.84011	16191974	2.62816	45
0	.00000	11091318	2.14749	12814817	2.21692	46
3	.29083	31856980	6.08873	34744845	6.49170	47
0	.00000	2379161	.46068	2822582	.48830	48
0	.00000	8823266	1.70838	9962054	1.72340	49
0	.00000	1762308	.34122	2143386	.37060	50
3	.53088	14863888	3.80047	14884158	2.80404	51
8	.87799	40083452	1.17787	63522665	1.09892	52
5	.66310	11087736	2.14678	11087736	1.91819	53
0	.00000	7741119	1.49883	8838150	1.52897	54
0	.00000	3017702	.58428	3451771	.59715	55
0	.00000	2014693	.39009	2310511	.39971	56
2	.54909	15217380	3.08439	15344888	2.65489	57
0	.53392	11331459	2.19398	11795185	2.04053	58
0	.00000	3816238	.73890	4505786	.77959	59
0	.00000	1117	.00022	35190	.00609	60
0	.00000	884468	.17126	1183179	.20469	61
0	.00000	1078051	.20873	1297305	.22443	62
1	.00174	2016928	.39051	3224178	.55812	63
0	.00000	699.36	.01257	136893	.02368	64
0	.00000	74833	.01448	158447	.02741	65
0	.00000	2431575	.47080	2967107	.51330	66
8	.04845	15505498	3.00218	14539410	2.68822	67
7	.54705	9924034	1.92148	9924034	1.71683	68
7	.67048	10234698	1.98004	10234698	1.76817	69
25	.06697	35111156	6.79818	35111156	6.07412	70
1	.21885	9216505	1.78458	9216505	1.59453	71
5	.70638	11367022	2.20089	11367022	1.96696	72
6	.48838	18232853	3.53028	18283470	3.16298	73
5	.06914	18221493	3.52802	18369327	3.17697	74
13	.48083	18805236	3.64032	18805236	3.25365	75
1	.10828	14207866	2.75088	15259728	2.63988	76
	.00000	3989428	.77249	5263638	.91059	77
	.00000	1677823	.32486	3335470	.57703	78
	.01184	11187369	2.16028	13738589	2.37673	79
	.00000	2379457	.46058	5166235	.89374	80
	.00000	986898	.09824	3552812	.61465	81
	.00000	42126	.00816	661138	.11437	82
	.00000	0	.00000	244808	.04263	83
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100.0	0000	516497887 3	100.00000	578045263	100.00000	

TABLE 22 A

UNITIZATION PARAMETERS – ORIGINAL OIL IN PLACE

TR.	TRACT NAME	PRODUCTIVE ACRES		BASAL GRAYBURG: UPPER ZONE		BASAL GRAYBURG: LOWER ZONE		BASAL GRAYBURG: TOTALS		SAN ANDRES: ZONE I		SAN ANDRES: ZONE II		SAN ANDRES: ZONE III U		
NO.	OPERATOR – LEASE	ACRES	%	STB	%	STB	%	STB	%	STB	%	STB	%	STB	%	STB
1	GETTY - STATE P	123.40	1.24050	670657	1.21982	51267	.81076	724124	1.17617	11916	.00694	0	.00000	0	.00000	
2	AMERADA HESS-STATE LNB	134.40	1.35208	1054706	1.69418	2,470	.40269	1068174	1.73600	139430	.08118	3538	.00236	0	.00000	
3	GULF - LEA FD STATE	40.00	.40211	393944	.71631	39225	.59703	433169	.70358	0	.00000	0	.00000	0	.00000	
4	TEXAS PACIFIC-STATE V AC1	80.00	.80421	1083014	1.97070	39128	4.04533	1480992	2.40552	365548	.21312	26393	.01763	0	.00000	
5	ESTES ENGR. - STATE	40.00	.40211	403301	.73332	29,499	4.54337	701800	1.13991	521338	.30377	282733	.18881	2281	.00147	
6	CONTINENTAL - STATE H 13	313.30	3.14949	1430907	2.60183	112,513	7.17477	2558420	4.16717	3210242	1.87011	2059237	1.37519	1439401	.92639	
7	SHELL - RICE	160.00	1.60842	65700	.11946	17,871	2.66166	240571	.39075	3137336	1.82804	3230431	2.15734	5711346	3.67539	
8	AMERADA HESS - N HARDIN	155.20	1.56017	228243	.41683	2,288	.30840	249631	.40530	2975462	1.73354	3092649	2.06532	4900434	3.15356	
9	GULF - DAN HARDIN	318.90	3.20579	1633476	2.97015	0	.00000	1633476	2.65319	4089474	2.38282	2335267	1.55953	1654037	1.06441	
10	MORANCO - STATE T 13	61.90	.62226	209704	.38130	0	.00000	209704	.34061	51017	.02973	1449	.00099	0	.00000	
11	CHEVRON - STATE I 17	80.00	.80421	326630	.59391	0	.00000	326630	.53053	281615	.16409	44639	.02981	0	.00000	
12	GETTY(SKELLY)-STATE A	80.00	.80421	402190	.73130	0	.00000	402190	.65326	753007	.43816	136479	.09114	0	.00000	
13	ANTWEIL-MORRIS CODE TOWNS	80.00	.80421	182819	.33242	0	.00000	182819	.29695	69403	.04044	0	.00000	0	.00000	
14	WISER -MORRIS 3	40.00	.40211	94217	.17131	0	.00000	94217	.15303	143787	.08378	0	.00000	0	.00000	
15	WISER -MORRIS 4	40.00	.40211	162350	.29520	0	.00000	162350	.26370	586505	.34174	0	.00000	0	.00000	
16	GULF - M.D.GRIMES NCT C	160.00	1.60842	784485	1.42635	0	.00000	784485	1.27420	2328401	1.35714	80421	.05364	0	.00000	
17	C H SWEET - MCKINLEY B	160.00	1.60842	595770	1.08329	0	.00000	595770	.96769	1032621	.60168	71032	.04744	0	.00000	
18	GETTY(SKELLY)- MCKINLEY	80.00	.80421	480850	.87433	0	.00000	480850	.78103	1768829	1.03064	474603	.31695	0	.00000	
19	CHEVRON - W D MCKINLEY	80.00	.80421	533369	.96983	0	.00000	533369	.86633	2136553	1.24491	1330435	.88849	0	.00000	
20	C H SWEET - GRIMES	40.00	.40211	224759	.40867	0	.00000	224759	.36506	842519	.49091	0	.00000	0	.00000	
21	BILL SWEET-BOWERS B FED.	40.00	.40211	262941	.47811	0	.00000	262941	.42709	949579	.55329	160404	.10712	0	.00000	
22	BILL SWEET-BOWERS A FED.	40.00	.40211	302414	.54989	0	.00000	302414	.49121	1061294	.61839	154726	.10333	0	.00000	
23	ATLANTIC RICH.-GRIMES	40.00	.40211	330782	.60146	0	.00000	330782	.53728	1205593	.70247	305355	.20392	0	.00000	
24	SHELL - MCKINLEY A	160.00	1.60842	1377401	2.50453	9872	.15026	1387273	2.25330	3947270	2.29996	2983727	1.99259	44120	.02840	
25	GETTY - BOONE HARDIN	160.00	1.60842	1297980	2.36012	0	.00000	1297980	2.10826	4063641	2.36777	2941834	1.96461	1605224	1.03448	
26	CITIES SERVICE - HARDIN	155.30	1.56118	139749	.25411	12,498	.19023	182247	.29732	4117077	2.39891	4618392	3.08425	6682151	4.30013	
27	SHELL - MCKINLEY A	315.50	3.17161	1312923	2.38729	15,893	2.40324	1470816	2.38899	8212417	4.78515	8346150	5.57371	5552292	3.57354	
28	GULF-GRAHAM STATE NCT A	160.00	1.60842	64121	.11659	8,520	1.29485	148841	.24143	3910032	2.27817	5152064	3.44117	6460862	4.15722	
29	SHELL - STATE D	80.00	.80421	266462	.48451	77163	1.17448	343625	.55814	1456953	.84893	2499624	1.66930	1742789	1.14727	
30	AMERADA HESS-STATE E	80.00	.80421	710284	1.29145	139892	2.12926	850138	1.38085	1145041	.66721	1736241	1.15942	608615	.37166	
31	TEXAS PACIF.-STATE G	160.00	1.60842	542492	.98641	251420	3.82677	793912	1.28952	5106316	2.97511	5636563	3.76446	2825464	1.81026	
32	SAMEDAN - STATE C	160.00	1.60842	2158814	3.91992	501132	7.45803	2659946	4.31883	3588851	2.09112	3207762	2.14220	633937	.40795	
33	C H SWEET - STATE F	120.00	1.20632	1784550	3.24849	351661	5.35753	2138211	3.47302	1126461	.65636	932761	.62305	14875	.00959	
34	SHELL - STATE E	80.00	.80421	829284	1.50791	35,041	5.41442	1164336	1.89092	311439	.18148	46315	.03093	0	.00000	
35	TEXAS PACIF.-STATE V AC2	240.00	2.41264	1602796	2.91437	175129	2.66559	1777925	2.88782	60558	.03529	0	.00000	0	.00000	
36	C&C OPER. - SHIPP A	75.20	.75596	161876	.29434	170	.00259	162046	.26483	0	.00000	0	.00000	0	.00000	
37	JOHN A YATES-SHELL STATE	120.00	1.20632	1946730	3.35791	151022	2.40521	2004752	3.25624	545310	.31774	5213	.00348	0	.00000	
38	WISER - STATE I	40.00	.40211	441033	.80191	819	.01247	441852	.71767	2327	.00136	0	.00000	0	.00000	
39	GETTY(SKELLY) - MORRIS E	79.30	.79718	866092	1.57482	26,043	.39639	892135	1.44906	103430	.06027	0	.00000	0	.00000	
40	CONTINENTAL - STATE B 25	80.00	.80421	1206435	2.19321	244,148	3.71441	1449003	2.35344	1433678	.83536	734454	.49047	1303	.00084	
41	SAMEDAN - STATE P	80.00	.80421	1067614	1.94124	143951	2.19104	1211565	1.96790	657305	.38299	152770	.10202	0	.00000	
42	TEXACO - [illegible]	160.00	1.60842	1065164	1.93679	166432	2.53323	1231596	2.00206	4678075	2.72578	3453172	2.31277	608382	.39151	
43	EXXON - HAMON STATE A	297.70	2.99267	3325119	6.04407	428718	6.52539	3753837	6.09722	3462380	2.01743	1071069	.71528	89137	.05736	
44	AMERADA - H D MCKINLEY	155.66	1.56480	113007	.20548	21,681	3.28740	397688	.63226	3645360	2.12405	4427466	2.95009	2914567	1.87669	
45	GETTY - H D MCKINLEY	160.00	1.60842	319957	.58178	203,440	3.09450	523397	.85013	3742458	2.18063	5610344	3.75203	5306477	3.41485	
46	MARATHON-STATE SEC. 30	155.78	1.56600	1445136	2.62769	278363	4.23688	1723499	2.79945	4234565	2.46736	4405163	2.94185	2451590	1.57766	
47	EXXON-BOWERS A FEDERAL	280.00	2.81474	232744	.42321	6,191	.09415	297956	.48396	7661800	4.46442	10740490	7.14968	11721989	7.55542	
48	EXXON-BOWERS A FED COM	40.00	.40211	435877	.79256	7544	.11483	443421	.72023	930960	.54244	1065949	.71186	382252	.24599	
49	AMERADA - STATE A	160.00	1.60842	1139744	2.07046	0	.00000	1139744	1.84967	3937961	2.29454	2997491	2.00191	1887414	1.21473	
50	EXXON - W D GRIMES	40.00	.40211	381078	.69291	0	.00000	381078	.61897	1019401	.59398	684256	.45696	58651	.03774	
51	CONTINENTAL-STATE A 29	120.00	1.20632	22300	.04055	0	.00000	22300	.03622	3565674	2.07756	3835556	2.56145	5660237	3.64252	
52	GETTY - W D GRIMES	80.00	.80421	268813	.48878	0	.00000	268813	.43662	1531429	.89232	1661764	1.10976	2541521	1.63553	
53	CHEVRON - STATE I 20	40.00	.40211	0	.00000	0	.00000	0	.00000	1661749	.96826	2606680	1.74079	4617642	2.97161	
54	ATLANTIC- W D GRIMES 50C	160.00	1.60842	1097031	1.99473	0	.00000	1097031	1.78187	4063641	2.36777	2485291	1.65972	1192187	.76721	
55	SAMEDAN - MOON A	80.00	.80421	434044	.78924	0	.00000	434044	.70503	2327400	1.35611	457660	.30563	232647	.14971	
56	SAMEDAN - MOON B	80.00	.80421	295848	.53796	0	.00000	295848	.48057	1789305	1.04258	215284	.14377	10054	.00647	
57	SHELL - GRIMES	160.00	1.60842	129108	.23476	0	.00000	129108	.20971	3691257	2.15079	3393359	2.26619	6325873	4.07089	
58	CONTINENTAL - W D GRIMES	160.00	1.60842	463726	.84319	0	.00000	463726	.75321	5036494	2.93462	2918559	1.94906	3164333	2.03633	
59	SHELL - SAUGER	316.90	3.18569	689548	1.25381	0	.00000	689548	1.12001	2968785	1.72983	625928	.41804	221475	.14252	
60	MORANCO - MORRIS	21.10	.21211	34073	.06195	0	.00000	34073	.05534	1117	.00065	0	.00000	0	.00000	
61	SHELL - TURNER	79.00	.79416	298721	.54316	0	.00000	298721	.48520	647296	.37716	220917	.14753	16245	.01045	
62	GETTY(SKELLY)-NH TURNER	40.00	.40211	219254	.39867	0	.00000	219254	.35613	791316	.46108	146626	.09792	140109	.09016	
63	GETTY(SKELLY)-TURNER B2	40.00	.40211	209254	.38049	0	.00000	209254	.33988	968198	.56414	414227	.27666	633751	.40783	
64	SAMEDAN - TURNER B	32.60	.32772	71958	.13084	0	.00000	71958	.11688	61397	.03577	3538	.00236	0	.00000	
65	SAMEDAN - TURNER B SAT 2	36.00	.36190	83970	.15268	0	.00000	83970	.13639	72416	.04211	1842	.00124	0	.00000	
66	SAMEDAN - TURNER A	80.00	.80421	535532	.97376	0	.00000	535532	.86984	1242832	.72416	933939	.62370	254804	.16397	
67	GULF - [illegible] GRIMES NCT A	160.00	1.60842	33412	.06075	0	.00000	33412	.05427	2709094	1.57851	3588861	2.39670	6014002	3.87016	
68	SHELL - STATE H	80.00	.80421	0	.00000	0	.00000	0	.00000	642363	.37429	2341374	1.56360	3942616	2.53717	
69	AMOCO - STATE G	80.00	.80421	0	.00000	0	.00000	0	.00000	944925	.55058	2257578	1.50765	4017092	2.58510	
70	CONTINENTAL - STATE A 33	280.00	2.81474	0	.00000	0	.00000	0	.00000	5432152	3.16516	6940306	4.63486	12782081	8.22558	
71	AMERADA HESS - STATE A	80.00	.80421	0	.00000	0	.00000	0	.00000	1522120	.88690	2149127	1.44859	3849520	2.47726	
72	SHELL - STATE A	80.00	.80421	0	.00000	0	.00000	0	.00000	1792098	1.04421	2406522	1.60712	4822373	3.10332	
73	GULF-W D GRIMES NCT A/2	160.00	1.60842	50417	.09208	0	.00000	50417	.08222	5013220	2.92106	4404056	2.94380	7028748	4.52317	
74	GULF-GRIMES NCT A SAT 2	160.00	1.60842	142834	.25972	0	.00000	142834	.23200	4035711	2.35150	4584978	3.06193	7587324	4.88263	
75	MARATHON-STATE SEC 32 1N	160.00	1.60842	0	.00000	0	.00000	0	.00000	3365920	1.96094	3519029	2.35007	6302599	4.05583	
76	CITIES SERVICE - FOWLER	160.00	1.60842	1049987	1.90919	32176	.03312	1082163	1.75774	5129589	2.98887	3905377	2.60808	5129589	3.30102	
77	GETTY(SKELLY)- FOWLER	80.00	.80421	1297571	2.35937	11,439	.17411	1309010	2.12618	2006219	1.16897	1061617	.70899	486799	.31327	
78	SUN - CLARA FOWLER	75.95	.76350	1541066	2.80212	116,501	1.77445	1657647	2.69245	1153878	.67233	520553	.34766	3352	.00215	
79	SHELL - BERRY	160.00	1.60842	1581216	2.87512	0	.00000	1581216	2.56831	4440679	2.58746	3765713	2.51482	2946256	1.89599	
80	MOBIL - NORA BERRY	166.19	1.66962	2696072	4.90227	70,706	1.07620	2766778	4.49397	1763618	1.02755	634672	.42385	1257	.00081	
81	AMERADA HESS - STATE C	234.10	2.35333	2912004	5.29490	15,063	2.29495	3046067	4.98010	444859	.25921	41966	.02804	0	.00000	
82	BYRON - J R HOLT STATE	40.00	.40211	597057	1.08563	21,955	.33417	619012	1.00549	42126	.02455	0	.00000	0	.00000	
83	GULF - J R HOLT NCT B	59.30	.59606	284408	.51714	0	.00000	284408	.46023	0	.00000	0	.00000	0	.00000	
		------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
		9947.64	100.00000	54994384	100.00000	6569994	100.00000	61564390	100.00000	171623081	100.00000	1497415.8	100.00000	155329214	100.00000	

REVISED 5/26/77

ZONE III		TOTALS		UNIT TOTALS		TR.
	%	STB	%	STB	%	NO.
0	.00000	11916	.00231	736040	.12733	1
0	.00000	141346	.02736	2115484	.20859	2
0	.00000	0	.00000	9331169	.07494	3
0	.00000	191941	.03688	1602823	.32402	4
0	.00000	805352	.15618	1508152	.26091	5
0	.00000	4207383	1.28906	9268803	1.60297	6
0	.00000	12079112	2.33879	12319683	2.13127	7
0	.00000	1094832HE	2.12346	11813734	1.98044	8
0	.00000	8078778	1.56420	9713284	1.68017	9
0	.00000	52804	.01019	9643810	.08614	10
0	.00000	226254	.04319	6528684	.11295	11
0	.00000	88784A	.17228	1381424	.22354	12
0	.00000	69403	.01344	2872222	.09543	13
0	.00000	1A3743	.02384	3140A4	.04112	14
0	.00000	586505	.11356	748655	.12955	15
0	.00000	2410302	.44444	2307787	.55474	16
0	.00000	1103453	.21349	1699423	.29400	17
0	.00000	2293427	.44437	4134377	.47129	18
0	.00000	2946988	.64729	4000357	.69205	19
0	.00000	8A2518	.14313	1047321	.18443	20
0	.00000	1109983	.21491	1372924	.23751	21
0	.00000	1218020	.23694	1618838	.24249	22
0	.00000	1510994	.27285	1881730	.31801	23
0	.00000	A915126	1.35068	4361388	1.44467	24
0	.00000	8490699	1.68268	9985679	1.77201	25
0	.00000	1541242?	2.48814	1486A94	2.49354	26
0	.00000	2211085?	4.28108	2358167?	4.07954	27
0	.00000	1552178A	3.00844	1847239	2.71128	28
0	.00000	5739770	1.11128	6C02995	1.05234	29
0	.00000	3A8792?	.47623	4340018	.75082	30
0	.00000	1354687?	2.62716	1936265?	2.98469	31
0	.00000	2A13560	1.43844	1080948	1.74645	32
0	.00000	2074317	.44163	421252?	.72875	33
0	.00000	15?95A	.04831	1845249	.27314	34
0	.00000	0554?	.01173	1830483	.31805	35
0	.00000	0	.00000	163044	.02821	36
0	.00000	550523	.10459	2955275	.44205	37
0	.00000	2332	.00046	441449	.07489	38
0	.00000	10343?	.02003	995545	.17223	39
0	.00000	2143A1E	.04211	3418918	.43211	40
0	.00000	8100?5	.15485	2021490	.34974	41
0	.00000	8ZA1A3?	1.69408	8274225	1.32A49	42
0	.00000	962568	.08902	837A925	1.44940	43
0	.00000	1109?13?	2.19749	1201A017	2.21692	44
0	.00000	1A6A6577	2.49011	1410?974	2.62814	45
0	.00326	1103?123	2.13703	1131A011	1.94411	46
0	.00000	11?5?349	2.14028	1372B8A9	2.20323	47
0	.00000	2299457	.44650	5166235	.09374	48
0	.00000	184888	.09824	3562912	.41484	49
0	.00000	42126	.00816	441138	.11437	50
0	.00000	0	.00000	2A4808	.04243	51
0	.00000	1A7287?	.32A66	3238A70	.57703	52
0	.00000	1677823	.32A66	3238A70	.57703	53
0	.00000	3954625	.74849	8243435	.91089	54
0	.00000	1927A545	2.76088	1525972A	2.63988	55
0	.10826	3954625	.74849	8243435	.91089	56
0	.00000	1677823	.32A66	3238A70	.57703	57
0	.00000	11153749	2.14028	1372B8A9	2.20323	58
0	.00000	2299457	.44650	5166235	.09374	59
0	.00000	184888	.09824	3562912	.41484	60
0	.00000	42126	.00816	441138	.11437	61
0	.00000	0	.00000	2A4808	.04243	62
0	.00000	1677823	.32A66	3238A70	.57703	63
0	.00000	3954625	.74849	8243435	.91089	64
0	.10826	1927A545	2.76088	1525972A	2.63988	65
0	.00000	1A7287?	.32A66	3238A70	.57703	66
0	.00000	11153749	2.14028	1372B8A9	2.20323	67
0	.00000	2299457	.44650	5166235	.09374	68
0	.00000	184888	.09824	3562912	.41484	69
0	.00000	42126	.00816	441138	.11437	70
0	.00000	0	.00000	2A4808	.04243	71
0	.00000	1677823	.32A66	3238A70	.57703	72
0	.00000	3954625	.74849	8243435	.91089	73
0	.10826	1927A545	2.76088	1525972A	2.63988	74
0	.00000	1A7287?	.32A66	3238A70	.57703	75
0	.00000	11153749	2.14028	1372B8A9	2.20323	76
0	.00000	2299457	.44650	5166235	.09374	77
0	.00000	184888	.09824	3562912	.41484	78
0	.00000	42126	.00816	441138	.11437	79
0	.00000	0	.00000	2A4808	.04243	80
0	.00000	1677823	.32A66	3238A70	.57703	81
0	.00000	3954625	.74849	8243435	.91089	82
0	.10826	1927A545	2.76088	1525972A	2.63988	83
0	.00000	1A7287?	.32A66	3238A70	.57703	84
0	.00000	11153749	2.14028	1372B8A9	2.20323	85
0	.00000	2299457	.44650	5166235	.09374	86
0	.00000	184888	.09824	3562912	.41484	87
0	.00000	42126	.00816	441138	.11437	88
0	.00000	0	.00000	2A4808	.04243	89
0	.00000	1677823	.32A66	3238A70	.57703	90
0	.00000	3954625	.74849	8243435	.91089	91
0	.10826	1927A545	2.76088	1525972A	2.63988	92
0	.00000	1A7287?	.32A66	3238A70	.57703	93
0	.00000	11153749	2.14028	1372B8A9	2.20323	94
0	.00000	2299457	.44650	5166235	.09374	95
0	.00000	184888	.09824	3562912	.41484	96
0	.00000	42126	.00816	441138	.11437	97
0	.00000	0	.00000	2A4808	.04243	98
0	.00000	1677823	.32A66	3238A70	.57703	99
0	.00000	3954625	.74849	8243435	.91089	100

TABLE 22 B

UNITIZATION PARAMETERS – ORIGINAL OIL IN PLACE

WIO	WORKING INTEREST	PRODUCTIVE		BASAL GRAYBURG						SAN ANDRES						
		ACRES		UPPER ZONE		LOWER ZONE		TOTALS		ZONE I		ZONE II		ZONE III		
NO.	OWNER	ACS.	%	STB	%	STB	%	STB	%	STB		STB	%	STB	%	ST
1	AMERADA HESS CORP.	959.46	9.64511	5789871	10.52773	485448	7.38886	6275319	10.19277	13237833	7.71332	13650527	9.11606	13856432	8.91695	1675
2	AMOCO PRODUCTION CO.	60.35	.60668	0	.00000	0	.00000	0	.00000	712809	.41533	1703009	1.13730	3030294	1.95007	2268
3	ANDERSON ADA A	4.69	.04714	47262	.08594	34980	.53242	82242	.13358	61094	.03560	33133	.02213	267	.00017	
4	ANDERSON EST., WARREN D	4.69	.04714	47262	.08594	34980	.53242	82242	.13358	61094	.03560	33133	.02213	267	.00017	
5	ANDERSON, W D AND SONS	9.37	.09429	94524	.17187	69961	1.06486	164485	.26717	122189	.07120	66265	.04425	535	.00034	
6	ARMSTRONG, J.M.	9.37	.09429	94524	.17187	69961	1.06486	164485	.26717	122189	.07120	66265	.04425	535	.00034	
7	ATLANTIC RICHFIELD CO.	280.00	2.81474	1427813	2.59619	0	.00000	1427813	2.31915	6951944	4.05071	4550140	3.03867	4343486	2.79514	2709
8	BYRON W K	23.44	.23563	349838	.63611	12864	.19580	362702	.58912	24683	.01438	0	.00000	0	.00000	
9	C&C OPERATING CO.	75.20	.75596	161876	.29434	1170	.01781	163046	.26483	0	.00000	0	.00000	0	.00000	
10	CHEVRON OIL COMPANY	240.00	2.41263	859999	1.56374	0	.00000	859999	1.39686	4079932	2.37726	3981762	2.65909	4617562	2.97151	2201
11	CITIES SERVICE OIL CO.	330.30	3.32039	1318476	2.39741	14674	.22335	1333170	2.16542	9579193	5.58153	8753211	5.84555	11842328	7.62083	43
12	CONRAD MARY DANIEL	2.50	.02513	10147	.01845	0	.00000	10147	.01648	36657	.02136	0	.00000	0	.00000	
13	CONTINENTAL OIL CO.	963.30	9.68371	3217838	5.85099	1372681	20.89318	4590519	7.45620	18933492	11.03202	16659155	11.12528	23062020	14.84098	11571
14	CRILL, HERMAN R.	3.75	.03770	15220	.02767	0	.00000	15220	.02472	54985	.03204	0	.00000	0	.00000	
15	CUSACK, J. P.	25.72	.25855	58473	.10632	0	.00000	58473	.09498	50255	.02928	2025	.00135	0	.00000	
16	CUSACK, JR., J. P.	40.00	.40211	182483	.33181	0	.00000	182483	.29640	1029176	.59967	168236	.11235	60675	.03905	
17	CUSACK, MICHAEL F.	40.00	.40211	182483	.33181	0	.00000	182483	.29640	1029176	.59967	168236	.11235	60675	.03905	
18	DEL-LEA, INC. (ANTWEIL)	83.96	.84402	189208	.34404	0	.00000	189208	.30732	69612	.04056	0	.00000	0	.00000	
19	DUNLAVLY, J.H.	2.90	.02915	9830	.01787	0	.00000	9830	.01597	2391	.00139	70	.00005	0	.00000	
20	ESTES, RUSSELL G	2.50	.02513	25206	.04583	18656	.28394	43862	.07124	32584	.01899	17671	.01180	143	.00009	
21	EXXON COMPANY - U.S.A.	637.70	6.41057	4189298	7.61742	496453	7.55637	4685751	7.61090	12564891	7.32118	13105186	8.80530	12272706	7.89778	1307
22	FIRST ROSWELL COMPANY	5.80	.05830	19660	.03575	0	.00000	19660	.03193	4783	.00279	140	.00009	0	.00000	
23	FORBES C. C.	3.04	.03056	40960	.07448	9560	.14551	50520	.08206	68188	.03973	60947	.04070	12045	.00775	
24	FORBES, ILAMAE	2.96	.02975	39883	.07252	9308	.14167	49191	.07990	66394	.03869	59444	.03969	11728	.00755	
25	GETTY OIL COMPANY	978.18	9.83319	6440367	11.71063	364135	5.54239	6804502	11.05230	16325733	9.51255	13724027	9.16515	11098104	7.14195	350
26	GULF ENERGY & MINERALS	1215.70	12.22099	3398613	6.17970	125117	1.90437	3523730	5.72346	22089845	12.87114	20150677	13.45697	20794973	13.38210	6990
27	HEADLEY, KENNETH NOEL	8.75	.08796	26997	.04909	0	.00000	26997	.04385	72958	.04251	0	.00000	0	.00000	
28	HURD, PETER	2.50	.02513	10147	.01845	0	.00000	10147	.01648	36657	.02136	0	.00000	0	.00000	
29	JUDSON, RUBY WANDA CONRA	.50	.00502	2029	.00369	0	.00000	2029	.00330	7331	.00427	0	.00000	0	.00000	
30	KEMNITZ, A. A.	46.00	.46242	619797	1.12698	144650	2.20168	764447	1.24166	1031795	.60120	922232	.61588	182257	.11729	
31	LAFLIN, GEORGE P.	2.90	.02915	9830	.01787	0	.00000	9830	.01597	2391	.00139	70	.00005	0	.00000	
32	LOWE, H. RALPH	5.27	.05298	8518	.01549	0	.00000	8518	.01383	279	.00016	0	.00000	0	.00000	
33	MARATHON OIL COMPANY	235.78	2.37021	1445136	2.62769	278363	4.23688	1723499	2.79941	5917275	3.44783	6164676	4.11688	5602890	3.60560	2709
34	MCCARTHY, KATHRYN L. C.	.50	.00502	2029	.00369	0	.00000	2029	.00330	7331	.00427	0	.00000	0	.00000	
35	MCPETERS, K. D.	5.34	.05368	16340	.02971	0	.00000	16340	.02654	3640	.00212	105	.00007	0	.00000	
36	MCPHERON, MARGARAT H.	7.03	.07067	104951	.19083	3859	.05874	108810	.17674	7405	.00431	0	.00000	0	.00000	
37	MCPHERON, ROBERT L.	3.52	.03538	52476	.09542	1930	.02938	54406	.08837	3702	.00216	0	.00000	0	.00000	
38	MOBIL OIL CORP.	156.14	1.56962	2696072	4.90227	70706	1.07620	2766778	4.49397	1763518	1.02755	634682	.42385	1257	.00081	
39	MONANCO	10.75	.10806	27646	.05027	0	.00000	27646	.04490	5045	.00294	140	.00009	0	.00000	
40	MORAN, R. M.	21.37	.21482	65368	.11886	0	.00000	65368	.10617	14557	.00848	419	.00028	0	.00000	
41	MORRIS, G. D.	2.00	.02010	26948	.04900	6289	.09572	33237	.05399	44861	.02614	40097	.02678	7924	.00510	
42	MURDOCH, MATHLYN I. CONRA	.50	.00502	2029	.00369	0	.00000	2029	.00330	7331	.00427	0	.00000	0	.00000	
43	NOBLE, RICHARD L.	24.32	.24448	327684	.59583	76476	1.16402	404160	.65646	545505	.31785	487580	.32561	96358	.06201	
44	PARRISH, M.C. ESTATE	1.98	.01990	3196	.00581	0	.00000	3196	.00519	105	.00006	0	.00000	0	.00000	
45	PORTALES NATIONAL BANK	3.00	.03016	40421	.07350	9434	.14359	49855	.08098	67291	.03921	60145	.04017	11886	.00765	
46	ROMING JOHN	6.00	.06031	80843	.14700	18867	.28717	99710	.16195	134582	.07842	120291	.08033	23773	.01530	
47	ROSE, FRANCIS I. CONRAD	.50	.00502	2029	.00369	0	.00000	2029	.00330	7331	.00427	0	.00000	0	.00000	
48	SANEDAN OIL CORP.	331.26	3.33004	2804668	5.09973	334135	5.08577	3138803	5.09824	5186587	3.02205	2515705	1.68017	581288	.37408	
49	SEA PROPERTIES, LTD.	3.60	.03619	27118	.04931	3774	.05744	30892	.05018	88667	.05166	34152	.02281	8395	.00540	
50	SHELL OIL COMPANY	1671.30	16.80097	6550372	11.91065	776840	11.82406	7327212	11.90132	31248092	18.20739	29860124	19.94111	31365393	20.18440	7155
52	1ST NATL BANK/FT. WORTH	2.00	.02010	26948	.04900	6289	.09572	33237	.05399	44861	.02614	40097	.02678	7924	.00510	
53	SPEAR HOWELL	1.45	.01457	4915	.00894	0	.00000	4915	.00798	1196	.00070	35	.00002	0	.00000	
54	SULLIVAN, E.C.	3.00	.03016	40421	.07350	9434	.14359	49855	.08098	67291	.03921	60145	.04017	11886	.00765	
55	SUN OIL CO. (DELAWARE)	75.95	.76350	1541066	2.80212	116581	1.77445	1657647	2.69245	1153878	.67233	520593	.34766	3352	.00216	
56	SWEET, MILL L.	80.00	.80421	565359	1.02799	0	.00000	565359	.91829	2010873	1.17168	315130	.21045	0	.00000	
57	SWEET, C.M. OIL CO.	320.00	3.21685	2607072	4.74044	351661	5.35253	2958733	4.80576	3001601	1.74895	1002993	.67018	14895	.00959	
58	1ST NATL BANK OF CASPER	6.00	.06031	80843	.14700	18867	.28717	99710	.16196	134582	.07842	120291	.08033	23773	.01530	
59	TEXACO, INC.	160.00	1.60842	1065164	1.93679	167432	2.54843	1232596	2.00206	4678075	2.72578	3463172	2.31277	608382	.39151	
60	TEXAS PACIFIC OIL CO. IN	480.00	4.82527	3229102	5.87140	823727	12.53771	4052829	6.58286	5532462	3.22361	5663356	3.78214	2825464	1.81826	
61	TREADAWAY, BETTYE CONRA	.50	.00502	2029	.00369	0	.00000	2029	.00330	7331	.00427	0	.00000	0	.00000	
62	TWO STATES OIL CO.	15.00	.15079	35331	.06424	0	.00000	35331	.05739	53920	.03142	0	.00000	0	.00000	
63	WALLACE, COLLEEN MCPHERO	3.52	.03538	52476	.09542	1930	.02938	54406	.08837	3702	.00216	0	.00000	0	.00000	
64	WHITLEY, LOYD	2.90	.02915	9830	.01787	0	.00000	9830	.01597	2391	.00139	70	.00005	0	.00000	
65	WILLIAMS, HATTIE C.	4.69	.04714	31377	.05705	0	.00000	31377	.05096	72818	.04243	54719	.03654	14929	.00961	
66	WILLIAMSON, A.T.	2.90	.02915	9830	.01787	0	.00000	9830	.01597	2391	.00139	70	.00005	0	.00000	
67	WISER OIL COMPANY, THE	80.00	.80421	569307	1.03517	819	.01247	570126	.92603	367474	.21412	0	.00000	0	.00000	
68	YATES, JOHN A.	120.00	1.20632	1846730	3.35791	158022	2.40521	2004752	3.25624	545310	.31774	5213	.00348	0	.00000	
69	YEAGER & ARMSTRONG	9.37	.09429	94524	.17187	69961	1.06486	164485	.26717	122189	.07120	66265	.04425	535	.00034	
70	YEAGER JR., DR. HENRY	1.63	.01638	6604	.01201	0	.00000	6604	.01073	23856	.01390	0	.00000	0	.00000	
71	YEAGER RUTH ANNE	1.21	.01216	4912	.00893	0	.00000	4912	.00798	17747	.01034	0	.00000	0	.00000	
72	YEAGER RUTH/HENRY	.42	.00422	1691	.00307	0	.00000	1691	.00275	6109	.00356	0	.00000	0	.00000	
73	YEAGER RUTH PEELER	1.75	.01759	7087	.01289	0	.00000	7087	.01151	25601	.01492	0	.00000	0	.00000	
74	LAMURCIA INTERESTS	17.65	.17743	0	.00000	0	.00000	0	.00000	232120	.13525	554574	.37035	986790	.63503	738
	REVISED 5/26/77	9947.63	100.00000	54996376	100.00000	6569791	100.00000	61566390	100.00000	171623081	100.00000	149741518	100.00000	155394214	100.00000	39720

ZONE III L				UNIT TOTALS		WIO
B	%	STB	%	STB	%	NO.
726	4.21845	42940521	8.21391	48695840	8.42423	1
332	5.71079	7714933	1.47366	7715933	1.33957	2
0	.00000	99499	.01830	176736	.03057	3
0	.00000	99499	.01830	176736	.03057	4
0	.00000	188989	.03659	353479	.06115	5
0	.00000	188989	.03659	353479	.06115	6
993	6.82046	18559484	3.59253	19982499	3.48691	7
0	.00000	29681	.00578	382385	.06702	8
0	.00000	0	.00000	163096	.02821	9
721	5.59410	14880477	2.88125	15740976	2.72419	10
310	.10628	30217742	5.85072	31560912	5.45821	11
0	.00000	36657	.00710	46804	.00810	12
181	29.13163	70226848	13.59703	74816367	12.94299	13
0	.00000	4986	.01065	70205	.01215	14
0	.00000	62280	.01012	110783	.01916	15
0	.00000	1258087	.24359	1440570	.24921	16
0	.00000	1258087	.24359	1440570	.24921	17
0	.00000	69612	.01348	258820	.09178	18
0	.00000	2461	.00048	12291	.00213	19
0	.00000	50398	.00976	95260	.01621	20
161	3.29094	39329894	7.61502	44015695	7.61457	21
0	.00000	4923	.00095	29583	.00425	22
0	.00000	141180	.02733	191700	.03316	23
0	.00000	137466	.02662	186657	.03229	24
739	.88303	41498683	8.03492	48303185	8.35630	25
020	17.59841	77776515	15.06752	81599245	14.09911	26
0	.00000	72958	.01413	99765	.01729	27
0	.00000	36657	.00710	46804	.00810	28
0	.00000	7331	.00142	9360	.00162	29
0	.00000	2136284	.41362	2900731	.50182	30
0	.00000	2461	.00048	12291	.00213	31
0	.00000	279	.00005	8797	.00152	32
994	6.82047	20393936	3.94965	22117435	3.82625	33
0	.00000	7331	.00142	9360	.00162	34
0	.00000	3795	.00072	20085	.00347	35
0	.00000	7405	.00143	116215	.02010	36
0	.00000	3702	.00072	58108	.01005	37
0	.00000	2379457	.46058	5166235	.89375	38
0	.00000	5185	.00100	32931	.00569	39
0	.00000	14976	.00290	80395	.01390	40
0	.00000	92882	.01798	126119	.02182	41
0	.00000	7331	.00142	9360	.00162	42
0	.00000	1129443	.21868	1533603	.26531	43
0	.00000	105	.00002	3301	.00057	44
0	.00000	139322	.02697	189177	.03273	45
0	.00000	278646	.05395	378356	.06545	46
0	.00000	7331	.00142	9360	.00162	47
0	.00000	8263780	1.60389	11422583	1.97607	48
0	.00000	131219	.02541	162106	.02804	49
512	18.01935	99628921	19.29003	106956133	18.50307	50
0	.00000	92882	.01798	126119	.02182	52
0	.00000	1231	.00024	6146	.00106	53
0	.00000	139322	.02698	189177	.03273	54
0	.00000	1677823	.32484	3335470	.57703	55
0	.00000	2326003	.45036	2891362	.50020	56
0	.00000	4020489	.77844	6979222	1.20738	57
0	.00000	278646	.05395	378356	.06545	58
0	.00000	8749629	1.69409	9982225	1.72689	59
0	.00000	14041283	2.71976	18074111	3.12676	60
0	.00000	7331	.00142	9360	.00162	61
0	.00000	53920	.01044	89251	.01544	62
0	.00000	3702	.00072	58108	.01005	63
0	.00000	2461	.00048	12291	.00213	64
0	.00000	142466	.02758	173843	.03007	65
0	.00000	2461	.00048	12291	.00213	66
0	.00000	367474	.07115	937600	.16220	67
0	.00000	550523	.10659	2656275	.45955	68
0	.00000	188989	.03659	353479	.06115	69
0	.00000	23856	.00462	30960	.00527	70
0	.00000	17746	.00344	22659	.00392	71
0	.00000	6109	.00118	7800	.00135	72
0	.00000	25601	.00496	32668	.00564	73
567	1.85769	2512162	.48648	2512162	.43460	74
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060	100.00000	516478873	100.00000	578048263	100.00000	

TABLE 23 A

PRIMARY OIL RESERVES AND ULTIMATE OIL RECOVERY

TR. NO.	TRACT NAME OPERATOR – LEASE	PRIMARY OIL RESERVES: GRAYBURG BBLS	GRAYBURG %	S.A. ZONE I BBLS	S.A. ZONE I %	S.A. ZONE II BBLS	S.A. ZONE II %	S.A. ZONE III BBLS	S.A. ZONE III %	S.A. TOTAL BBLS	S.A. TOTAL %	UNIT TOTAL BBLS	UNIT TOTAL %	ULTIMATE OIL REC.* BBLS	ULTIMATE OIL REC.* %	TR. NO.
1	GETTY - STATE B	13132	.88415	0	.00000	0	.00000	0	.00000	0	.00000	13132	.03455	72480	.03534	1
2	AMERADA HESS-STATE WNB	13310	.89613	0	.00000	0	.00000	0	.00000	0	.00000	13310	.03496	144073	.07025	2
3	GULF - LEA-ED STATE	10062	.67745	0	.00000	0	.00000	0	.00000	0	.00000	10062	.02643	79940	.03900	3
4	TEXAS PACIF.-STATE V AC1	38702	2.60571	0	.00000	0	.00000	0	.00000	0	.00000	38702	.10166	235875	.11502	4
5	ESTES ENGIN. - STATE	12875	.86684	0	.00000	0	.00000	0	.00000	0	.00000	12875	.03382	87990	.04290	5
6	CONTINENTAL - STATE B 13	11753	.79130	0	.00000	0	.00000	0	.00000	0	.00000	11753	.03087	856717	.41775	6
7	SHELL - RICE	3271	.22023	5350	.02516	53140	.69647	46888	.60485	105838	.28819	108709	.28554	1812439	.56377	7
8	AMERADA HESS - B HARDIN	0	.00000	0	.00000	0	.00000	0	.00000	0	.00000	0	.00000	1819582	.88725	8
9	GULF - DAN HARDIN	4677[illegible]	[illegible]	3435	.01390	10707	.14024	0	.00000	13342	.03647	79117	.20781	1854418	.90409	9
10	MORANCO - STATE Y 17	13857	.93296	0	.00000	0	.00000	0	.00000	0	.00000	13857	.03640	85748	.04181	10
11	CHEVRON - STATE 1 17	0	.00000	0	.00000	0	.00000	0	.00000	0	.00000	0	.00000	61848	.03016	11
12	GETTY(SKELLY)-STATE A	7968	.53647	0	.00000	0	.00000	0	.00000	0	.00000	7968	.02093	299209	.14590	12
13	ANTWEIL-HOBBS CONE-YOUNG	30642	2.06306	0	.00000	0	.00000	0	.00000	0	.00000	30642	.08048	73565	.03587	13
14	WISER - MORRIS B	0	.00000	67500	.31766	0	.00000	0	.00000	67500	.18449	67500	.17730	574521	.28014	14
15	WISER - MORRIS A	0	.00000	152766	.71894	0	.00000	0	.00000	152766	.41755	152766	.40126	724013	.35401	15
16	GULF - W.D.GRIMES NCT C	61284	4.12610	0	.00000	0	.00000	0	.00000	0	.00000	61284	.16097	1538498	.75019	16
17	C H SWEET - MCKINLEY B	8755	.58945	0	.00000	0	.00000	0	.00000	0	.00000	8755	.02300	105887	.05164	17
18	GETTY(SKELLY)- MCKINLEY	0	.00000	0	.00000	50	.00065	0	.00000	50	.00014	50	.00013	606158	.29557	18
19	CHEVRON - M D MCKINLEY	0	.00000	0	.00000	148540	2.20777	0	.00000	148540	.40672	148540	.39274	1574740	.74886	19
20	C H SWEET - GRIMES	0	.00000	0	.00000	0	.00000	0	.00000	0	.00000	0	.00000	293234	.14298	20
21	BILL SWEET-BOWERS A FED.	8755	.58945	0	.00000	0	.00000	0	.00000	0	.00000	8755	.02300	381794	.18617	21
22	BILL SWEET-BOWERS B FED.	0	.00000	0	.00000	0	.00000	0	.00000	0	.00000	0	.00000	449542	.21920	22
23	ATLANTIC RICH.-GRIMES	19360	1.30346	0	.00000	0	.00000	0	.00000	0	.00000	19360	.05085	884934	.43151	23
24	SHELL - MCKINLEY B	0	.00000	213028	1.00254	617315	8.08547	0	.00000	830343	2.26954	830343	2.18100	4736139	2.30940	24
25	GETTY - BOONE HARDIN	64738	4.35866	55908	.26311	0	.00000	9873	.12818	65781	.17980	130519	.34282	3339588	1.62843	25
26	CITIES SERVICE - HARDIN	0	.00000	0	.00000	0	.00000	250448	3.25144	250448	.68454	250448	.65783	3692964	1.80079	26
27	SHELL - MCKINLEY A	0	.00000	504764	2.37549	1043910	13.66438	252566	3.27894	1800240	4.92188	1800240	4.72987	11151430	5.43758	27
28	GULF-GRAHAM STATE NCT A	0	.00000	90324	.42508	162132	2.12357	296054	3.84352	548510	1.49922	548510	1.44073	3534761	1.72359	28
29	SHELL - STATE D	0	.00000	179360	.84405	55342	.72512	0	.00000	234712	.64153	234712	.61650	1313848	.64066	29
30	AMERADA HESS-STATE E	19629	1.32157	104862	.49349	0	.00000	0	.00000	104862	.28661	124491	.32699	1150057	.56078	30
31	TEXAS PACIF.-STATE G	0	.00000	1161482	5.46708	538541	7.05377	24182	.31356	1724405	4.71324	1724405	4.52936	5948978	2.90080	31
32	SAMEDAN - STATE C	0	.00000	1133353	5.33371	0	.00000	0	.00000	1133353	3.09774	1133363	2.97689	4616383	2.25101	32
33	C H SWEET - STATE E	83172	5.59977	0	.00000	0	.00000	0	.00000	0	.00000	83172	.21846	726539	.35427	33
34	SHELL - STATE F	3768	.25369	0	.00000	0	.00000	0	.00000	0	.00000	3768	.00990	131218	.06398	34
35	TEXAS PACIF.-STATE V AC2	27714	1.86592	0	.00000	0	.00000	0	.00000	0	.00000	27714	.07279	327619	.15975	35
36	C&C OPER. - SHIPP A	2621	.17647	0	.00000	0	.00000	0	.00000	0	.00000	2621	.00688	21153	.01031	36
37	JOHN A YATES-SHELL STATE	40718	2.74148	0	.00000	0	.00000	0	.00000	0	.00000	40718	.10695	464319	.22641	37
38	WISER - STATE L	0	.00000	0	.00000	0	.00000	0	.00000	0	.00000	0	.00000	10263	.00500	38
39	GETTY(SKELLY) - HOBBS E	9194	.61919	0	.00000	0	.00000	0	.00000	0	.00000	9194	.02415	97394	.04749	39
40	CONTINENTAL - STATE B 25	20232	1.36217	54617	.25704	47731	.62517	0	.00000	102348	.27974	122580	.32197	1100544	.53664	40
41	SAMEDAN - STATE B	23231	1.56411	0	.00000	0	.00000	0	.00000	0	.00000	23231	.06102	414432	.20208	41
42	TEXACO - N.M. DD B C ST	0	.00000	864638	4.06910	293806	3.84821	18391	.23874	1176835	3.21659	1176835	3.09110	5653171	2.75656	42
43	EXXON - N.M. STATE A	188655	12.70169	0	.00000	0	.00000	0	.00000	0	.00000	188655	.49553	3584835	1.74801	43
44	AMERADA - H D MCKINLEY	0	.00000	944937	4.44700	123275	1.61463	230266	2.98941	1298478	3.54907	1298478	3.41061	6523591	3.18098	44
45	GETTY - H D MCKINLEY	0	.00000	365726	1.72116	978035	12.81011	86266	1.11995	1430026	3.90863	1430026	3.75614	6811728	3.32148	45
46	MARATHON-STATE SEC. 30	3311	.22293	215344	1.01354	492815	6.44856	0	.00000	707781	1.93456	711092	1.86777	4705719	2.29457	46
47	EXXON-BOWERS A FEDERAL	0	.00000	908956	4.27767	0	.00000	331843	4.30815	1240799	3.39142	1240799	3.25911	10416067	5.07900	47
48	EXXON-BOWERS A FED.COM	0	.00000	0	.00000	188742	2.47211	37201	.48294	225943	.61766	225943	.59347	1162343	.56677	48
49	AMERADA - STATE B	159356	10.72919	83151	.39132	169408	2.21887	92149	1.19632	344708	.94217	504066	1.32399	5425158	2.64537	49
50	EXXON - H D GRIMES	0	.00000	0	.00000	36542	.47861	0	.00000	36542	.09988	36542	.09598	1198726	.58451	50
51	CONTINENTAL-STATE A 29	0	.00000	0	.00000	0	.00000	800184	10.38836	800184	2.18711	800184	2.10178	4583886	2.23516	51
52	GETTY - H D GRIMES	0	.00000	114210	.53749	143847	1.88404	72584	.94231	330641	.90373	330641	.86847	3037048	1.48090	52
53	CHEVRON - STATE I 29	0	.00600	1076793	5.06753	0	.00000	48696	.63220	1125489	3.07625	1125489	2.95624	3289454	1.60398	53
54	ATLANTIC - H D GRIMES SOC	14520	.97760	651060	3.06394	146478	1.91855	58178	.75521	855718	2.33890	870238	2.28579	4057363	1.97842	54
55	SAMEDAN - MOON A	0	.00000	872574	4.10645	53359	.69887	0	.00000	925933	2.53081	925933	2.43208	2471557	1.20516	55
56	SAMEDAN - MOON B	0	.00000	920565	4.33230	39278	.51446	0	.00000	959843	2.62360	959843	2.52115	2413710	1.17696	56
57	SHELL - GRIMES	0	.00000	954358	4.49134	0	.00000	176642	2.29321	1131000	3.09131	1131000	2.97071	5046733	2.46085	57
58	CONTINENTAL - H D GRIMES	0	.00000	1522592	7.16552	104703	1.37137	172904	2.23874	1801701	4.92451	1801701	4.73239	4845693	2.36282	58
59	SHELL - SANGER	25698	1.73019	2477975	11.66166	48413	.63410	0	.00000	2526388	6.90526	2552086	6.70337	6338758	3.09086	59
60	MORANCO - HOBBS	40718	2.74148	0	.00000	0	.00000	0	.00000	0	.00000	40718	.10695	176244	.08594	60
61	SHELL - TURNER	0	.00000	814423	3.83274	58001	.75969	0	.00000	872424	2.38456	872424	2.29153	2406063	1.17323	61
62	GETTY(SKELLY)-BM TURNER	0	.00000	407539	1.91779	39667	.51956	0	.00000	447206	1.22233	447206	1.17464	1398341	.68185	62
63	GETTY(SKELLY)-TURNER 02	0	.00000	407502	1.91776	39897	.52256	0	.00000	447399	1.22286	447399	1.17515	1422255	.69351	63
64	SAMEDAN - TURNER B	0	.00000	118974	.55991	0	.00000	0	.00000	118974	.32519	118974	.31251	763649	.37237	64
65	SAMEDAN - TURNER B BAT 2	0	.00000	141017	.66366	0	.00000	0	.00000	141017	.38543	141017	.37040	645437	.31472	65
66	SAMEDAN - TURNER A	0	.00000	942536	4.43570	0	.00000	0	.00000	942536	2.57619	942536	2.47569	2604228	1.26905	66
67	GULF - W D GRIMES NCT B	0	.00000	0	.00000	219842	2.87945	585784	7.60499	805626	2.20198	805626	2.11605	4170201	2.03344	67
68	SHELL - STATE B	0	.00000	195800	.92146	0	.00000	124871	1.62117	320671	.87648	320671	.84228	1925861	.93907	68
69	AMOCO - STATE 6	0	.00000	177419	.83496	0	.00000	507985	6.59491	685404	1.87338	685404	1.80030	3013006	1.46918	69
70	CONTINENTAL - STATE A 33	0	.00000	0	.00000	0	.00000	1714203	22.25516	1714203	4.68535	1714203	4.50257	8977395	4.37749	70
71	AMERADA HESS - STATE A	0	.00000	141669	.66671	170628	2.23485	241701	3.13788	553998	1.51422	553996	1.45514	3038323	1.48152	71
72	SHELL - STATE A	0	.00000	71793	.33787	76898	.89410	146723	2.19091	316414	.86484	316414	.83110	2526205	1.23184	72
73	GULF-W D GRIMES NCT A/2	0	.00000	38600	.18166	255433	3.34561	416882	5.41217	710915	1.94311	710915	1.86731	5626438	2.74362	73
74	GULF-GRIMES NCT A BAT 2	0	.00000	1070161	5.03626	185507	2.42973	122688	1.59278	1378356	3.76737	1378356	3.62045	5994027	2.92271	74
75	MARATHON-STATE SEC 32 18	0	.00000	140555	.66147	0	.00000	507439	6.58774	647994	1.77113	647994	1.70204	5545920	2.70426	75
76	CITIES SERVICE - FOWLER	0	.00000	528546	2.48847	365848	4.78651	10724	.13923	900733	2.46193	900733	2.36589	5127737	2.50035	76
77	GETTY(SKELLY)- FOWLER	0	.00000	141853	.66760	304660	3.99038	0	.00000	446513	1.22043	446513	1.17282	2611139	1.27327	77
78	SUN - CLARA FOWLER	38107	2.56565	2108	.00992	34631	.45359	0	.00000	36735	.10041	74842	.19658	976511	.47616	78
79	SHELL - BERRY	0	.00000	213309	1.00386	367941	4.81922	296882	3.85427	878132	2.40016	878132	2.30652	4110068	2.00412	79
80	MOBIL - NORA BERRY	315251	21.22509	0	.00000	0	.00000	0	.00000	0	.00000	315251	.82805	2045085	.99721	80
81	AMERADA HESS - STATE C	43561	2.93284	0	.00000	0	.00000	0	.00000	0	.00000	43561	.11442	738398	.36005	81
82	BYRON - J R HOLT STATE	41584	2.79969	0	.00000	0	.00000	0	.00000	0	.00000	41584	.10923	246263	.11960	82
83	GULF - J R HOLT NCT D	0	.00000	0	.00000	0	.00000	0	.00000	0	.00000	0	.00000	22926	.01118	83
		1485275	100.00000	21248859	100.00000	7634869	100.00000	7702680	100.00000	36586408	100.00000	38071683	100.00000	205081113	100.00000	

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*INCLUDES AN ADJUSTMENT OF AN ADDITIONAL 1029 BARRELS OF OIL FOR LOST PRODUCTION FROM 3 WELLS (29L, 30C & 30K) WHICH WERE SHUT IN FOR SPECIAL BHP BUILD-UP SURVEYS REQUESTED BY THE TECHNICAL COMMITTEE

TABLE 23 B
PRIMARY OIL RESERVES AND ULTIMATE OIL RECOVERY

WIO NO.	WORKING INTEREST OWNER	PRIMARY OIL RESERVES GRAYBURG BBLS.	%	S.A. ZONE I BBLS.	%	S.A. ZONE II BBLS.	%	S.A. ZONE III BBLS.	%	S.A. TOTAL BBLS.	%	UNIT TOTAL BBLS.	%	ULTIMATE OIL RECOVERY * BBLS.	%	WIO NO.
1	AMERADA HESS CORP.	226044	15.21900	1222180	5.75178	463311	6.06836	564116	7.32363	2249615	6.14877	2475659	6.50263	18264153	8.90582	1
2	AMOCO PRODUCTION CO.	0	.00000	133836	.62985	0	.00000	383199	4.97488	517035	1.41319	517035	1.35806	2272862	1.10427	2
3	ANDERSON ADA A	1509	.10160	0	.00000	0	.00000	0	.00000	0	.00000	1509	.00396	10311	.00503	3
4	ANDERSON EST., WARREN D	1509	.10160	0	.00000	0	.00000	0	.00000	0	.00000	1509	.00396	10311	.00503	4
5	ANDERSON, W D AND SONS	3018	.20319	0	.00000	0	.00000	0	.00000	0	.00000	3018	.00793	20623	.01006	5
6	ARMSTRONG, J M	3018	.20319	0	.00000	0	.00000	0	.00000	0	.00000	3018	.00793	20623	.01006	6
7	ATLANTIC RICHFIELD CO.	33880	2.28106	721337	3.39471	146479	1.91855	311898	4.04922	1179715	3.22446	1213595	3.18766	7715259	3.76205	7
8	BYRON W K	24367	1.64057	0	.00000	0	.00000	0	.00000	0	.00000	24367	.06400	143721	.07008	8
9	C&C OPERATING CO.	2621	.17647	0	.00000	0	.00000	0	.00000	0	.00000	2621	.00688	21153	.01031	9
10	CHEVRON OIL COMPANY	0	.00000	1076793	5.06753	168560	2.20777	48696	.63220	1294049	3.53697	1294049	3.39898	4929102	2.40300	10
11	CITIES SERVICE OIL CO.	0	.00000	583973	2.74590	379579	4.97616	261172	3.39066	1219224	3.33245	1219224	3.20249	9283147	4.52657	11
12	CONRAD MARY DANIEL	0	.00000	9548	.04493	0	.00000	0	.00000	9548	.02610	9548	.02508	45376	.02213	12
13	CONTINENTAL OIL CO.	31985	2.15347	1577209	7.42256	163570	2.14240	2686793	34.88128	4427571	12.10168	4459556	11.71357	20663916	10.07597	13
14	CRILE, HERMAN R.	0	.00000	14322	.06740	0	.00000	0	.00000	14322	.03915	14322	.03762	68064	.03319	14
15	CUSACK, J. P.	0	.00000	97497	.45883	0	.00000	0	.00000	97497	.26649	97497	.25609	528557	.25773	15
16	CUSACK, JR., J. P.	0	.00000	448285	2.10969	23160	.30335	0	.00000	471445	1.28858	471445	1.23831	1221317	.59553	16
17	CUSACK, MICHAEL F.	0	.00000	448285	2.10969	23160	.30335	0	.00000	471445	1.28858	471445	1.23831	1221317	.59553	17
18	DEL-LCA, INC. (ANTHEIL)	38277	2.57710	0	.00000	0	.00000	0	.00000	0	.00000	38277	.10054	106611	.05198	18
19	DUNLAVEY, J.N.	649	.04370	0	.00000	0	.00000	0	.00000	0	.00000	649	.00170	4020	.00196	19
20	ESTES, RUSSELL G	805	.05420	0	.00000	0	.00000	0	.00000	0	.00000	805	.00211	5499	.00268	20
21	EXXON COMPANY - U.S.A.	188655	12.70169	908956	4.27767	207012	2.71141	369044	4.79111	1485013	4.05892	1673668	4.39610	15762608	7.68604	21
22	FIRST ROSWELL COMPANY	1299	.08746	0	.00000	0	.00000	0	.00000	0	.00000	1299	.00341	8039	.00392	22
23	FORBES, C. C.	0	.00000	21534	.10134	0	.00000	0	.00000	21534	.05886	21534	.05656	87711	.04277	23
24	FORBES, ILAMAE	0	.00000	20967	.09867	0	.00000	0	.00000	20967	.05731	20967	.05507	85403	.04164	24
25	GETTY OIL COMPANY	108313	7.29246	1545168	7.27177	1506156	19.72733	168723	2.19045	3220047	8.80121	3328360	8.74235	20291806	9.89453	25
26	GULF ENERGY & MINERALS	139720	9.40701	1201710	5.65541	833621	10.91860	1421408	18.45342	3456739	9.44815	3596459	9.44655	22840475	11.13729	26
27	HEADLEY, KENNETH NOEL	0	.00000	22760	.10711	0	.00000	0	.00000	22760	.06221	22760	.05978	139879	.06821	27
28	HURD, PETER	0	.00000	9548	.04493	0	.00000	0	.00000	9548	.02610	9548	.02508	45376	.02213	28
29	JUDSON, RUBY WANDA CONRA	0	.00000	1910	.00899	0	.00000	0	.00000	1910	.00522	1910	.00502	9075	.00443	29
30	KEMNITZ, A. A.	0	.00000	325839	1.53344	0	.00000	0	.00000	325839	.89060	325839	.85586	1327210	.64716	30
31	LAFLIN, GEORGE P.	649	.04370	0	.00000	0	.00000	0	.00000	0	.00000	649	.00170	4020	.00196	31
32	LOWE, H. RALPH	10179	.68533	0	.00000	0	.00000	0	.00000	0	.00000	10179	.02674	44061	.02148	32
33	MARATHON OIL COMPANY	3311	.22292	285644	1.34428	492415	6.44955	253720	3.29391	1031779	2.82012	1035089	2.71879	7478679	3.64669	33
34	MCCARTHY, KATHRYN L. C.	0	.00000	1910	.00899	0	.00000	0	.00000	1910	.00522	1910	.00502	9075	.00443	34
35	MCPETERS, K. O.	2880	.19390	0	.00000	0	.00000	0	.00000	0	.00000	2880	.00757	19277	.00940	35
36	MCPHERON, MARGARET H.	7310	.49217	0	.00000	0	.00000	0	.00000	0	.00000	7310	.01920	43116	.02102	36
37	MCPHERON, ROBERT L.	3655	.24608	0	.00000	0	.00000	0	.00000	0	.00000	3655	.00960	21558	.01051	37
38	MOBIL OIL CORP.	315251	21.22509	0	.00000	0	.00000	0	.00000	0	.00000	315251	.82805	2045085	.99721	38
39	MONANCO	10843	.73003	0	.00000	0	.00000	0	.00000	0	.00000	10843	.02848	49350	.02406	39
40	MORAN, R. M.	11532	.77642	0	.00000	0	.00000	0	.00000	0	.00000	11532	.03029	57162	.02787	40
41	MORRIS, G. W.	0	.00000	14167	.06667	0	.00000	0	.00000	14167	.03872	14167	.03721	57705	.02814	41
42	MURDOCH, MATHLYN I. CONRA	0	.00000	1910	.00899	0	.00000	0	.00000	1910	.00522	1910	.00502	9075	.00443	42
43	NOBLE, RICHARD L.	0	.00000	172267	.81073	0	.00000	0	.00000	172269	.47085	172269	.45249	701690	.34215	43
44	PARRISH, M.C. ESTATE	3319	.25712	0	.00000	0	.00000	0	.00000	0	.00000	3319	.01003	16532	.00806	44
45	PORTALES NATIONAL BANK	0	.00000	21250	.10001	0	.00000	0	.00000	21250	.05808	21250	.05582	86557	.04221	45
46	ROBINS, JOHN	0	.00000	42501	.20002	0	.00000	0	.00000	42501	.11617	42501	.11163	173114	.08441	46
47	ROSE, FRANCIS I. CONRAD	0	.00000	1910	.00899	0	.00000	0	.00000	1910	.00522	1910	.00502	9075	.00443	47
48	SAMEDAN OIL CORP.	23221	1.56341	2288978	10.77224	44929	.58847	0	.00000	2333907	6.37915	2357128	6.19129	7700579	3.75489	48
49	SEA PROPERTIES, LTD.	0	.00000	35397	.16658	1389	.01819	0	.00000	36786	.10055	36786	.09662	107902	.05261	49
50	SHELL OIL COMPANY	32737	2.20410	5630150	26.49625	2319530	30.38074	1066582	13.84690	9016262	24.64375	9048999	23.76812	41498772	20.23530	50
52	1ST NATL BANK/FT.WORTH	0	.00000	14167	.06667	0	.00000	0	.00000	14167	.03872	14167	.03721	57705	.02814	52
53	SPEAR HOWELL	325	.02188	0	.00000	0	.00000	0	.00000	0	.00000	325	.00085	2010	.00098	53
54	SULLIVAN, E.C.	0	.00000	21250	.10001	0	.00000	0	.00000	21250	.05808	21250	.05582	86557	.04221	54
55	SUN OIL CO. (DELAWARE)	38107	2.56565	2104	.00990	34631	.45359	0	.00000	36735	.10041	74842	.19658	976511	.47616	55
56	SWEET, BILL L.	8755	.58945	0	.00000	0	.00000	0	.00000	0	.00000	8755	.02300	831336	.40537	56
57	SWEET, C.H. OIL CO.	91927	6.18922	0	.00000	0	.00000	0	.00000	0	.00000	91927	.24146	1125260	.54869	57
58	1ST NATL BANK OF CASPER	0	.00000	42501	.20002	0	.00000	0	.00000	42501	.11617	42501	.11163	173114	.08441	58
59	TEXACO, INC.	0	.00000	869630	4.06910	293806	3.85821	18391	.23876	1176835	3.21659	1176835	3.09110	5653171	2.75655	59
60	TEXAS PACIFIC OIL CO.IN-	66416	4.47163	1161692	5.46700	538561	7.05397	24152	.31355	1724405	4.71329	1790821	4.70381	6512472	3.17556	60
61	TREADAWAY, BETTYE CONRA	0	.00000	1910	.00899	0	.00000	0	.00000	1910	.00522	1910	.00502	9075	.00443	61
62	TWO STATES OIL CO.	0	.00000	25312	.11912	0	.00000	0	.00000	25312	.06918	25312	.06649	215445	.10505	62
63	WALLACE, COLLEEN MCPHERO	3655	.24608	0	.00000	0	.00000	0	.00000	0	.00000	3655	.00960	21558	.01051	63
64	WHITLEY, LOYD	649	.04370	0	.00000	0	.00000	0	.00000	0	.00000	649	.00170	4020	.00196	64
65	WILLIAMS, HATTIE C.	0	.00000	55223	.25987	0	.00000	0	.00000	55223	.15094	55223	.14505	152582	.07440	65
66	WILLIAMSON, A.T.	649	.04370	0	.00000	0	.00000	0	.00000	0	.00000	649	.00170	4020	.00196	66
67	WISER OIL COMPANY, THE	0	.00000	110133	.51830	0	.00000	0	.00000	110133	.30102	110133	.28928	660530	.32208	67
68	YATES, JOHN A	40718	2.74145	0	.00000	0	.00000	0	.00000	0	.00000	40718	.10695	464319	.22641	68
69	YEAGER & ARMSTRONG	3018	.20320	0	.00000	0	.00000	0	.00000	0	.00000	3018	.00793	20623	.01006	69
70	YEAGER JR. DR. HENRY	0	.00000	6214	.02924	0	.00000	0	.00000	6214	.01698	6214	.01632	27530	.01340	70
71	YEAGER RUTH ANNE	0	.00000	4622	.02175	0	.00000	0	.00000	4622	.01263	4622	.01214	21968	.01071	71
72	YEAGER RUTH/HENRY	0	.00000	1591	.00749	0	.00000	0	.00000	1591	.00435	1591	.00418	7563	.00369	72
73	YEAGER RUTH PEELER	0	.00000	6668	.03138	0	.00000	0	.00000	6668	.01823	6668	.01751	31691	.01545	73
74	LANDRETH INTERESTS	0	.00000	43583	.20511	0	.00000	124786	1.32003	168369	.46019	168369	.44224	740145	.36090	74
		1485275	100.00000	21249859	100.00000	7634869	100.00000	7702680	100.00000	36586408	100.00000	38071683	100.00000	205083113	100.00000	

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* INCLUDES AN ADJUSTMENT OF AN ADDITIONAL 1820 BARRELS OF OIL FOR "LOST" PRODUCTION FROM THREE WELLS (29L, 30C & 30K) WHICH WERE SHUT IN FOR SPECIAL BHP BUILD-UP SURVEYS REQUESTED BY THE TECHNICAL COMMITTEE

TABLE 24 A
UNITIZATION PARAMETERS – SECONDARY OIL RESERVES

TR NO.	TRACT NAME OPERATOR – LEASE	GRAYBURG UPPER & LOWER BBLS.	GRAYBURG UPPER & LOWER %	SAN ANDRES ZONE II BBLS.	SAN ANDRES ZONE II %	SAN ANDRES ZONE III$_U$ BBLS.	SAN ANDRES ZONE III$_U$ %	SAN ANDRES ZONE III$_L$ BBLS.	SAN ANDRES ZONE III$_L$ %	SAN ANDRES TOTALS BBLS.	SAN ANDRES TOTALS %	UNIT TOTALS BBLS.	UNIT TOTALS %	TR NO.
1	GETTY - STATE B	77157	1.17617	0	.00000	0	.00000	0	.00000	0	.00000	77157	.13970	1
2	AMERADA HESS-STATE NMO	113816	1.73500	425	.00236	0	.00000	0	.00000	425	.00087	114241	.20696	2
3	GULF - LEA FD STATE	46155	.70358	0	.00000	0	.00000	0	.00000	0	.00000	46155	.08361	3
4	TEXAS PACIF.-STATE Y AC1	157802	2.40552	3173	.01763	0	.00000	0	.00000	3173	.00652	160975	.29162	4
5	ESTES ENGR. - STATE	74778	1.13991	33987	.18881	358	.00147	0	.00000	34345	.07061	109123	.19769	5
6	CONTINENTAL - STATE B 13	272710	4.15717	247535	1.37519	226015	.92629	0	.00000	473550	.97350	746260	1.35192	6
7	SHELL - RICE	25633	.39075	388321	2.15734	896795	3.67539	0	.00000	1285116	2.64210	1310749	2.37455	7
8	AMERADA HESS - B HARDIN	26588	.40530	371758	2.06532	769466	3.15355	0	.00000	1141224	2.34627	1167812	2.11560	8
9	GULF - DAN HARDIN	174050	2.65319	280716	1.55953	259717	1.06441	0	.00000	540433	1.11109	714483	1.29435	9
10	MORANCO - STATE Y 17	22344	.34061	179	.00099	0	.00000	0	.00000	179	.00037	22523	.04080	10
11	CHEVRON - STATE I 17	34803	.53053	5366	.02981	0	.00000	0	.00000	5366	.01103	40169	.07277	11
12	GETTY(SKELLY)-STATE A	42854	.65326	16406	.09114	0	.00000	0	.00000	16406	.03373	59260	.10735	12
13	ANTWEIL-HOBBS CONE TOWNS	19480	.29695	0	.00000	0	.00000	0	.00000	0	.00000	19480	.03529	13
14	WISER -MORRIS B	10039	.15303	0	.00000	0	.00000	0	.00000	0	.00000	10039	.01819	14
15	WISER -MORRIS A	17299	.26370	0	.00000	0	.00000	0	.00000	0	.00000	17299	.03134	15
16	GULF - WAD-GRIMES NCT C	84867	1.29370	9691	.05384	0	.00000	0	.00000	9691	.01992	94558	.17130	16
17	C W SWEET - MCKINLEY B	63480	.96769	8539	.04744	0	.00000	0	.00000	8539	.01755	72019	.13047	17
18	GETTY(SKELLY)- MCKINLEY	51235	.78103	57051	.31695	0	.00000	0	.00000	57051	.11729	108286	.19617	18
19	CHEVRON - W D MCKINLEY	56831	.86633	159928	.88849	0	.00000	0	.00000	159928	.32880	216759	.39268	19
20	C W SWEET - GRIMES	23948	.36506	0	.00000	0	.00000	0	.00000	0	.00000	23948	.04338	20
21	BILL SWEET-BOWERS A FED.	28017	.42709	19282	.10712	0	.00000	0	.00000	19282	.03964	47299	.08568	21
22	BILL SWEET-BOWERS B FED.	32223	.49121	18599	.10333	0	.00000	0	.00000	18599	.03824	50822	.09207	22
23	ATLANTIC RICH.-GRIMES	35245	.53728	36706	.20392	0	.00000	0	.00000	36706	.07546	71951	.13035	23
24	SHELL - MCKINLEY B	147816	2.25330	358665	1.99259	6929	.02840	0	.00000	365594	.75163	513410	.93009	24
25	GETTY - BOONE HARDIN	138302	2.10826	353629	1.96461	264614	1.08448	0	.00000	618243	1.27106	756545	1.37055	25
26	CITIES SERVICE - HARDIN	16224	.24732	555165	3.08425	1049231	4.30013	0	.00000	1604396	3.29851	1620620	2.93591	26
27	SHELL - MCKINLEY A	156718	2.38899	1003267	5.57371	871821	3.57304	0	.00000	1875088	3.85503	2031806	3.68081	27
28	GULF-GRAHAM STATE NCT A	15838	.24143	619411	3.44117	1014484	4.15772	0	.00000	1633895	3.35914	1649733	2.98865	28
29	SHELL - STATE D	36614	.55814	300473	1.66930	279933	1.14727	0	.00000	580406	1.19327	617020	1.11779	29
30	AMERADA HESS-STATE E	90584	1.38085	208709	1.15949	95565	.39166	0	.00000	304274	.62556	394858	.71532	30
31	TEXAS PACIF.-STATE G	84593	1.28952	677603	3.76446	443654	1.81826	0	.00000	1121257	2.30522	1205850	2.18451	31
32	SAMEDAN - STATE C	283315	4.31883	385596	2.14220	99541	.40796	0	.00000	485137	.99740	768452	1.39212	32
33	C W SWEET - STATE F	227830	3.47302	112149	.62305	2339	.00959	0	.00000	114488	.23538	342318	.62014	33
34	SHELL - STATE F	126406	1.92692	5567	.03093	0	.00000	0	.00000	5567	.01145	131973	.23908	34
35	TEXAS PACIF.-STATE Y AC2	189441	2.88782	0	.00000	0	.00000	0	.00000	0	.00000	189441	.34319	35
36	C&C OPER. - SHIPP A	17373	.26483	0	.00000	0	.00000	0	.00000	0	.00000	17373	.03147	36
37	JOHN A YATES-SHELL STATE	213610	3.25624	627	.00348	0	.00000	0	.00000	627	.00129	214237	.38811	37
38	WISER - STATE L	47079	.71767	0	.00000	0	.00000	0	.00000	0	.00000	47079	.08529	38
39	GETTY(SKELLY) - MORRIS E	95058	1.44906	0	.00000	0	.00000	0	.00000	0	.00000	95058	.17221	39
40	CONTINENTAL - STATE B 25	154478	2.35484	88284	.49047	205	.00084	0	.00000	88489	.18192	242948	.44014	40
41	SAMEDAN - STATE B	129094	1.96790	18364	.10202	0	.00000	0	.00000	18364	.03776	147458	.26713	41
42	TEXACO - N.M. DD A C ST	131335	2.00206	416298	2.31277	95528	.39151	0	.00000	511826	1.05227	643161	1.16515	42
43	EXXON - N.M. STATE A	399977	6.09722	128750	.71528	13997	.05736	0	.00000	142747	.29348	542724	.98320	43
44	AMERADA - W D MCKINLEY	34916	.53226	538214	2.99009	457646	1.87559	0	.00000	995860	2.04741	1030776	1.86735	44
45	GETTY - W D MCKINLEY	55769	.85013	675365	3.75203	833222	3.41485	205	.00328	1508792	3.10196	1564561	2.83435	45
46	MARATHON-STATE SEC. 30	183642	2.79941	529532	2.94185	384949	1.57766	0	.00000	914481	1.88010	1098123	1.98935	46
47	EXXON-BOWERS A FEDERAL	31748	.48396	1286942	7.14968	1848438	7.57556	205354	3.29093	3340734	6.86829	3372482	6.10957	47
48	EXXON-BOWERS A FED COM	47247	.72023	128135	.71186	60021	.24599	0	.00000	188156	.38683	235403	.42645	48
49	AMERADA - STATE 3	121340	1.84969	360344	2.00191	296393	1.21473	0	.00000	656737	1.35020	778077	1.40956	49
50	EXXON - W D GRIMES	40605	.61897	82252	.45696	9209	.03774	0	.00000	91461	.18804	132066	.23925	50
51	CONTINENTAL-STATE A 48	2376	.03622	461061	2.56145	888770	3.64250	220331	3.53094	1570162	3.22813	1572538	2.84880	51
52	GETTY - W D GRIMES	28642	.43662	199756	1.10976	399070	1.63553	54787	.87799	653612	1.34377	682254	1.23597	52
53	CHEVRON - STATE I 29	0	.00000	313342	1.74079	725050	2.97151	345889	5.54310	1384281	2.84597	1384281	2.50776	53
54	ATLANTIC- W D GRIMES SOC	116890	1.78187	298750	1.65972	187197	.76720	0	.00000	485947	.99907	602837	1.09210	54
55	SAMEDAN - MOON A	46250	.70503	55014	.30563	36530	.14971	0	.00000	91544	.18821	137794	.24963	55
56	SAMEDAN - MOON W	31525	.48057	25879	.14377	1579	.00647	0	.00000	27458	.05645	58983	.10685	56
57	SHELL - GRIMES	13757	.20971	403805	2.24336	993239	4.07066	283643	4.54909	1685057	3.46433	1698814	3.07756	57
58	CONTINENTAL - W D GRIMES	49411	.75321	350832	1.94906	496864	2.03633	33317	.53392	881013	1.81129	930424	1.68555	58
59	SHELL - SANGER	73472	1.12001	75247	.41804	34776	.14252	0	.00000	110023	.22620	183495	.33242	59
60	MORANCO - HOBBS	3631	.05534	0	.00000	0	.00000	0	.00000	0	.00000	3631	.00658	60
61	SHELL - TURNER	31829	.48520	26556	.14753	2551	.01045	0	.00000	29107	.05984	60936	.11039	61
62	GETTY(SKELLY)-BW TURNER	23362	.35613	17625	.09792	22000	.09016	0	.00000	39625	.08147	62987	.11411	62
63	GETTY(SKELLY)-TURNER B2	22296	.33988	49799	.27666	99512	.40783	110	.00176	149421	.30720	171717	.31108	63
64	SAMEDAN - TURNER B	7667	.11688	425	.00236	0	.00000	0	.00000	425	.00087	8092	.01466	64
65	SAMEDAN - TURNER B BAT 2	8947	.13639	224	.00124	0	.00000	0	.00000	224	.00046	9171	.01661	65
66	SAMEDAN - TURNER A	57062	.86984	112266	.62370	40009	.16397	0	.00000	152275	.31307	209337	.37923	66
67	GULF - W D GRIMES NCT B	3560	.05427	431405	2.39670	944319	3.87016	501736	8.04065	1877461	3.85997	1881021	3.40765	67
68	SHELL - STATE B	0	.00000	281449	1.56360	619070	2.53717	470936	7.54705	1371455	2.81960	1371455	2.48452	68
69	AMOCO - STATE 6	0	.00000	271377	1.50765	630764	2.58510	472398	7.57048	1374539	2.82594	1374539	2.49011	69
70	CONTINENTAL - STATE A 33	0	.00000	834274	4.63486	2007042	8.22558	1564179	25.06697	4405495	9.05735	4405495	7.98097	70
71	AMERADA HESS - STATE 4	0	.00000	260746	1.44859	604452	2.47726	263256	4.21885	1128454	2.32002	1128454	2.04430	71
72	SHELL - STATE A	0	.00000	289282	1.60712	757209	3.10332	368558	5.90638	1415049	2.90923	1415049	2.56349	72
73	GULF-W D GRIMES NCT A/2	5393	.08222	529885	2.94380	1103654	4.52317	280075	4.48838	1913614	3.93420	1919007	3.47646	73
74	GULF-GRIMES NCT A BAT 2	15219	.23200	551147	3.06193	1191362	4.88263	316317	5.06918	2058826	4.23270	2074045	3.75733	74
75	MARATHON-STATE SEC 33 18	0	.00000	423017	2.35007	989629	4.05588	851194	13.64093	2263840	4.65428	2263840	4.10116	75
76	CITIES SERVICE - FOWLER	112110	1.70899	469454	2.60808	805448	3.30102	6757	.10828	1281659	2.63499	1393769	2.52494	76
77	GETTY(SKELLY)- FOWLER	139477	2.12618	175696	.97609	76437	.31327	0	.00000	252133	.51837	391610	.70944	77
78	SUN - CLARA FOWLER	176625	2.69245	62579	.34766	526	.00216	0	.00000	63105	.12974	239730	.43429	78
79	SHELL - BERRY	168481	2.56831	452668	2.51482	462621	1.89599	738	.01183	916027	1.88326	1084508	1.96469	79
80	MOBIL - NORA BERRY	294805	4.49397	76293	.42385	197	.00081	0	.00000	76490	.15726	371295	.67264	80
81	AMERADA HESS - STATE C	326694	4.98010	5047	.02804	0	.00000	0	.00000	5047	.01038	331741	.60098	81
82	BYRON - J R HOLT STATE	65957	1.00544	0	.00000	0	.00000	0	.00000	0	.00000	65957	.11949	82
83	GULF - J R HOLT NCT B	26255	.40023	0	.00000	0	.00000	0	.00000	0	.00000	26255	.04756	83
		6560000	100.00000	18000000	100.00000	24400000	100.00000	6240000	100.00000	48640000	100.00000	55200000	100.00000	

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TABLE 24 B
UNITIZATION PARAMETERS – SECONDARY OIL RESERVES

WIO NO.	WORKING INTEREST OWNER	GRAYBURG UPPER & LOWER		SAN ANDRES ZONE II		SAN ANDRES ZONE III_U		SAN ANDRES ZONE III_L		SAN ANDRES TOTALS		UNIT TOTALS		WIO NO.
		BBLS.	%	BBLS.	%	BBLS.	%	BBLS.	%	BBLS.	%	BBLS.	%	
1	AMERADA HESS CORP.	666646	10.19277	1640891	9.11606	2175737	8.91695	263256	4.21885	4079884	8.48792	4746530	8.00241	1
2	AMOCO PRODUCTION CO.	0	.00000	204713	1.13730	475817	1.95007	356359	5.71079	1036889	2.13175	1036889	1.87842	2
3	ANDERSON ANA A	8763	.13358	3983	.02213	42	.00017	0	.00000	4025	.00826	12788	.02317	3
4	ANDERSON EST., WARREN O	8763	.13358	3983	.02213	42	.00017	0	.00000	4025	.00826	12788	.02317	4
5	ANDERSON, W O AND SONS	17526	.26717	7966	.04425	84	.00034	0	.00000	8050	.01655	25576	.04633	5
6	ARMSTRONG, J M	17526	.26717	7966	.04425	84	.00034	0	.00000	8050	.01655	25576	.04633	6
7	ATLANTIC RICHFIELD CO.	152136	2.31914	546962	3.03867	682014	2.79514	425597	6.82046	1654573	3.40167	1806709	3.27302	7
8	BYROM W K	38647	.58912	0	.00000	0	.00000	0	.00000	0	.00000	38647	.07001	8
9	C&C OPERATING CO.	17373	.26483	0	.00000	0	.00000	0	.00000	0	.00000	17373	.03147	9
10	CHEVRON OIL COMPANY	91634	1.39686	478634	2.65909	725050	2.97151	345889	5.54310	1549573	3.18593	1641207	2.97321	10
11	CITIES SERVICE OIL CO.	142052	2.16542	1052199	5.84555	1859482	7.62083	6757	.10828	2918438	6.00004	3060489	5.54436	11
12	CONRAD MARY DANIEL	1081	.01648	0	.00000	0	.00000	0	.00000	0	.00000	1081	.00196	12
13	CONTINENTAL OIL CO.	489127	7.45620	2002549	11.12528	3621198	14.84098	18.7826	29.13183	7441579	15.29926	7930706	14.36721	13
14	CRILE, HERMAN B.	1622	.02472	0	.00000	0	.00000	0	.00000	0	.00000	1622	.00294	14
15	CUSACK, J. P.	6230	.09498	243	.00136	0	.00000	0	.00000	243	.00050	6473	.01173	15
16	CUSACK, JR., J. P.	19444	.29650	20223	.11235	9527	.03905	0	.00000	29750	.06117	49194	.08912	16
17	CUSACK, MICHAEL F.	19444	.29650	20223	.11235	9527	.03905	0	.00000	29750	.06117	49194	.08912	17
18	DELTEA, INC. (WHITNEY)	20160	.30732	0	.00000	0	.00000	0	.00000	0	.00000	20160	.03652	18
19	DUNLAVEY, J. N.	1047	.01597	8	.00005	0	.00000	0	.00000	8	.00002	1055	.00191	19
20	ESTES, RUSSELL G	4674	.07124	2124	.01180	23	.00009	0	.00000	2147	.00441	6821	.01236	20
21	EXXON COMPANY - U.S.A.	499275	7.61090	1584953	8.80530	1927061	7.89778	205359	3.29093	3717368	7.64262	4216642	7.63885	21
22	FIRST NOS.-FIL COMPANY	2095	.03193	17	.00009	0	.00000	0	.00000	17	.00004	2112	.00383	22
23	FORBES C. C.	5383	.08206	7326	.04070	1891	.00775	0	.00000	9217	.01895	14600	.02645	23
24	FORBES, ILAMAE	5241	.07990	7134	.03963	1842	.00755	0	.00000	8976	.01845	14217	.02576	24
25	GETTY OIL COMPANY	725081	11.05230	1649726	9.16514	1742637	7.14195	35101	.88303	3427464	7.08771	4152545	7.55867	25
26	GULF ENERGY & MINERALS	375459	5.72346	2422255	13.45697	4513536	18.49810	1078129	17.59822	8013920	16.51710	8389379	15.23438	26
27	HEADLEE, KENNETH NOEL	2877	.04385	0	.00000	0	.00000	0	.00000	0	.00000	2877	.00521	27
28	HUND, PETER	1081	.01648	0	.00000	0	.00000	0	.00000	0	.00000	1081	.00196	28
29	JUDSON, MARY WANDA CONRA	216	.00330	0	.00000	0	.00000	0	.00000	0	.00000	216	.00039	29
30	KENNITZ, A. A.	81453	1.24166	130859	.61588	28618	.11729	0	.00000	159477	.28875	220930	.40064	30
31	LAFLIN, GEORGE P.	1047	.01597	8	.00005	0	.00000	0	.00000	8	.00002	1055	.00191	31
32	LOWE, JR. RALPH	908	.01384	0	.00000	0	.00000	0	.00000	0	.00000	908	.00164	32
33	MARATHON OIL COMPANY	183642	2.79941	741038	4.11688	879766	3.60560	425597	6.82047	2046401	4.20729	2230043	4.03993	33
34	MCCARTHY, KATHRYN L. CO.	216	.00330	0	.00000	0	.00000	0	.00000	0	.00000	216	.00039	34
35	MCPETERS, K. D.	1741	.02654	13	.00007	0	.00000	0	.00000	13	.00003	1754	.00318	35
36	MCPHERON, MARGARET M.	11594	.17674	0	.00000	0	.00000	0	.00000	0	.00000	11594	.02100	36
37	MCPHERON, ROBERT L.	5797	.08837	0	.00000	0	.00000	0	.00000	0	.00000	5797	.01050	37
38	MOBIL OIL CORP.	294805	4.49397	76293	.42385	198	.00081	0	.00000	76491	.15726	371296	.67204	38
39	MORANCO	2946	.04491	17	.00009	0	.00000	0	.00000	17	.00004	2963	.00537	39
40	MORAN, R. M.	6965	.10617	50	.00028	0	.00000	0	.00000	51	.00010	7016	.01271	40
41	MORRIS, G. D.	3541	.05399	4820	.02678	1244	.00510	0	.00000	6064	.01247	9605	.01740	41
42	MURDOCH, NATHLYN I. CONRA	216	.00330	0	.00000	0	.00000	0	.00000	0	.00000	216	.00039	42
43	NOBLE, RICHARD L.	43069	.65646	58611	.32561	15130	.06201	0	.00000	73741	.15160	116809	.21160	43
44	PARRISH, H.C. ESTATE	341	.00519	0	.00000	0	.00000	0	.00000	0	.00000	341	.00062	44
45	PORTALES NATIONAL BANK	5312	.08096	7230	.04017	1866	.00765	0	.00000	9096	.01870	14408	.02610	45
46	RONING JOHN	10629	.16195	14460	.08033	3733	.01530	0	.00000	18193	.03740	28822	.05220	46
47	ROSE, FRANCIS L. CONRAD	216	.00330	0	.00000	0	.00000	0	.00000	0	.00000	216	.00039	47
48	SAMEDAN OIL CORP.	334995	5.09624	302930	1.68017	91274	.37407	0	.00000	394204	.80942	729199	1.31911	48
49	SEA PROPERTIES, LTD.	3292	.05017	4105	.02281	1318	.00540	0	.00000	5423	.01115	8715	.01577	49
50	SHELL OIL COMPANY	780726	11.90132	3589400	19.94111	4924994	20.18440	1124096	18.01435	9638490	19.80597	10419216	18.87539	50
52	1ST NATL BANK/FT. WORTH	3541	.05399	4820	.02678	1244	.00510	0	.00000	6064	.01247	9605	.01740	52
53	SPEAR HOWELL	524	.00798	4	.00002	0	.00000	0	.00000	4	.00001	528	.00096	53
54	SULLIVAN, E.C.	5312	.08078	7230	.04017	1866	.00765	0	.00000	9096	.01870	14408	.02610	54
55	SUN OIL CO. (DELAWARE)	176625	2.69245	62579	.34766	526	.00216	0	.00000	63105	.12979	239730	.43429	55
56	SWEET, BILL L.	60290	.91829	37881	.21045	0	.00000	0	.00000	37881	.07788	98171	.17776	56
57	SWEET, C.H. OIL CO.	315264	4.80576	120687	.67048	2339	.00959	0	.00000	123026	.25293	438289	.79399	57
58	1ST NATL BANK OF CROPEN	10629	.16195	14460	.08033	3733	.01530	0	.00000	18193	.03740	28822	.05220	58
59	TEXACO, INC.	131335	2.00206	416298	2.31277	95528	.39151	0	.00000	511826	1.05227	643161	1.16515	59
60	TEXAS PACIFIC OIL CO. IN	431836	6.58286	680774	3.78209	443659	1.81826	0	.00000	1124433	2.31174	1556269	2.81932	60
61	TREADAWAY, BETTYE CONRA	216	.00330	0	.00000	0	.00000	0	.00000	0	.00000	216	.00039	61
62	TWO STATES OIL CO.	3765	.05739	0	.00000	0	.00000	0	.00000	0	.00000	3765	.00682	62
63	WALLACE, COLLEEN MCPHERO	5797	.08837	0	.00000	0	.00000	0	.00000	0	.00000	5797	.01050	63
64	WHITLEY, LOYD	1097	.01597	8	.00005	0	.00000	0	.00000	8	.00002	1055	.00191	64
65	WILLIAMS, HATTIE C.	3343	.05096	6578	.03654	2344	.00961	0	.00000	8922	.01839	12265	.02222	65
66	WILLIAMSON, A.T.	1047	.01597	8	.00005	0	.00000	0	.00000	8	.00002	1055	.00191	66
67	WISEN OIL COMPANY, THE	60748	.92603	0	.00000	0	.00000	0	.00000	0	.00000	60748	.11006	67
68	YATES, JOHN A.	213610	3.25624	627	.00348	0	.00000	0	.00000	627	.00129	214237	.38811	68
69	YEAGER & ARMSTRONG	17526	.26717	7966	.04425	84	.00034	0	.00000	8050	.01655	25576	.04633	69
70	YEAGER JR.-DR.-HENRY	709	.01073	0	.00000	0	.00000	0	.00000	0	.00000	709	.00128	70
71	YEAGER RUTH ANNE	523	.00798	0	.00000	0	.00000	0	.00000	0	.00000	523	.00095	71
72	YEAGER RUTH/HENRY	180	.00275	0	.00000	0	.00000	0	.00000	0	.00000	180	.00033	72
73	YEAGER RUTH PEELER	755	.01151	0	.00000	0	.00000	0	.00000	0	.00000	755	.00137	73
74	LANDRETH INTERESTS	0	.00000	66664	.37036	154947	.63503	116049	1.85969	337660	.69419	337660	.61167	74
	REVISED 5/26/77	6560000	100.00000	18000000	100.00000	24400000	100.00000	6240000	100.00000	48640000	100.00000	55200000	100.00000	

TABLE 25 A
PRIMARY GAS RESERVES (1/1/77)

TR. NO.	TRACT NAME OPERATOR -- LEASE	GRAYBURG MCF	GRAYBURG %	SAN ANDRES MCF	SAN ANDRES %	TOTAL UNIT MCF	TOTAL UNIT %
1	GETTY - STATE B	8191	.09178	0	.00000	8191	.00769
2	AMERADA HESS-STATE NMB	75592	.84704	0	.00000	75592	.07097
3	GULF - LEA FD STATE	30936	.34665	0	.00000	30936	.02884
4	TEXAS PACIF.-STATE V AC1	330789	3.70664	0	.00000	330789	.30833
5	ESTES ENGR. - STATE	111240	1.24680	0	.00000	111240	.10372
6	CONTINENTAL - STATE B 13	29124	.32635	0	.00000	29124	.02715
7	SHELL - RICE	16297	.18204	779283	.79210	795230	.74136
8	AMERADA HESS - B HARDIN	0	.00000	0	.00000	0	.00000
9	GULF - DAN HARDIN	619272	6.93923	58179	.05916	677451	.63156
10	MORANCO - STATE T 17	22603	.25328	0	.00000	22603	.02107
11	CHEVRON - STATE I 17	0	.00000	0	.00000	0	.00000
12	GETTY(SKELLY)-STATE A	14835	.16623	0	.00000	14835	.01383
13	ANTWEIL-HOBBS CONS TOWNS	421323	4.72112	0	.00000	421323	.39277
14	WISEN -MORRIS B	0	.00000	18720	.01904	18720	.01745
15	WISEN -MORRIS A	0	.00000	69483	.07065	69483	.06477
16	GULF - W.D.GRIMES NCT C	195980	2.19605	0	.00000	195980	.18270
17	C H SWEET - MCKINLEY B	199818	2.23905	0	.00000	199818	.18628
18	GETTY(SKELLY)- MCKINLEY	0	.00000	1502	.00153	1502	.00140
19	CHEVRON - H.O.MCKINLEY	0	.00000	1044434	1.06202	1044434	.97367
20	C H SWEET - GRIMES	0	.00000	0	.00000	0	.00000
21	BILL SWEET-BOWERS B FED.	24486	.27436	0	.00000	24486	.02282
22	BILL SWEET-BOWERS B FED.	0	.00000	0	.00000	0	.00000
23	ATLANTIC RICH.-GRIMES	120831	1.35397	0	.00000	120831	.11265
24	SHELL - MCKINLEY B	0	.00000	2997040	3.04753	2997040	2.79399
25	GETTY - BOONE HARDIN	367448	3.99510	118736	.12074	926184	.39731
26	CITIES SERVICE - HARDIN	0	.00000	2094274	2.12954	2094274	1.95237
27	SHELL - MCKINLEY A	0	.00000	7125994	7.24490	7124994	6.64223
28	GULF-GRAHAM STATE NCT A	0	.00000	3692843	3.75503	3692843	3.44263
29	SHELL - STATE D	0	.00000	900159	.91489	900159	.83894
30	AMERADA HESS-STATE E	124585	1.39603	62017	.06306	186602	.17396
31	TEXAS PACIF.-STATE G	0	.00000	1989276	2.02324	1989276	1.85495
32	SAMEDAN - STATE C	0	.00000	734820	.74719	734820	.68503
33	C H SWEET - STATE F	1089839	12.21215	0	.00000	1089839	1.01599
34	SHELL - STATE F	42346	.47451	0	.00000	42346	.03948
35	TEXAS PACIF.-STATE V AC2	90223	1.01099	0	.00000	90223	.08411
36	C&C OPER. - SHIPP A	138	.00155	0	.00000	138	.00013
37	JOHN A YATES-SHELL STATE	198369	2.22276	0	.00000	198369	.18492
38	WISER - STATE L	0	.00000	0	.00000	0	.00000
39	GETTY(SKELLY) - HOBBS E	25873	.28992	0	.00000	25873	.02412
40	CONTINENTAL - STATE B 25	34233	.38360	173841	.17677	208074	.19398
41	SAMEDAN - STATE B	100355	1.12452	0	.00000	100355	.09355
42	TEXACO - N.M. OO B C ST	0	.00000	1056341	1.07413	1056341	.98477
43	EXXON - N.M. STATE A	1777541	19.91618	0	.00000	1777541	1.65710
44	AMERADA - M D MCKINLEY	0	.00000	2608540	2.65247	2608540	2.43179
45	GETTY - M D MCKINLEY	0	.00000	5870010	5.96886	5870010	5.47228
46	MARATHON-STATE SEC. 30	27230	.30513	1524541	1.55021	1551771	1.44663
47	EXXON-BOWERS A FEDERAL	0	.00000	2579495	2.62293	2579495	2.40472
48	EXXON-BOWERS A FED COM	0	.00000	832005	.84602	832005	.77563
49	AMERADA - STATE B	686674	7.69450	1470794	1.49556	2157468	2.01128
50	EXXON - W.D. GRIMES	0	.00000	162910	.16565	162910	.15187
51	CONTINENTAL-STATE A 29	0	.00000	4501650	4.57746	4501650	4.19663
52	GETTY - W D GRIMES	0	.00000	1249237	1.27019	1249237	1.16493
53	CHEVRON - STATE I 29	0	.00000	855286	.86969	855286	.79733
54	ATLANTIC- W.D GRIMES SOC	48729	.54603	1470767	1.49553	1519496	1.41654
55	SAMEDAN - MOOR A	0	.00000	731610	.74393	731610	.68204
56	SAMEDAN - MOOR B	0	.00000	845386	.85962	845386	.78810
57	SHELL - GRIMES	0	.00000	1567369	1.59376	1567369	1.46117
58	CONTINENTAL - W D GRIMES	0	.00000	3567037	3.62710	3567037	3.32535
59	SHELL - SANGER	317113	3.55340	1526504	1.55221	1843617	1.71870
60	MORANCO - HOBBS	191064	2.14096	0	.00000	191064	.17812
61	SHELL - TURNER	0	.00000	1118302	1.13713	1118302	1.04253
62	GETTY(SKELLY)-BH TURNER	0	.00000	626099	.63664	626099	.58368
63	GETTY(SKELLY)-TURNER B2	0	.00000	619611	.63005	619611	.57763
64	SAMEDAN - TURNER B	0	.00000	50688	.05154	50688	.04725
65	SAMEDAN - TURNER B BAT 2	0	.00000	63898	.06497	63898	.05957
66	SAMEDAN - TURNER A	0	.00000	603345	.61351	603345	.56246
67	GULF - W O GRIMES NCT B	0	.00000	5698416	5.79437	5698416	5.31231
68	SHELL - STATE B	0	.00000	1117788	1.13661	1117788	1.04205
69	AMOCO - STATE G	0	.00000	3994782	4.06205	3994782	3.72411
70	CONTINENTAL - STATE A 33	0	.00000	13262955	13.48630	13262955	12.36430
71	AMERADA HESS - STATE A	0	.00000	2969044	3.01704	2969044	2.76787
72	SHELL - STATE A	0	.00000	1660276	1.68823	1660276	1.54778
73	GULF-W D GRIMES NCT A/2	0	.00000	4306482	4.37700	4306482	4.01469
74	GULF-GRIMES NCT A BAT 2	0	.00000	1726190	1.75526	1726190	1.60923
75	MARATHON-STATE SEC 32 18	0	.00000	3486663	3.54438	3486663	3.25042
76	CITIES SERVICE - FOWLER	0	.00000	938243	.95404	938243	.87467
77	GETTY(SKELLY)- FOWLER	0	.00000	408778	.41566	408778	.38108
78	SUN - CLARA FOWLER	121485	1.36130	82205	.08359	203690	.18989
79	SHELL - BERRY	0	.00000	1835879	1.86680	1835879	1.71149
80	MOBIL - NORA BERRY	1273553	14.27075	0	.00000	1273553	1.18726
81	AMERADA HESS - STATE C	159835	1.79103	0	.00000	159835	.14900
82	BYRON - J R HOLT STATE	86321	.96727	0	.00000	86321	.08047
83	GULF - J R HOLT NCT D	0	.00000	0	.00000	0	.00000
		8924216	100.00000	98343942	100.00000	107268158	100.00000

New Parameter Table 5/26/77

TABLE 26 B
PRIMARY GAS RESERVES (1/1/77)

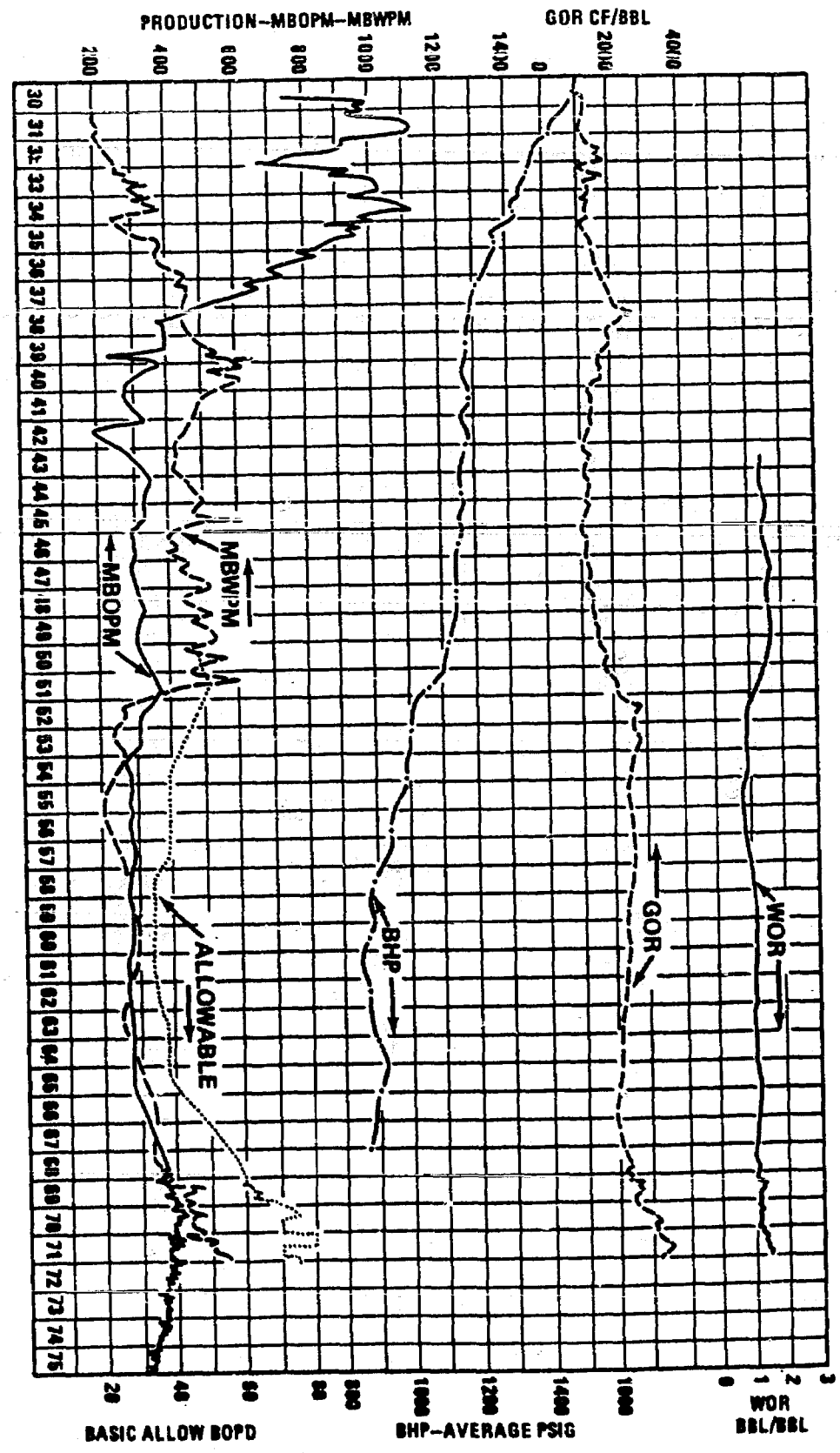
WIO NO.	WORKING INTEREST OWNER	GRAYBURG		SAN ANDREAS		TOTAL UNIT	
		MCF	%	MCF	%	MCF	%
1	AMERADA HESS CORP.	984394	11.03069	7079387	7.19860	8063780	7.61790
2	AMOCO PRODUCTION CO.	0	.00000	3013463	3.06921	3013463	2.80928
3	ANDERSON ADA A	13036	.14607	0	.00000	13036	.01215
4	ANDERSON LST., WARREN D	13036	.14607	0	.00000	13036	.01215
5	ANDERSON, W D AND SONS	26072	.29215	0	.00000	26072	.02431
6	ARMSTRONG, J M	26072	.29215	0	.00000	26072	.02431
7	ATLANTIC RICHFIELD CO.	169560	1.90000	3219099	3.26822	3388659	3.15439
8	BYRON W K	50579	.56676	0	.00000	50579	.04715
9	C&C OPERATING CO.	138	.00155	0	.00000	138	.00013
10	CHEVRON OIL COMPANY	0	.00000	1899720	1.93171	1899720	1.77100
11	CITIES SERVICE OIL CO.	0	.00000	3110954	3.16333	3110954	2.90016
12	CONRAD MARY DANIEL	0	.00000	4343	.00442	4343	.00405
13	CONTINENTAL OIL CO.	63357	.70996	21546211	21.90904	21609568	20.14530
14	CRILE, HERMAN R.	0	.00000	6514	.00662	6514	.00607
15	CUSACK, J. P.	0	.00000	42970	.04370	42970	.04006
16	CUSACK, JR., J. P.	0	.00000	394280	.40089	394280	.36759
17	CUSACK, MICHAEL F.	0	.00000	394280	.40089	394280	.36759
18	DEL-LEA, INC. (ANTWEIL)	457148	5.12286	0	.00000	457148	.42618
19	DUNLAVEY, J. N.	1060	.01188	0	.00000	1060	.00099
20	ESTES, RUSSELL G	6953	.07791	0	.00000	6953	.00648
21	EXXON COMPANY - U.S.A.	1777591	19.91818	3492755	3.55178	5270496	4.91339
22	FIRST ROSWELL COMPANY	2119	.02374	0	.00000	2119	.00198
23	FORBES C. C.	0	.00000	13962	.01420	13962	.01302
24	FORBES, ILAMAE	0	.00000	13594	.01382	13594	.01267
25	GETTY OIL COMPANY	429291	4.75437	8919982	9.07019	9349272	8.71115
26	GULF ENERGY & MINERALS	851583	9.54236	15482110	15.74282	16333693	15.22698
27	HEADLEY, KENNETH NOEL	0	.00000	8859	.00900	8859	.00825
28	HURD, PETER	0	.00000	4343	.00442	4343	.00405
29	JUDSON, RUBY WANDA CONRA	0	.00000	869	.00088	869	.00081
30	KEMNITZ, A. A.	0	.00000	211261	.21482	211261	.19695
31	LAFLIN, GEORGE P.	1060	.01188	0	.00000	1060	.00099
32	LONE, H. RALPH	47766	.53529	0	.00000	47766	.04453
33	MARATHON OIL COMPANY	27230	.30512	3267873	3.32290	3295103	3.07105
34	MCCARTHY, KATHRYN L. C.	0	.00000	869	.00088	869	.00081
35	MCPETERS, K. D.	10531	.11801	0	.00000	10531	.00982
36	MCPHERON, MARGARAT H.	15174	.17003	0	.00000	15174	.01415
37	MCPHERON, ROBERT L.	7587	.08502	0	.00000	7587	.00707
38	MOBIL OIL CORP.	1273553	14.27075	0	.00000	1273553	1.18726
39	MORANCO	46909	.52558	0	.00000	46909	.04373
40	MORAN, R. H.	42182	.47267	0	.00000	42182	.03933
41	MORRIS, G. D.	0	.00000	9185	.00934	9185	.00856
42	MURDOCH, NATHLYN I. CONRA	0	.00000	869	.00088	869	.00081
43	NOBLE, RICHARD L.	0	.00000	111693	.11357	111693	.10413
44	PARRISH, M. C. ESTATE	17922	.20082	0	.00000	17922	.01671
45	PORTALES NATIONAL BANK	0	.00000	13778	.01401	13778	.01284
46	RORING JOHN	0	.00000	27556	.02802	27556	.02569
47	ROSE, FRANCIS I. CONRAD	0	.00000	869	.00088	869	.00081
48	SAMEDAN OIL CORP.	100355	1.12452	1644507	1.67221	1744862	1.62664
49	SEA PROPERTIES, LTD.	0	.00000	29166	.02965	29166	.02719
50	SHELL OIL COMPANY	375706	4.20997	20127309	20.46622	20503015	19.11381
52	1ST NATL BANK/FT. WORTH	0	.00000	9185	.00934	9185	.00856
53	SPEAR MONELL	530	.00594	0	.00000	530	.00049
54	SULLIVAN, E. C.	0	.00000	13778	.01401	13778	.01285
55	SUN OIL CO. (DELAWARE)	121485	1.36130	82205	.08359	203690	.18989
56	SWEET, BILL L.	24486	.27438	0	.00000	24486	.02283
57	SWEET, C. H. OIL CO.	1289657	14.45120	0	.00000	1289657	1.20227
58	1ST NATL BANK OF CASPER	0	.00000	27556	.02802	27556	.02569
59	TEXACO, INC.	0	.00000	1056341	1.07413	1056341	.98477
60	TEXAS PACIFIC OIL CO. IN	421012	4.71763	1989776	2.02328	2410788	2.24744
61	TREADAWAY, BETTYE CONRA	0	.00000	869	.00088	869	.00081
62	TWO STATES OIL CO.	0	.00000	7020	.00714	7020	.00654
63	WALLACE, COLLEEN MCPHERO	7587	.08502	0	.00000	7587	.00707
64	WHITLEY, LOYD	1060	.01188	0	.00000	1060	.00099
65	WILLIAMS, HATTIE C.	0	.00000	35350	.03595	35350	.03295
66	WILLIAMSON, A. T.	1060	.01188	0	.00000	1060	.00099
67	WISER OIL COMPANY, THE	0	.00000	44102	.04485	44102	.04112
68	YATES, JOHN A	198369	2.22274	0	.00000	198369	.18492
69	YEAGER & ARMSTRONG	26072	.29215	0	.00000	26072	.02431
70	YEAGER JR. DR. HENRY	0	.00000	2826	.00287	2826	.00263
71	YEAGER RUTH ANNE	0	.00000	2102	.00214	2102	.00196
72	YEAGER RUTH/HENRY	0	.00000	724	.00074	724	.00067
73	YEAGER RUTH PEGLER	0	.00000	3033	.00308	3033	.00283
74	LANDRETH INTERESTS	0	.00000	981318	.99789	981318	.91463
		8929216	100.00000	98339942	100.00000	107268158	100.00000

New Parameter Table 5/20/77

GRAPHS

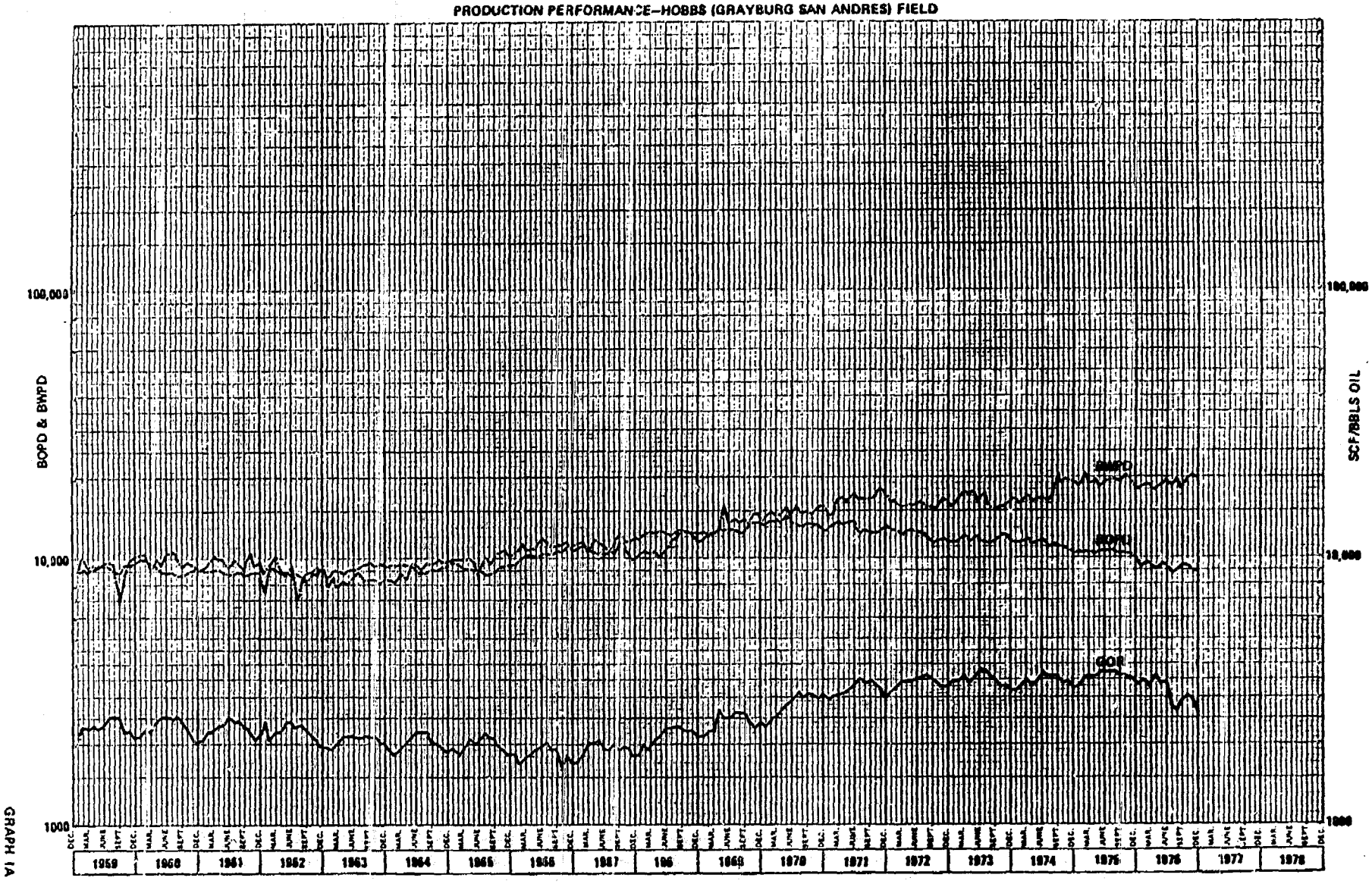
ZM-2217

GRAPH 1

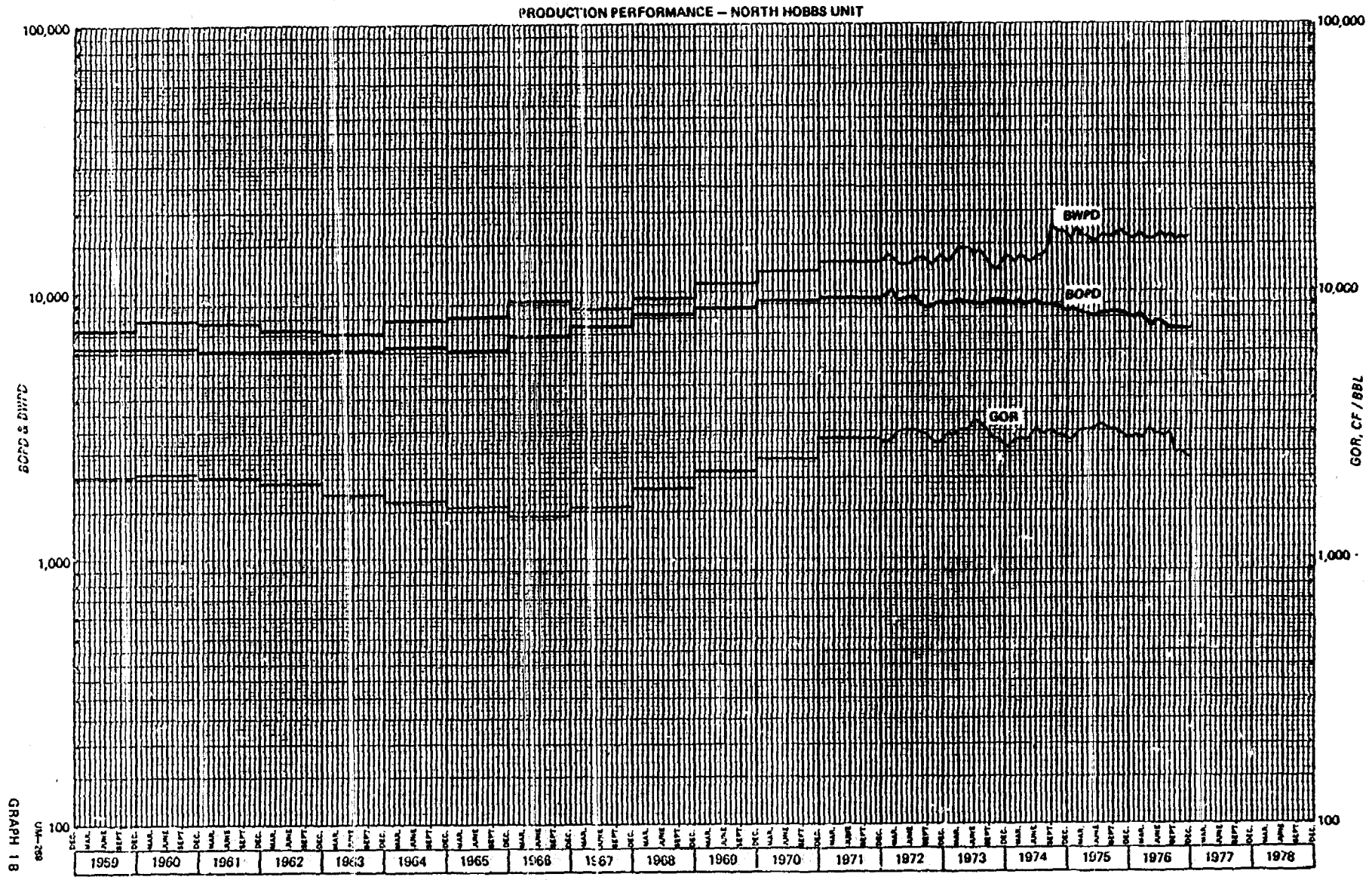


DM-250

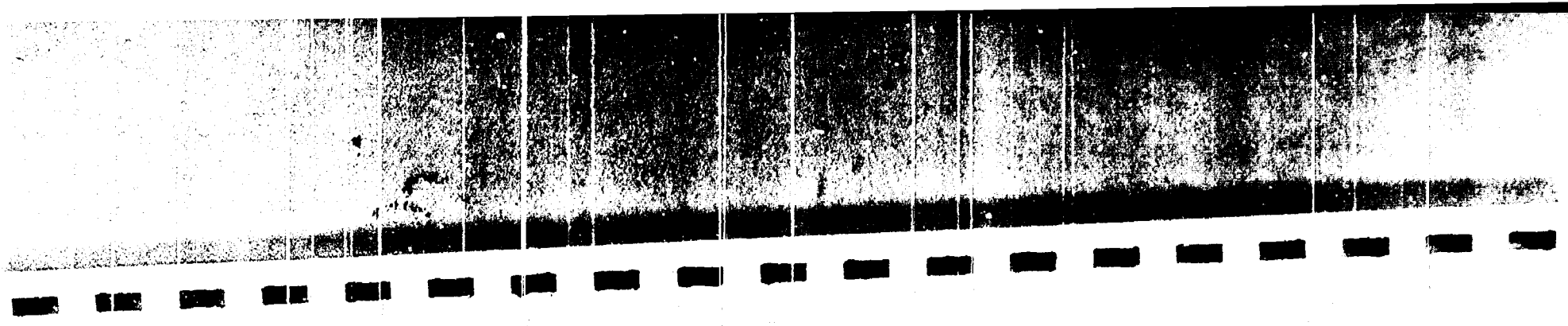
PRODUCTION PERFORMANCE—HOBBS (GRAYBURG SAN ANDRES) FIELD



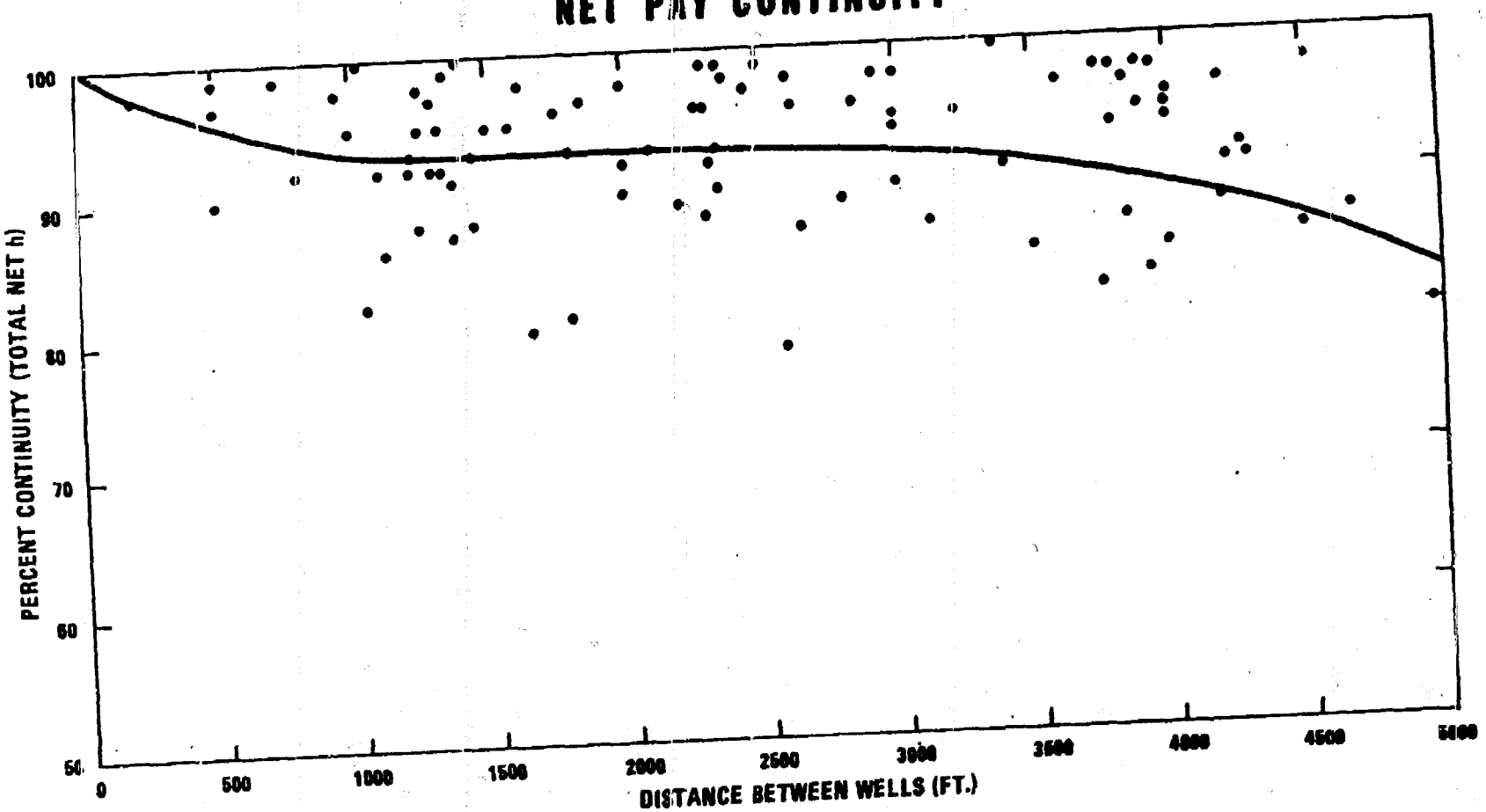
GRAPH IA


PRODUCTION PERFORMANCE – NORTH HOBBS UNIT
BWPD
BOPD
GOR
BOPD & BWPD
GOR, CF / BBL
100,000
10,000
1,000
100
1959
1960
1961
1962
1963
1964
1965
1968
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978

GRAPH 18

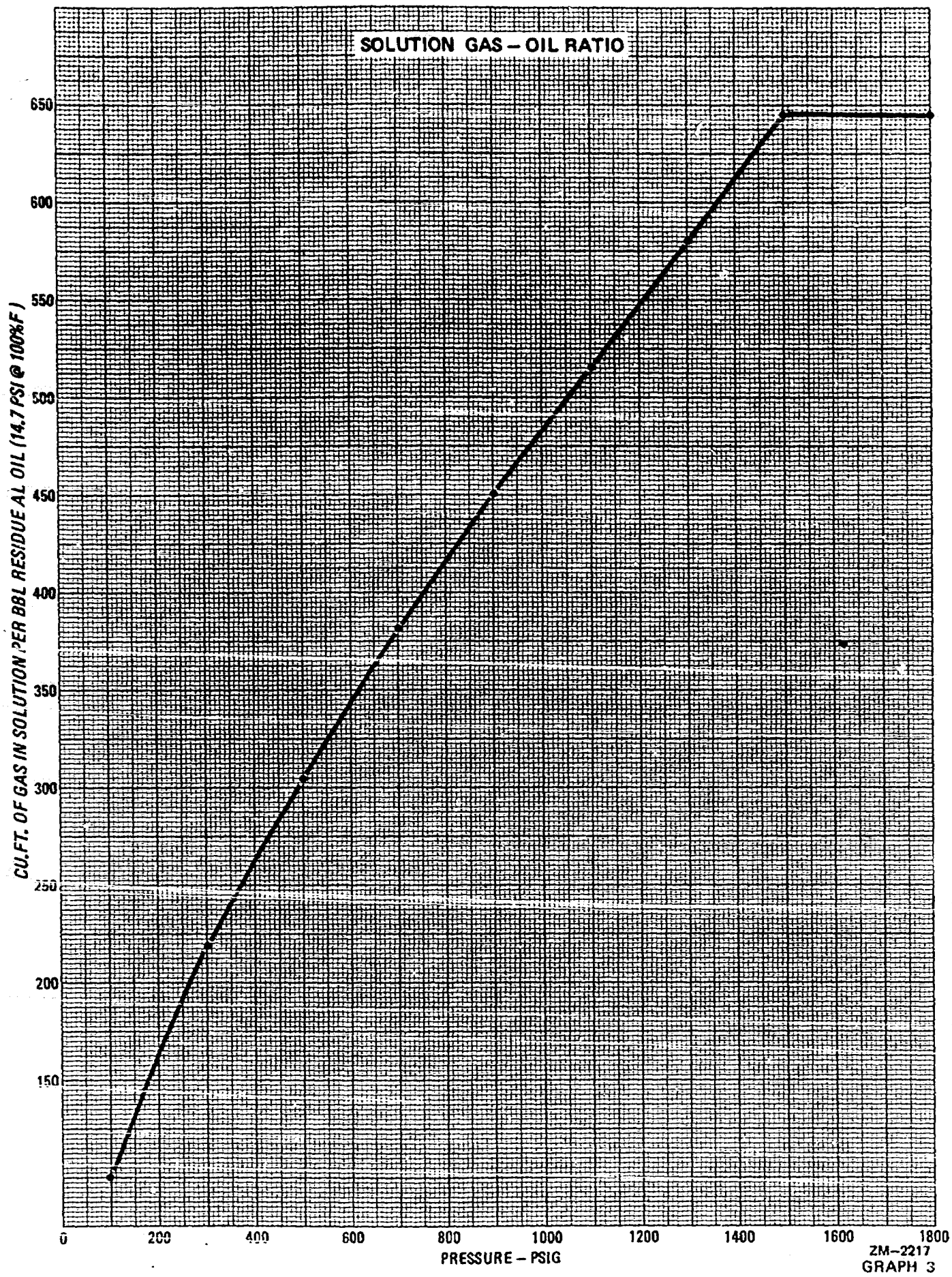


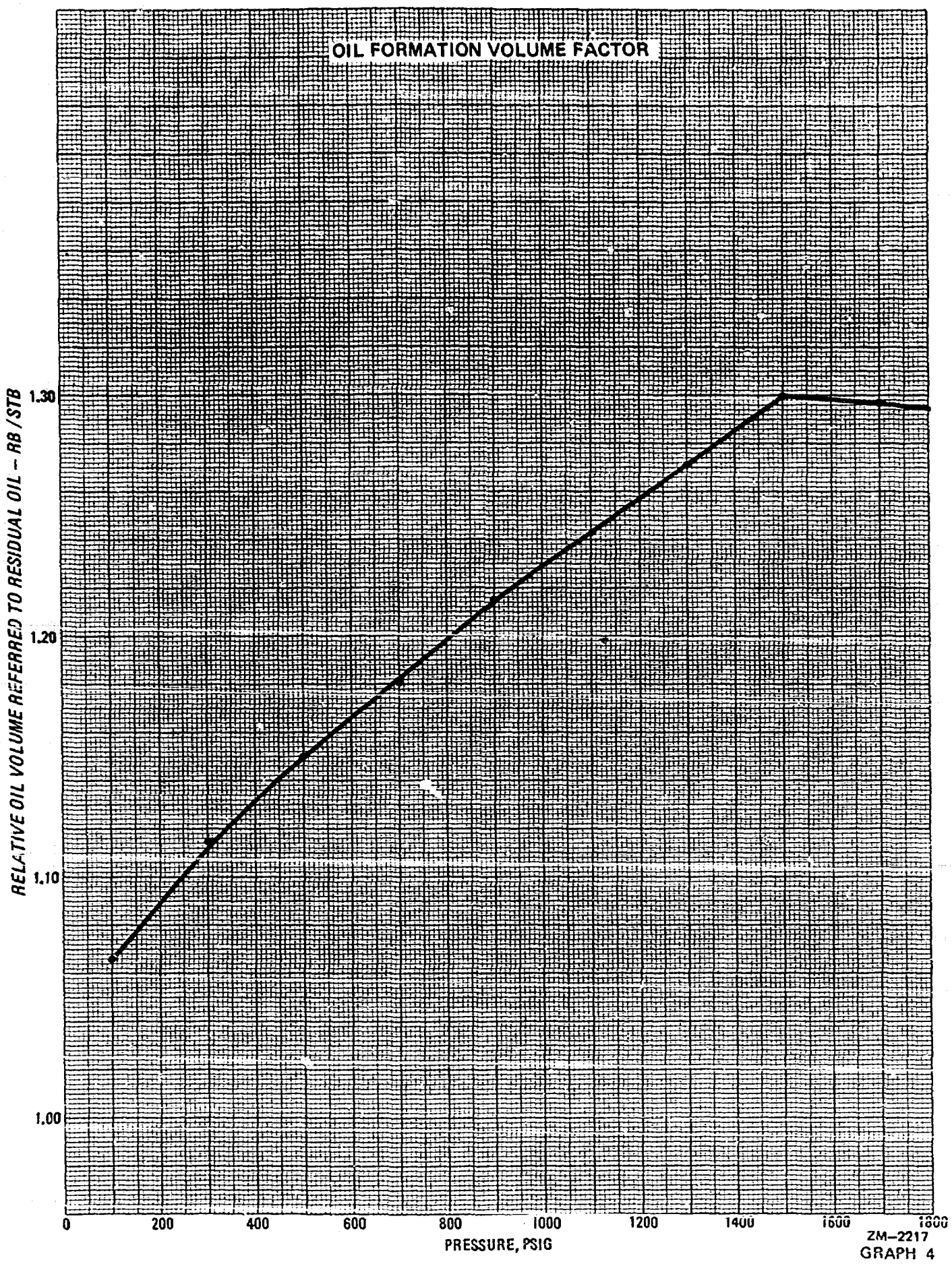
HOBBS SAN ANDRES
NET PAY CONTINUITY



GRAPH 2

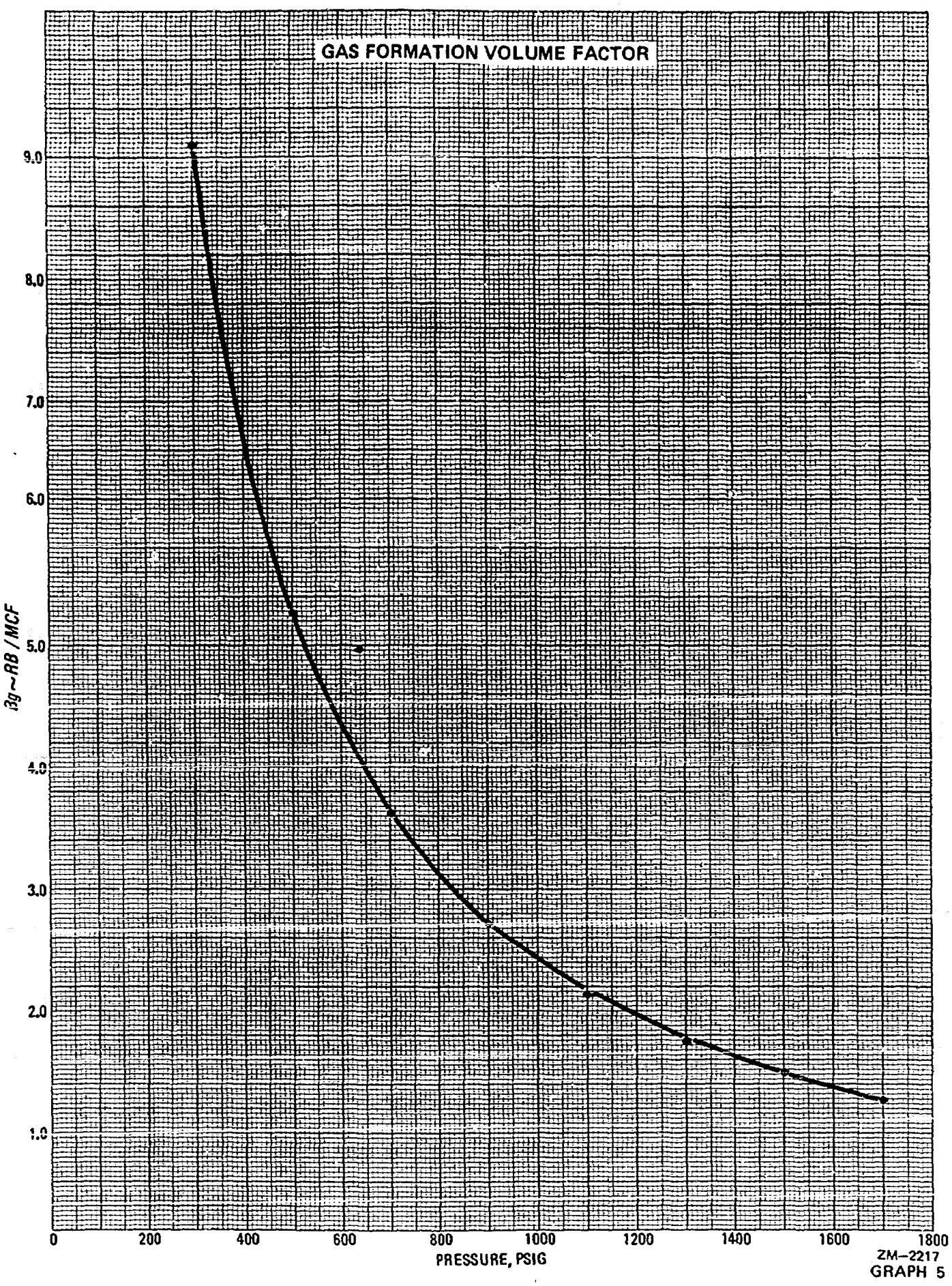
ZM–1667
7/76

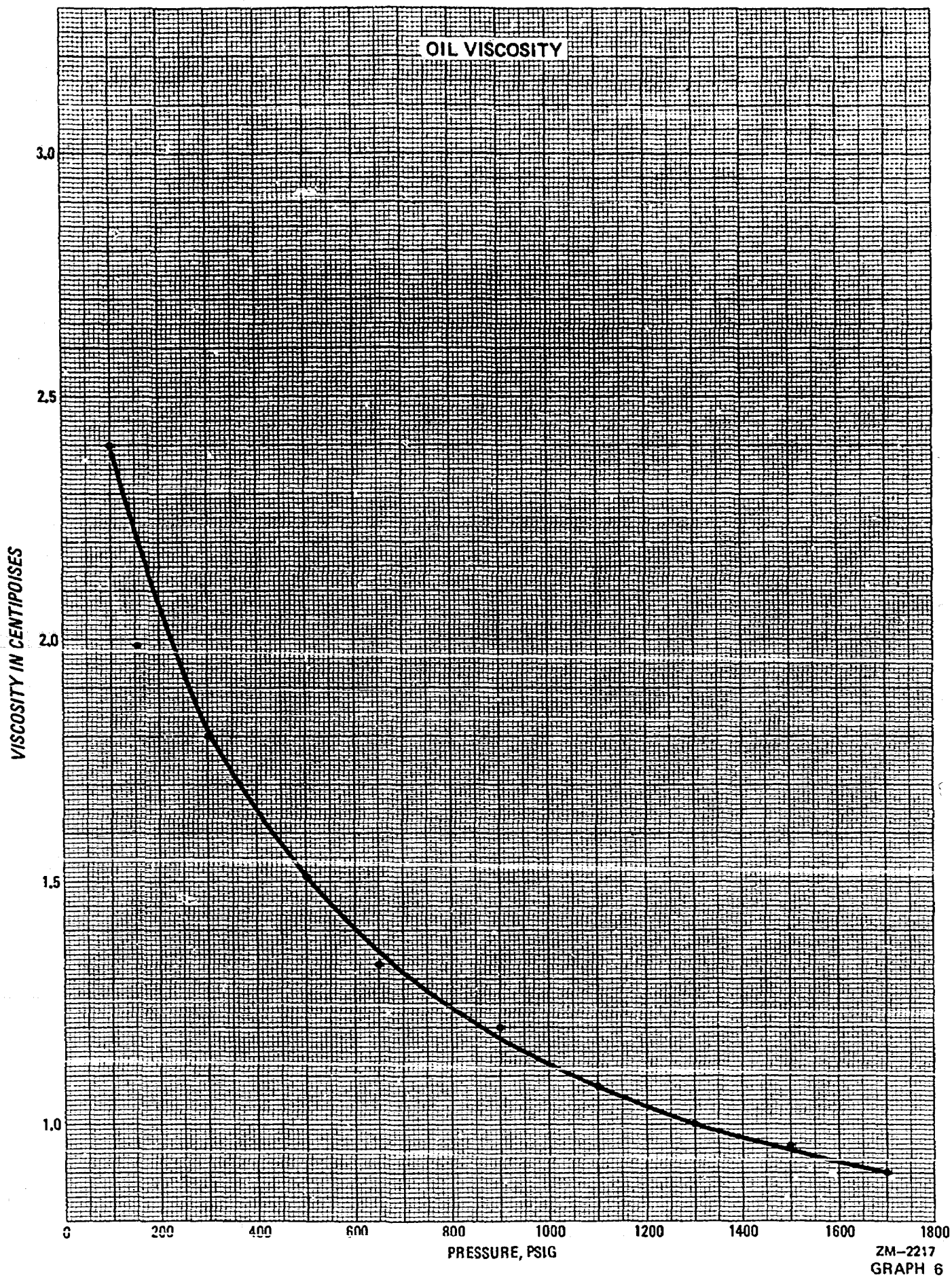

SOLUTION GAS – OIL RATIO
CU.FT. OF GAS IN SOLUTION PER BBL RESIDUE AL OIL (14.7 PSI @ 100°F)
650
600
550
500
450
400
350
300
250
200
150
0
200
400
600
800
1000
1200
1400
1600
1800
PRESSURE – PSIG
ZM–2217
GRAPH 3



ZM–2217

GRAPH 4


GAS FORMATION VOLUME FACTOR
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
B_g ~ RB / MCF
0
200
400
600
800
1000
1200
1400
1600
1800
PRESSURE, PSIG
ZM–2217
GRAPH 5

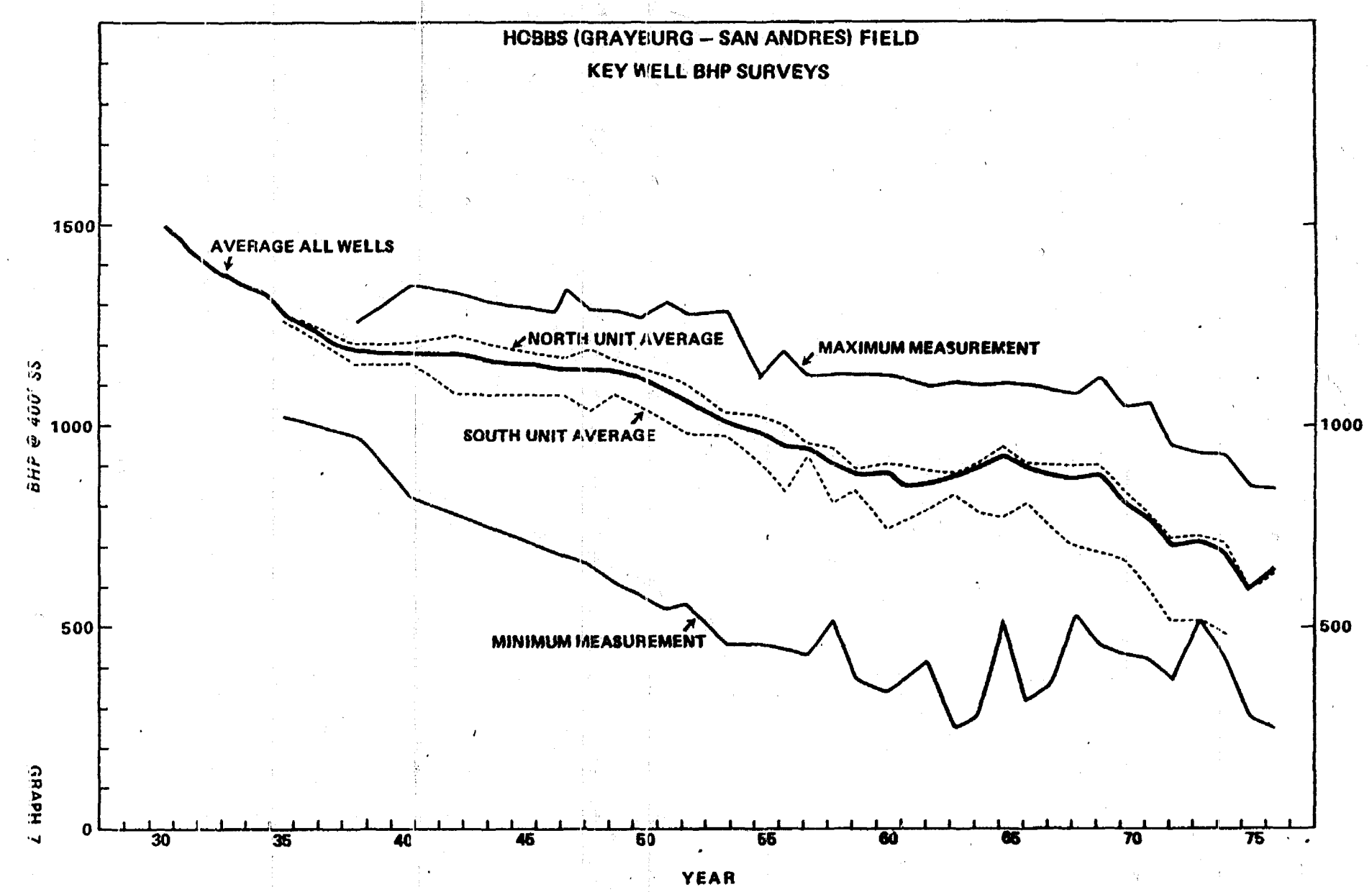

OIL VISCOSITY
VISCOSITY IN CENTIPOISES
3.0
2.5
2.0
1.5
1.0
0
200
400
600
800
1000
1200
1400
1600
1800
PRESSURE, PSIG
ZM–2217

GRAPH 6

ZM–2217

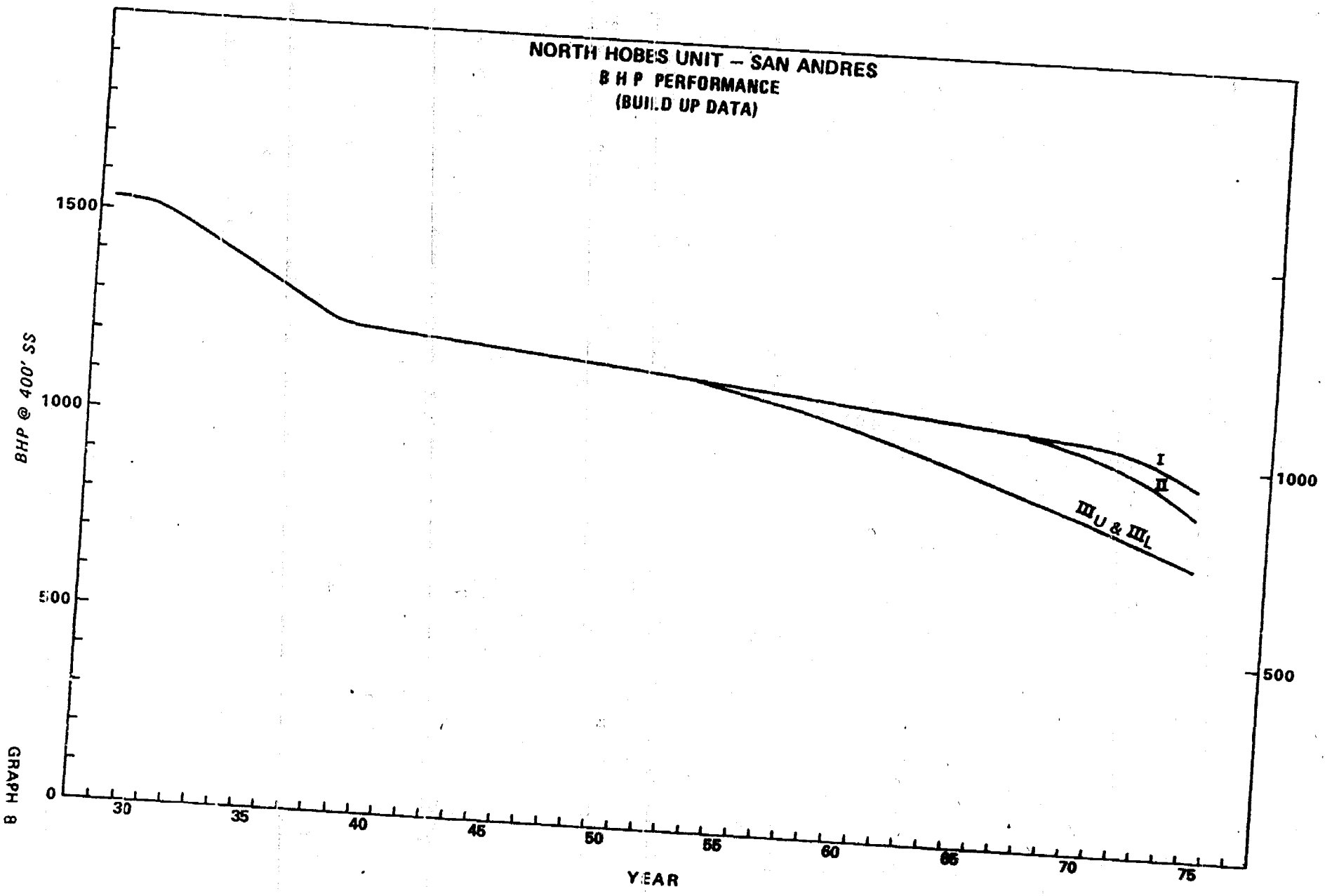
HOBBS (GRAYBURG – SAN ANDRES) FIELD

KEY WELL BHP SURVEYS



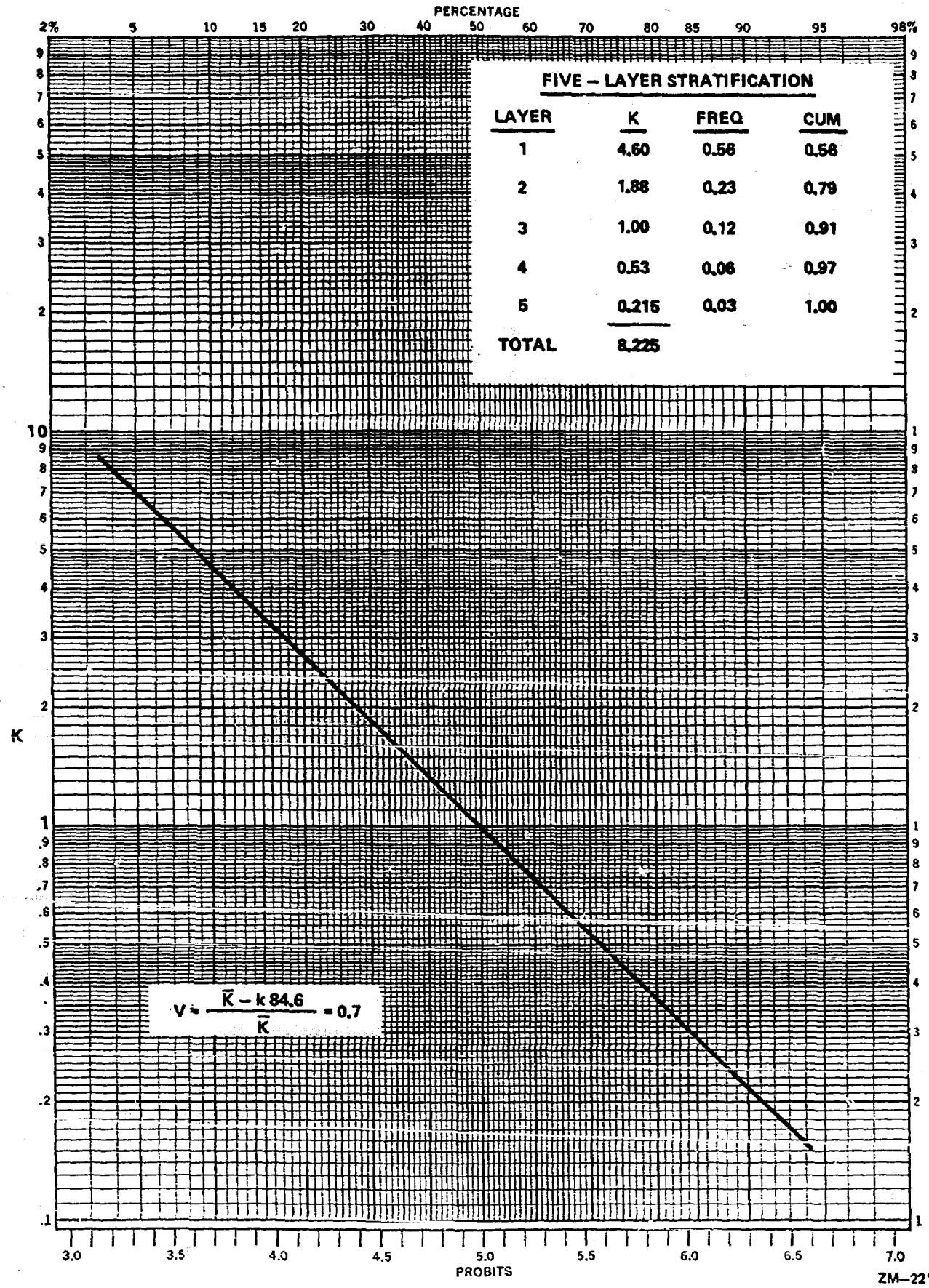
GRAPH 7

ZM–2217



GRAPH 8

NORTH HOBBS – GRAYBURG



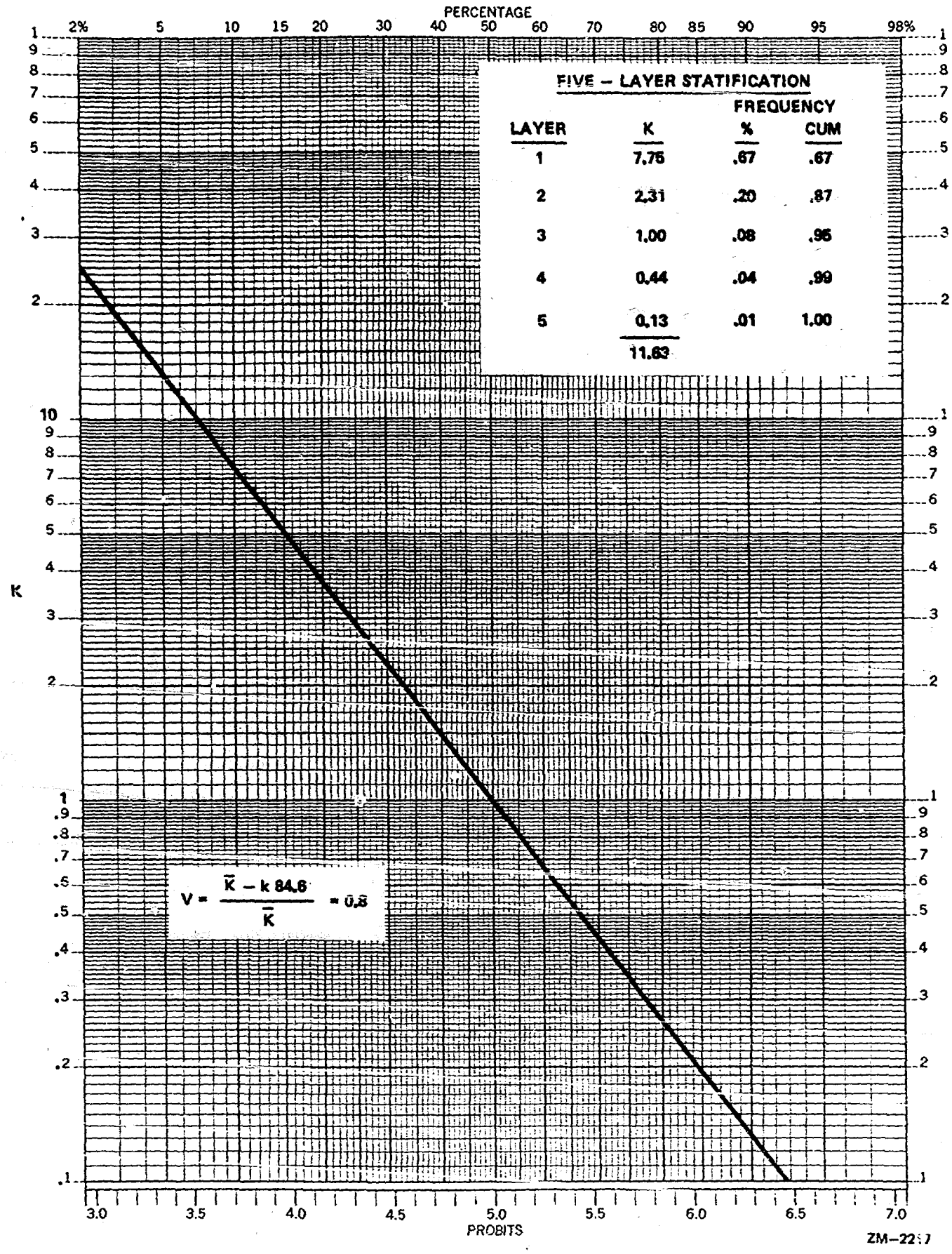
FIVE – LAYER STRATIFICATION

LAYER	K	FREQ	CUM
1	4.60	0.56	0.56
2	1.88	0.23	0.79
3	1.00	0.12	0.91
4	0.53	0.06	0.97
5	0.215	0.03	1.00
TOTAL	8.225		

ZM–2217

GRAPH 9

NORTH HOBBS – SAN ANDRES

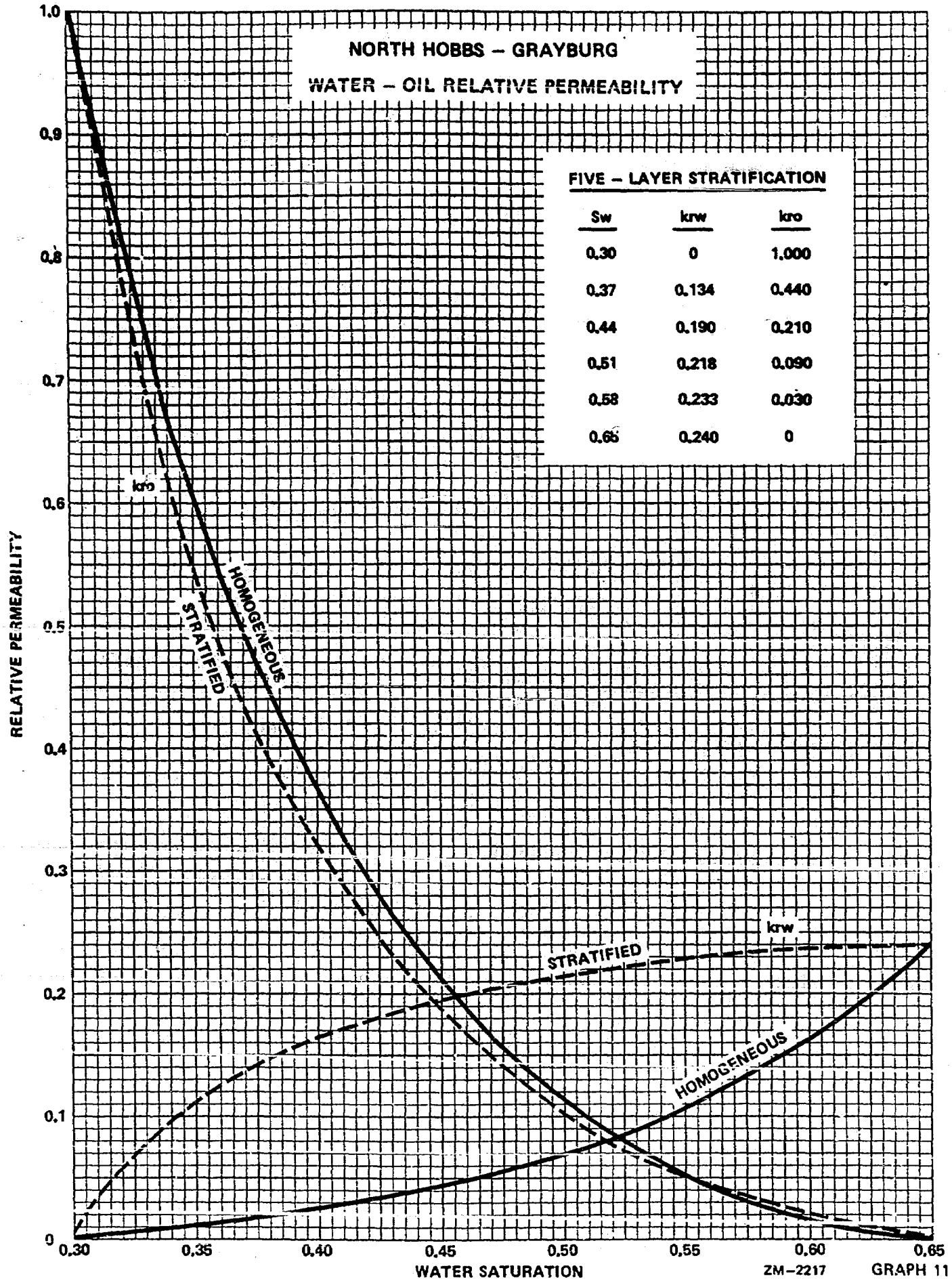


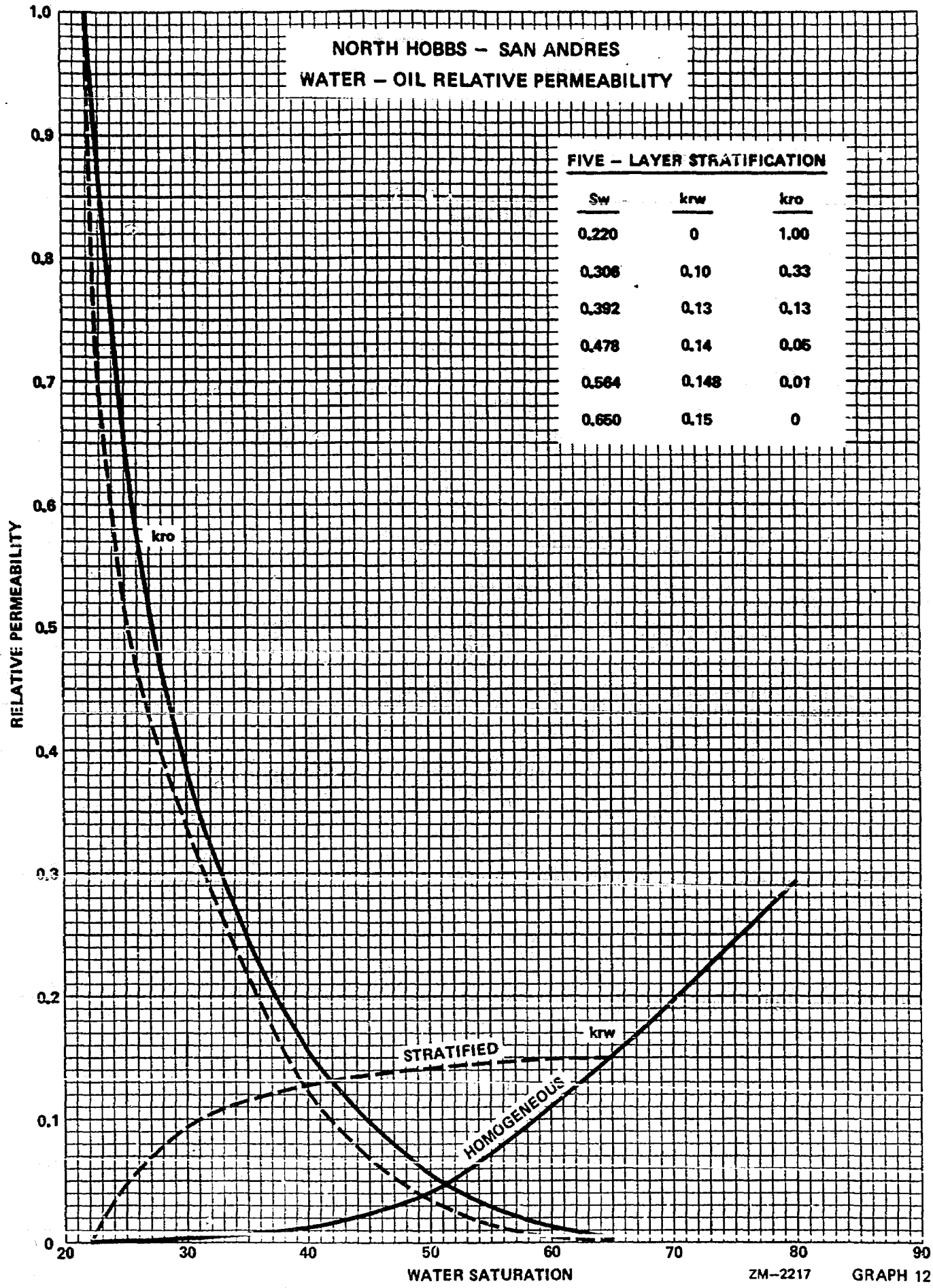
FIVE – LAYER STATIFICATION

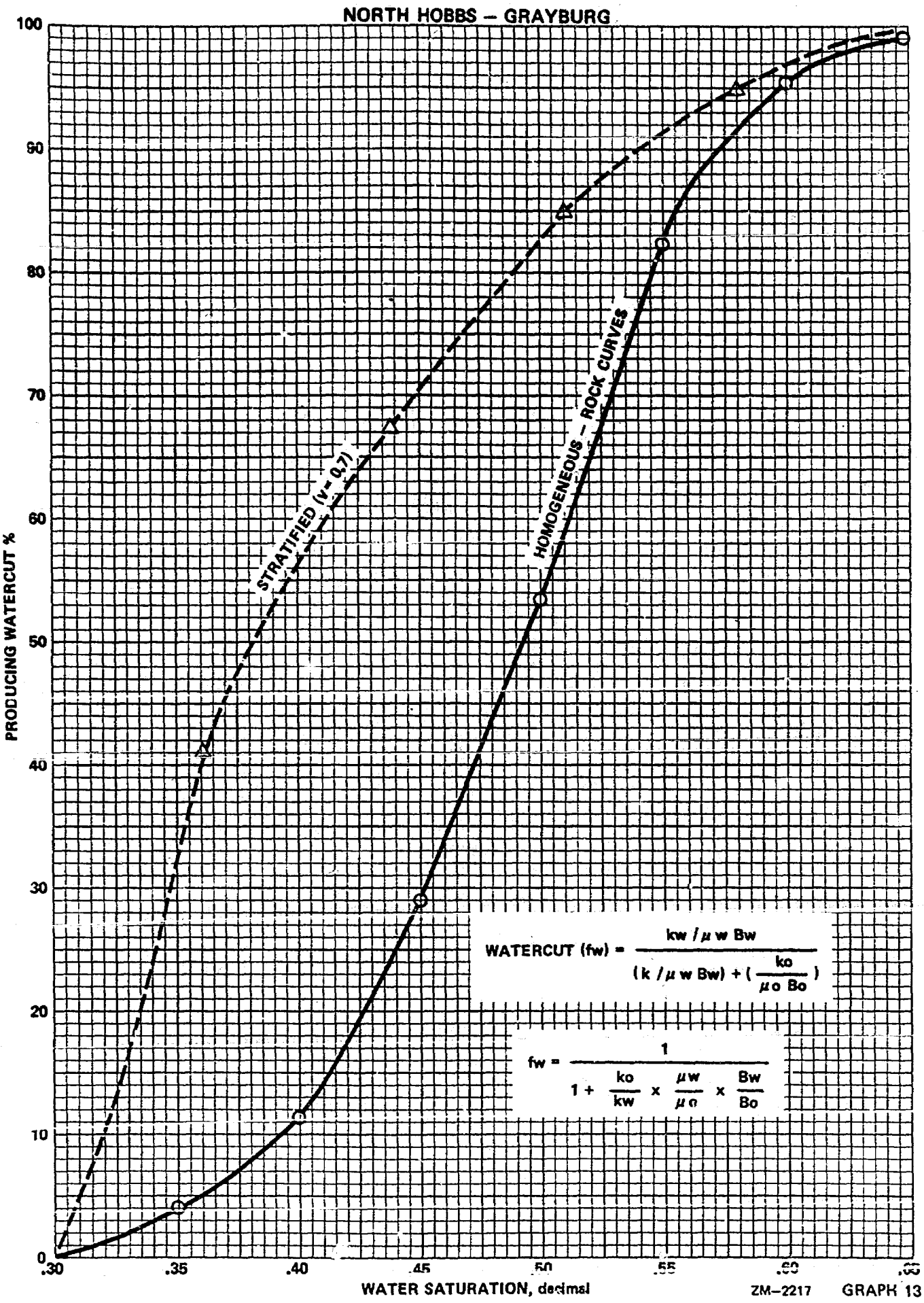
LAYER	K	FREQUENCY %	CUM
1	7.75	.67	.67
2	2.31	.20	.87
3	1.00	.08	.95
4	0.44	.04	.99
5	0.13	.01	1.00
	11.63		

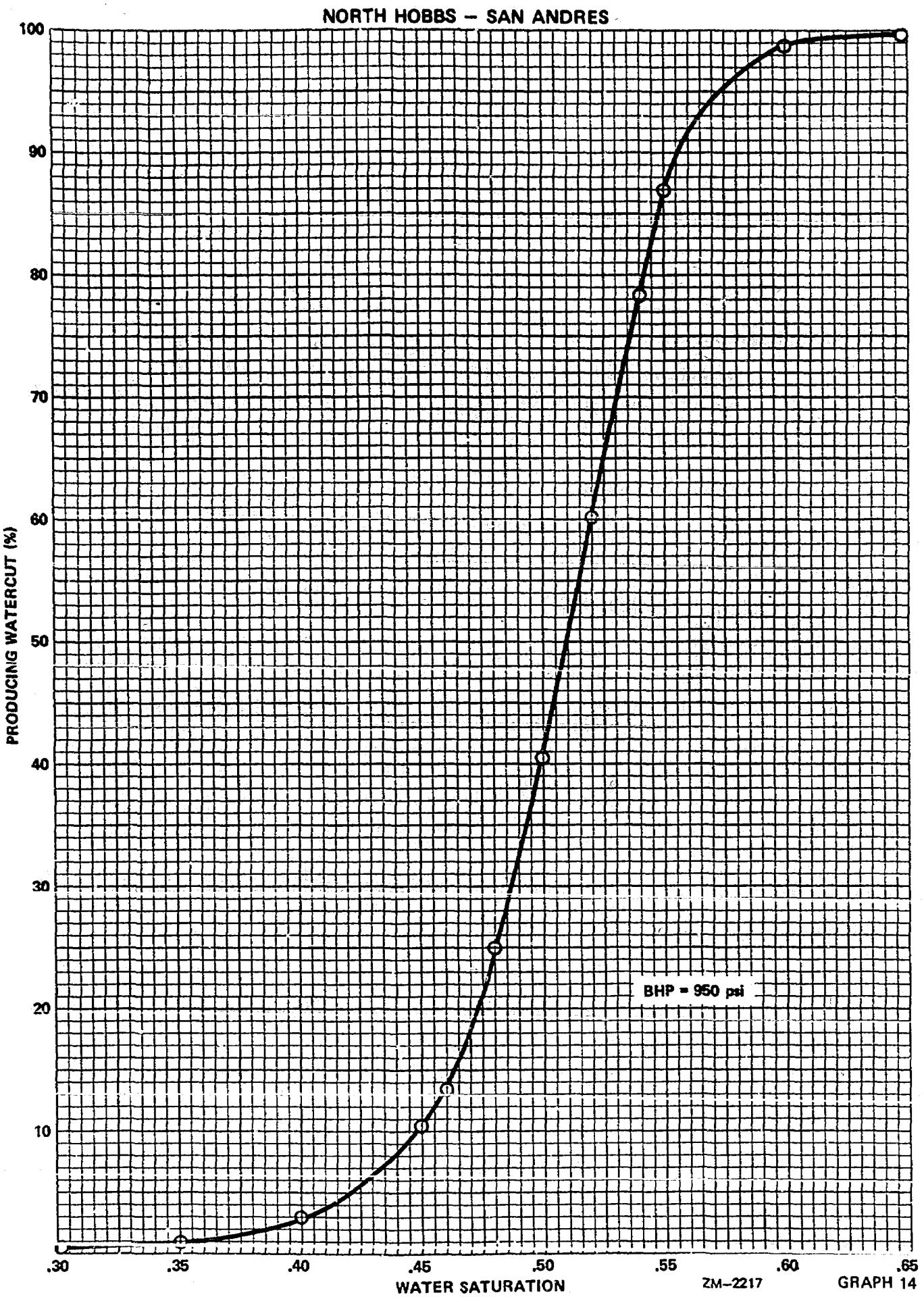
ZM–22[illegible]7

GRAPH 10


NORTH HOBBS – GRAYBURG
WATER – OIL RELATIVE PERMEABILITY
FIVE – LAYER STRATIFICATION
Sw krw kro
0.30 0 1.000
0.37 0.134 0.440
0.44 0.190 0.210
0.51 0.218 0.090
0.58 0.233 0.030
0.65 0.240 0
kro
HOMOGENEOUS
STRATIFIED
krw
STRATIFIED
HOMOGENEOUS
RELATIVE PERMEABILITY
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0.30
0.35
0.40
0.45
0.50
0.55
0.60
0.65
WATER SATURATION
ZM–2217
GRAPH 11


NORTH HOBBS – SAN ANDRES
WATER – OIL RELATIVE PERMEABILITY
FIVE – LAYER STRATIFICATION
Sw krw kro
0.220 0 1.00
0.306 0.10 0.33
0.392 0.13 0.13
0.478 0.14 0.05
0.564 0.148 0.01
0.650 0.15 0
RELATIVE PERMEABILITY
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
kro
krw
STRATIFIED
HOMOGENEOUS
20
30
40
50
60
70
80
90
WATER SATURATION
ZM–2217
GRAPH 12

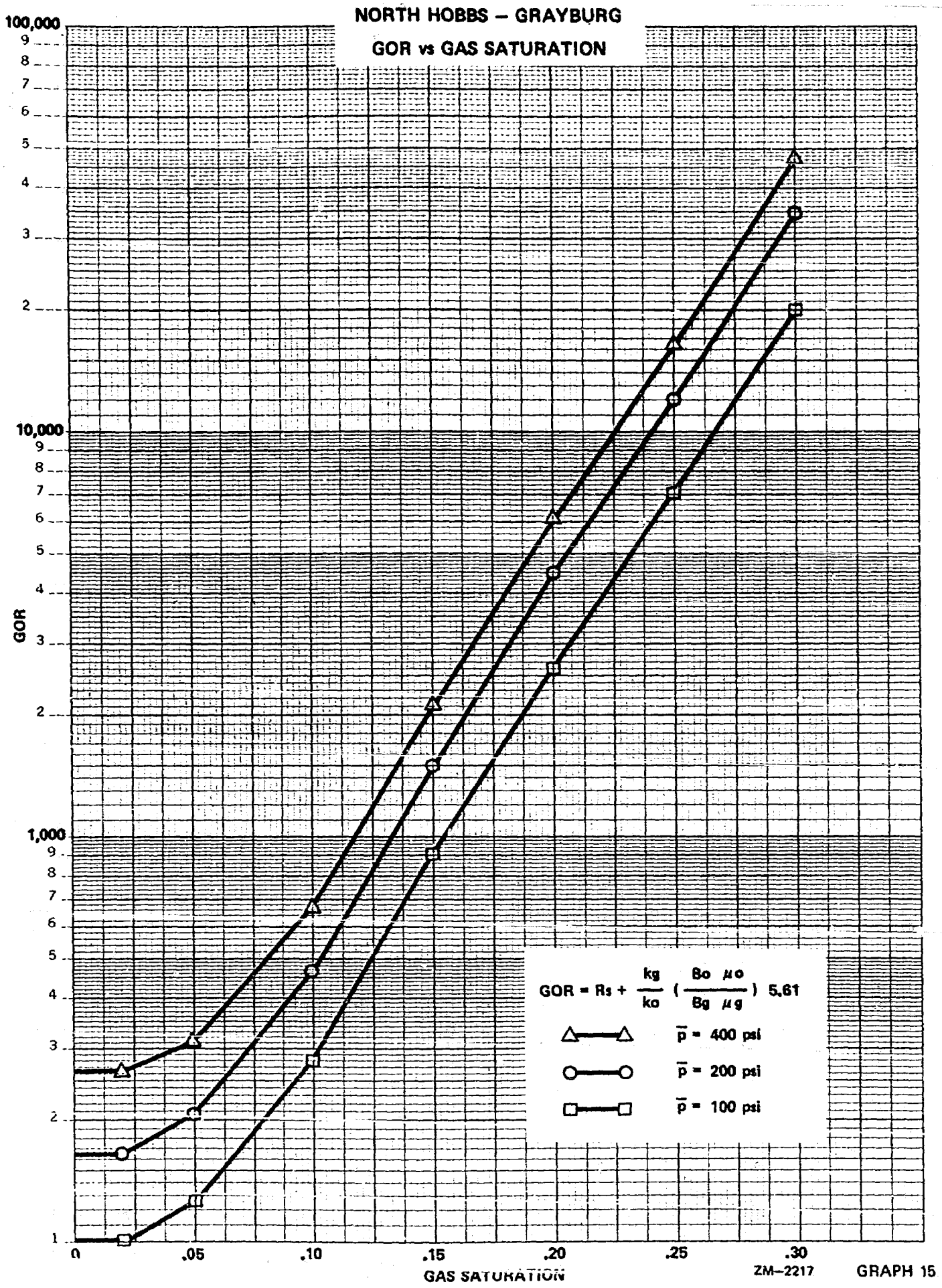

NORTH HOBBS – GRAYBURG
PRODUCING WATERCUT %
100
90
80
70
60
50
40
30
20
10
0
.30
.35
.40
.45
.50
.55
.60
.65
STRATIFIED (v = 0.7)
HOMOGENEOUS – ROCK CURVES
WATERCUT (fw) = kw / μw Bw / (k / μw Bw) + (ko / μo Bo)
fw = 1 / 1 + ko/kw x μw/μo x Bw/Bo
WATER SATURATION, decimal
ZM–2217
GRAPH 13



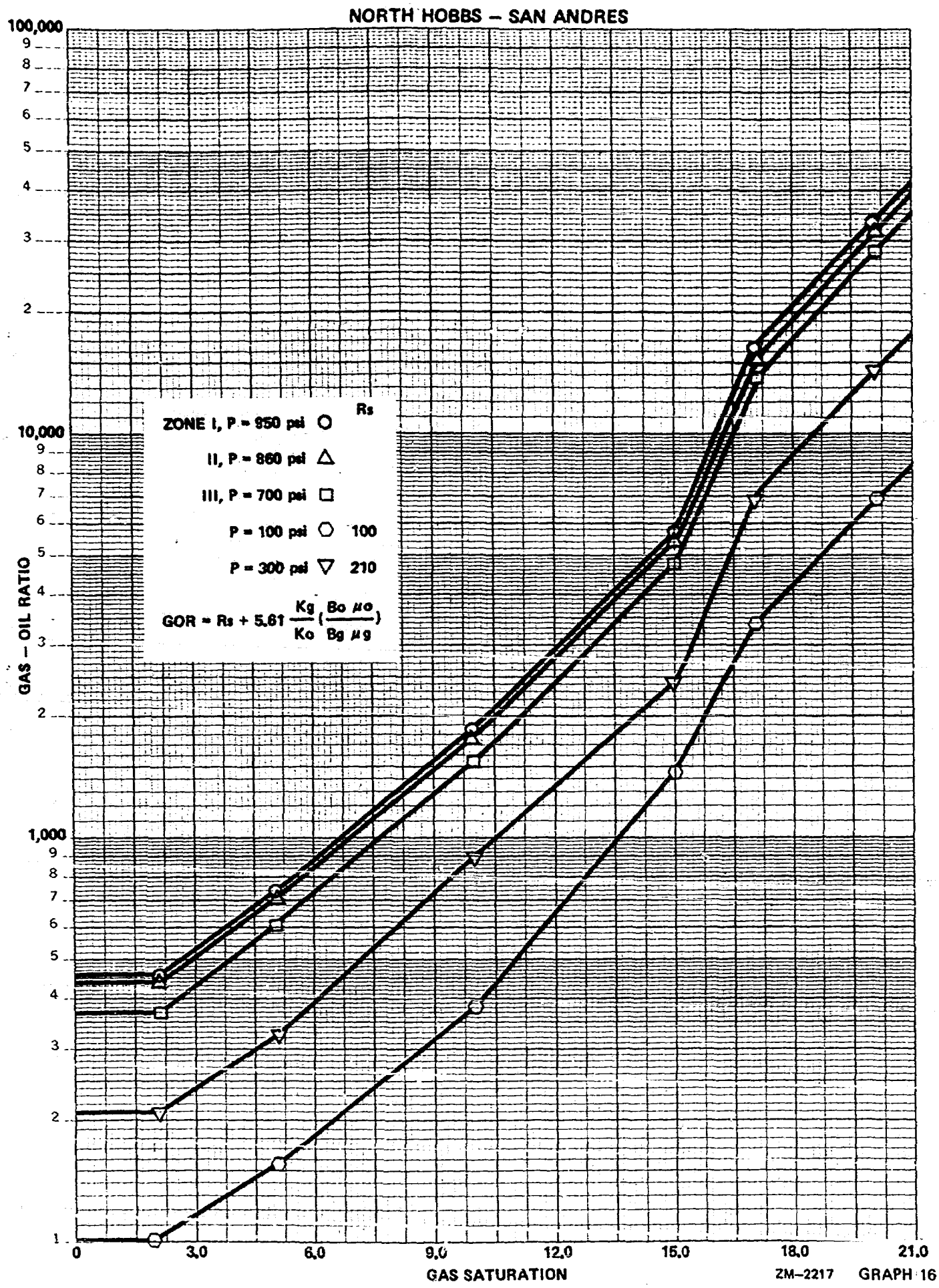
ZM–2217 GRAPH 14

NORTH HOBBS – GRAYBURG

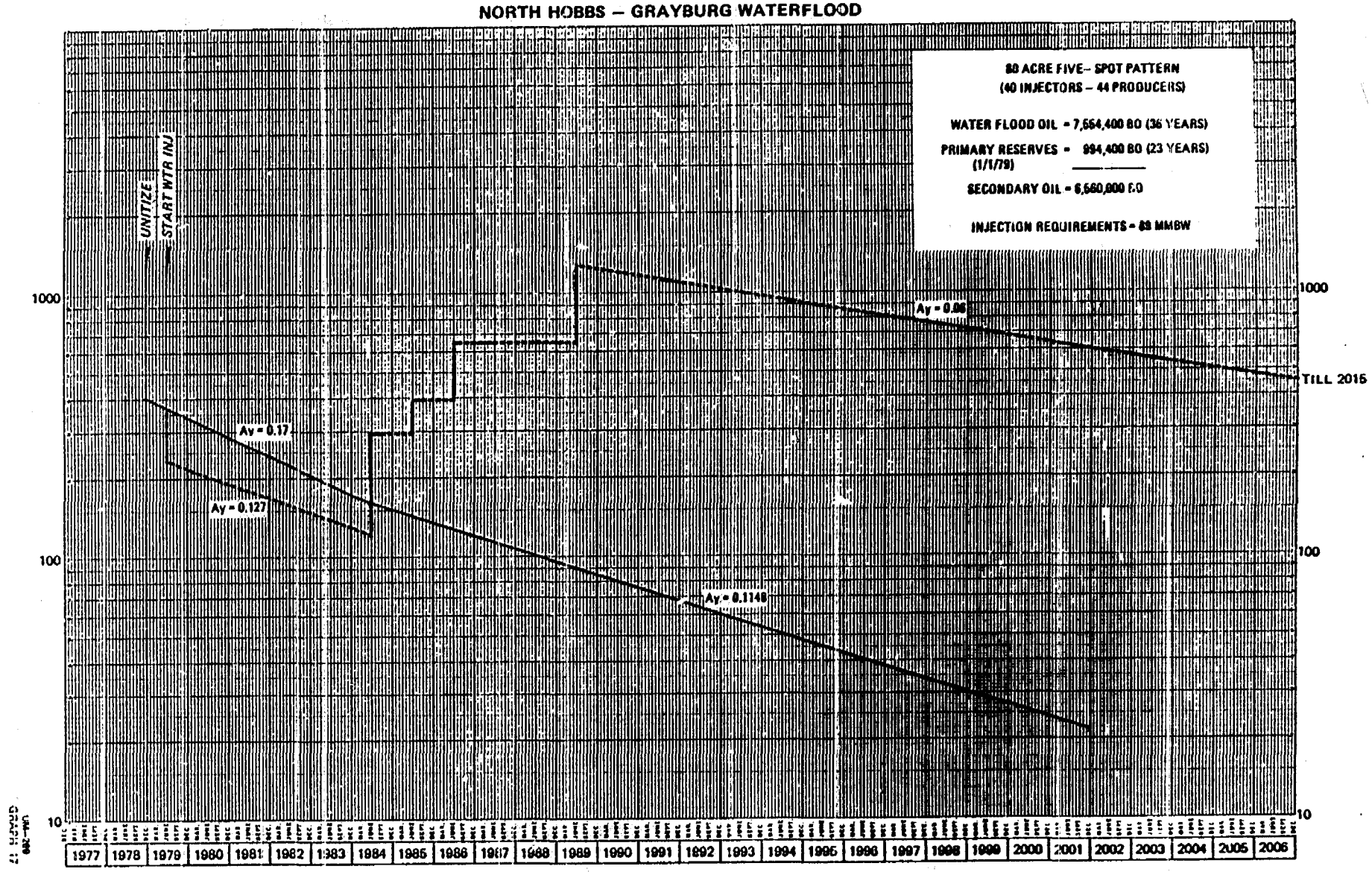
GOR vs GAS SATURATION



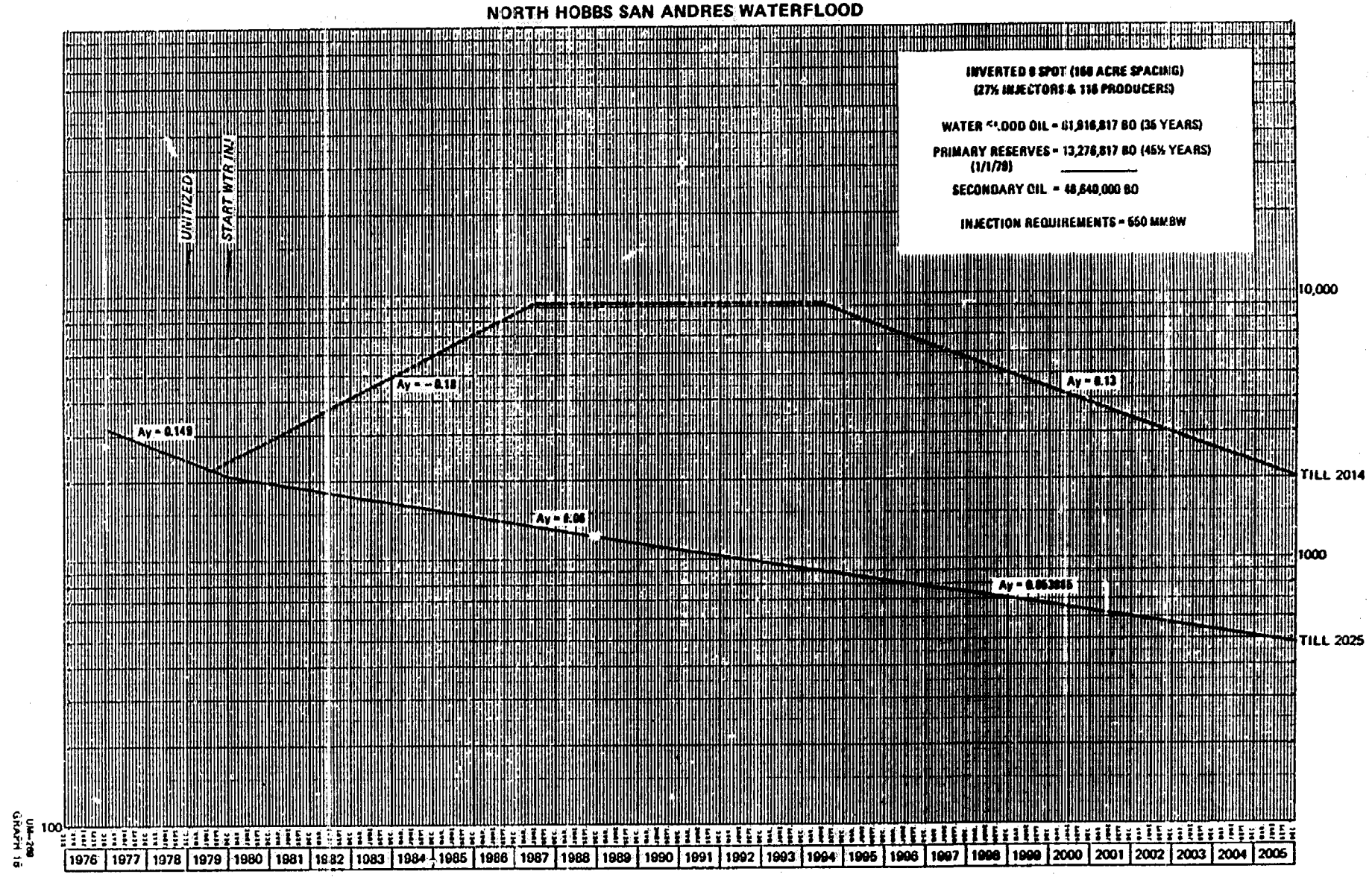
ZM–2217 GRAPH 15


NORTH HOBBS – SAN ANDRES
100,000
10,000
1,000
9
8
7
6
5
4
3
2
1
GAS – OIL RATIO
Rs
ZONE I, P = 950 psi
II, P = 860 psi
III, P = 700 psi
P = 100 psi 100
P = 300 psi 210
GOR = Rs + 5.61 Kg/Ko (Bo μo / Bg μg)
0
3.0
6.0
9.0
12.0
15.0
18.0
21.0
GAS SATURATION
ZM–2217 GRAPH 16

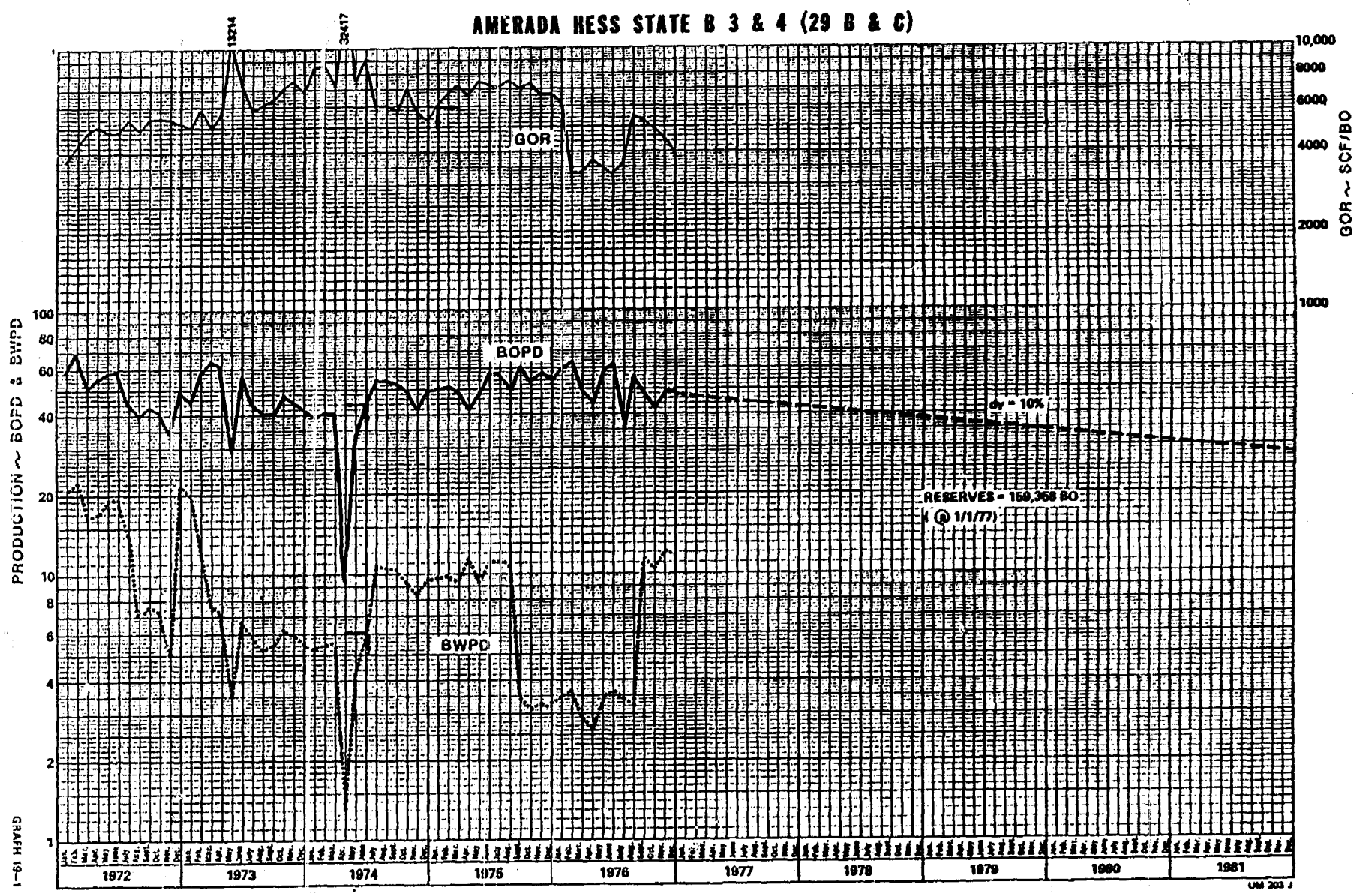
NORTH HOBBS – GRAYBURG WATERFLOOD



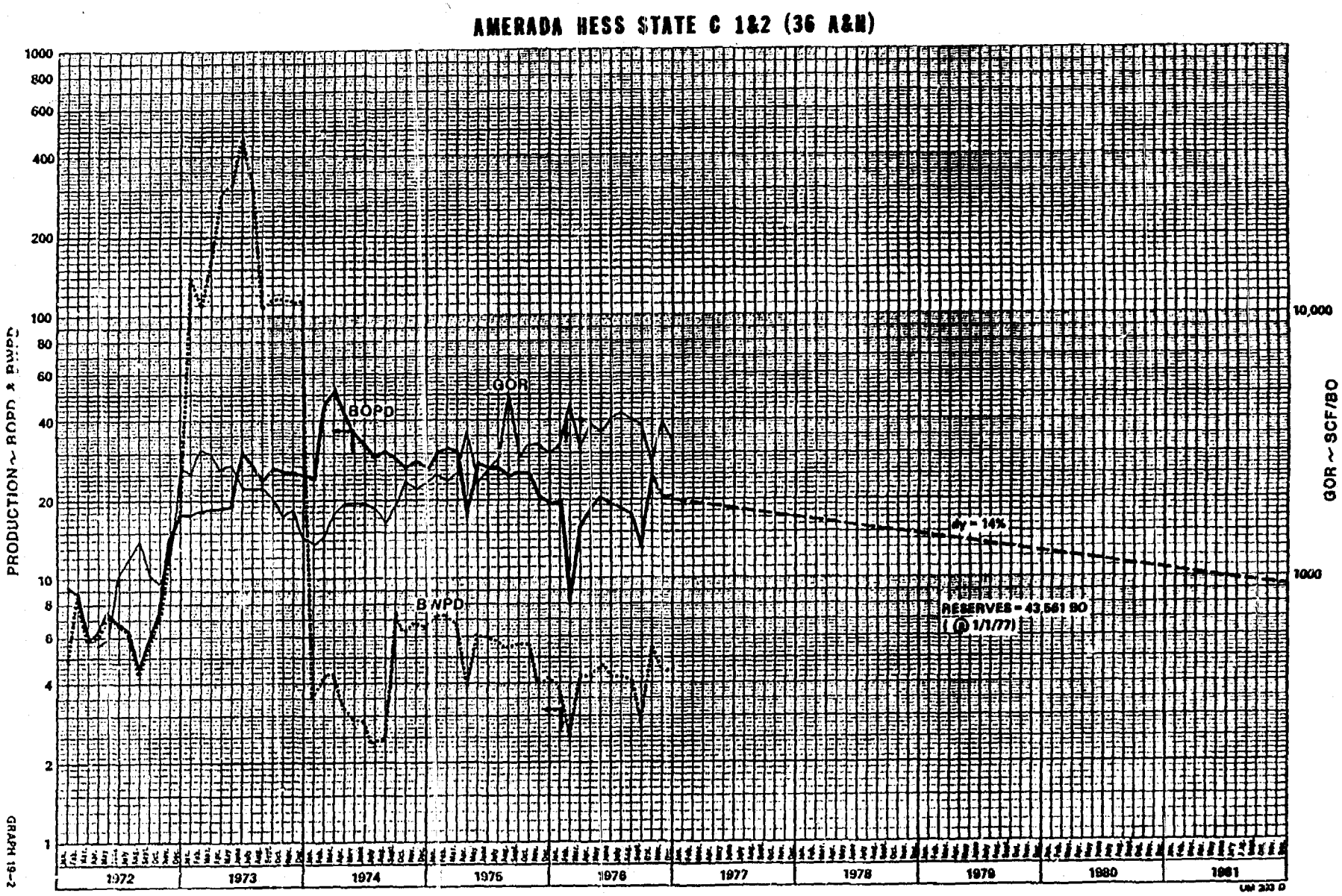
NORTH HOBBS SAN ANDRES WATERFLOOD



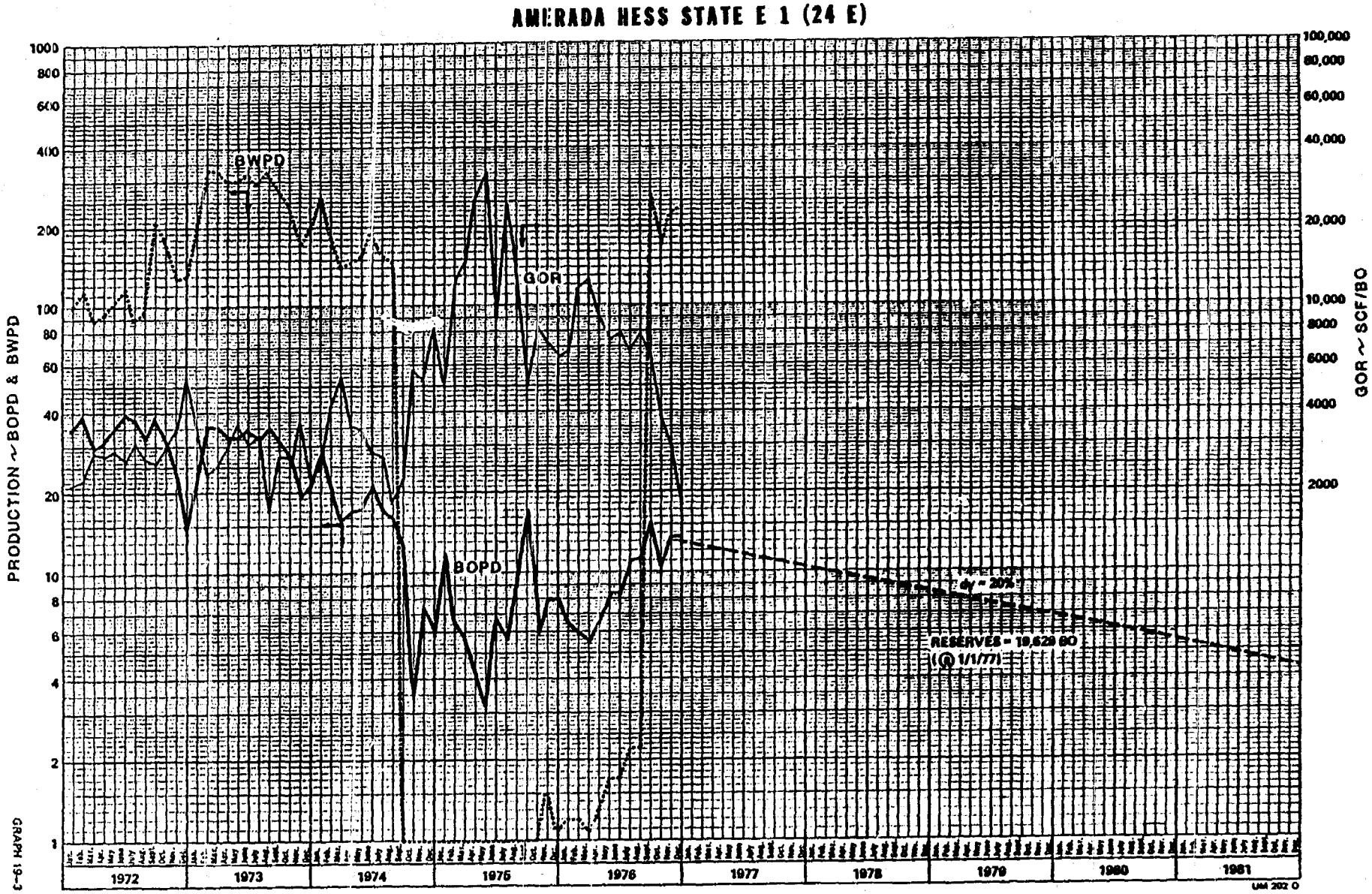
UM-208
GRAPH 15


AMERADA HESS STATE B 3 & 4 (29 B & C)
13214
32417
GOR
BOPD
BWPD
dy = 10%
RESERVES = 159,358 BO
(@ 1/1/77)
PRODUCTION ~ BOPD & BWPD
GOR ~ SCF/BO
10,000
8000
6000
4000
2000
1000
100
80
60
40
20
10
8
6
4
2
1
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
UM 203 J

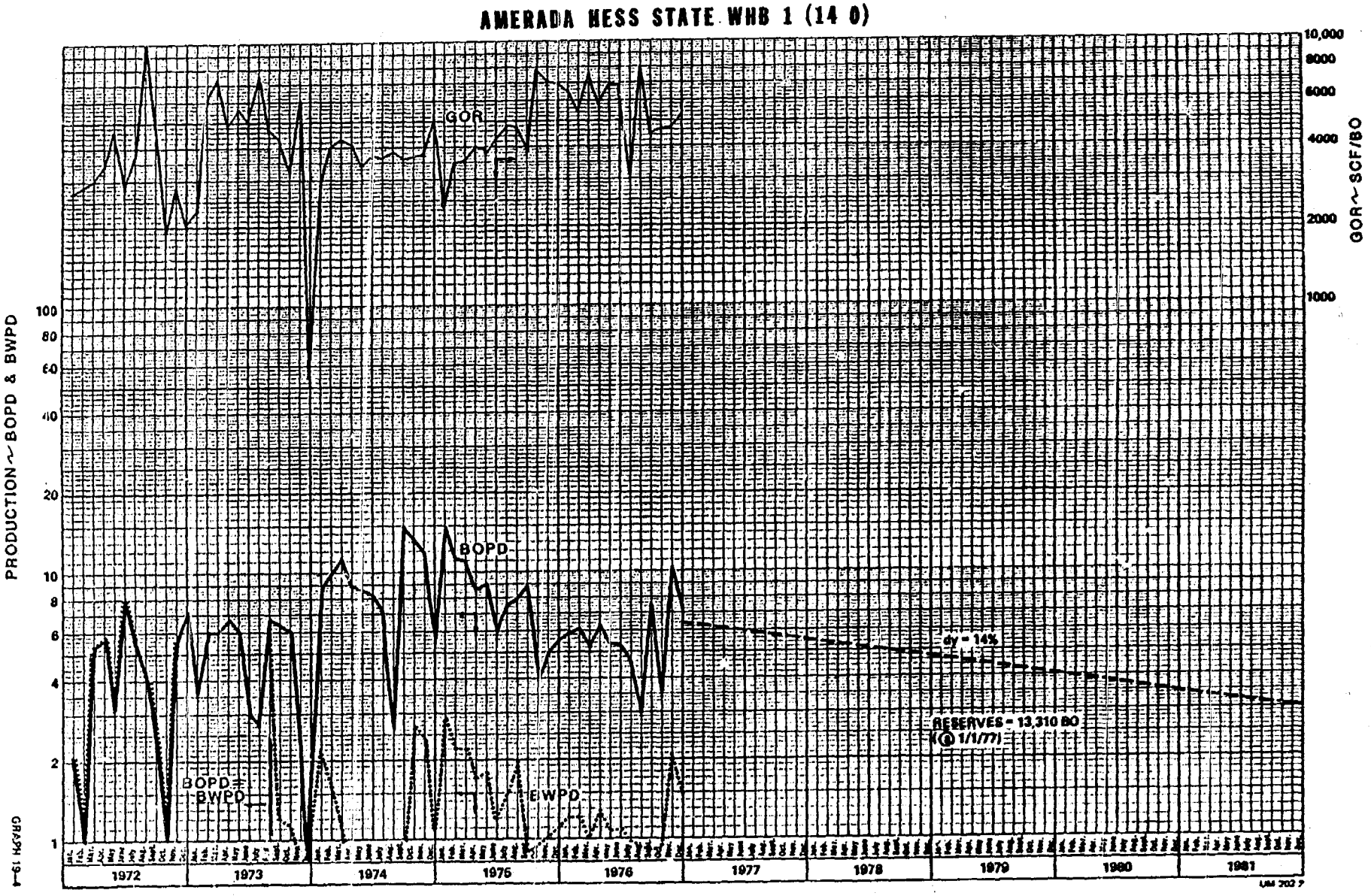
GRAPH 19-1

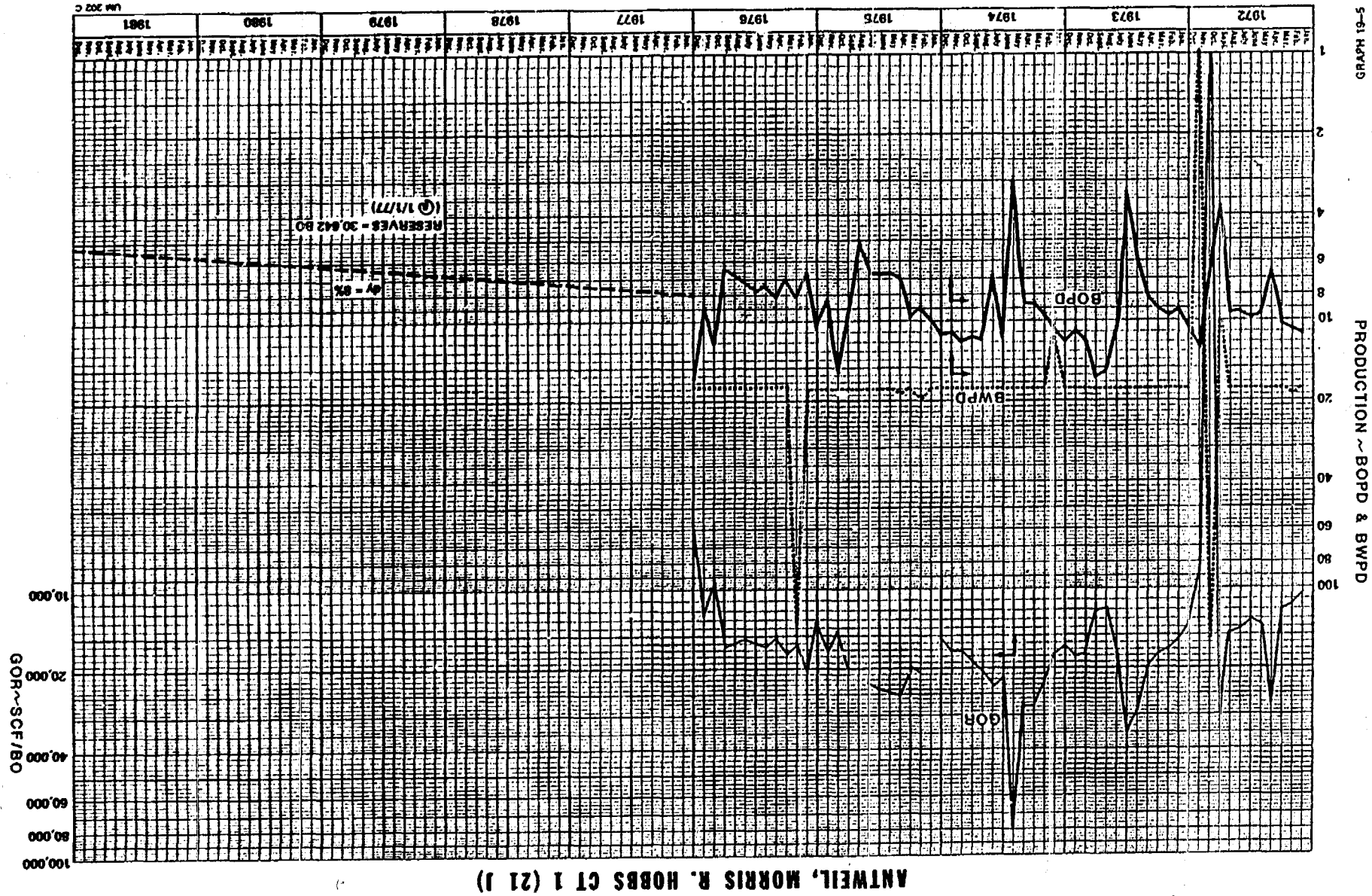

AMERADA HESS STATE C 1&2 (36 A&N)
PRODUCTION ~ BOPD & BWPD
GOR ~ SCF/BO
1000
800
600
400
200
100
80
60
40
20
10
8
6
4
2
1
10,000
1000
BOPD
GOR
BWPD
dy = 14%
RESERVES = 43,561 BO
(@ 1/1/77)
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981

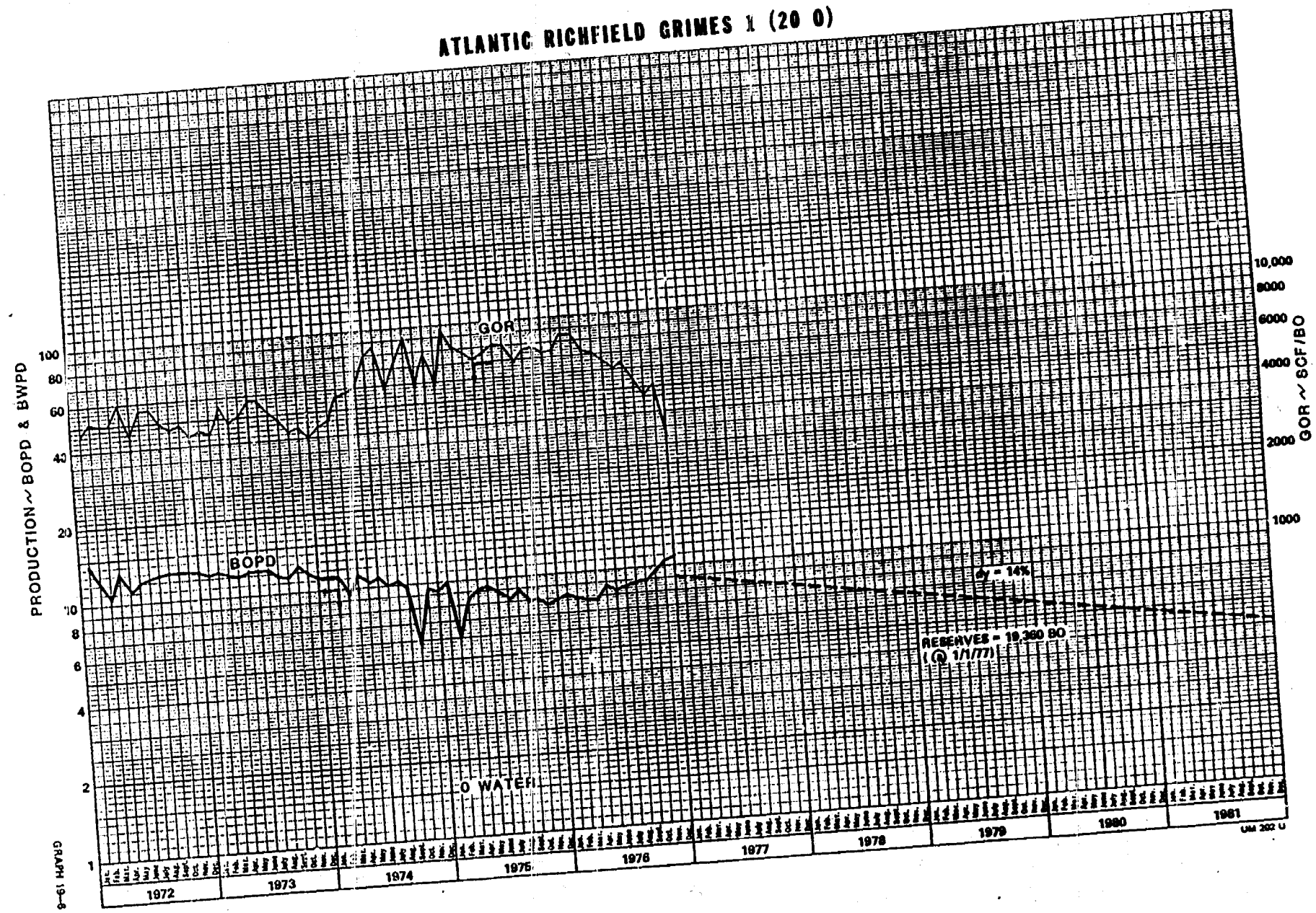
AMERADA HESS STATE E 1 (24 E)

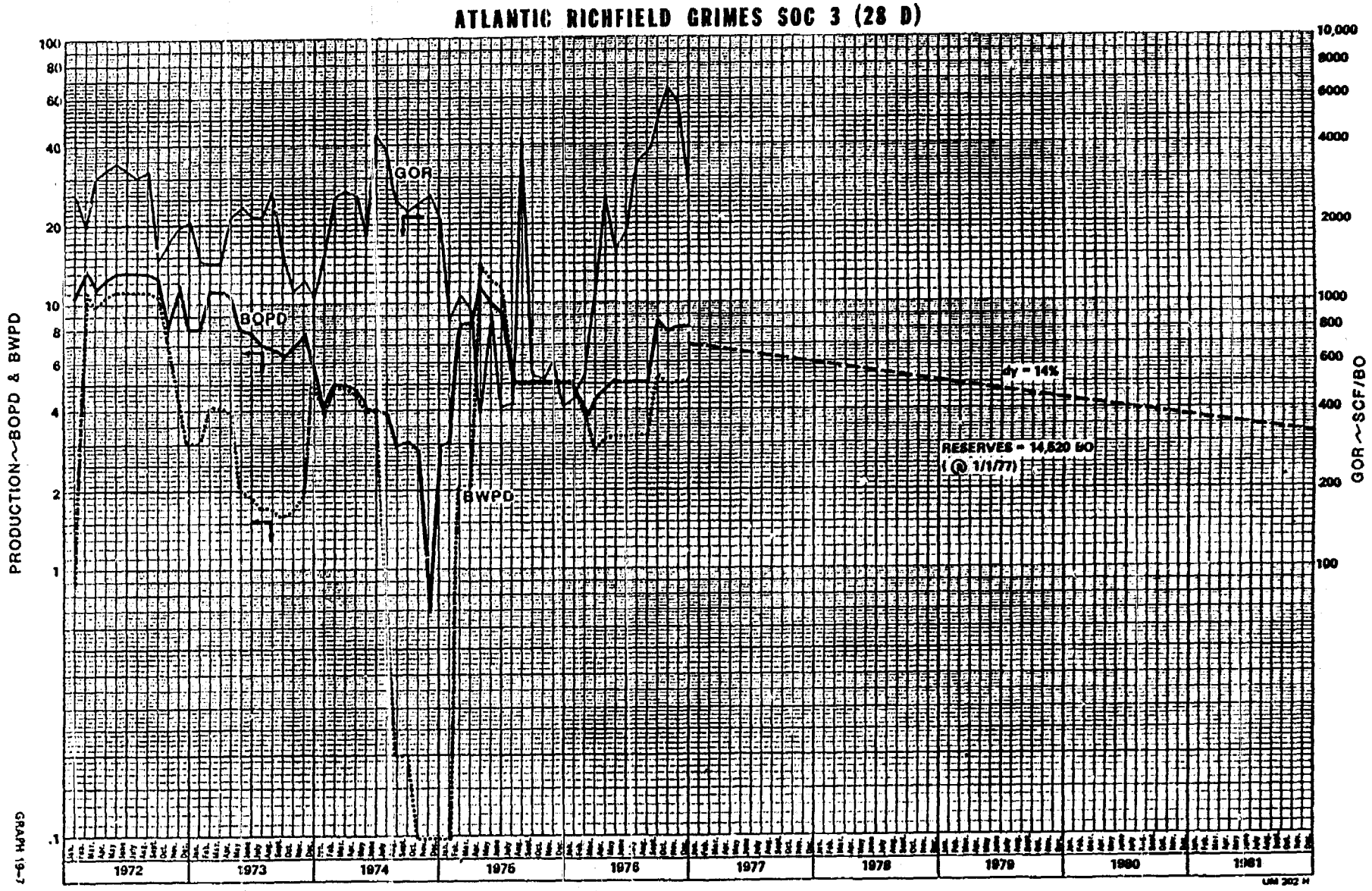


GRAPH 19-3


AMERADA HESS STATE WHB 1 (14 0)
GOR
BOPD
BOPD = BWPD
EWPD
dy = 14%
RESERVES = 13,310 BO
(@ 1/1/77)
PRODUCTION ~ BOPD & BWPD
GOR ~ SCF/BO
10,000
8000
6000
4000
2000
1000
100
80
60
40
20
10
8
6
4
2
1
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981

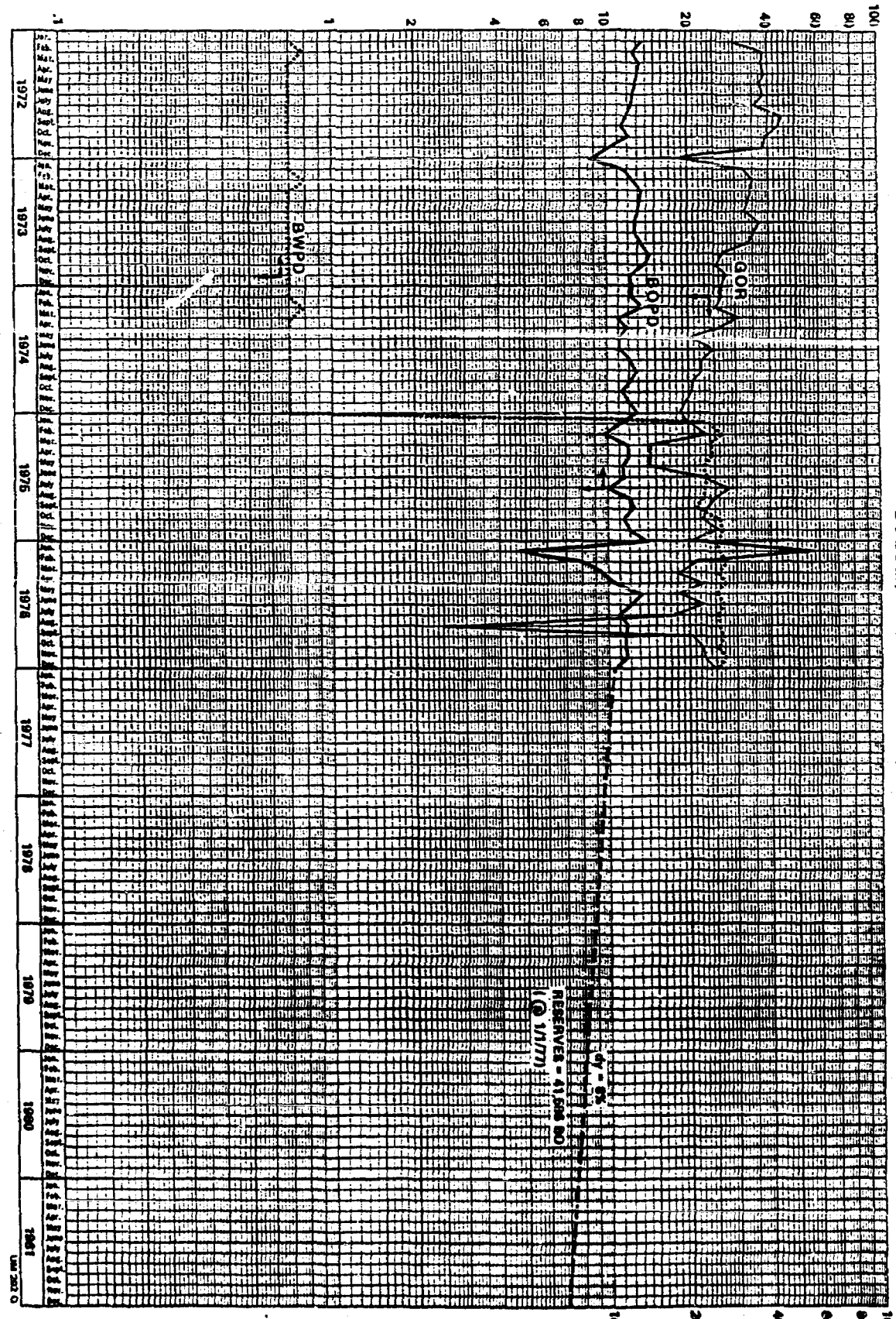

ANTWEIL, MORRIS R. HOBBS CT 1 (21 J)
GRAPH 5-6-1
PRODUCTION ~ BOPD & BWPD
GOR~SCF/BO
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
BOPD
BWPD
GOR
dy - 8%
RESERVES - 30,642 BO
(@ 1/1/77)
1
2
4
6
8
10
20
40
60
80
100
10,000
20,000
40,000
60,000
80,000
100,000


ATLANTIC RICHFIELD GRIMES 1 (20 0)
PRODUCTION ~ BOPD & BWPD
GOR ~ SCF/BO
GOR
BOPD
0 WATER
dy = 14%
RESERVES = 19,360 BO
(@ 1/1/77)
100
80
60
40
20
10
8
6
4
2
1
10,000
8000
6000
4000
2000
1000
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
GRAPH 19-6

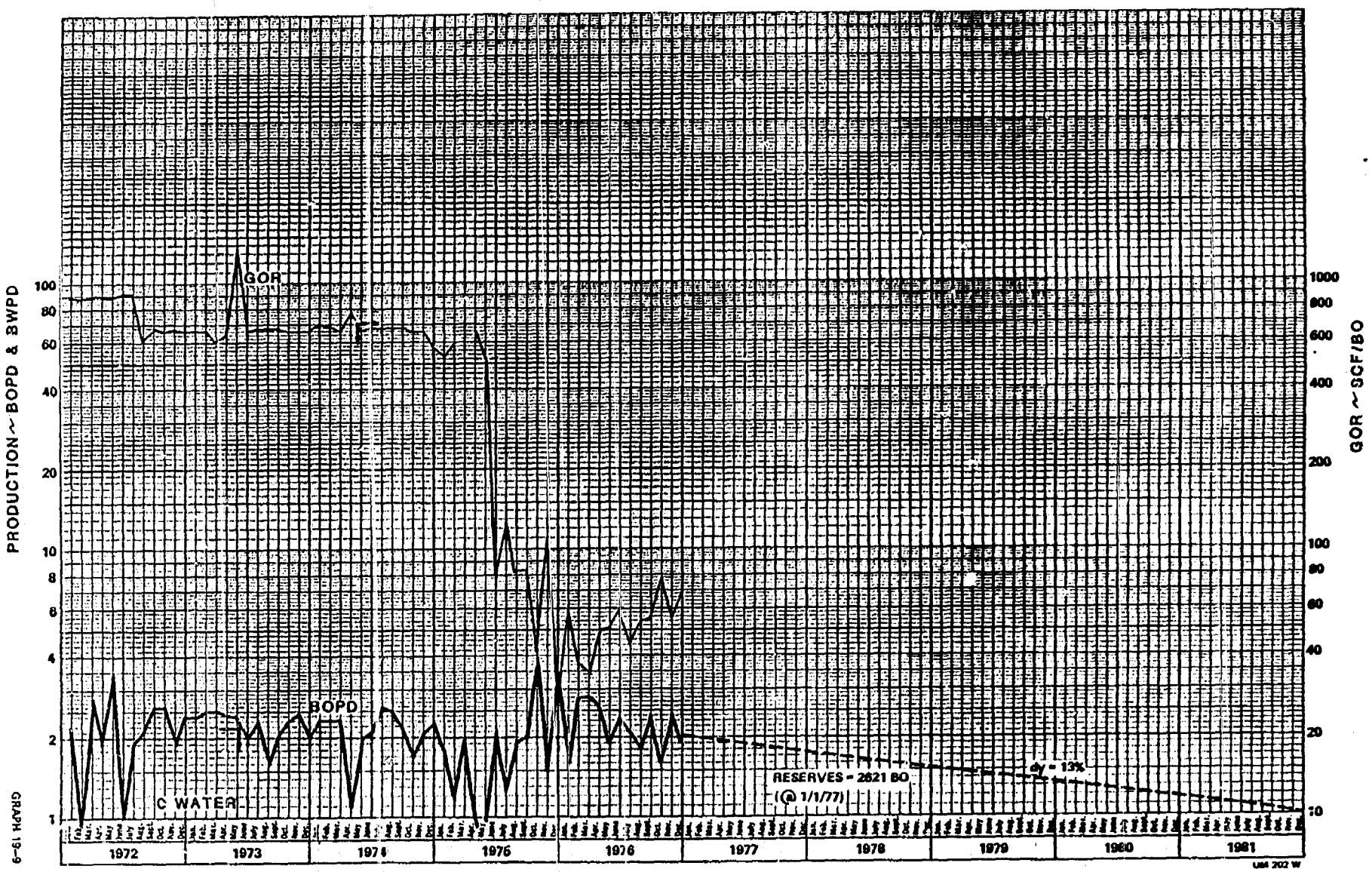

ATLANTIC RICHFIELD GRIMES SOC 3 (28 D)
PRODUCTION~BOPD & BWPD
GOR~SCF/BO
GOR
BOPD
BWPD
dy = 14%
RESERVES = 14,520 BO
(@ 1/1/77)
100
80
60
40
20
10
8
6
4
2
1
.1
10,000
8000
6000
4000
2000
1000
800
600
400
200
100
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
GRAPH 19-7

GRAPH 19-8

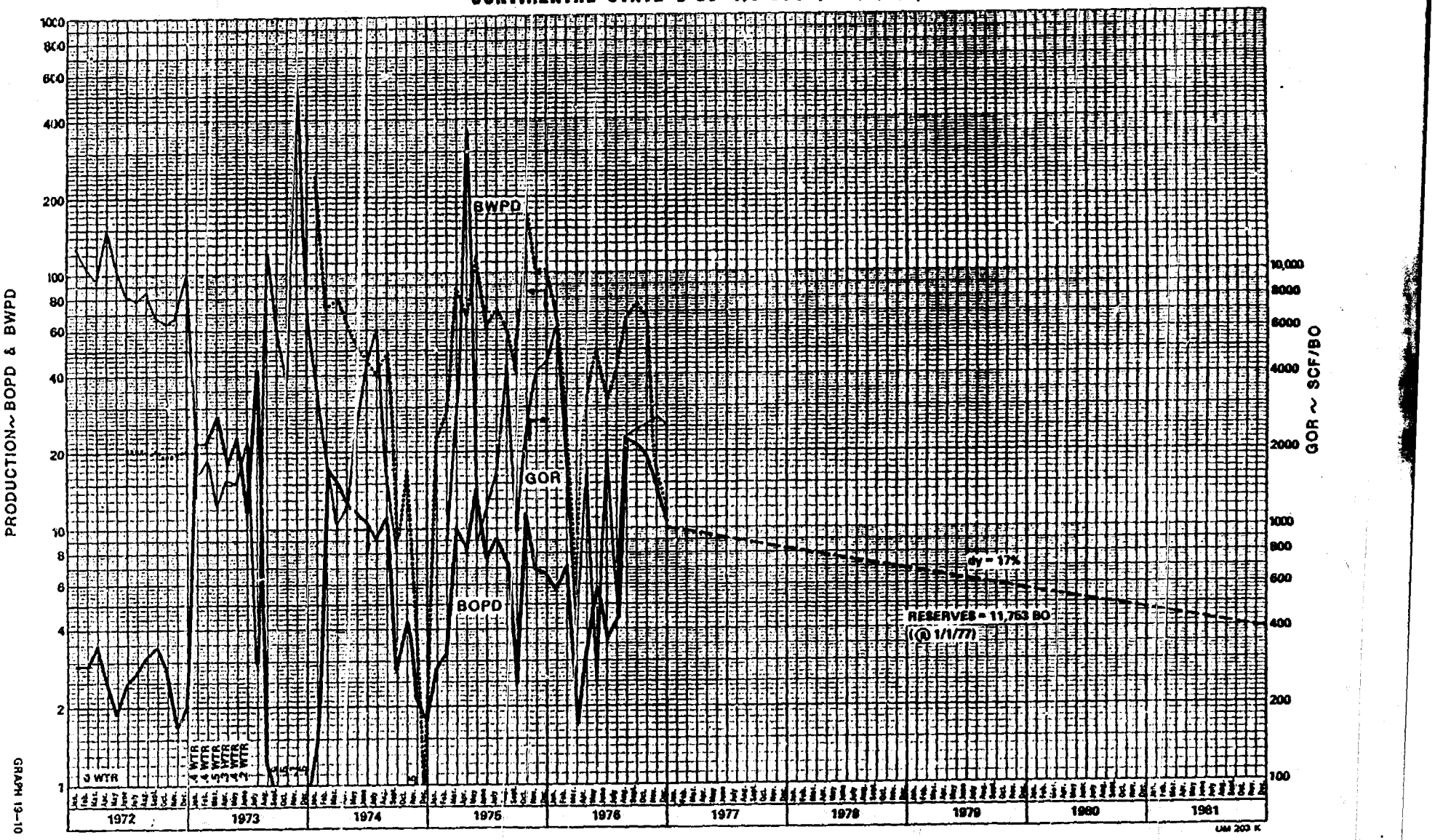
PRODUCTION ~ BOPD & BWPD



BYROM, W.K. HOLT 1 (36 B)

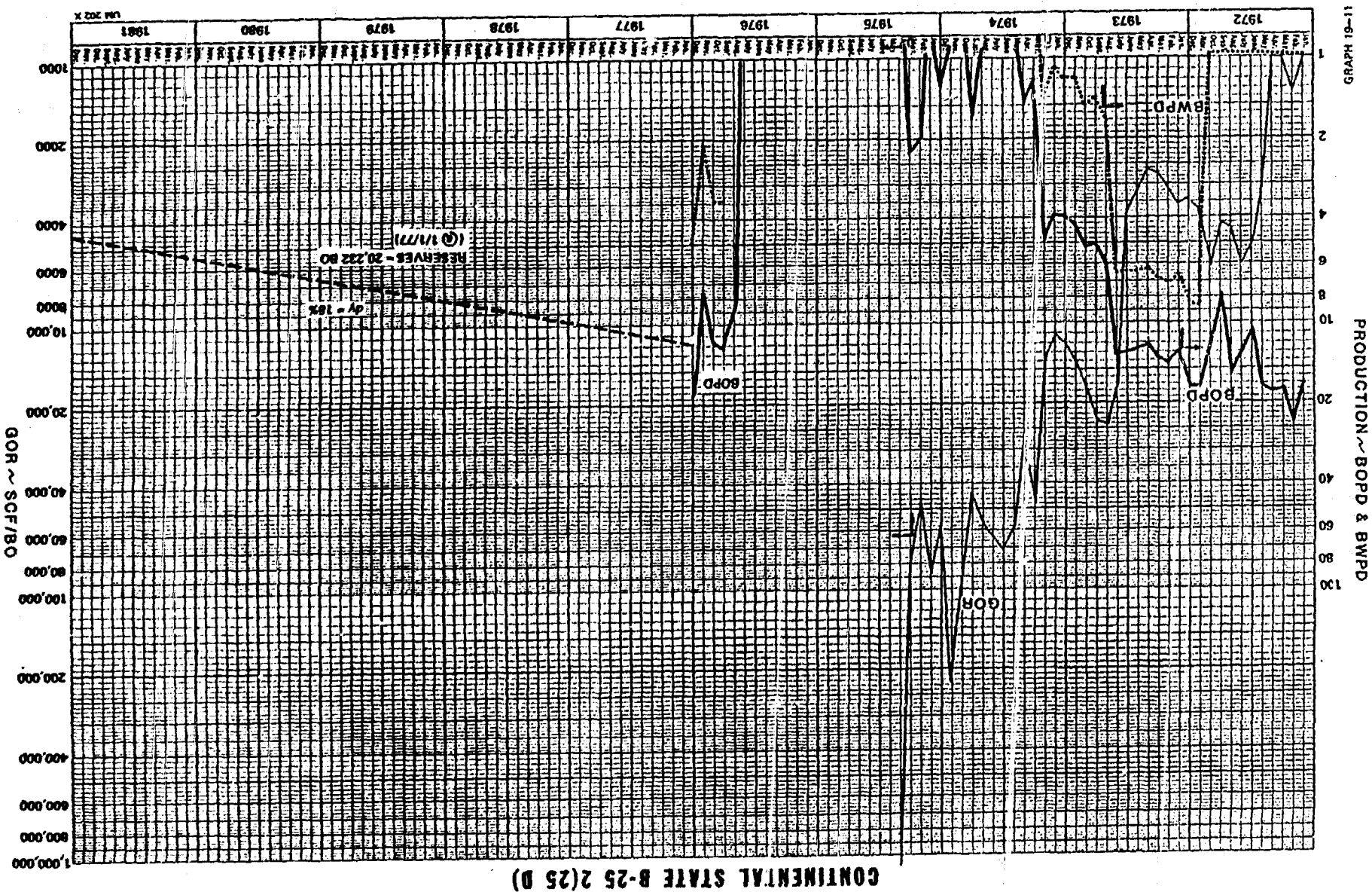

C AND C OPERATING SHIPP A 1 (23 E)
PRODUCTION ~ BOPD & BWPD
GOR ~ SCF/BO
GOR
BOPD
C WATER
RESERVES = 2621 BO
(@ 1/1/77)
dy = 13%
100
80
60
40
20
10
8
6
4
2
1
1000
800
600
400
200
100
80
60
40
20
10
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
GRAPH 19-9
UM 202 W

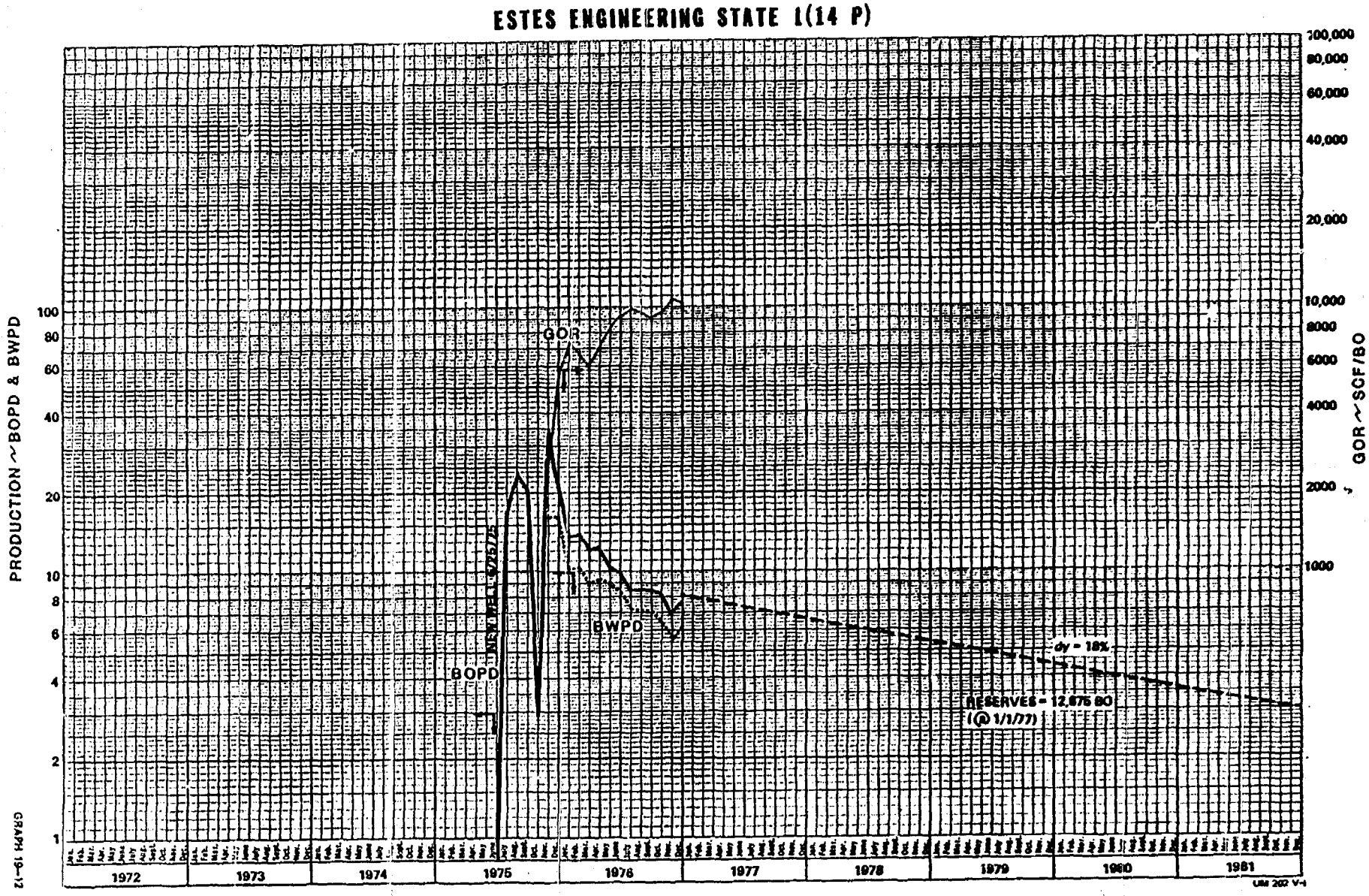
CONTINENTAL STATE B-13 4,5 6&7 (13F,E,C,L)

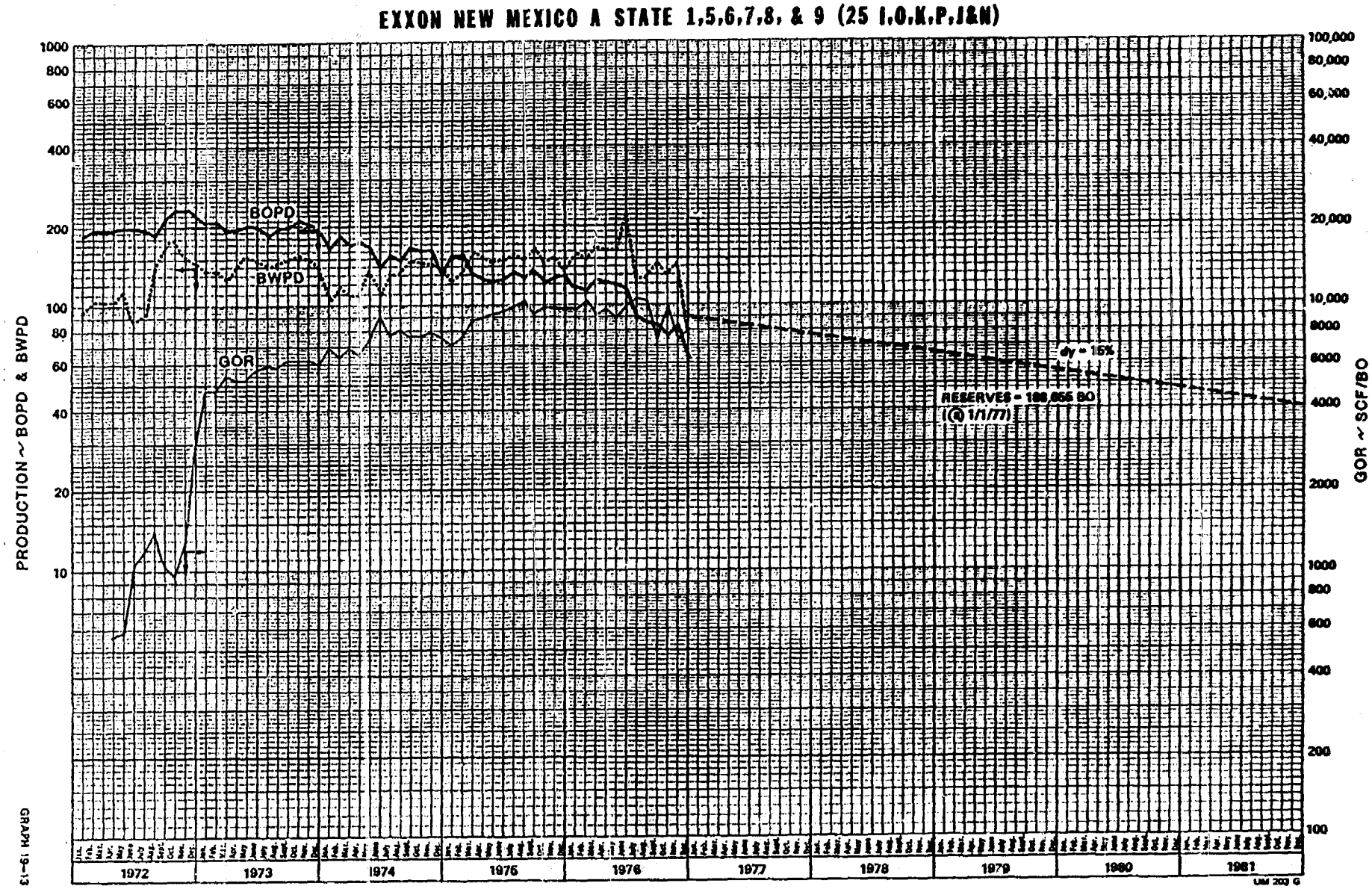


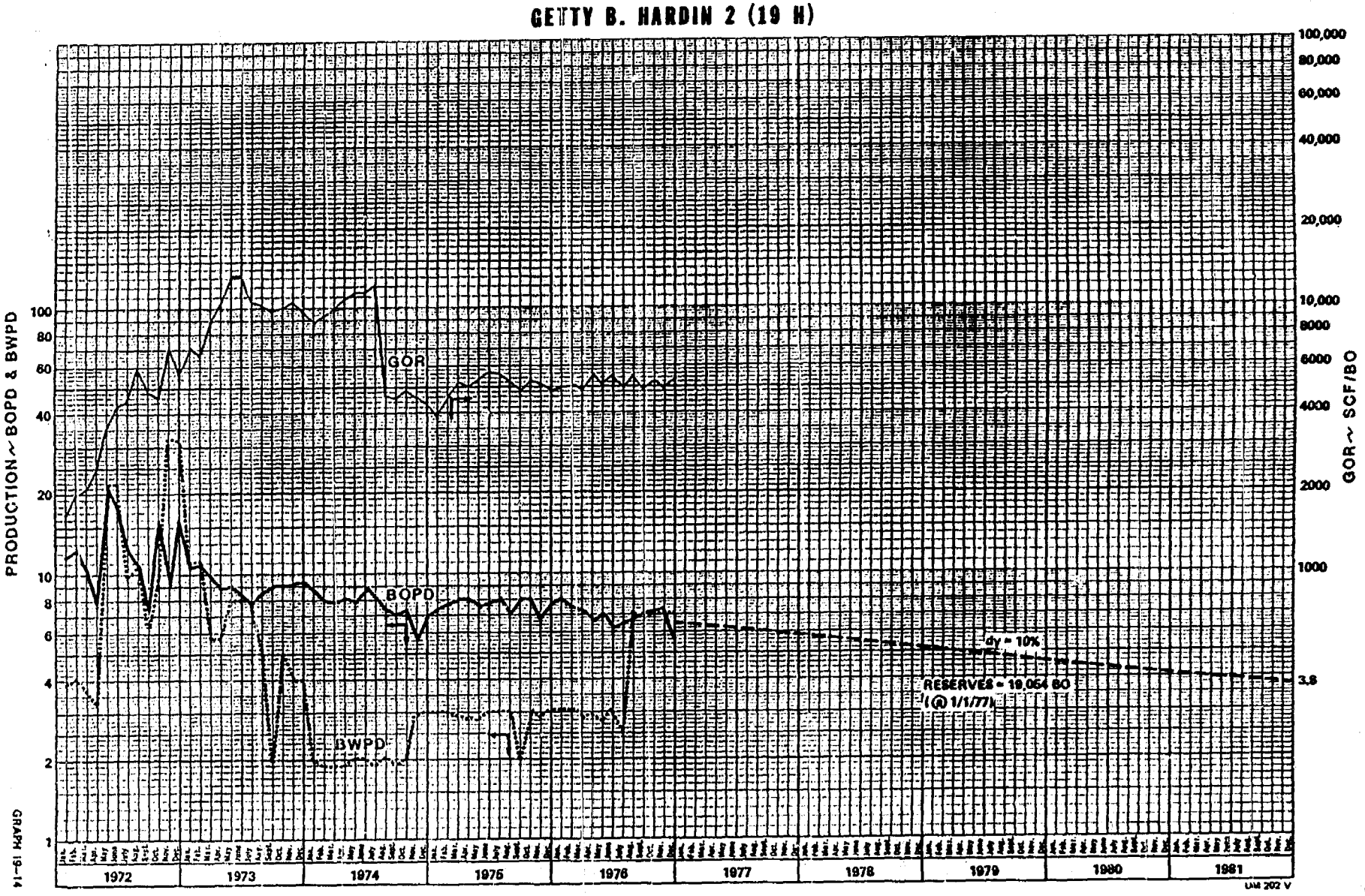
GRAPH 19-10

GRAPH 19-11

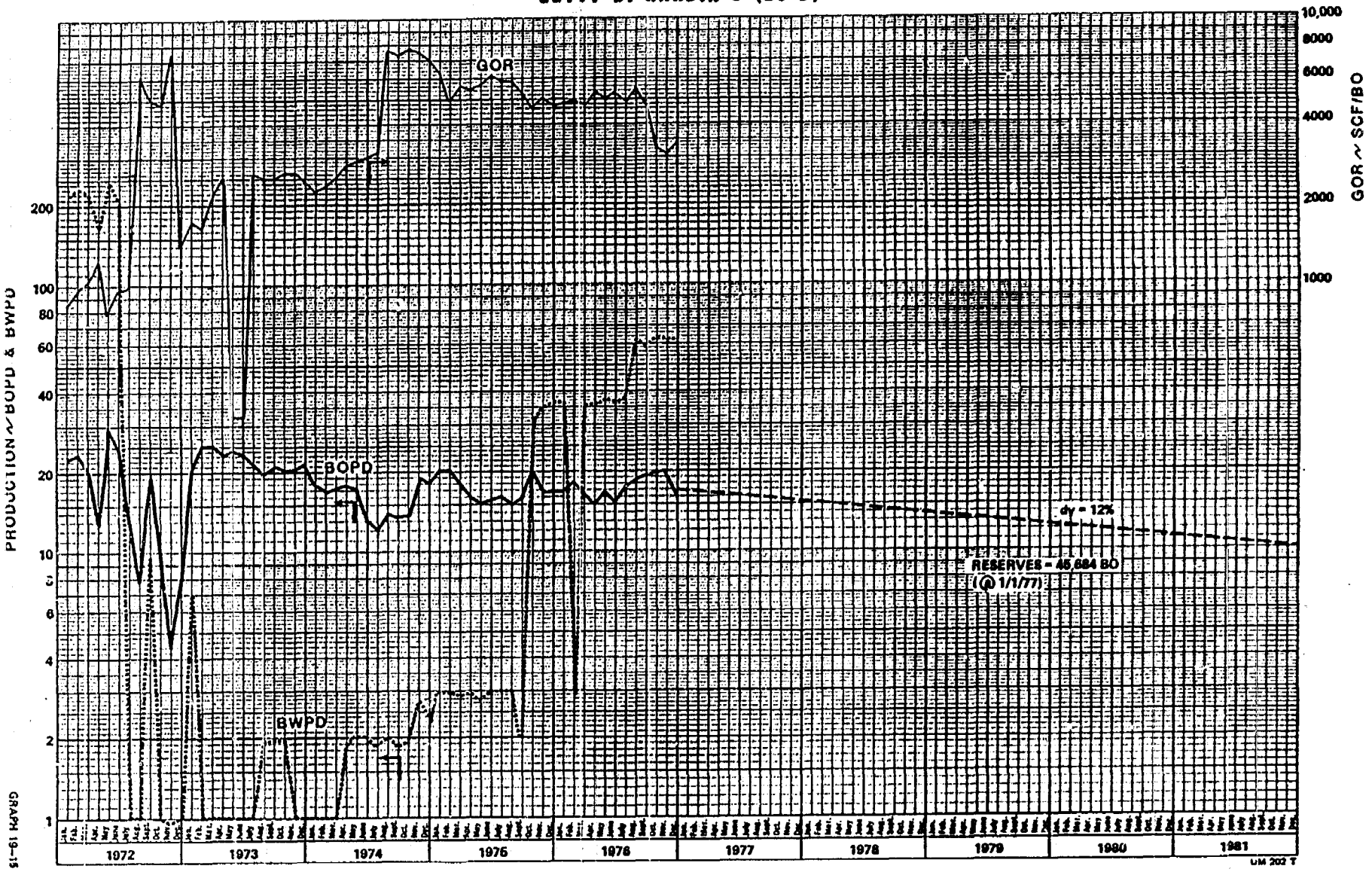

GOR ~ SCF/BO
PRODUCTION ~ BOPD & BWPD
1000
2000
4000
6000
8000
10,000
20,000
40,000
60,000
80,000
100,000
200,000
400,000
600,000
800,000
1,000,000
1
2
4
6
8
10
20
40
60
80
100
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
BWPD
BOPD
GOR
GOR
RESERVES - 20,232 BO
(@ 1/1/77)
dy - 18%
CONTINENTAL STATE B-25 2(25 D)


ESTES ENGINEERING STATE L(14 P)
PRODUCTION ~ BOPD & BWPD
GOR ~ SCF/BO
100
80
60
40
20
10
8
6
4
2
1
100,000
80,000
60,000
40,000
20,000
10,000
8000
6000
4000
2000
1000
GOR
NEW WELL 07/75
BOPD
BWPD
dy = 18%
RESERVES = 12,675 BO
(@ 1/1/77)
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
GRAPH 19-12


EXXON NEW MEXICO A STATE 1,5,6,7,8, & 9 (25 I.O.K.P.J&N)
PRODUCTION ~ BOPD & BWPD
GOR ~ SCF/BO
BOPD
BWPD
GOR
dy = 15%
RESERVES = 188,856 BO
(@ 1/1/77)
1000
800
600
400
200
100
80
60
40
20
10
100,000
80,000
60,000
40,000
20,000
10,000
8000
6000
4000
2000
1000
800
600
400
200
100
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
GRAPH 19-13
UM 203 G


GETTY B. HARDIN 2 (19 H)
PRODUCTION ~ BOPD & BWPD
GOR ~ SCF/BO
100
80
60
40
20
10
8
6
4
2
1
100,000
80,000
60,000
40,000
20,000
10,000
8000
6000
4000
2000
1000
3.8
GOR
BOPD
BWPD
dy = 10%
RESERVES = 19,054 BO
(@ 1/1/77)
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
GRAPH 19-14
UM 202 V

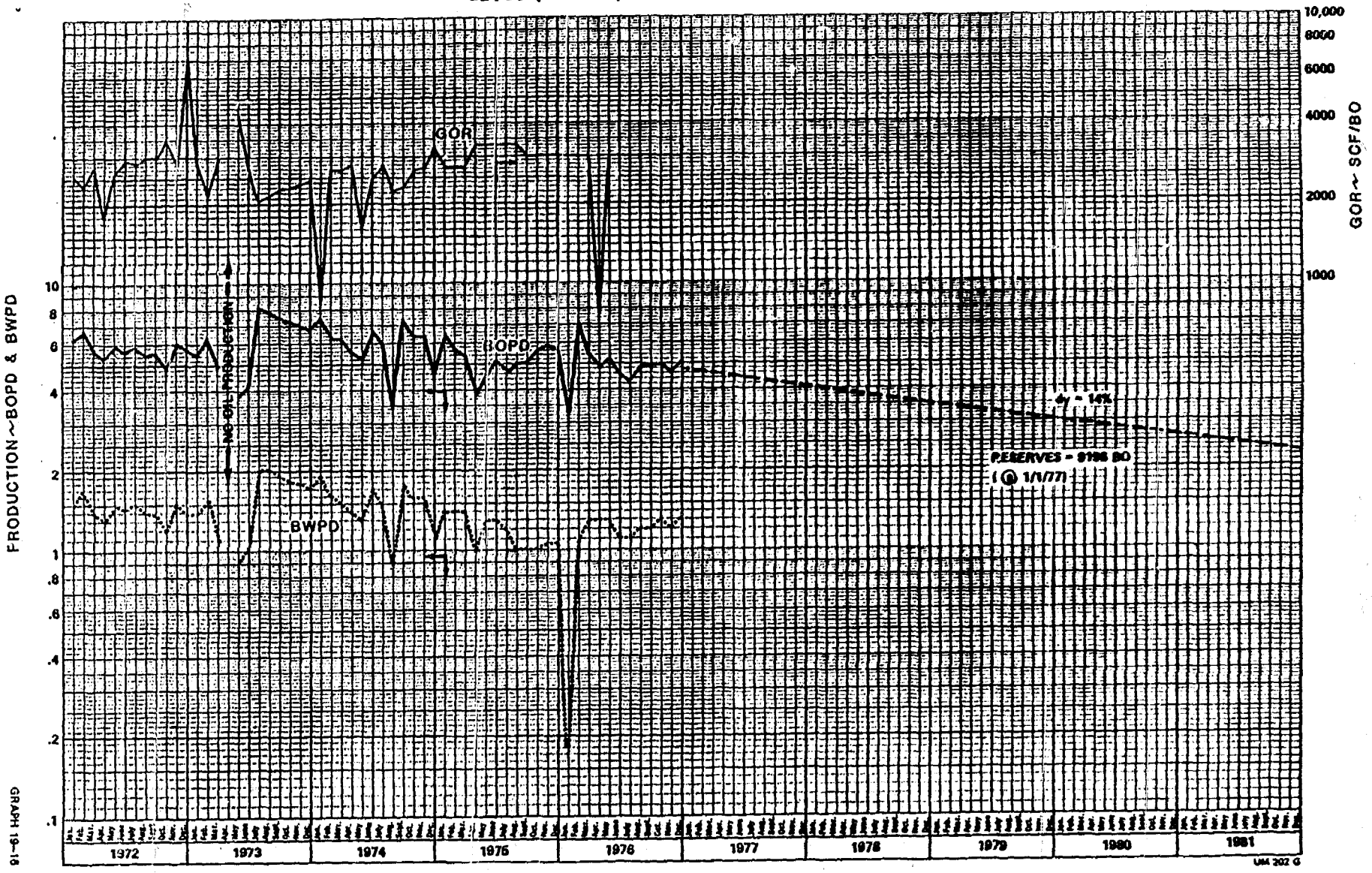
GETTY B. HARDIN 3 (19 B)



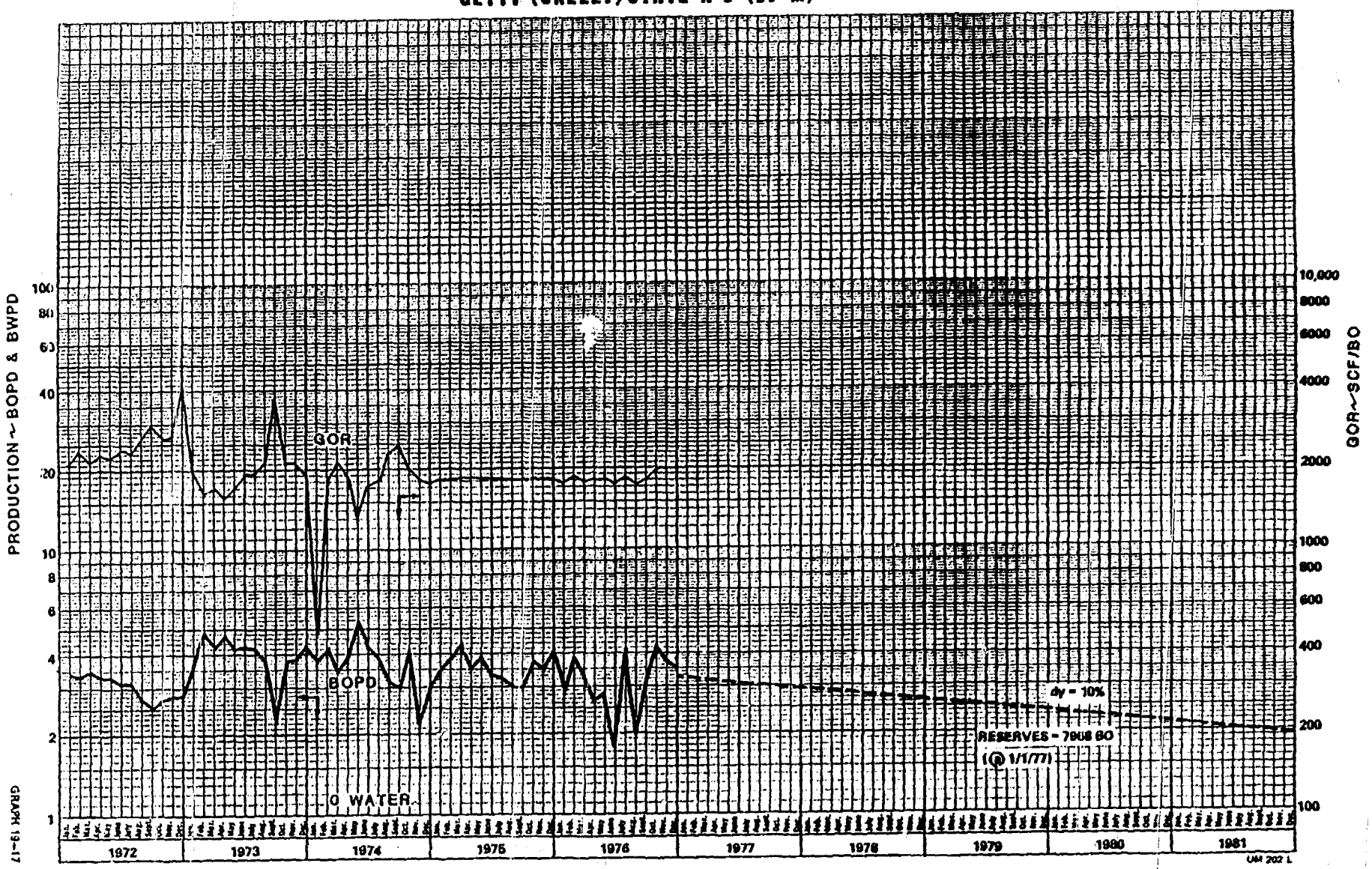
GRAPH 19-15

LM 202 T

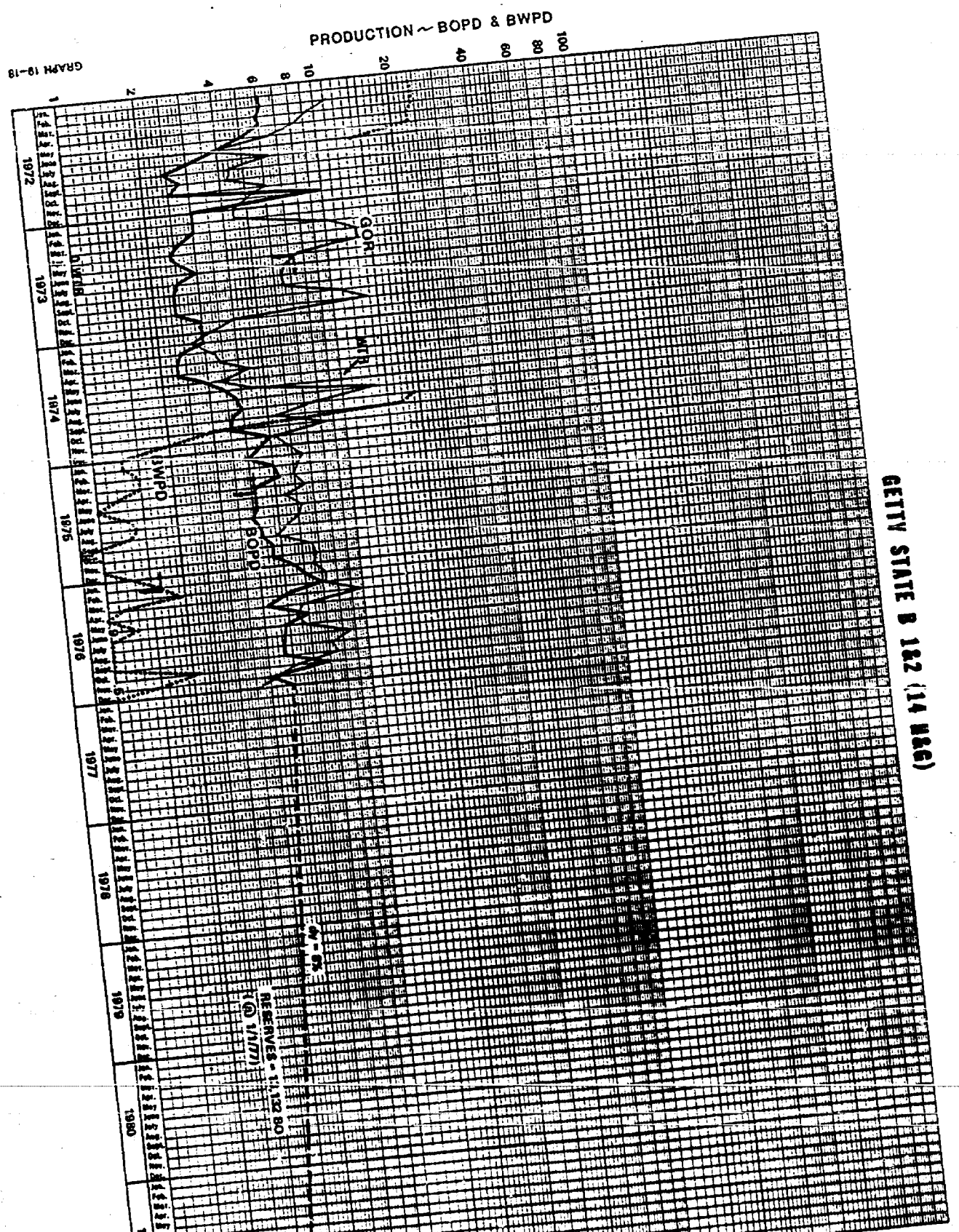
GETTY (SKELLY) HOBBS E 1 (26 A)



GETTY (SKELLY) STATE A-1 (17 M)

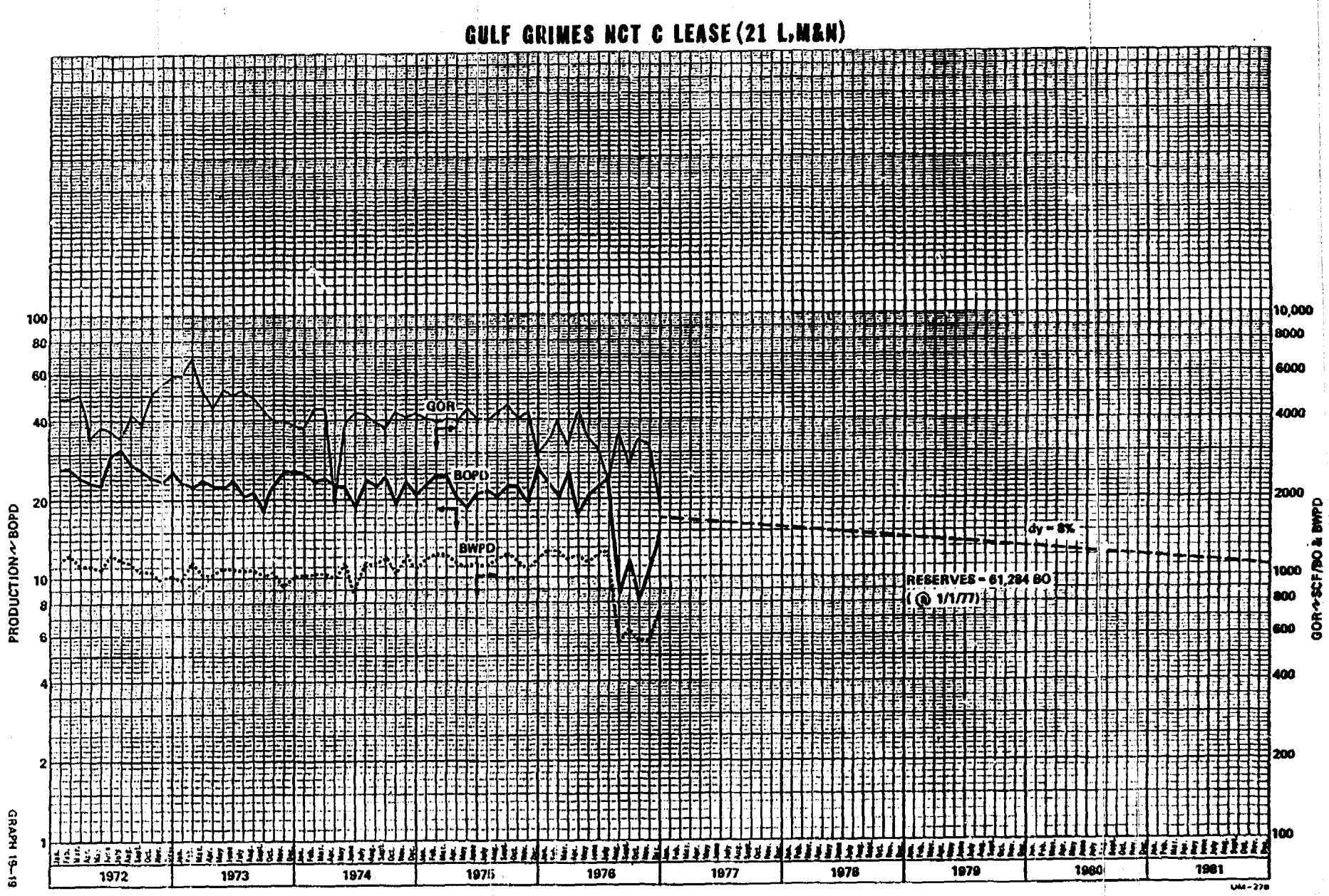


GRAPH 19-17

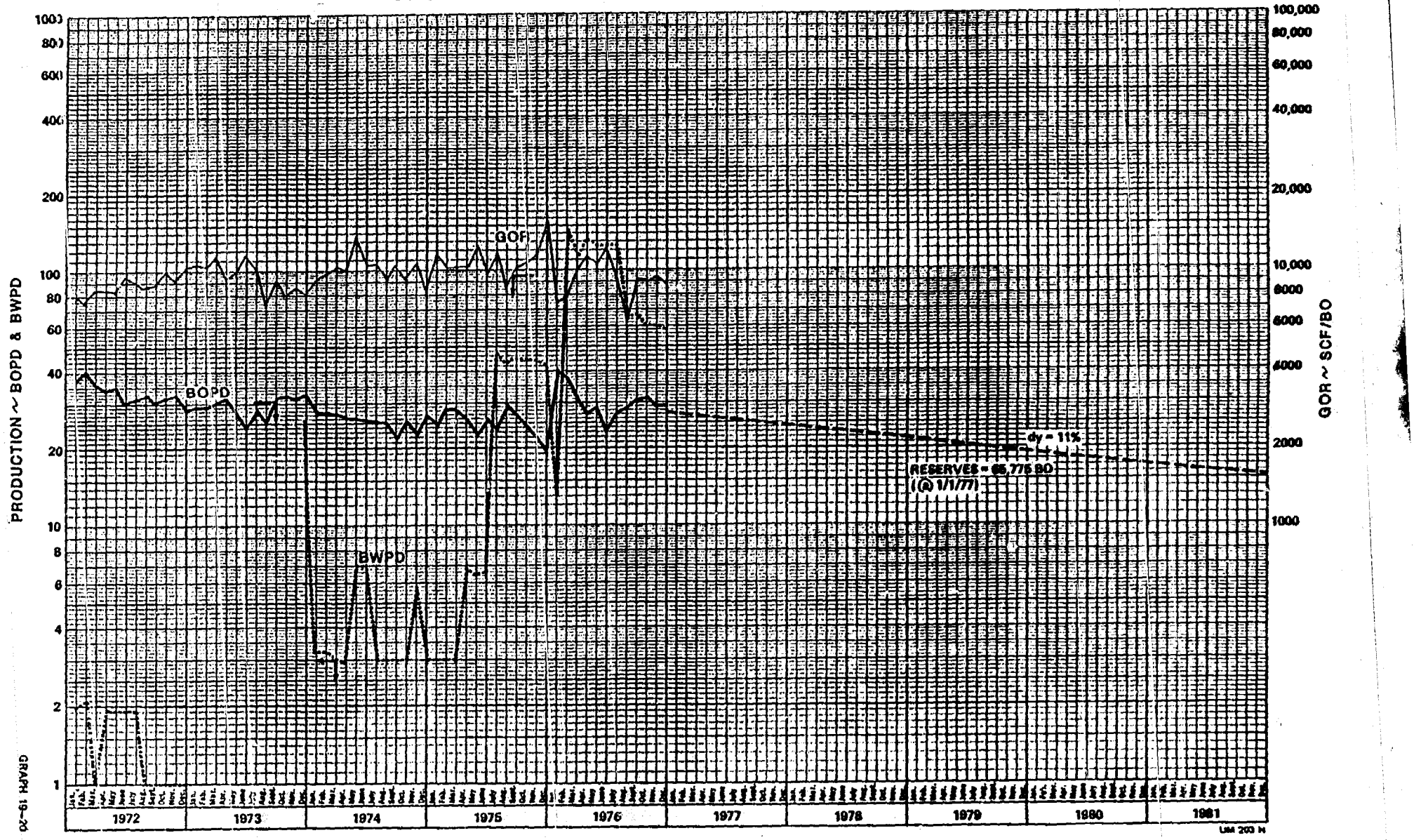


GETTY STATE B 182 (14 H&G)

GULF GRIMES NCT C LEASE (21 L,M&N)



GRAPH 19-19

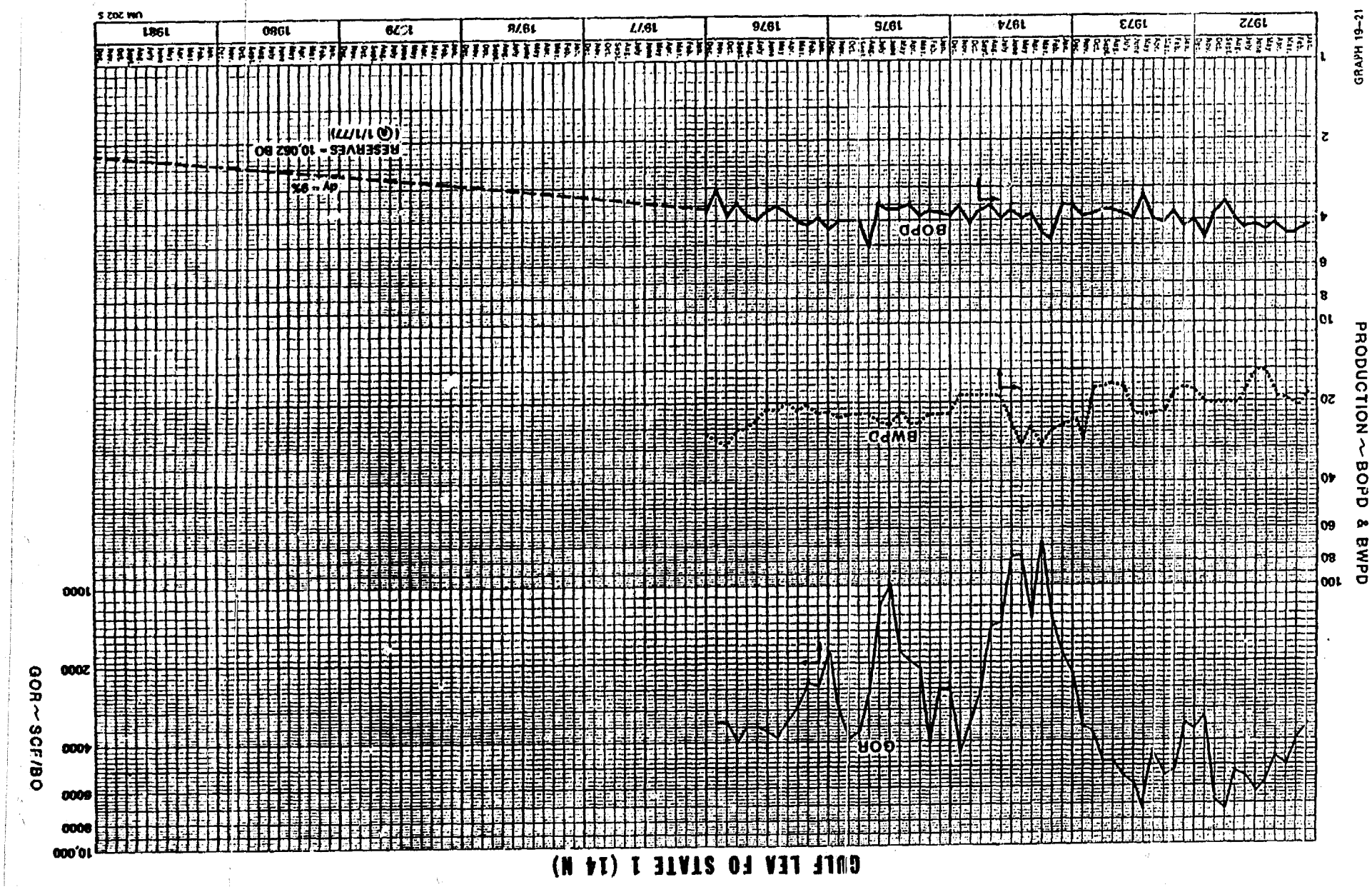

GULF D.W. HARDIN 3,4,5,6,7,8 & 9 (18 I,G,J,H,B,A & O)
PRODUCTION ~ BOPD & BWPD
GOR ~ SCF/BO
1000
800
600
400
200
100
80
60
40
20
10
8
6
4
2
1
100,000
80,000
60,000
40,000
20,000
10,000
8000
6000
4000
2000
1000
GOR
BOPD
BWPD
dy = 11%
RESERVES = 65,775 BO
(@ 1/1/77)
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
GRAPH 19-20
LIM 203 H

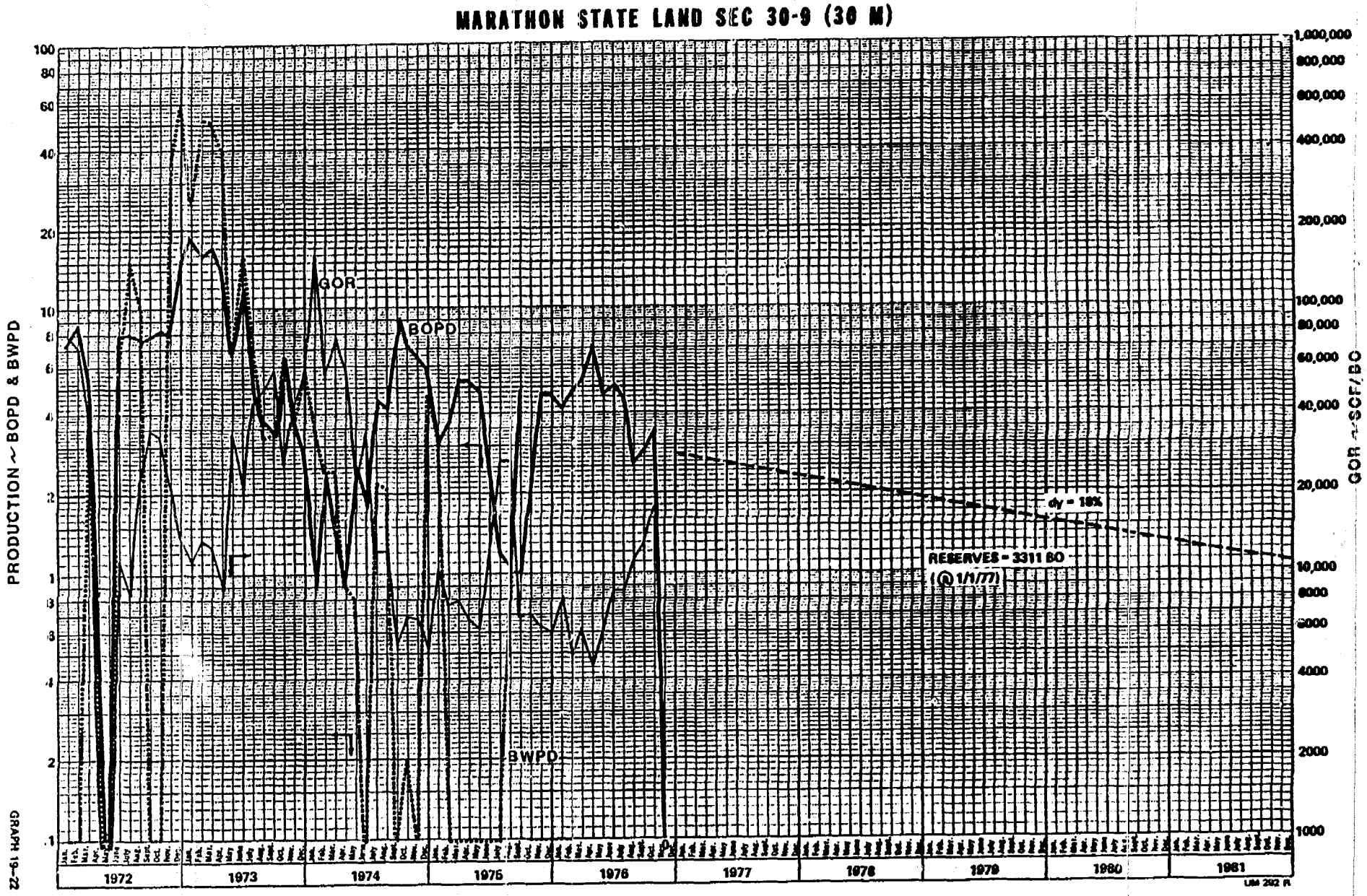
GULF LEA FO STATE 1 (14 N)

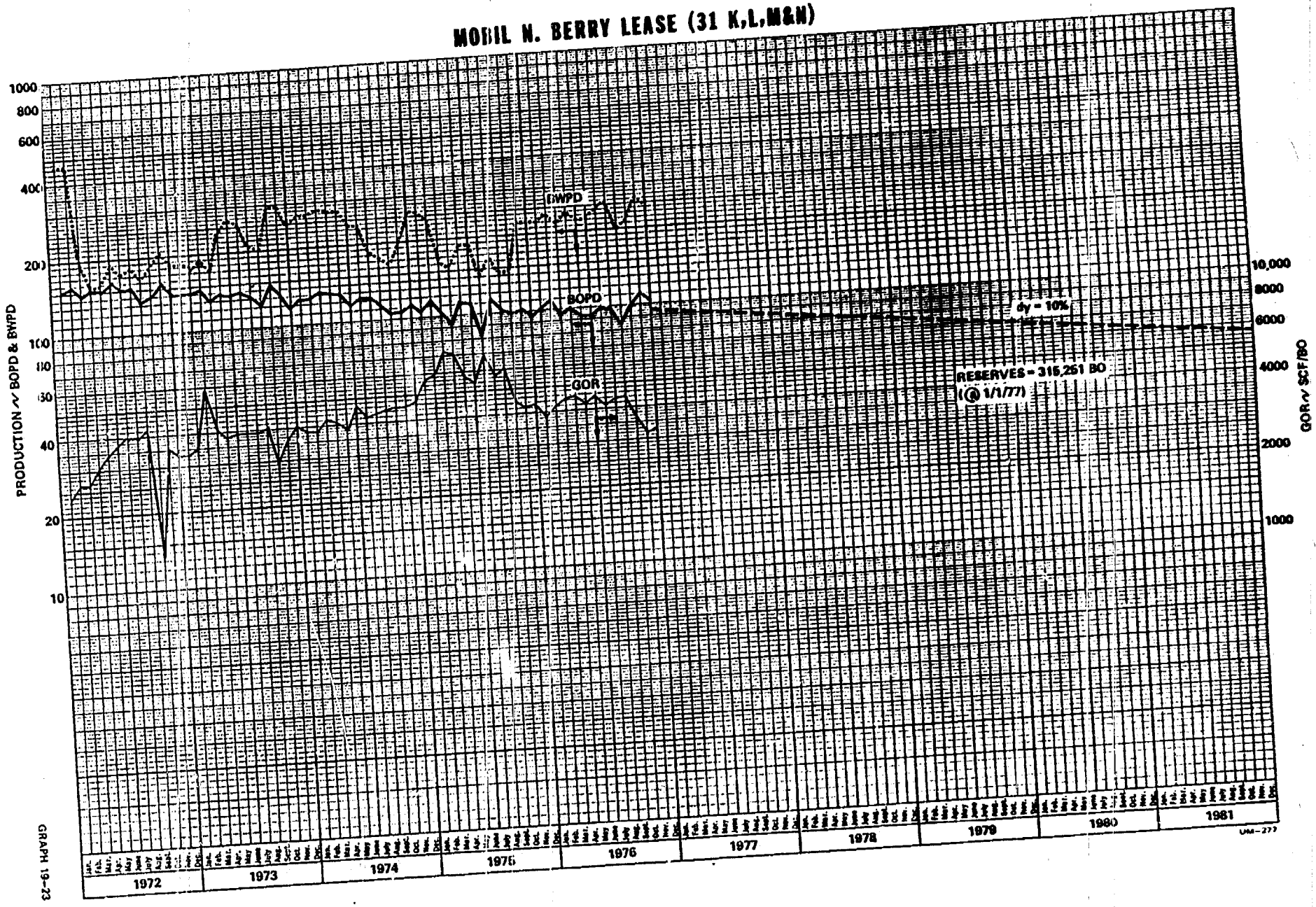
GRAPH 19-21

PRODUCTION ~ BOPD & BWPD

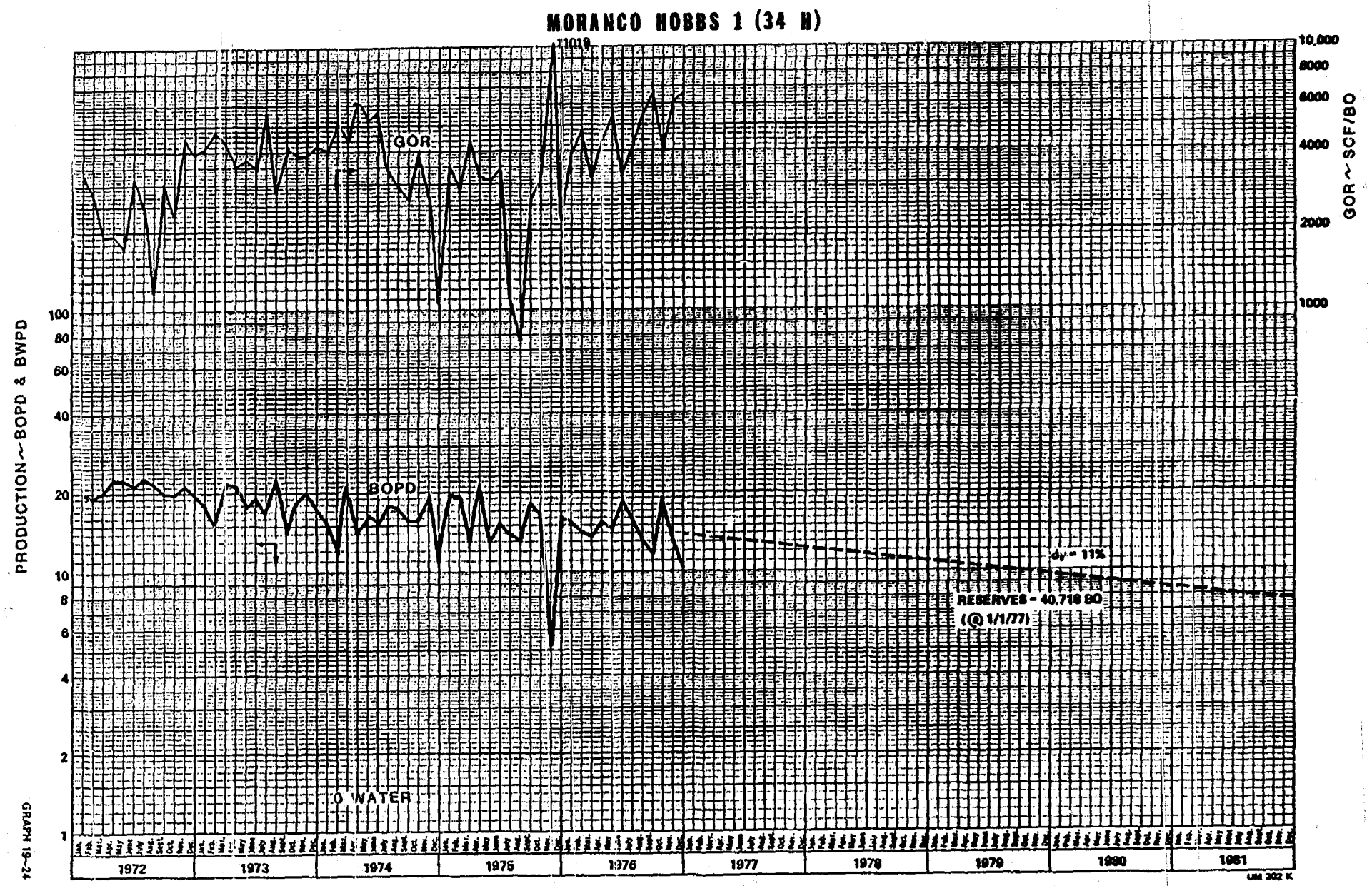
GOR ~ SCF/BO

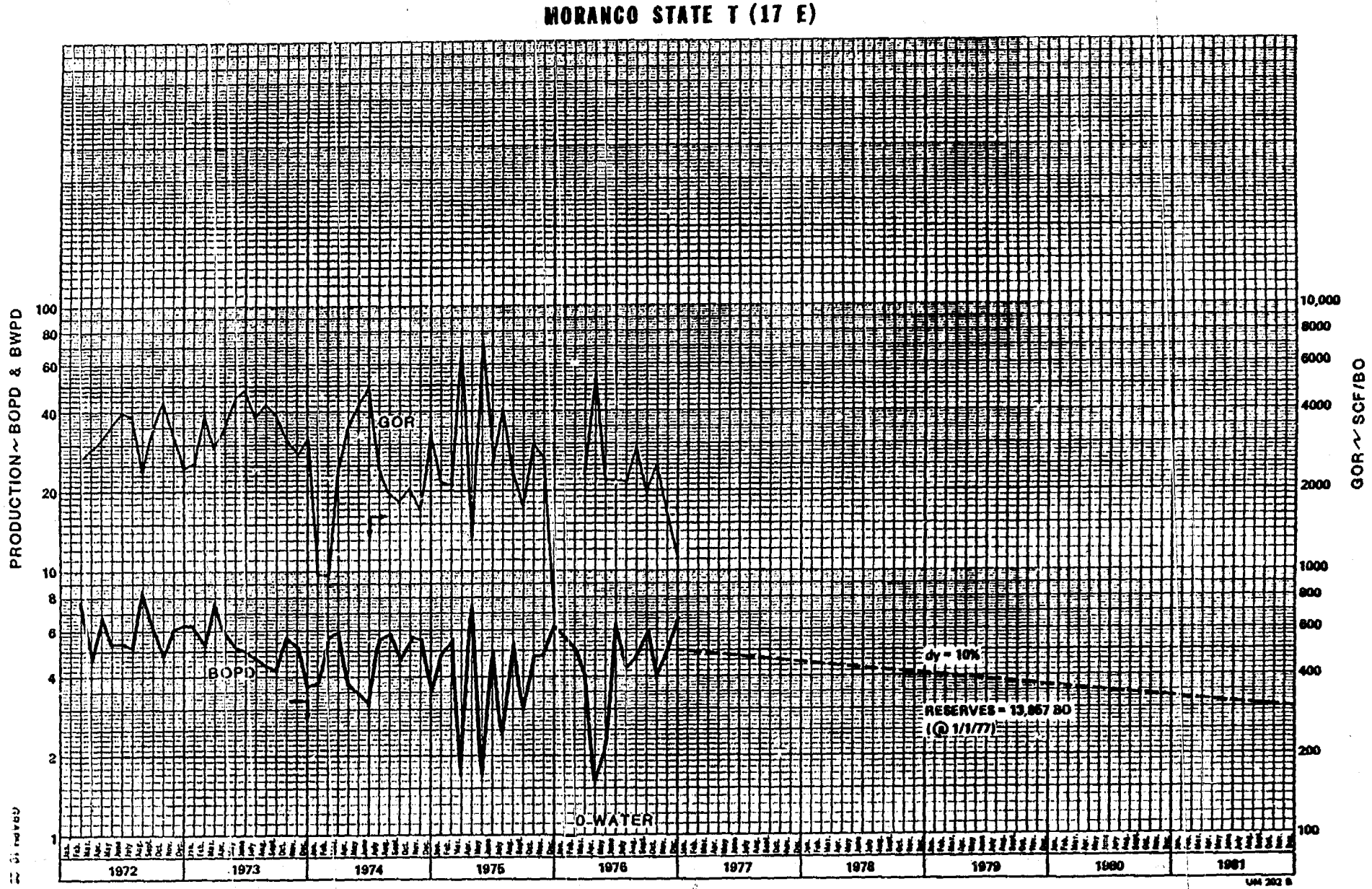


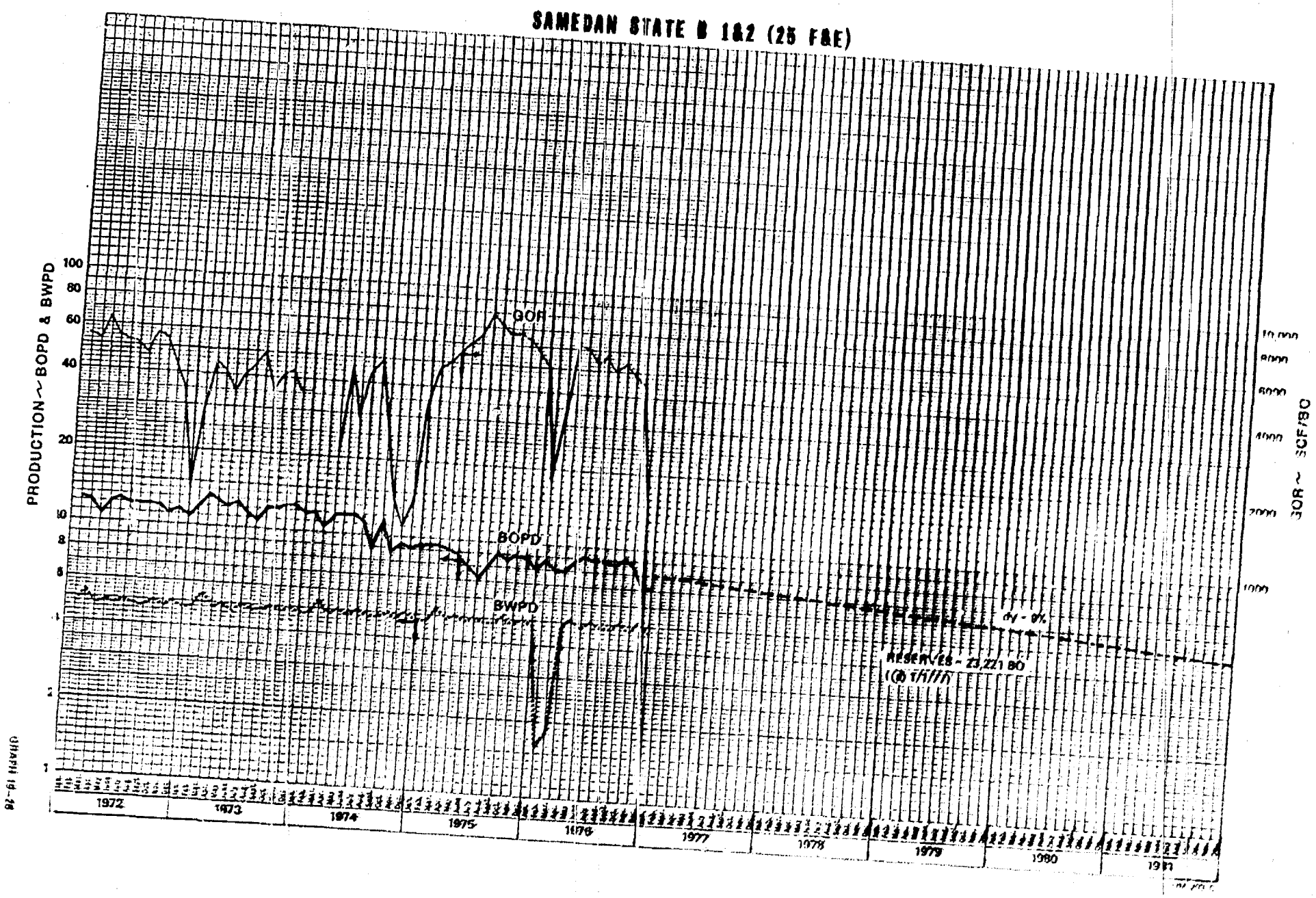

MARATHON STATE LAND SEC 30-9 (30 M)
PRODUCTION ~ BOPD & BWPD
GOR ~ SCF/BO
GOR
BOPD
BWPD
dy = 18%
RESERVES = 3311 BO
(@ 1/1/77)
100
80
60
40
20
10
8
6
4
2
1
.8
.6
.4
.2
.1
1,000,000
800,000
600,000
400,000
200,000
100,000
80,000
60,000
40,000
20,000
10,000
8000
6000
4000
2000
1000
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
GRAPH 19-22
UM 282 R


MOBIL N. BERRY LEASE (31 K,L,M&N)
PRODUCTION ~ BOPD & BWPD
GOR ~ SCF/BO
1000
800
600
400
200
100
80
60
40
20
10
10,000
8000
6000
4000
2000
1000
BWPD
BOPD
GOR
dy = 10%
RESERVES = 315,251 BO
(@ 1/1/77)
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
UM-277

GRAPH 19-23

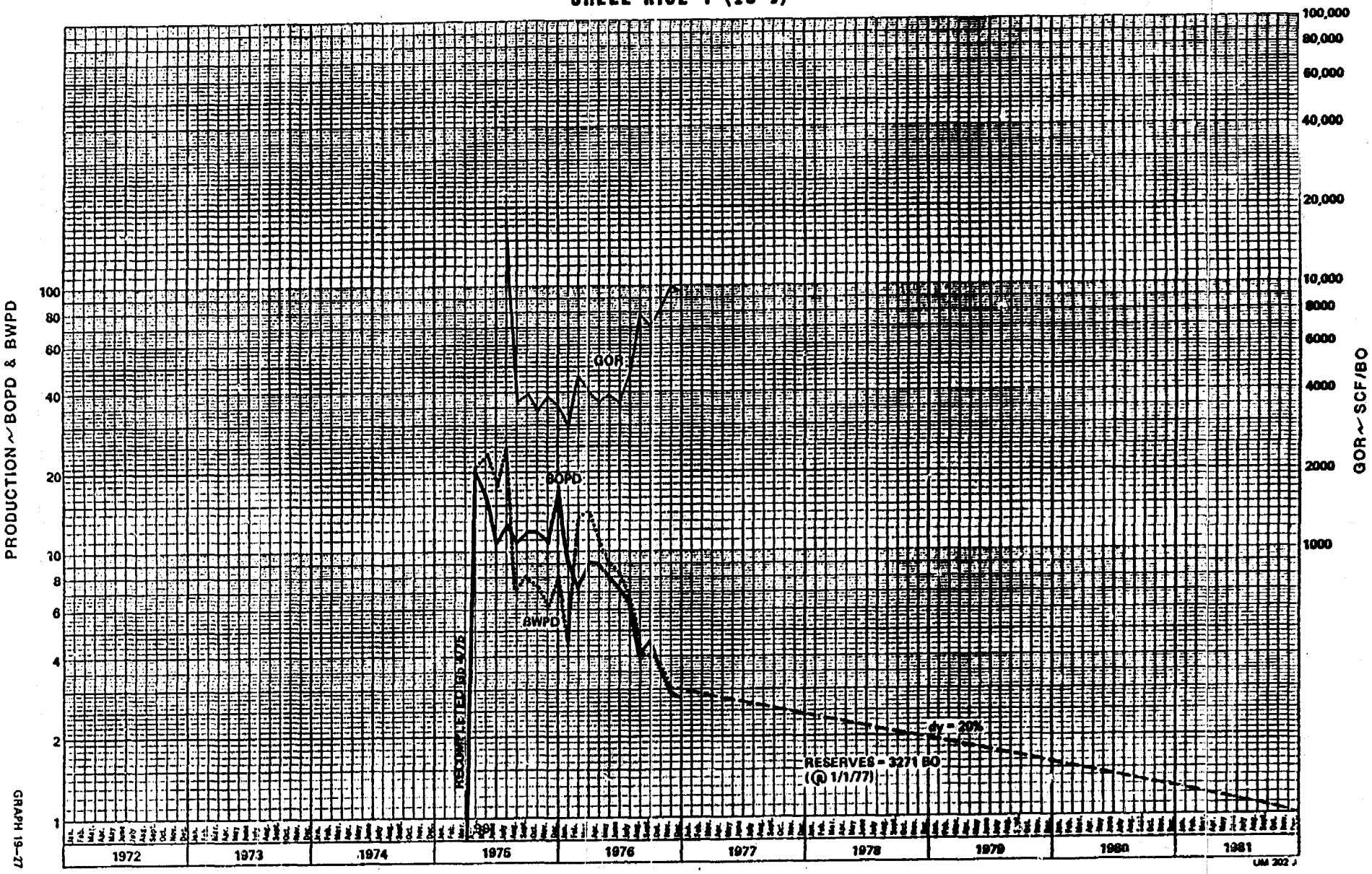

MORANCO HOBBS 1 (34 H)
11019
GOR
BOPD
dy = 11%
RESERVES - 40,718 BO
(@ 1/1/77)
O WATER
PRODUCTION ~ BOPD & BWPD
GOR ~ SCF/BO
100
80
60
40
20
10
8
6
4
2
1
10,000
8000
6000
4000
2000
1000
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
GRAPH 19-24
LIM 202 K


MORANCO STATE T (17 E)
PRODUCTION ~ BOPD & BWPD
GOR ~ SCF/BO
100
80
60
40
20
10
8
6
4
2
1
10,000
8000
6000
4000
2000
1000
800
600
400
200
100
GOR
BOPD
0-WATER
dy = 10%
RESERVES = 13,867 BO
(@ 1/1/77)
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981

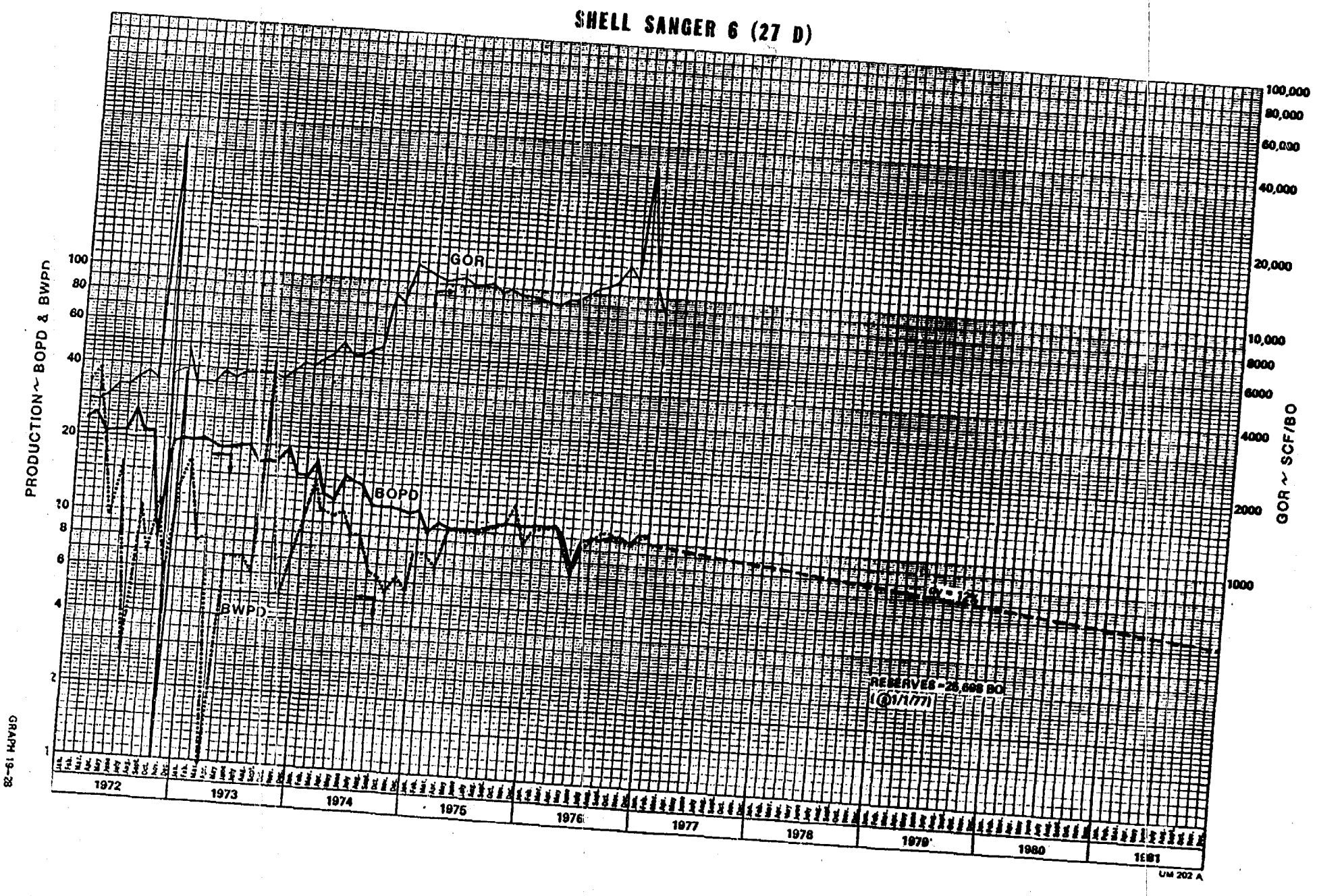

SAMEDAN STATE B 1&2 (25 F&E)
PRODUCTION ~ BOPD & BWPD
GOR ~ SCF/BO
GOR
BOPD
BWPD
dy - 9%
RESERVES - 23,221 BO
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981

GRAPH 19-26

SHELL RICE 4 (13 J)



GRAPH 19-27


SHELL SANGER 6 (27 D)
PRODUCTION ~ BOPD & BWPD
GOR ~ SCF/BO
100
80
60
40
20
10
8
6
4
2
1
100,000
80,000
60,000
40,000
20,000
10,000
8000
6000
4000
2000
1000
GOR
BOPD
BWPD
RESERVES - 26,698 BO
(@1/1/77)
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
UM 202 A

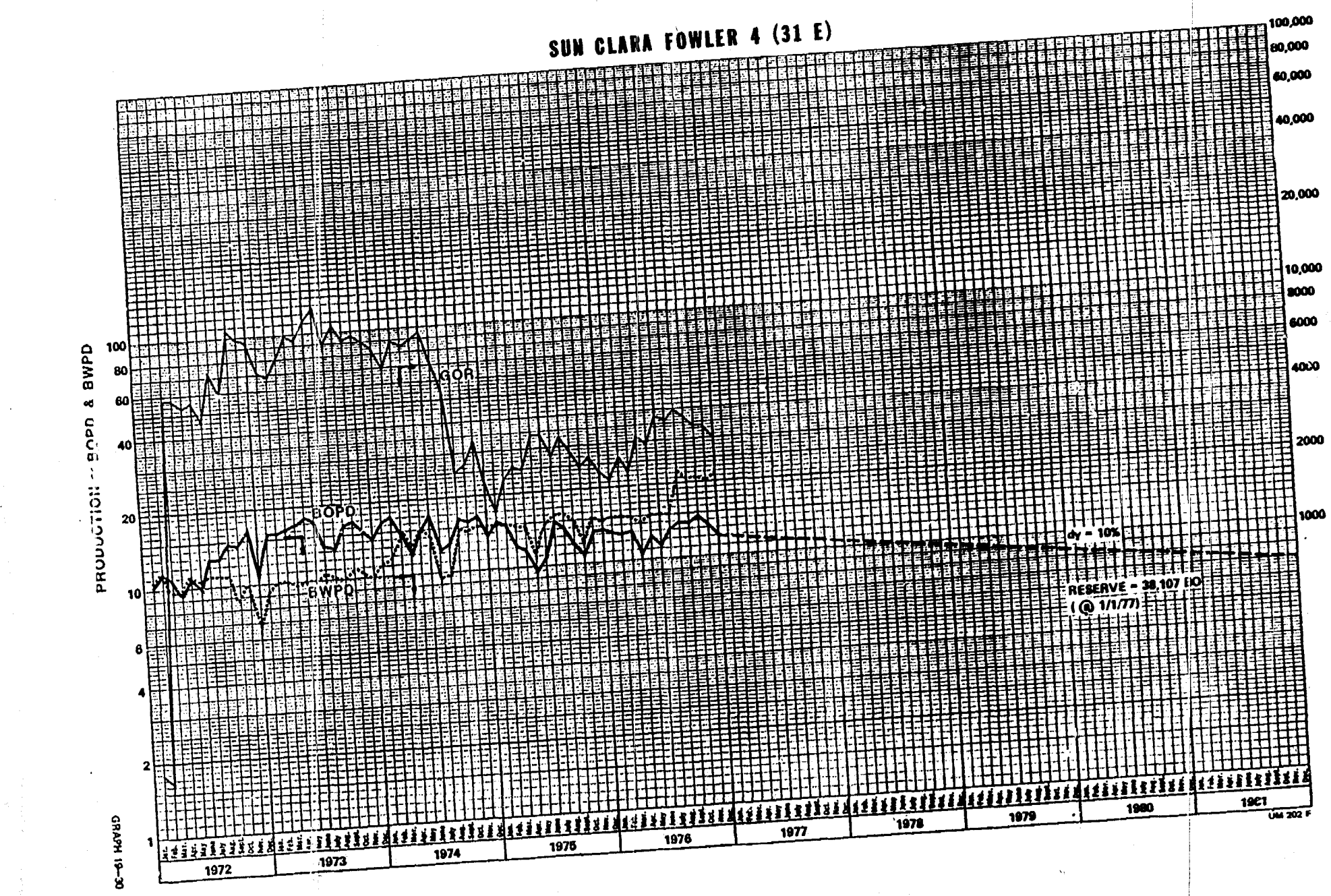
GRAPH 19-28

SHELL STATE F 283 (23 G&B)

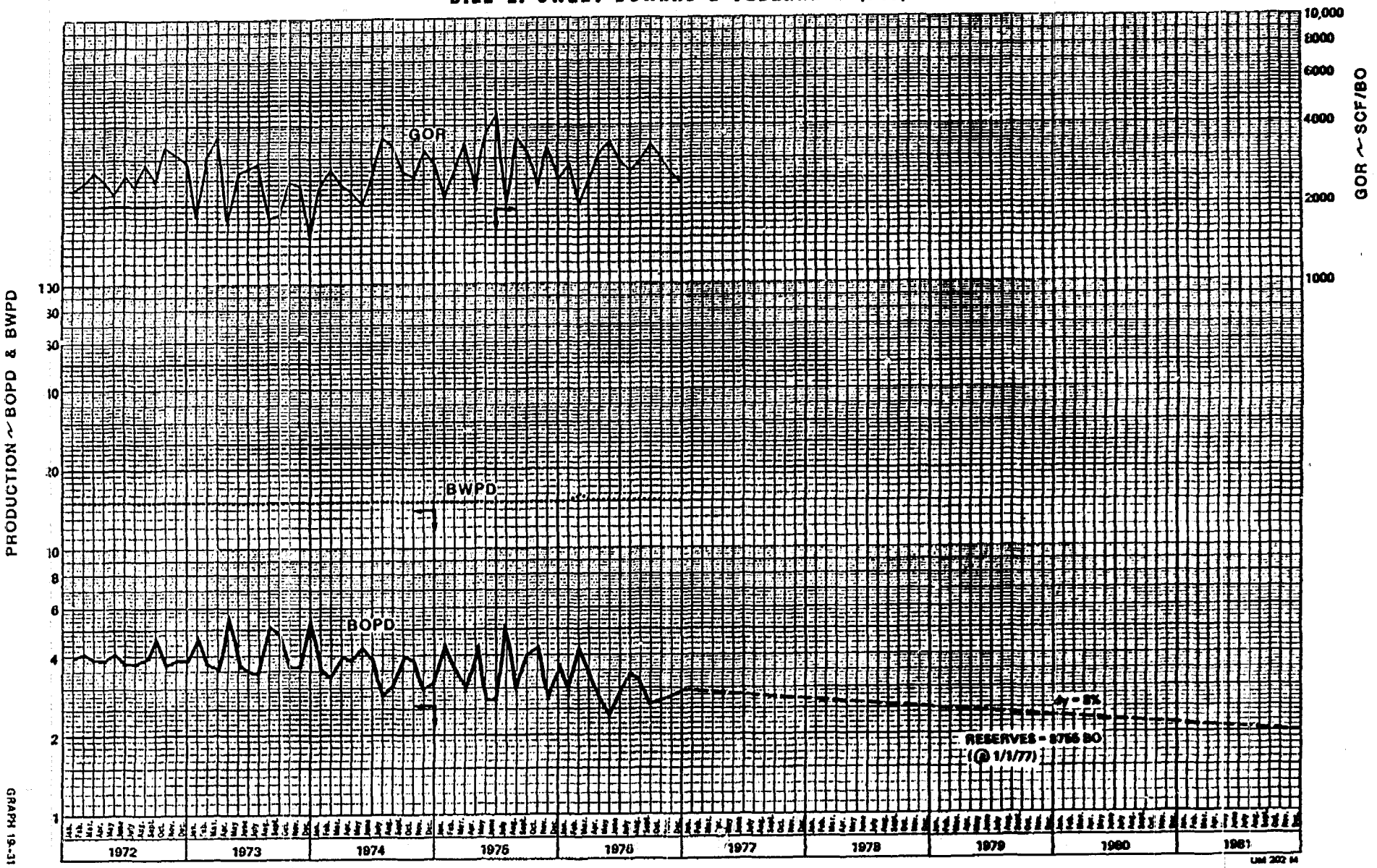
PRODUCTION ~ BOPD & BWPD

GRAPH 19-29

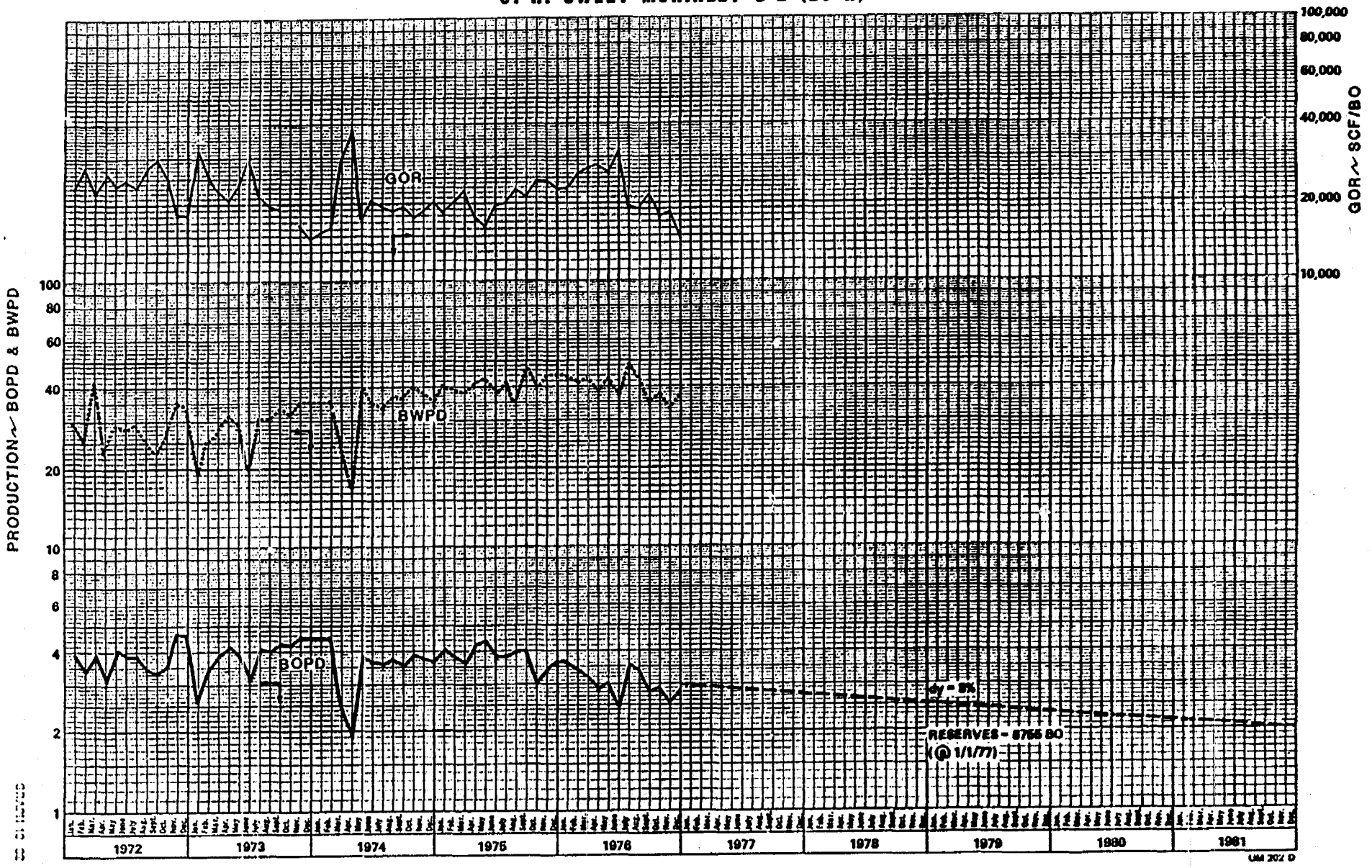



SUN CLARA FOWLER 4 (31 E)
PRODUCTION - BOPD & BWPD
GOR ~ SCF/BO
100
80
60
40
20
10
6
4
2
1
100,000
80,000
60,000
40,000
20,000
10,000
8000
6000
4000
2000
1000
GOR
BOPD
BWPD
dy = 10%
RESERVE = 38,107 MO
(@ 1/1/77)
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
GRAPH 19-30
UM 202 F

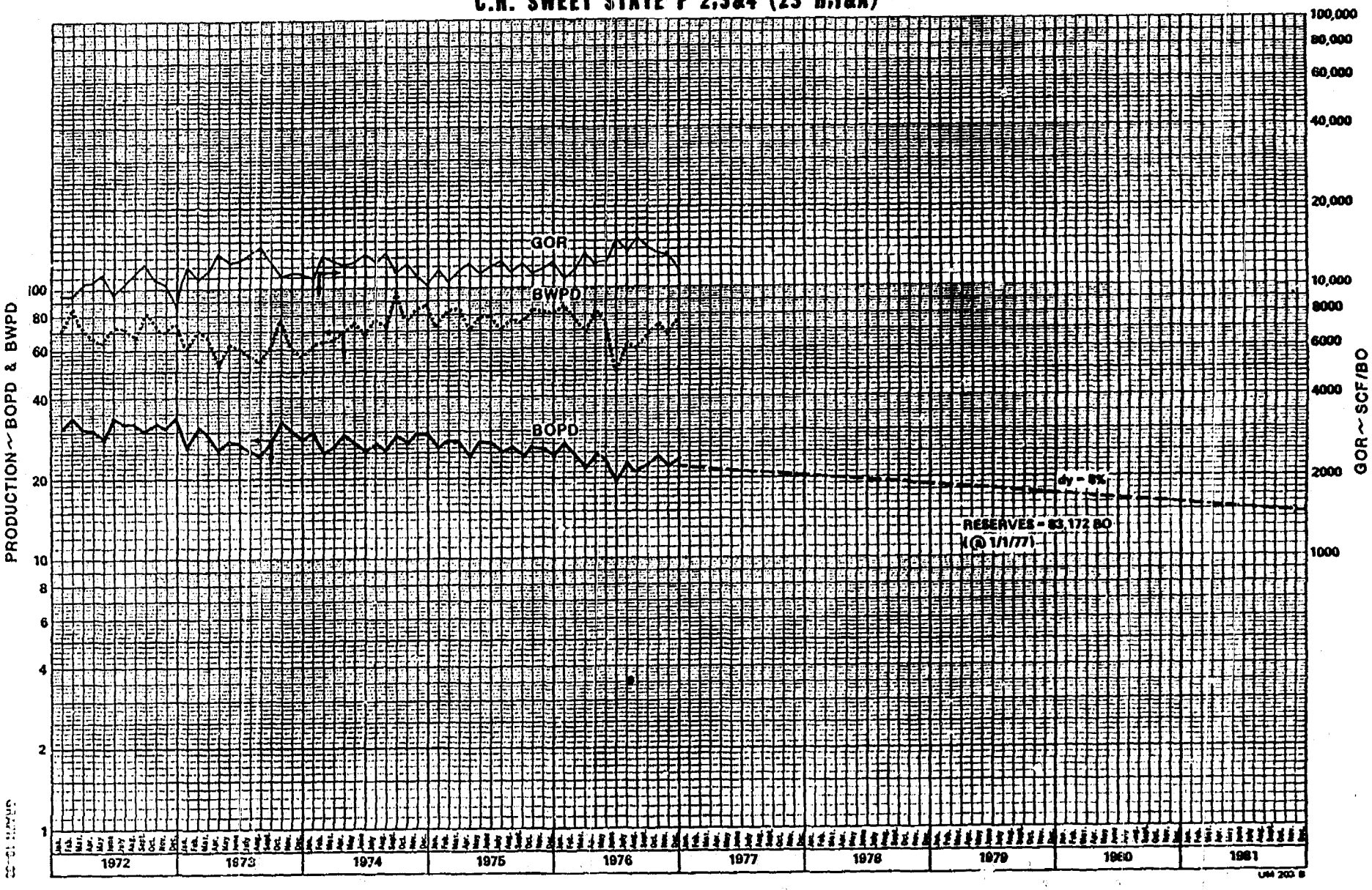
BILL L. SWEET BOWERS B FEDERAL 2 (20J)

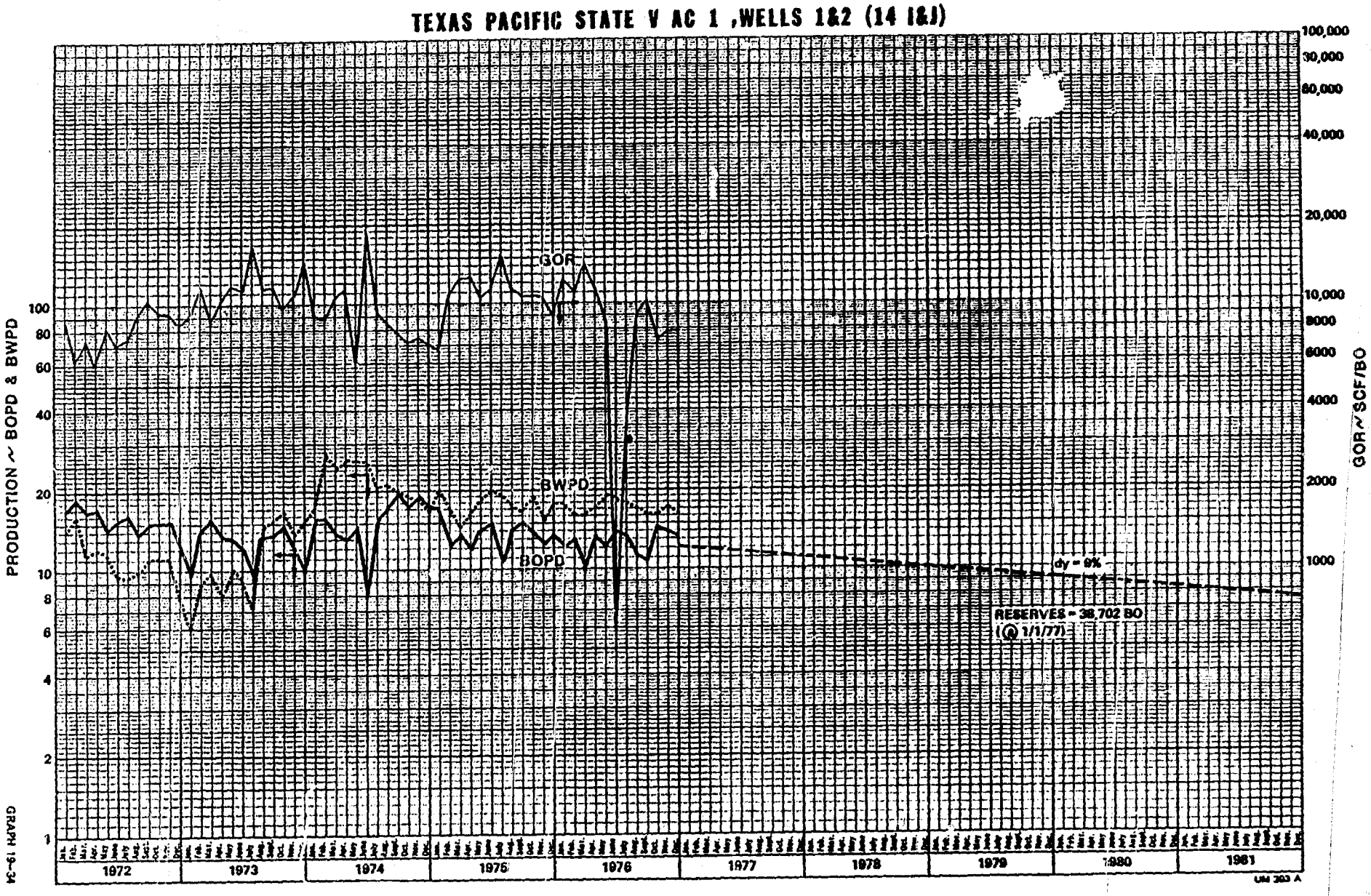


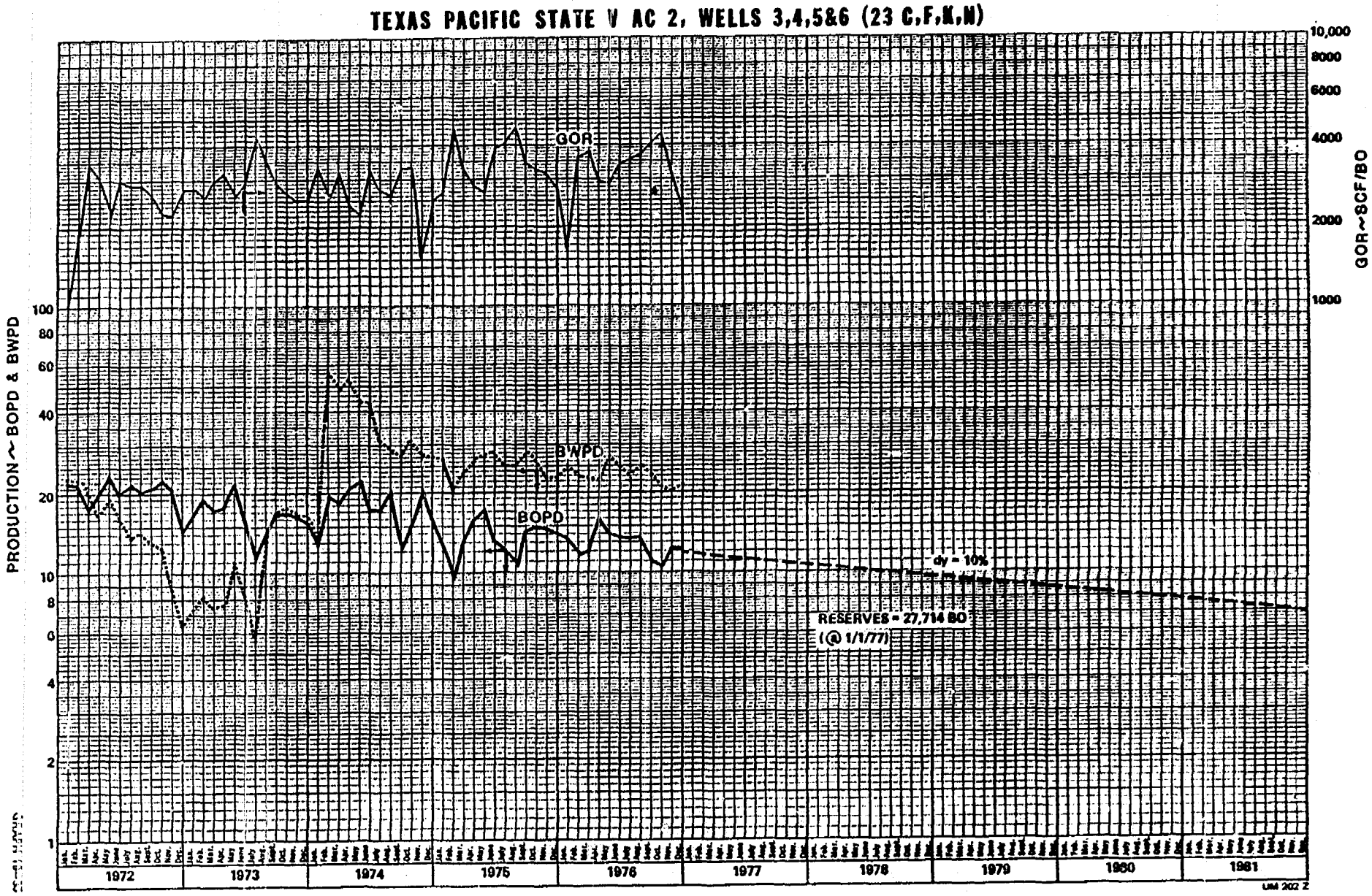
C. H. SWEET MCKINLEY B-2 (20 H)

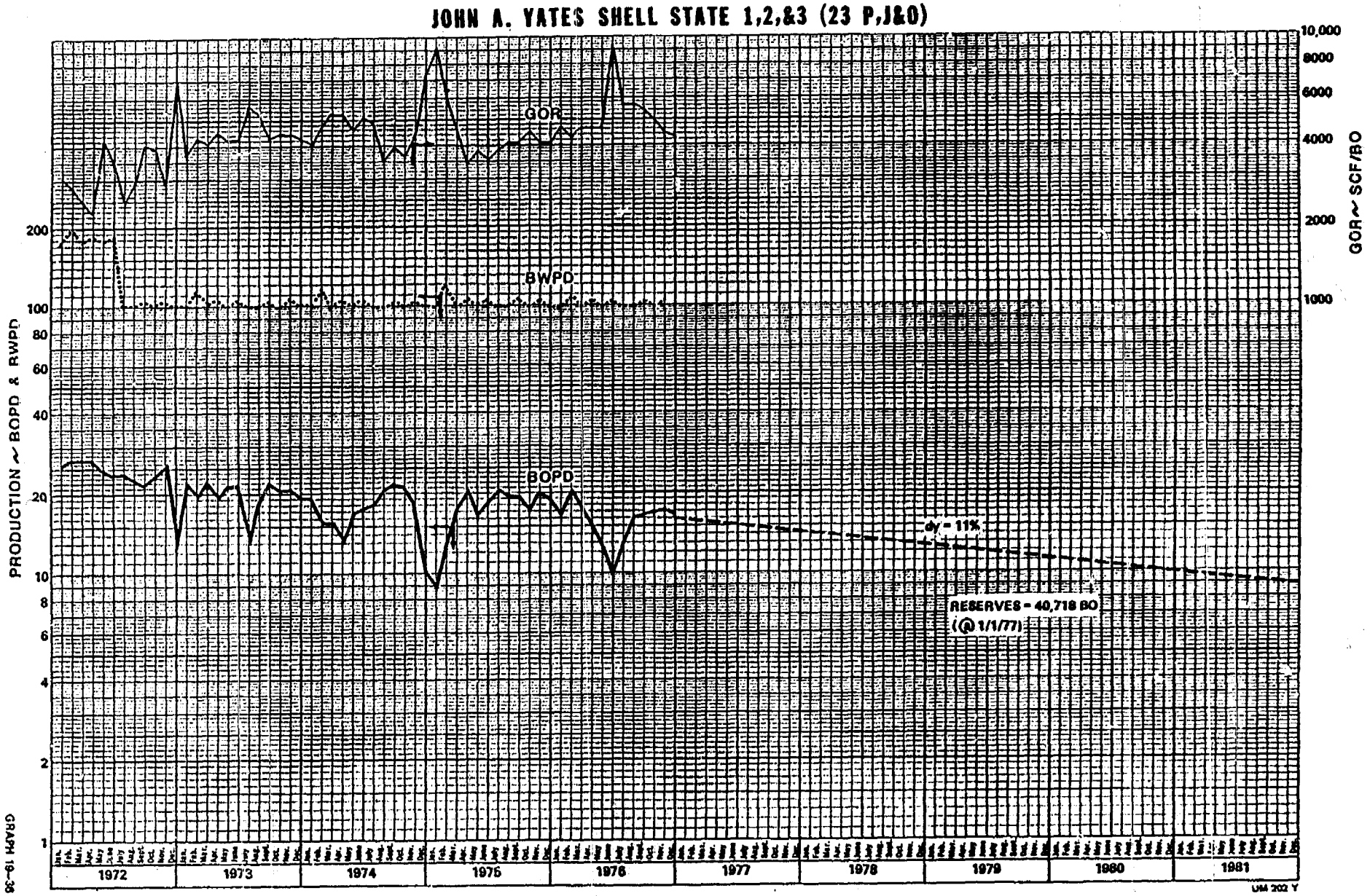


UM 202 D


C.H. SWEET STATE F 2,3&4 (23 H,I&A)
PRODUCTION ~ BOPD & BWPD
GOR ~ SCF/BO
GOR
BWPD
BOPD
dy = 8%
RESERVES = 83,172 BO
(@ 1/1/77)
100
80
60
40
20
10
8
6
4
2
1
100,000
80,000
60,000
40,000
20,000
10,000
8000
6000
4000
2000
1000
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981


TEXAS PACIFIC STATE V AC 1 ,WELLS 1&2 (14 I&J)
PRODUCTION ~ BOPD & BWPD
GOR ~ SCF/BO
GOR
BWPD
BOPD
dy = 9%
RESERVES = 38,702 BO
(@ 1/1/77)
100
80
60
40
20
10
8
6
4
2
1
100,000
30,000
80,000
40,000
20,000
10,000
9000
6000
4000
2000
1000
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
GRAPH 19-34
UM 303 A


TEXAS PACIFIC STATE V AC 2, WELLS 3,4,5&6 (23 C,F,K,N)
PRODUCTION ~ BOPD & BWPD
GOR~SCF/BO
10,000
8000
6000
4000
2000
1000
100
80
60
40
20
10
8
6
4
2
1
GOR
BWPD
BOPD
dy = 10%
RESERVES = 27,714 BO
(@ 1/1/77)
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
LIM 202 Z


JOHN A. YATES SHELL STATE 1,2,&3 (23 P,J&O)
PRODUCTION ~ BOPD & BWPD
GOR ~ SCF/BO
GOR
BWPD
BOPD
dy = 11%
RESERVES = 40,718 BO
(@ 1/1/77)
10,000
8000
6000
4000
2000
1000
200
100
80
60
40
20
10
8
6
4
2
1
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
GRAPH 19-36
UM 202 Y

FIGURES

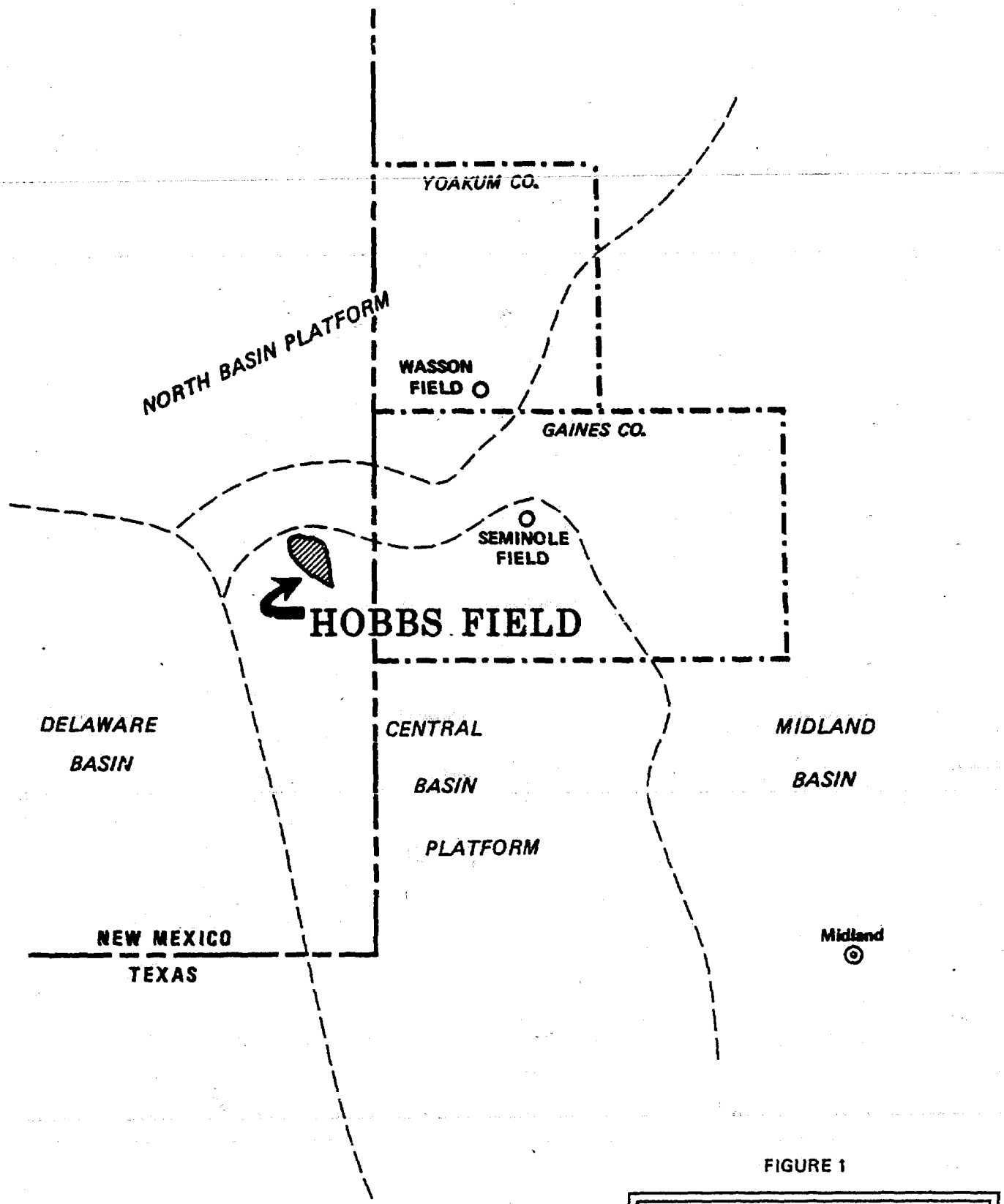


FIGURE 1

LOCATION MAP

HOBBS FIELD

SCALE

0 5 10 15 20

MILES

ZM-2217

R37E

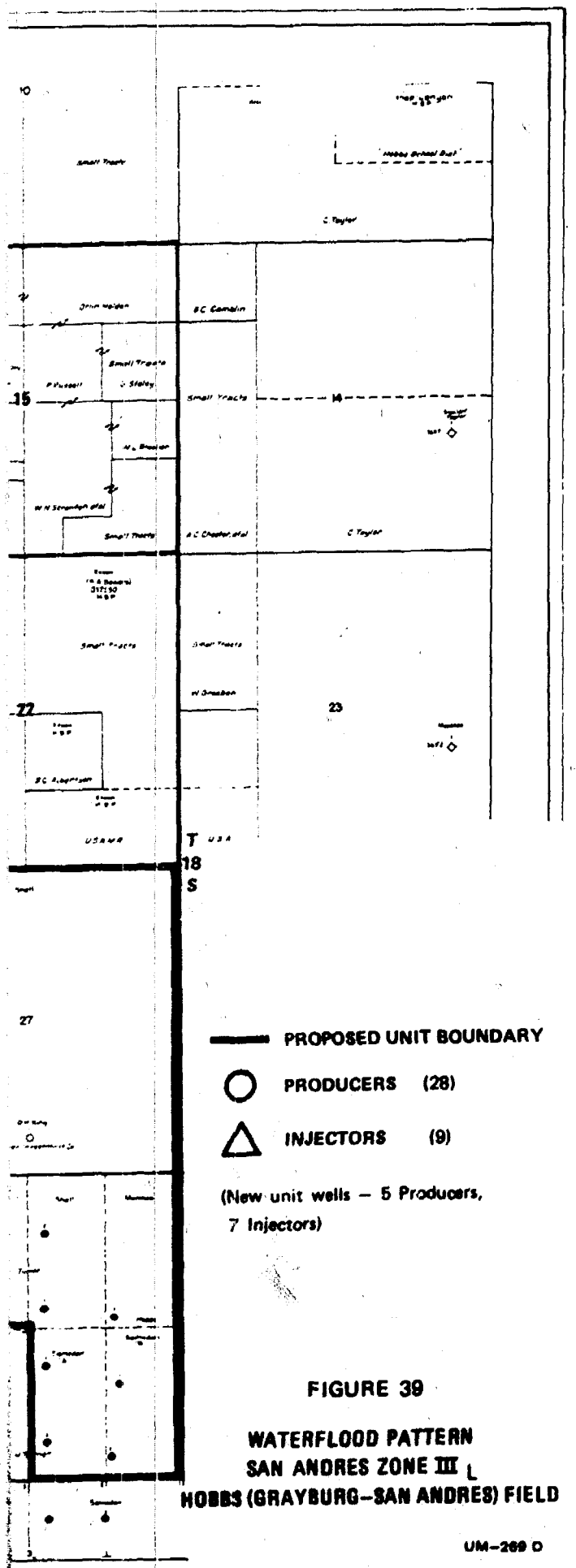
R38E

T
18
S

TEXAS NEW MEXICO R.R.

R37E

R38E



PROPOSED UNIT BOUNDARY

PRODUCERS (28)

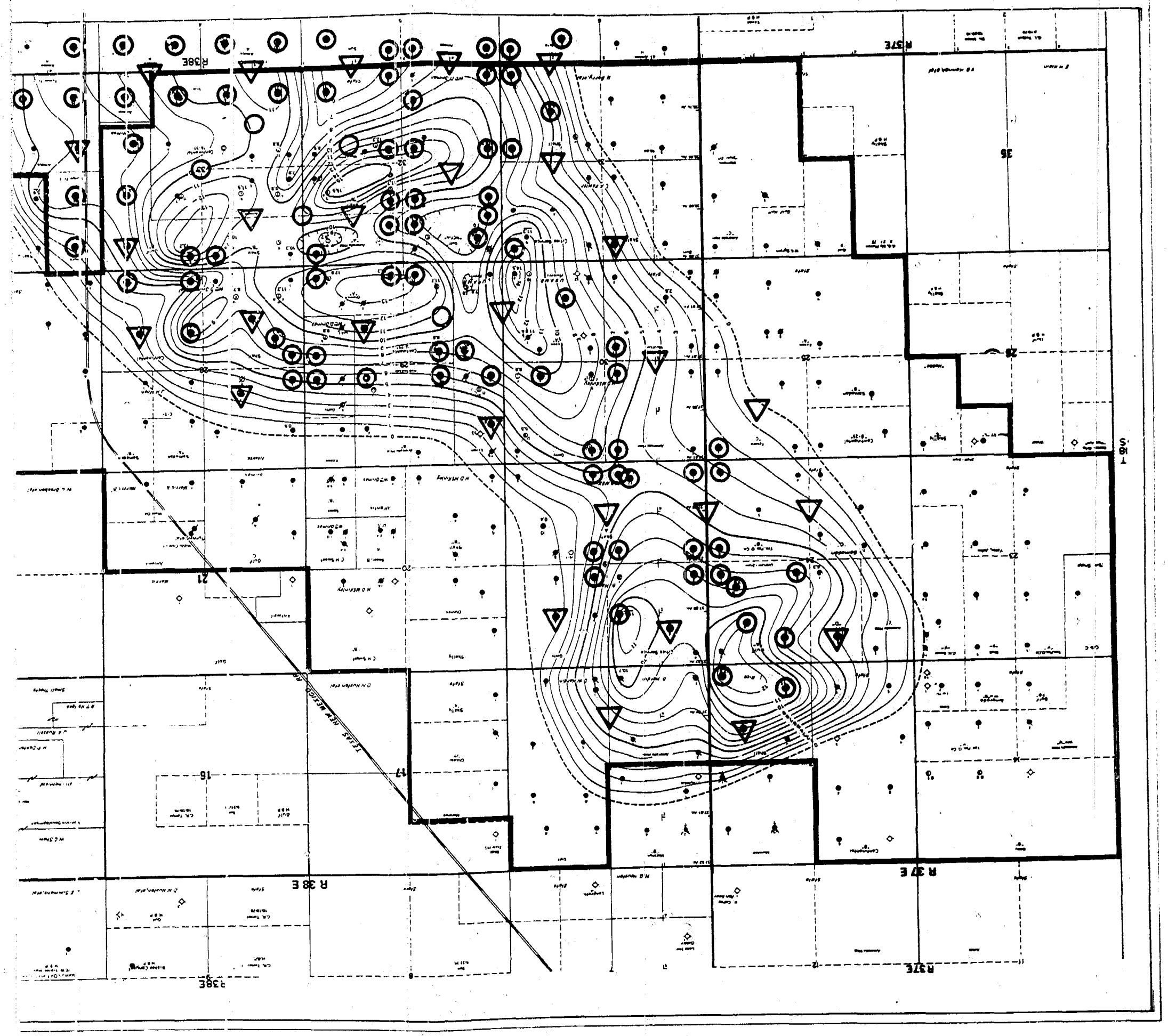
INJECTORS (9)

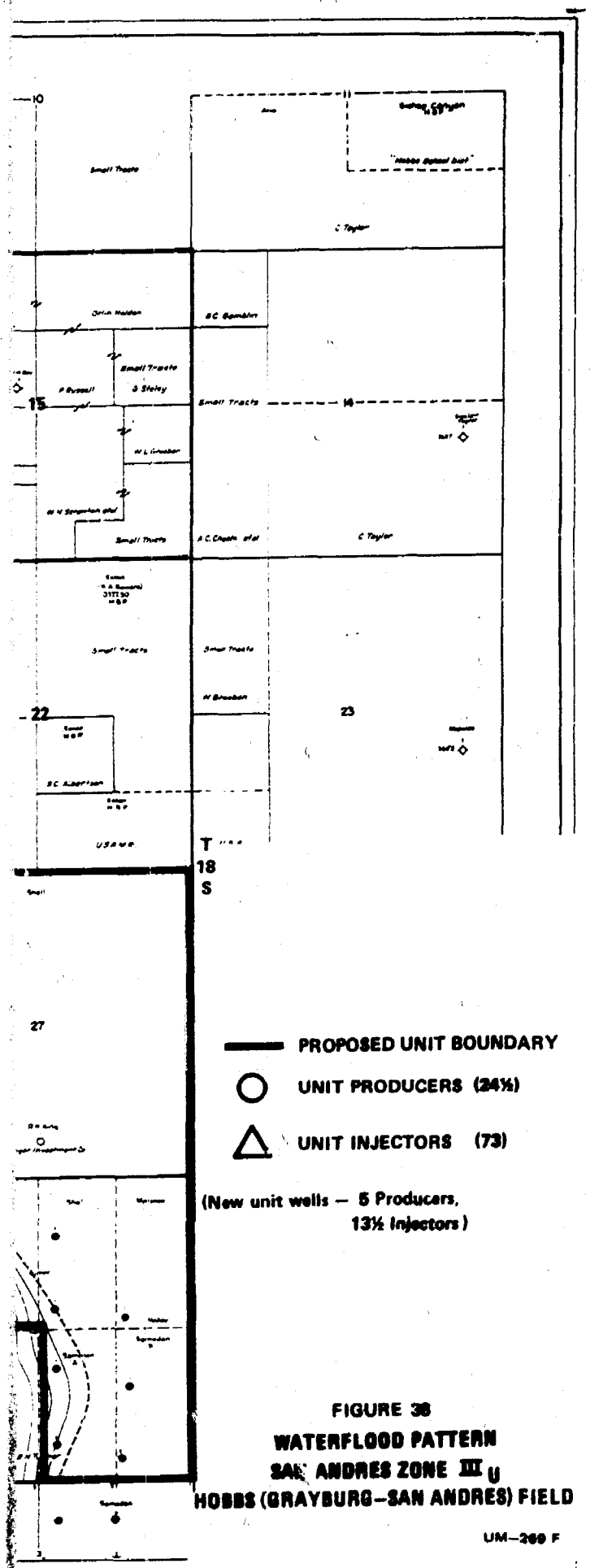
(New unit wells – 5 Producers, 7 Injectors)

FIGURE 39

WATERFLOOD PATTERN
SAN ANDRES ZONE III L
HOBBS (GRAYBURG–SAN ANDRES) FIELD

UM–269 D


R 38 E
R 37 E
TEXAS NEW MEXICO RR
16
17
21
25
26
35



PROPOSED UNIT BOUNDARY

UNIT PRODUCERS (24½)

UNIT INJECTORS (73)

(New unit wells — 5 Producers,
13½ Injectors)

FIGURE 38

WATERFLOOD PATTERN

SAN ANDRES ZONE III U

HOBBS (GRAYBURG–SAN ANDRES) FIELD

UM–269 F

R37E

R38E

R 37 E

R 38 E

T 18 S

TEXAS NEW MEXICO RD.

R37E

R36E

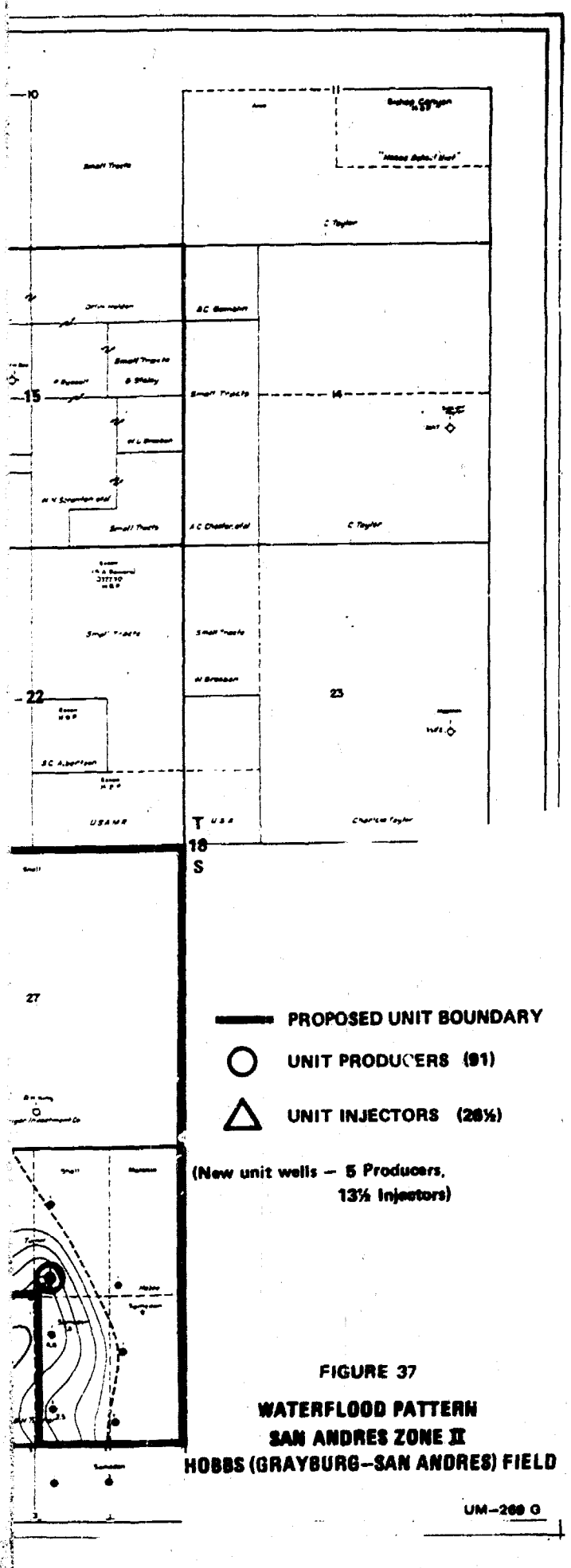
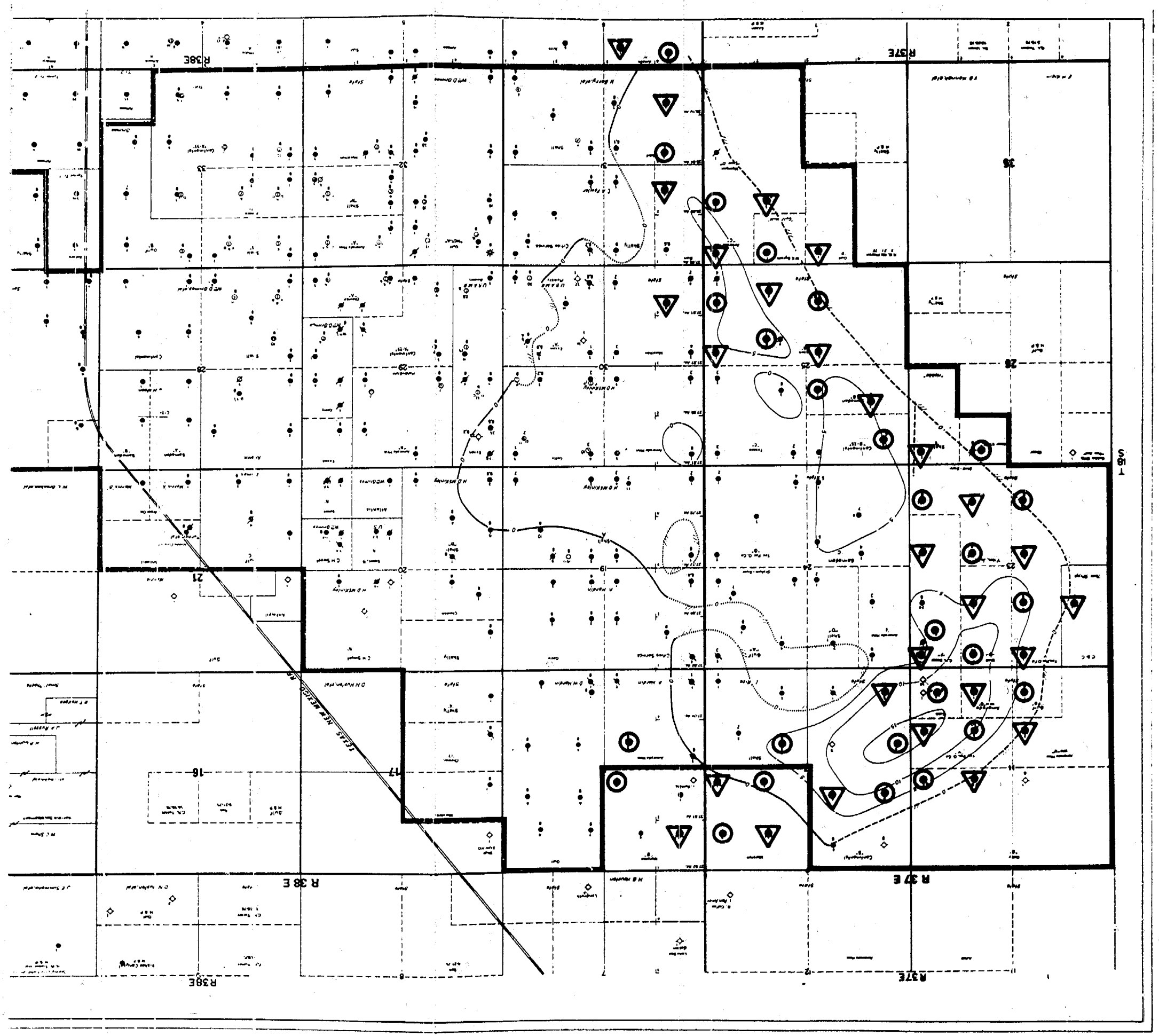


FIGURE 37

WATERFLOOD PATTERN
SAN ANDRES ZONE II
HOBBS (GRAYBURG–SAN ANDRES) FIELD

UM–269 G


R 38 E
R 37 E
T 18 S
TEXAS NEW MEXICO RR
21
16
17
28
29
30
33
32
31
36
25
24
23
20
19
8
7
12
11

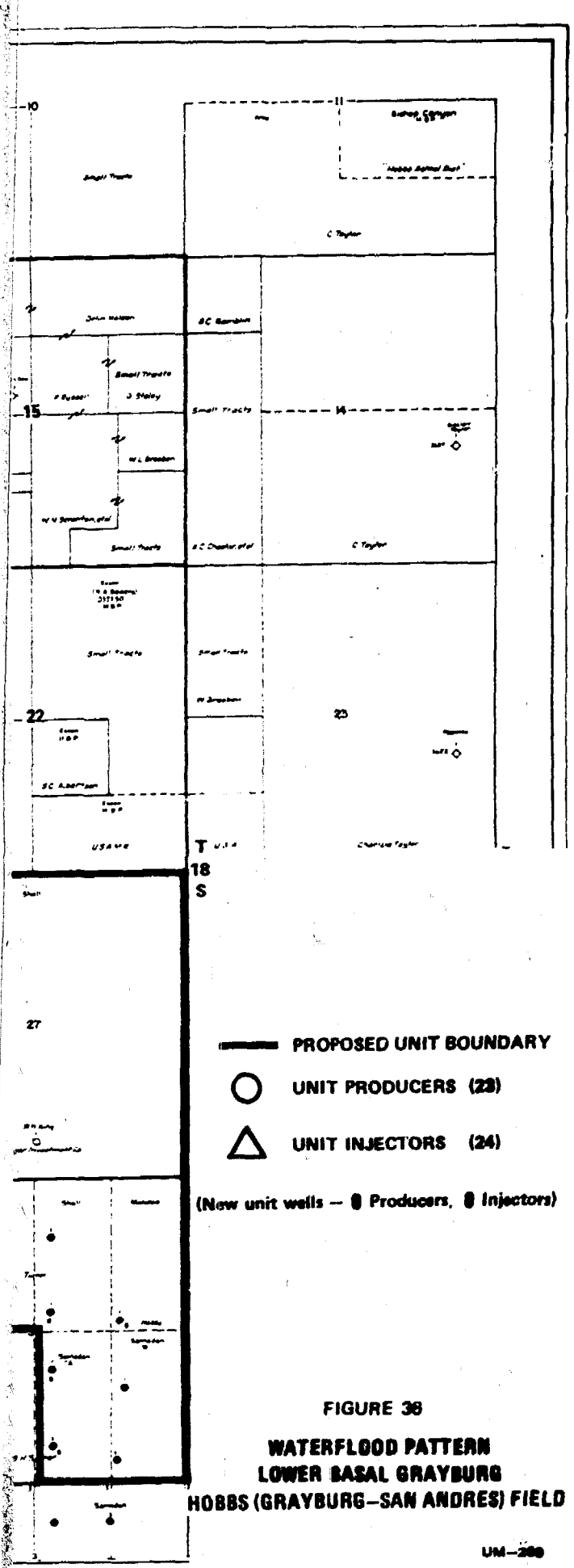
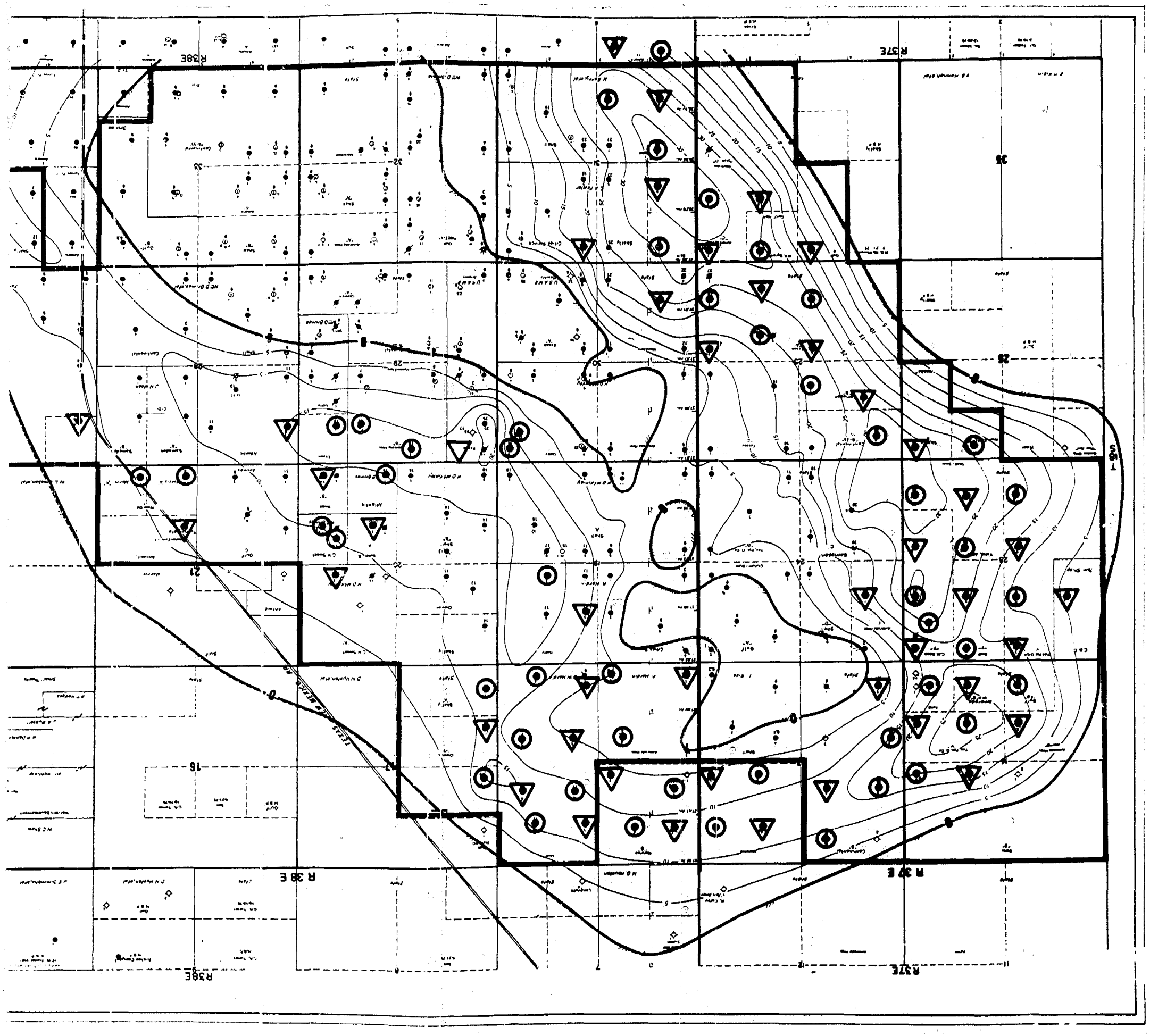


FIGURE 38

WATERFLOOD PATTERN
LOWER BASAL GRAYBURG
HOBBS (GRAYBURG–SAN ANDRES) FIELD

UM–269


R 38 E
R 37 E
T 18 S
TEXAS
NEW MEXICO
16
21
28
29
32
33
35

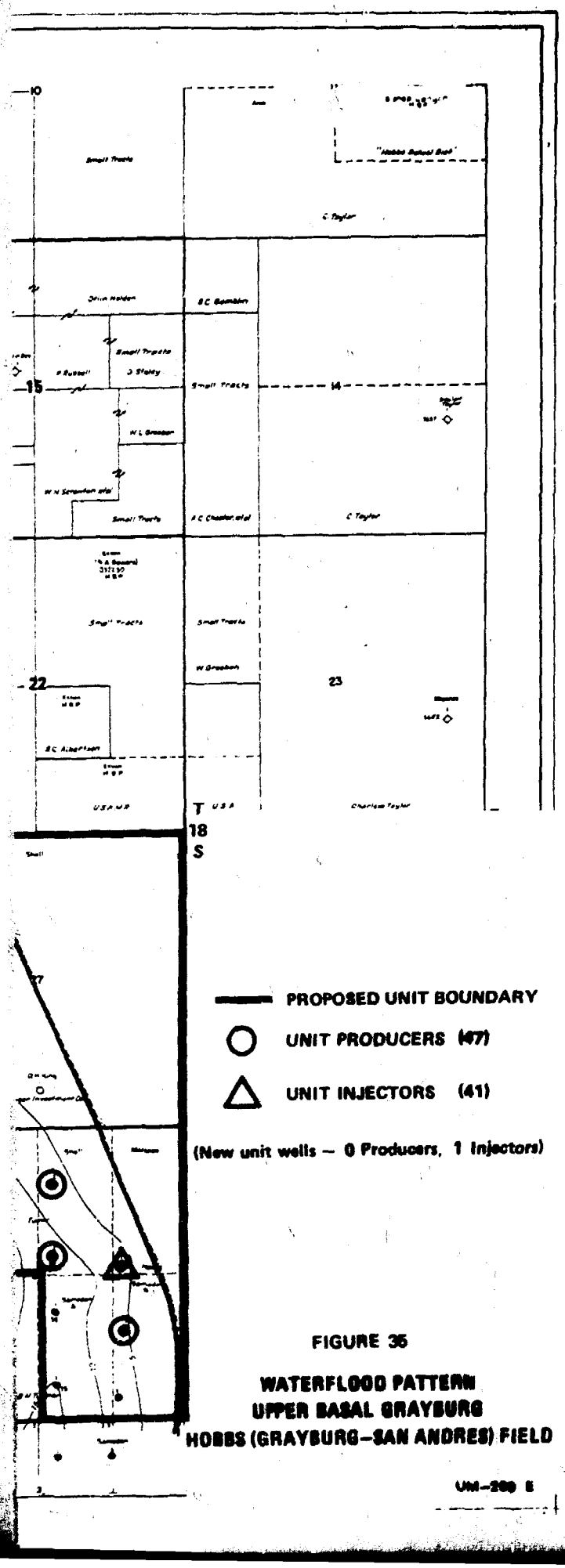


FIGURE 35

WATERFLOOD PATTERN
UPPER BASAL GRAYBURG
HOBBS (GRAYBURG–SAN ANDRES) FIELD

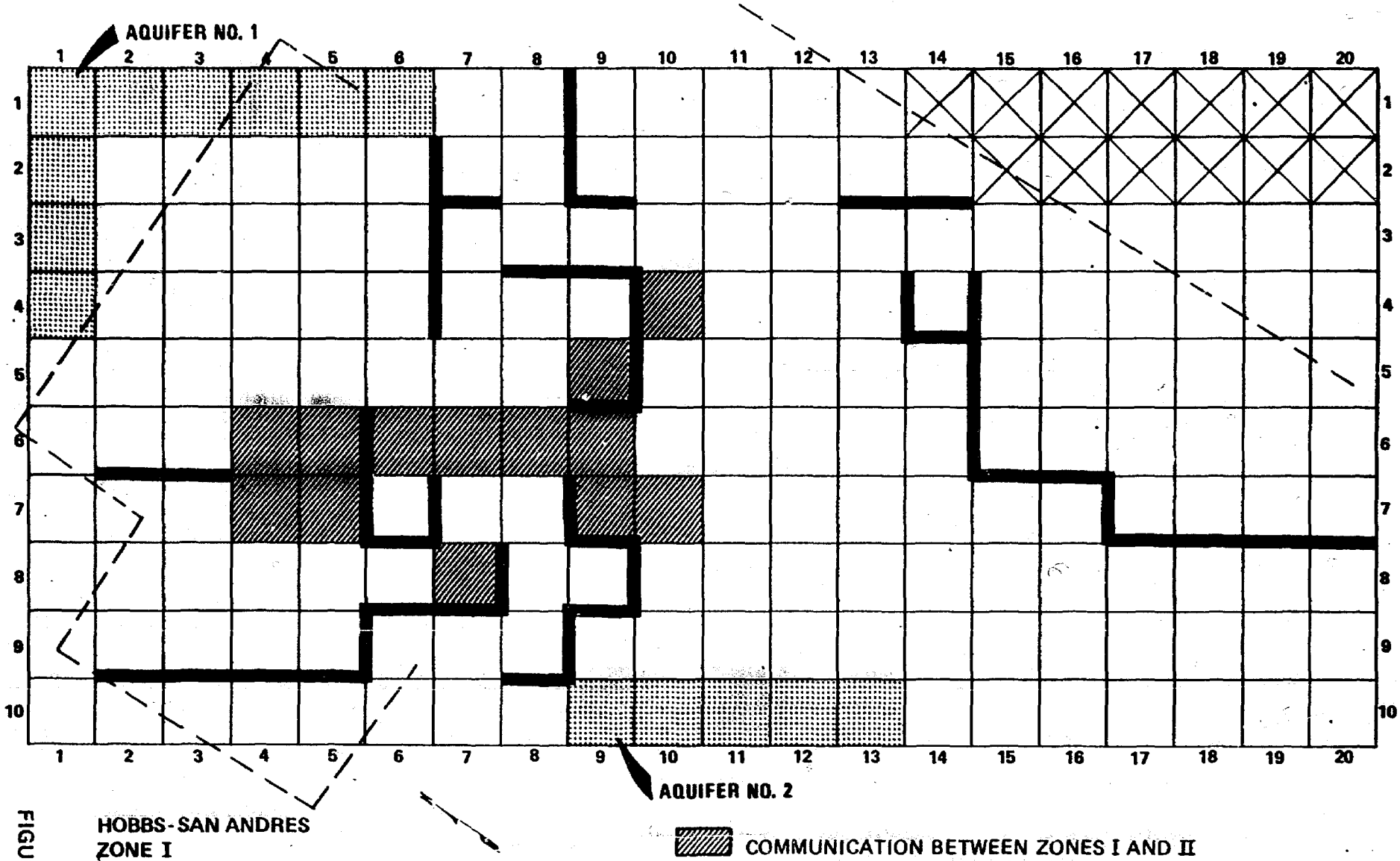


FIGURE 34

HOBBS - SAN ANDRES
ZONE I

SIMULATION STUDY

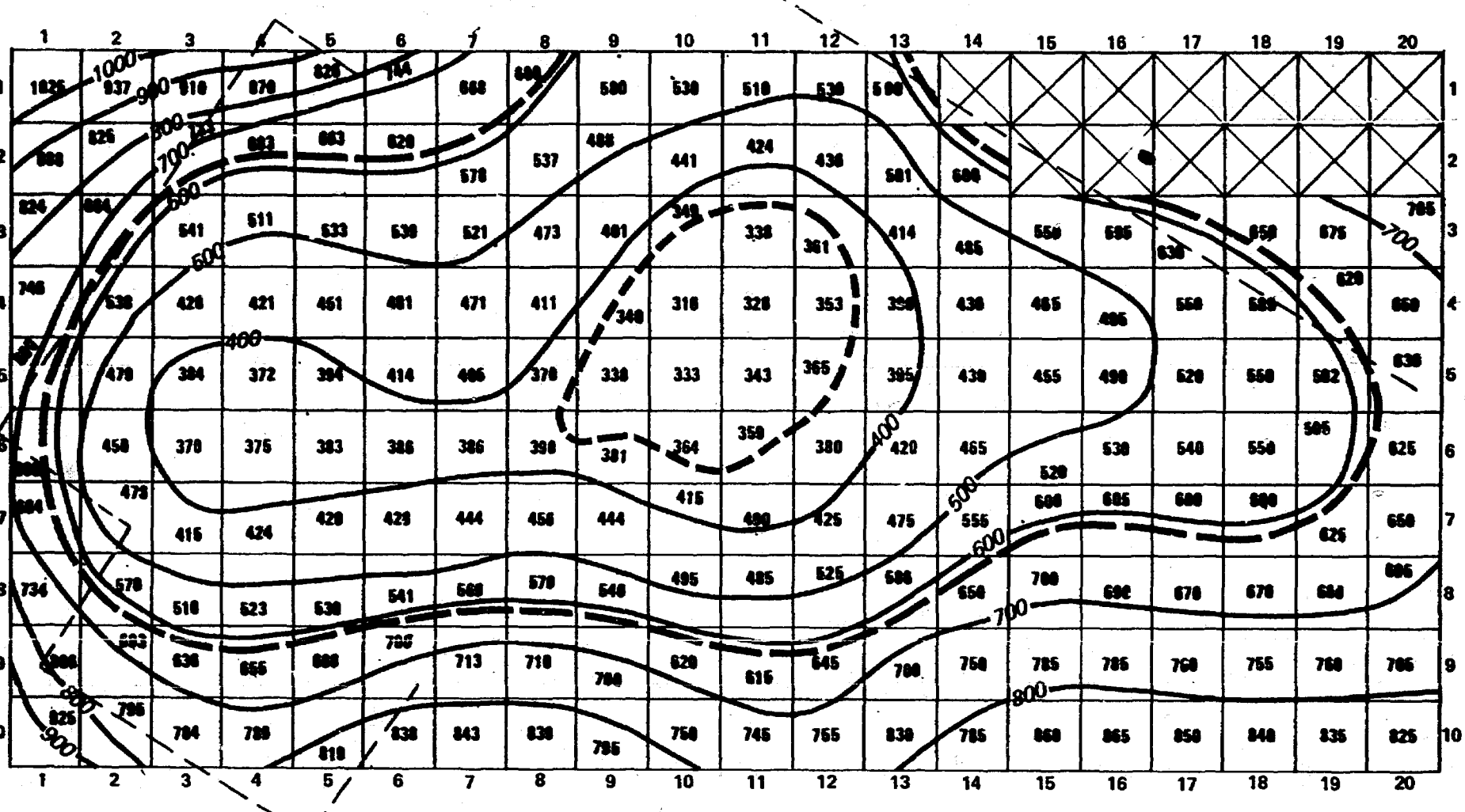


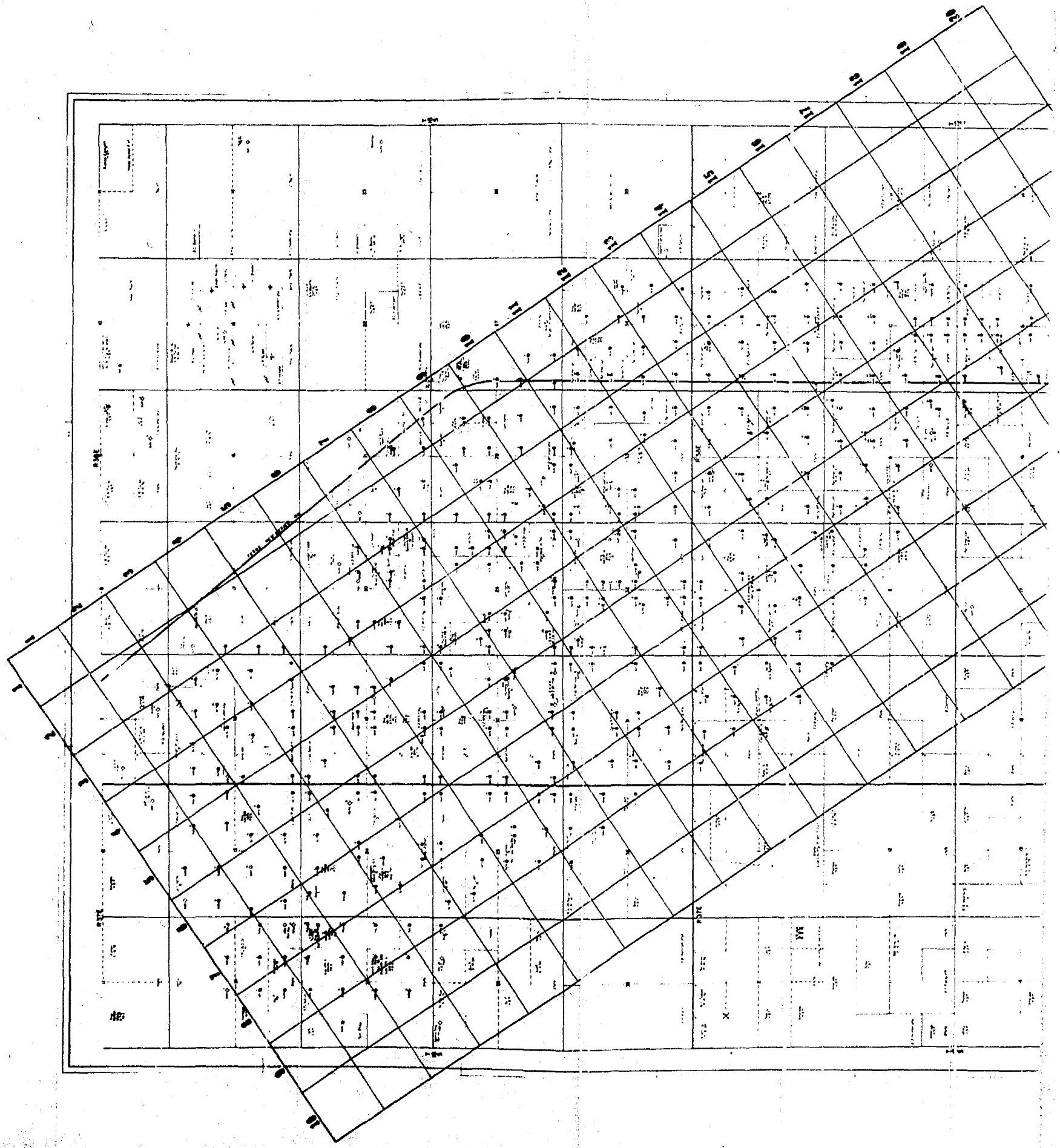
FIGURE 33

HOBBS-SAN ANDRES CONTOURS ON TOP OF ZONE I PAY (FT. SUBSEA)

ORIGINAL GAS–OIL CONTACT = –360'

ORIGINAL OIL–WATER CONTACT = –614'

444 DENOTES SUBSEA ELEVATION OF CENTER OF GRID BLOCK



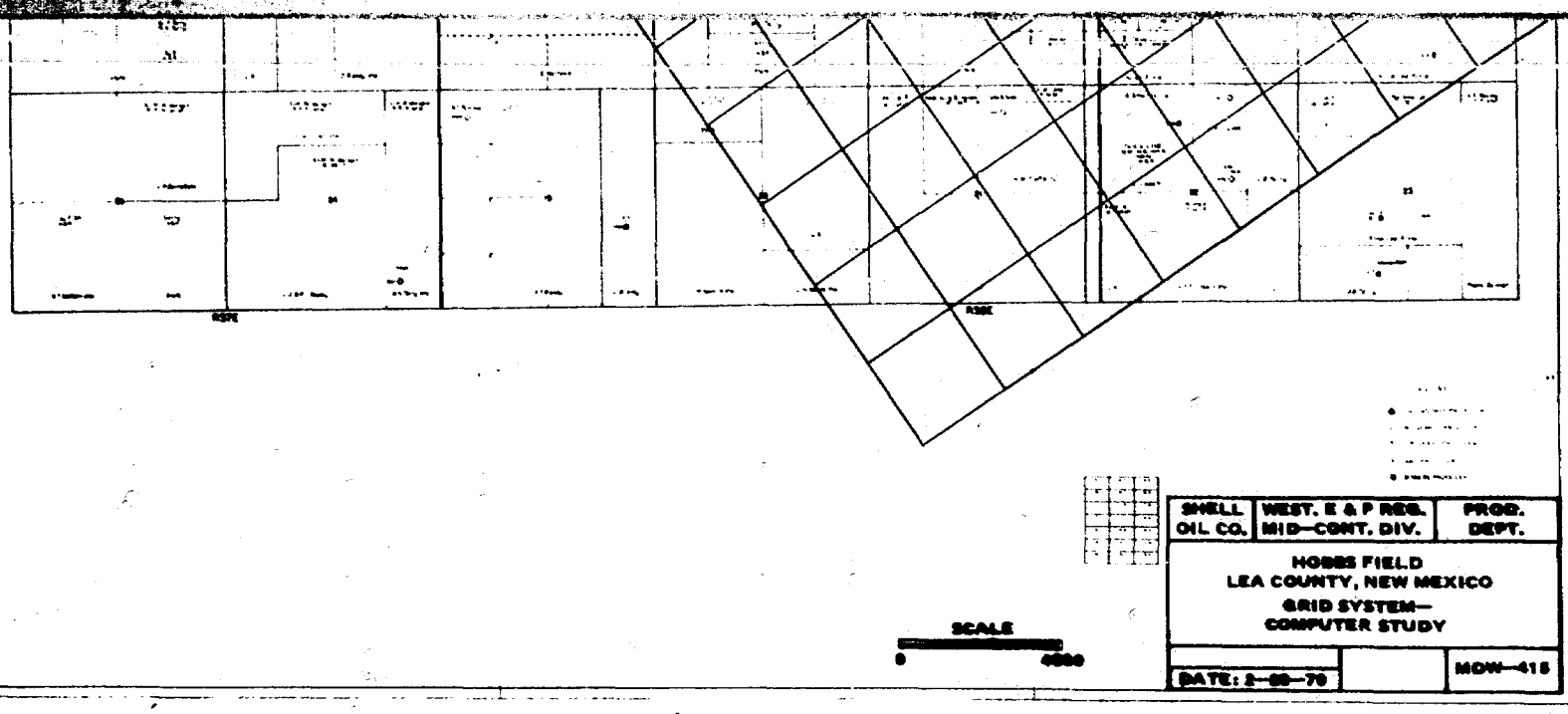
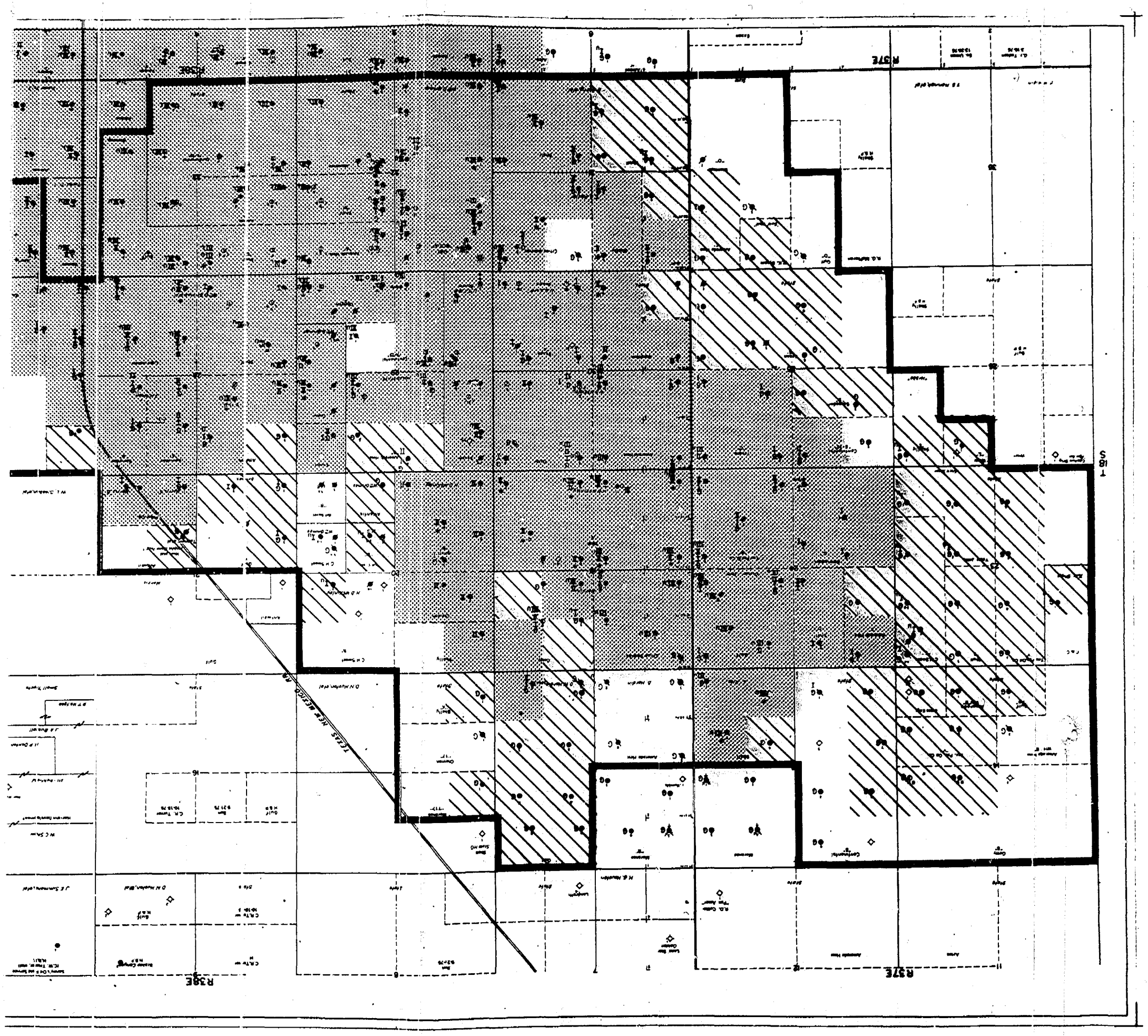

SHELL OIL CO.
WEST. E & P REG. MID-CONT. DIV.
PROD. DEPT.
HOBBS FIELD
LEA COUNTY, NEW MEXICO
GRID SYSTEM—
COMPUTER STUDY
DATE: 2-28-79
MDW-415
SCALE
0
4000

FIGURE 32


R37E
R38E
TEXAS NEW MEXICO RR

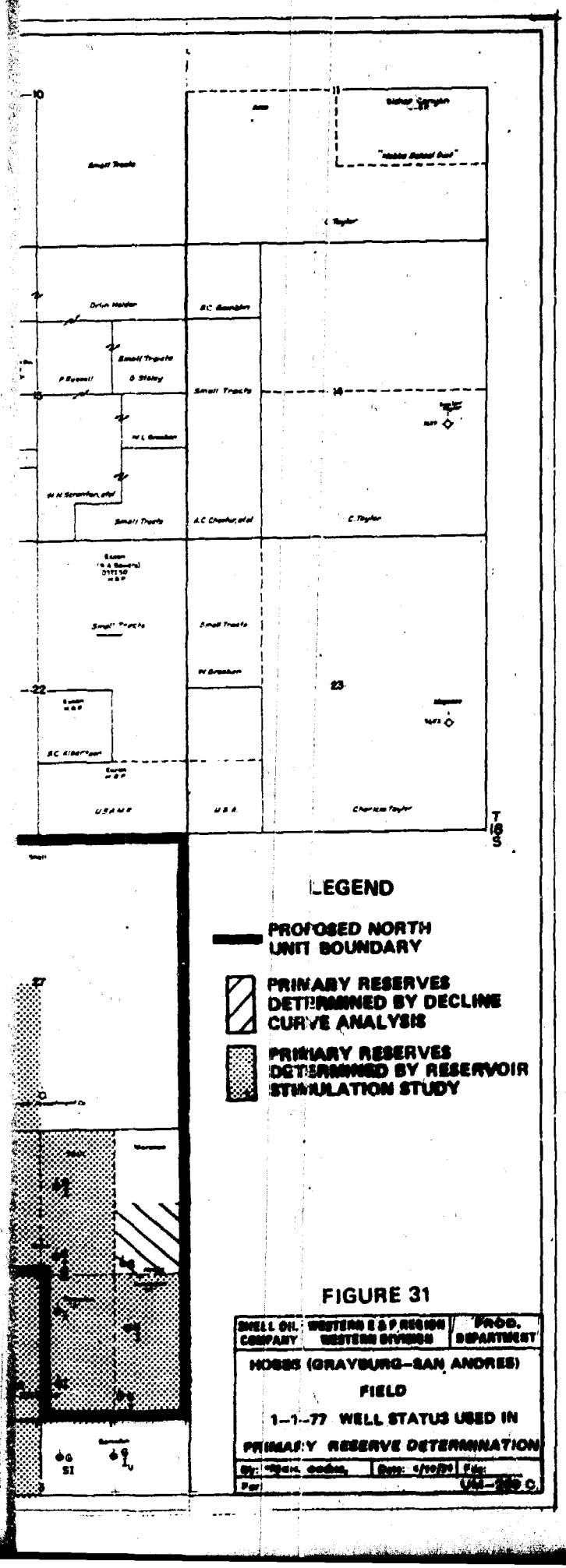
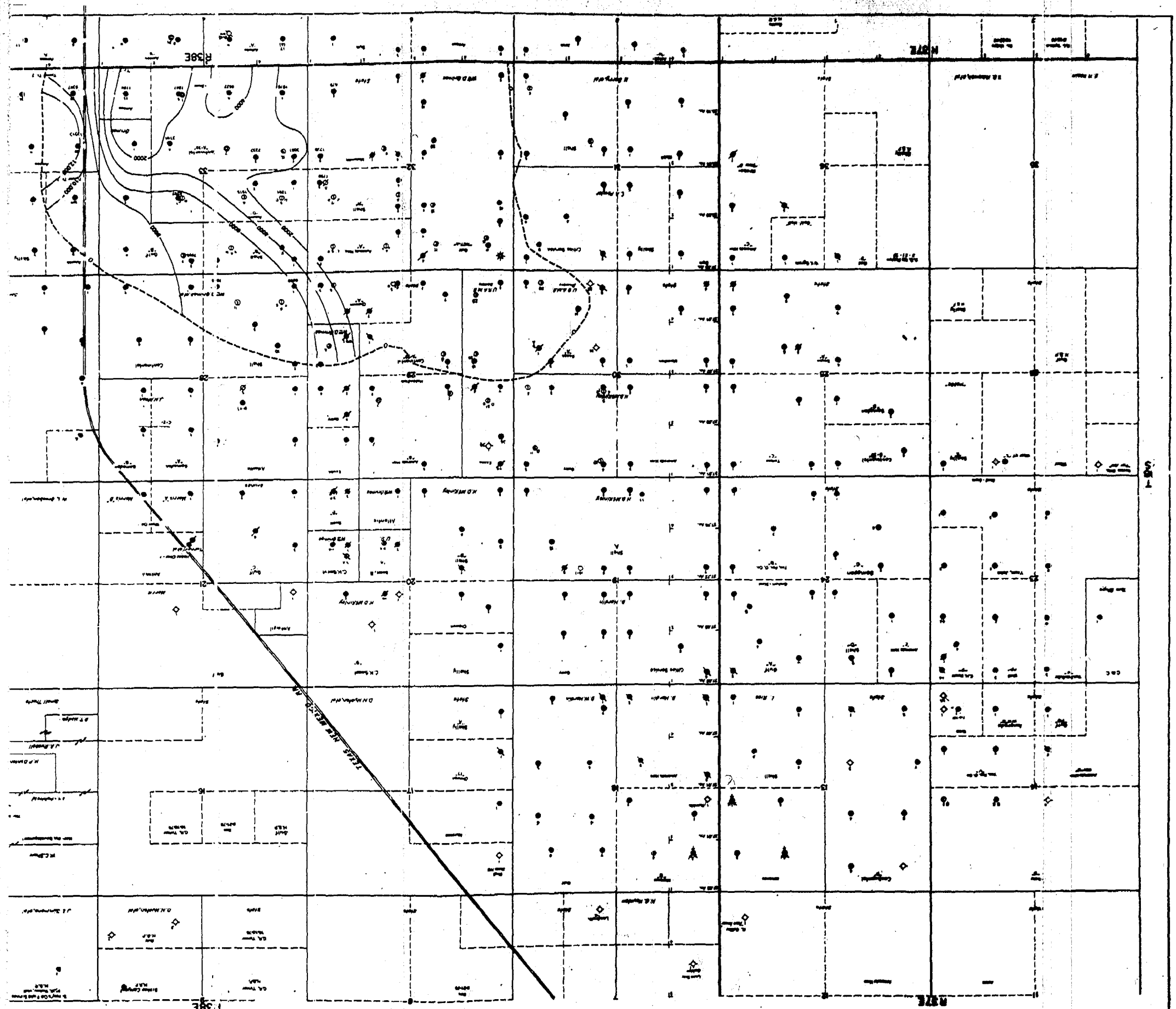


FIGURE 31

SHELL OIL COMPANY	WESTERN E & P REGION WESTERN DIVISION	PROD. DEPARTMENT

HOBBS (GRAYBURG–SAN ANDRES) FIELD

1–1–77 WELL STATUS USED IN PRIMARY RESERVE DETERMINATION



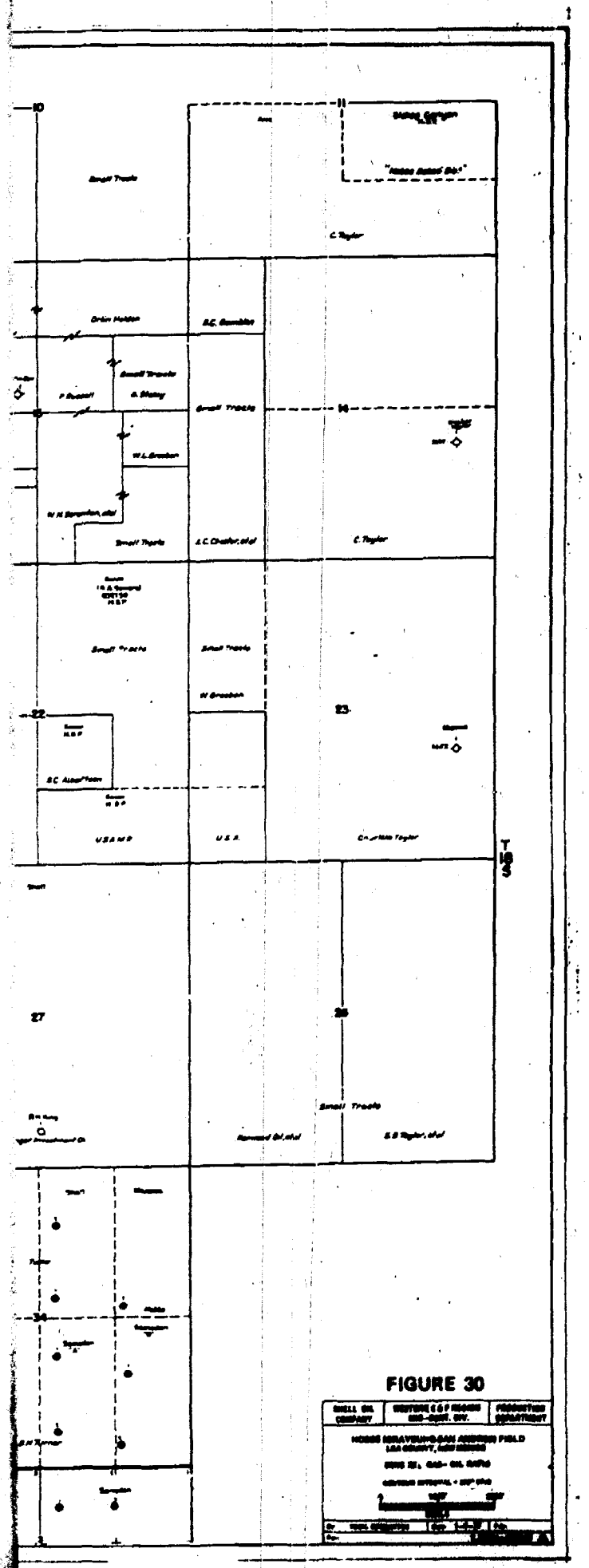
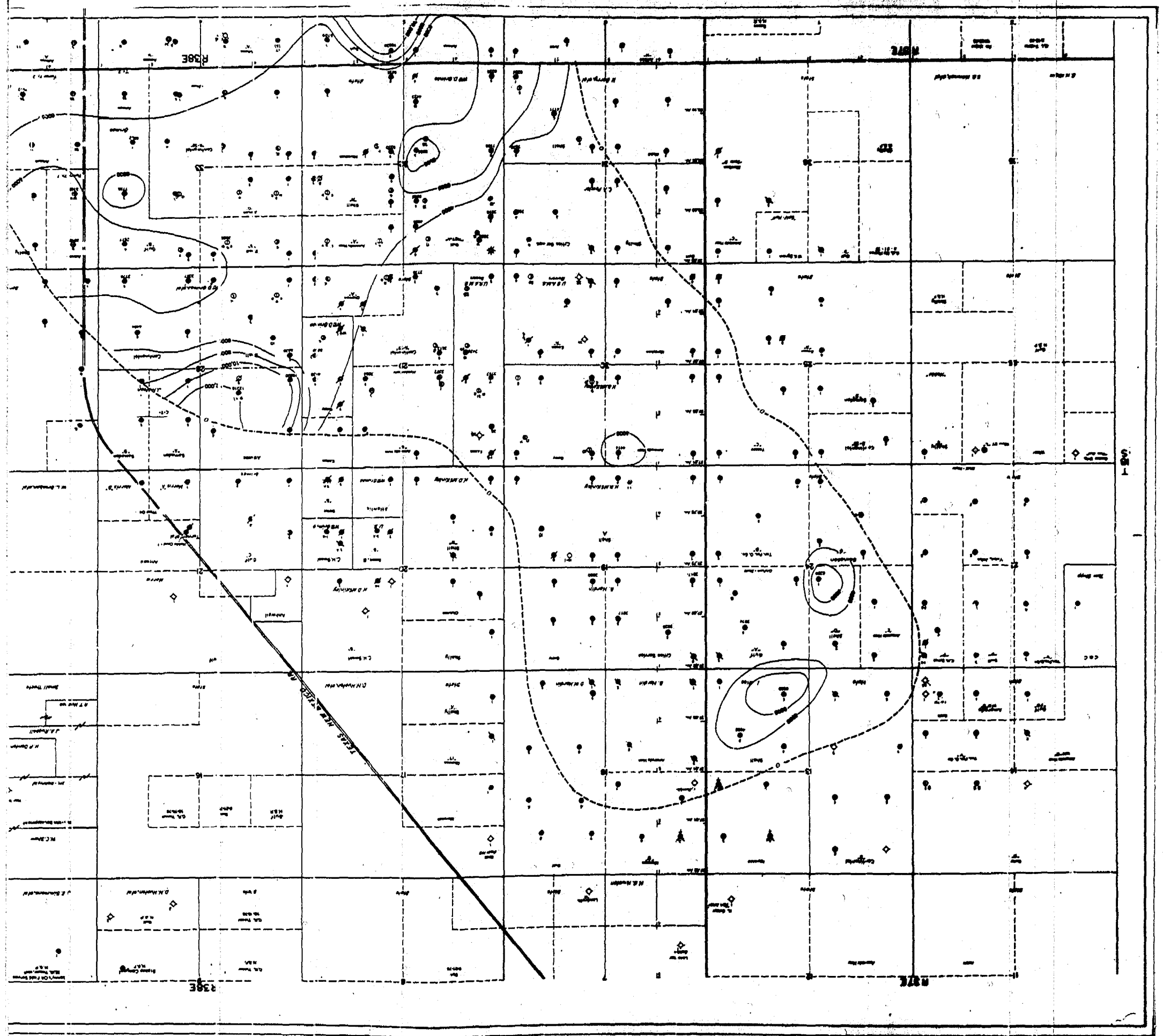

10
11
Small Tracts
C. Taylor
Drain Holden
S.C. Gamblin
Small Tracts
P. Russell
G. Staley
Small Tracts
14
W.L. Gresham
W.H. Scranton, et al
Small Tracts
J.C. Chester, et al
C. Taylor
Small Tracts
Small Tracts
W. Gresham
22
23
S.C. Albertson
U.S.A.M.R.
U.S.A.
T
18
S
27
26
Small Tracts
Norwood Oil, et al
S.B. Taylor, et al
34

FIGURE 30


R38E
R37E
TEXAS NEW MEXICO RR

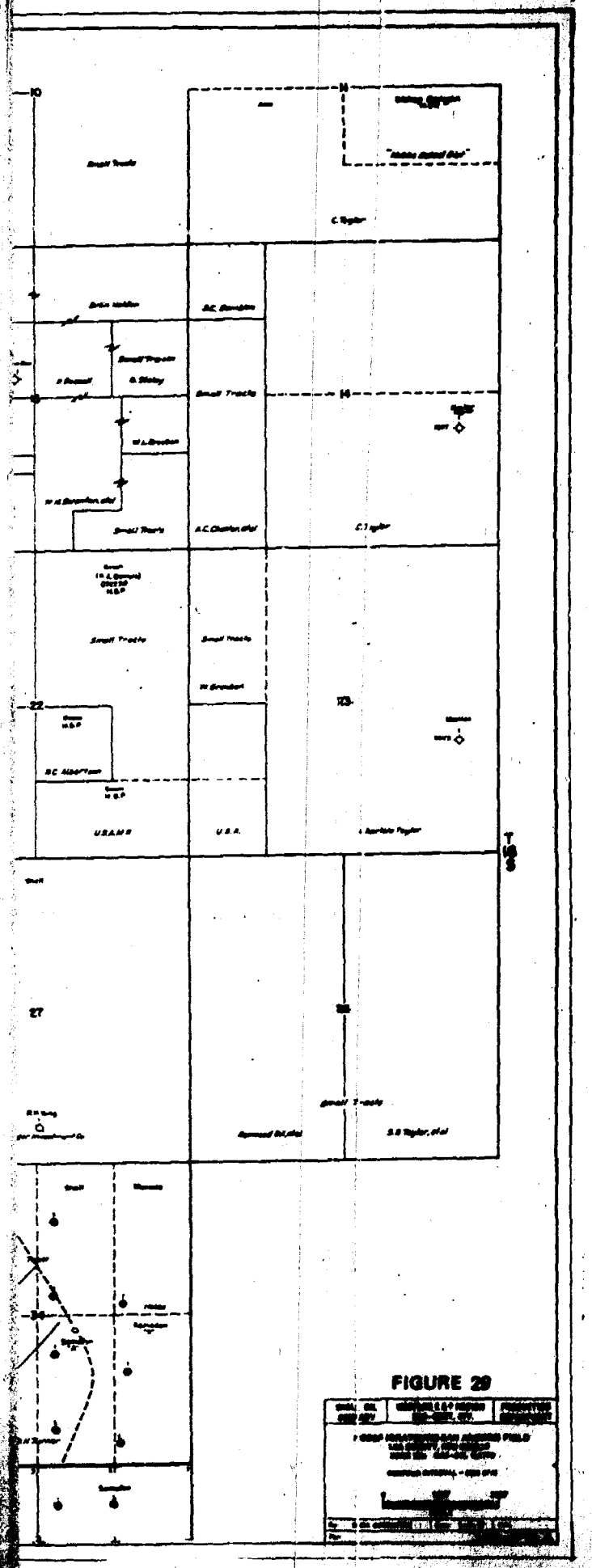
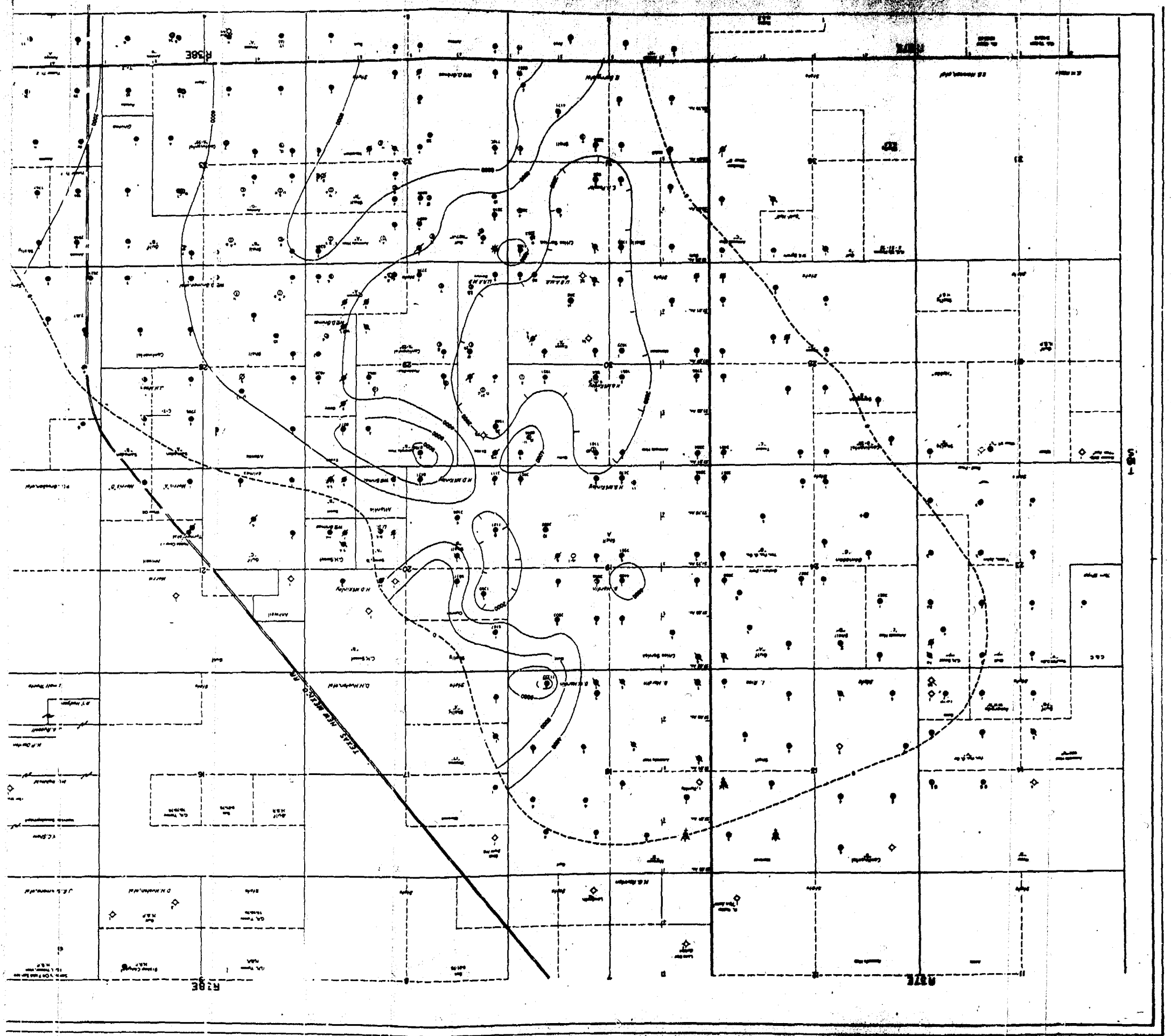
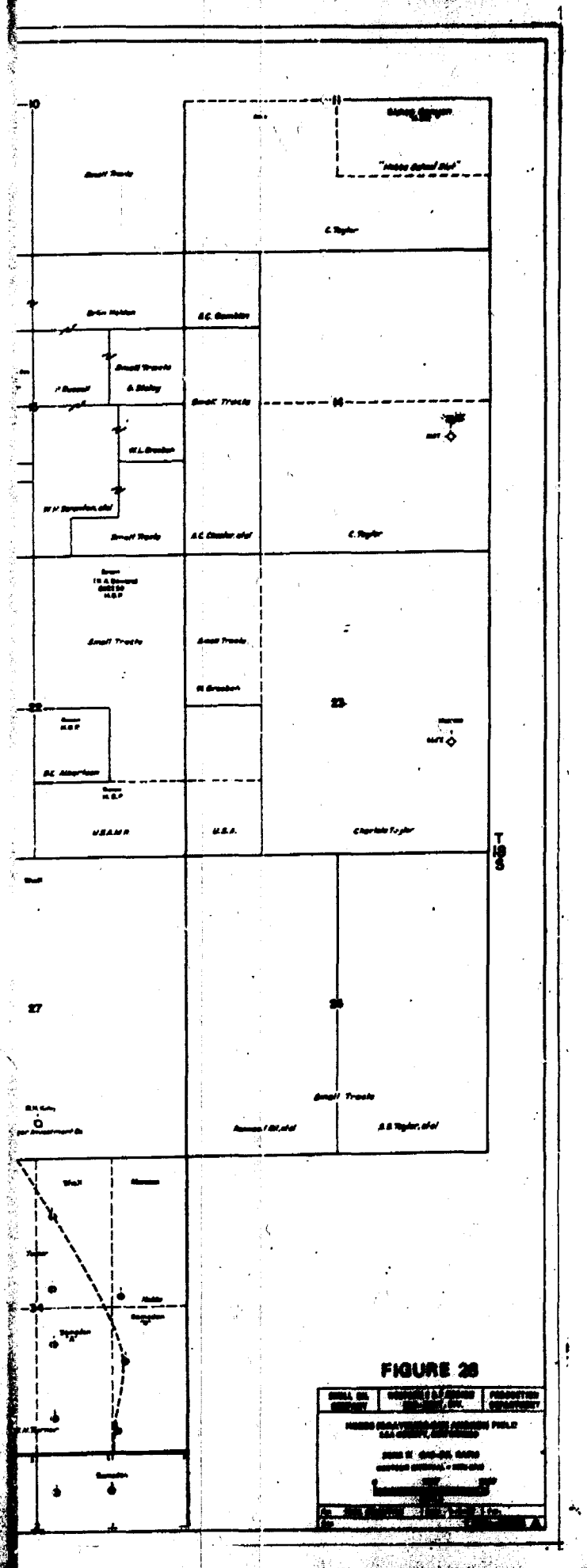


FIGURE 29


R38E
R37E
R38E
TEXAS NEW MEXICO RR



10
11
Small Tracts
C. Taylor
Brian Holden
A.C. Gamblin
Small Tracts
Small Tracts
14
W.L. Greeben
Small Tracts
A.C. Chester, et al
C. Taylor
Small Tracts
Small Tracts
W. Greeben
22
23
B.C. Albertson
U.S.A.M.R.
U.S.A.
Charlotte Taylor
T 18 S
27
26
Small Tracts
34

FIGURE 28

R37E

R38E

T 15 S

TEXAS NEW MEXICO

R38E

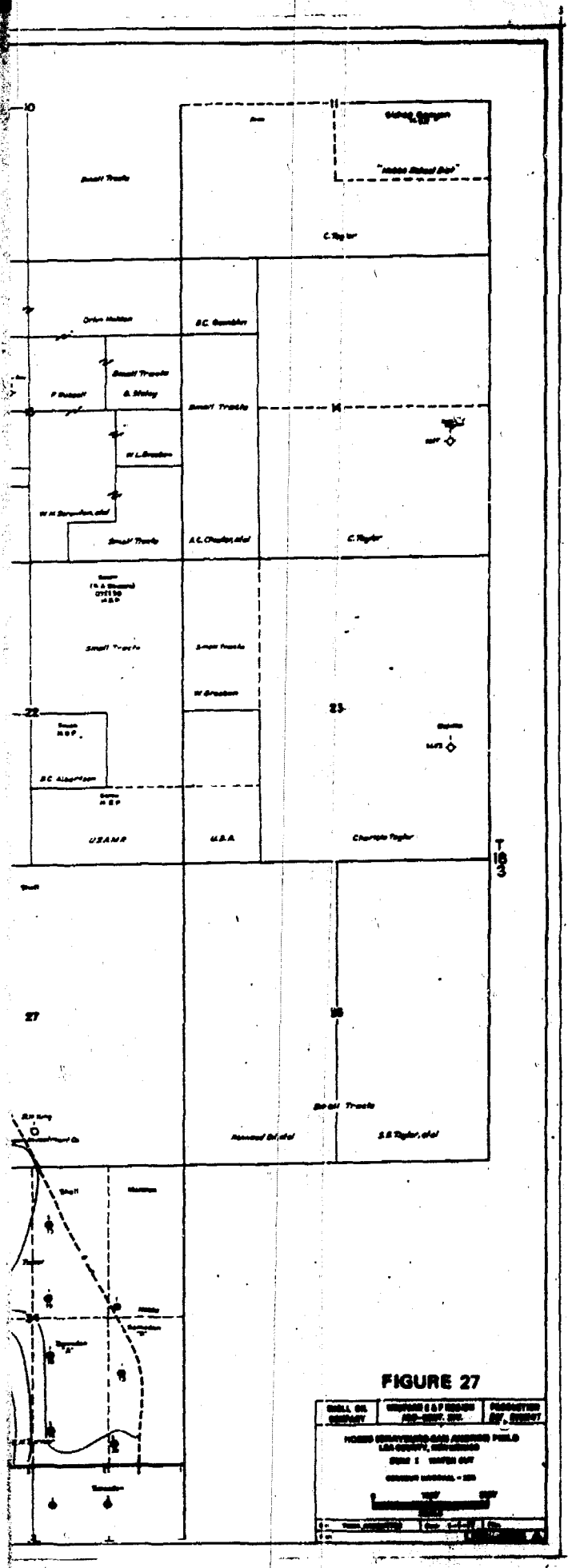
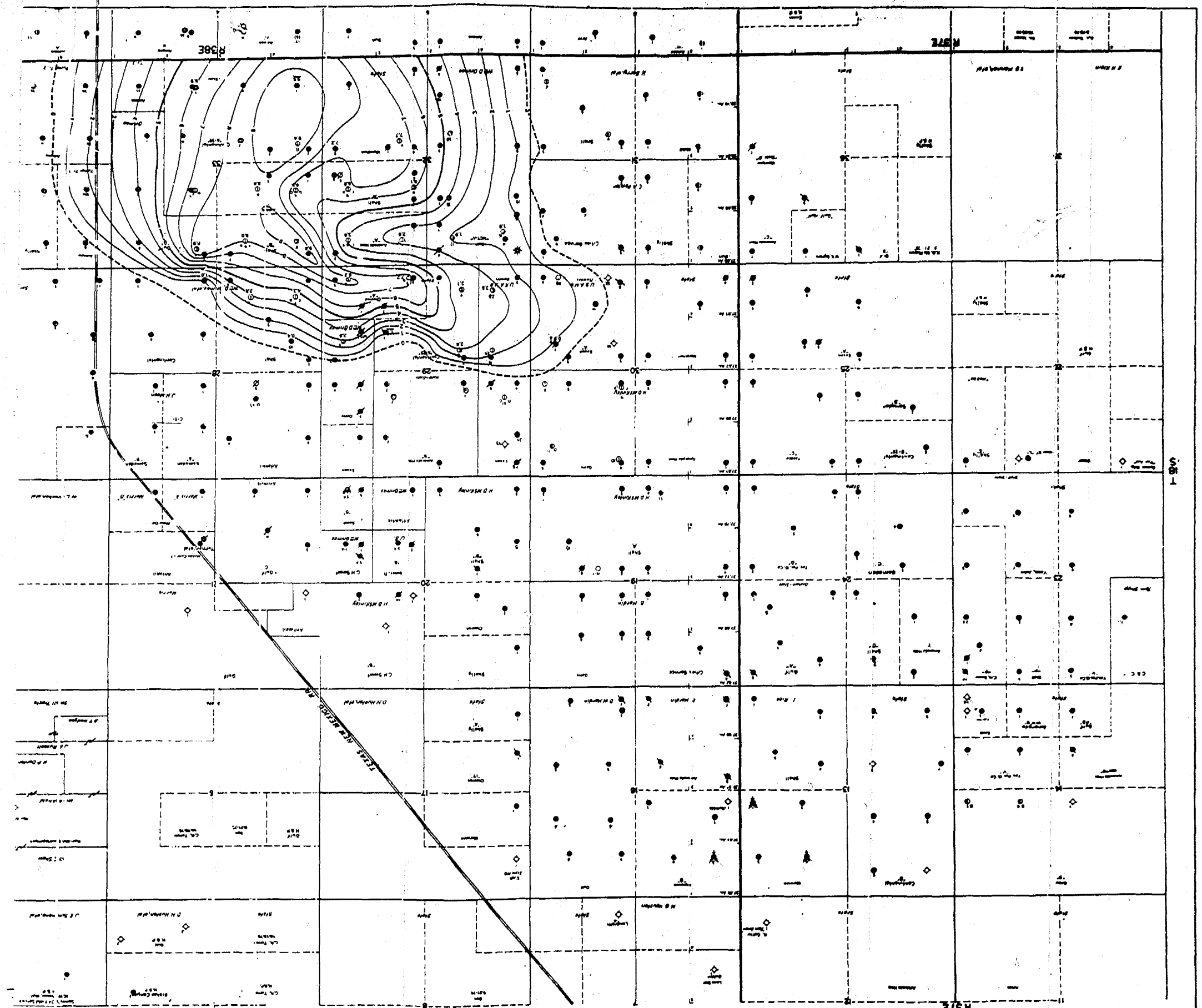

10
11
Small Tracts
C. Taylor
Orlin Holden
B.C. Gamblin
Small Tracts
Small Tracts
14
W.L. Brooks
Small Tracts
A.C. Chester, et al
C. Taylor
Small Tracts
Small Tracts
W. Brooks
22
23
B.C. Albertson
U.S.A.M.R.
U.S.A.
Charlotte Taylor
T
18
3
27
Small Tracts
S.S. Taylor, et al

FIGURE 27


R38E
R37E
R38E
R37E
TEXAS NEW MEXICO RR

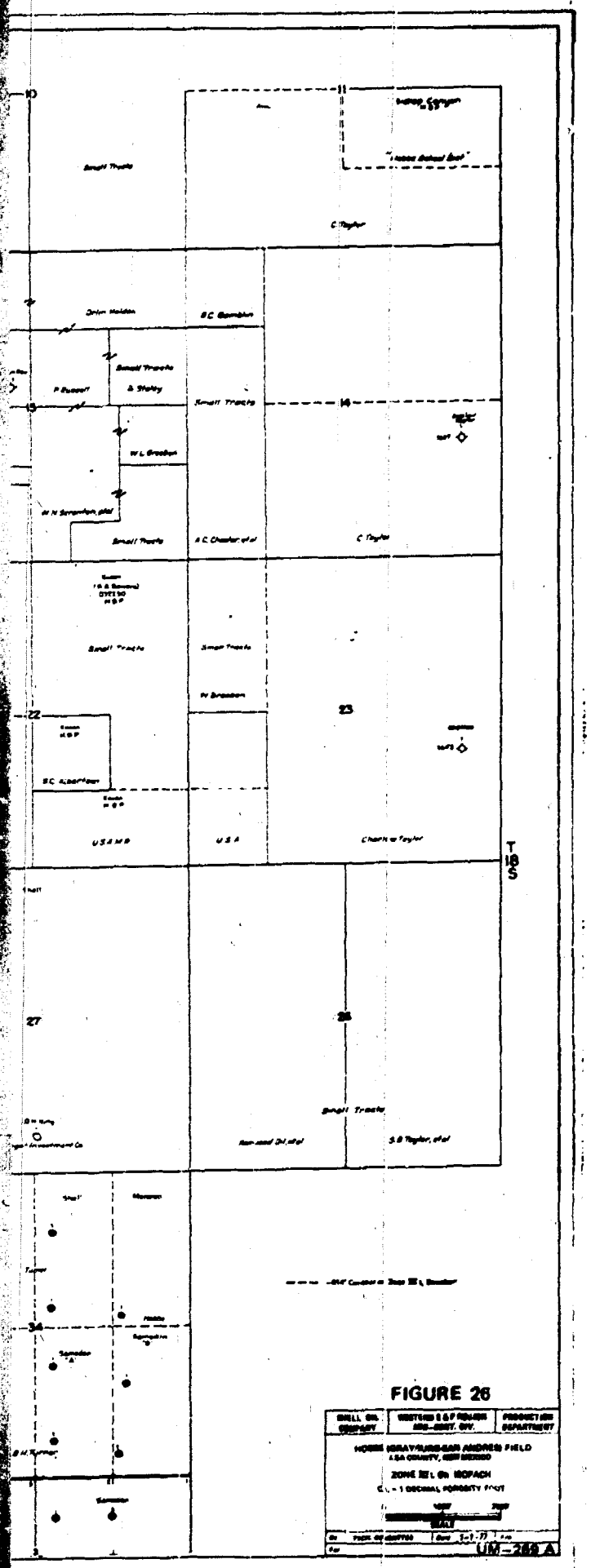


FIGURE 26

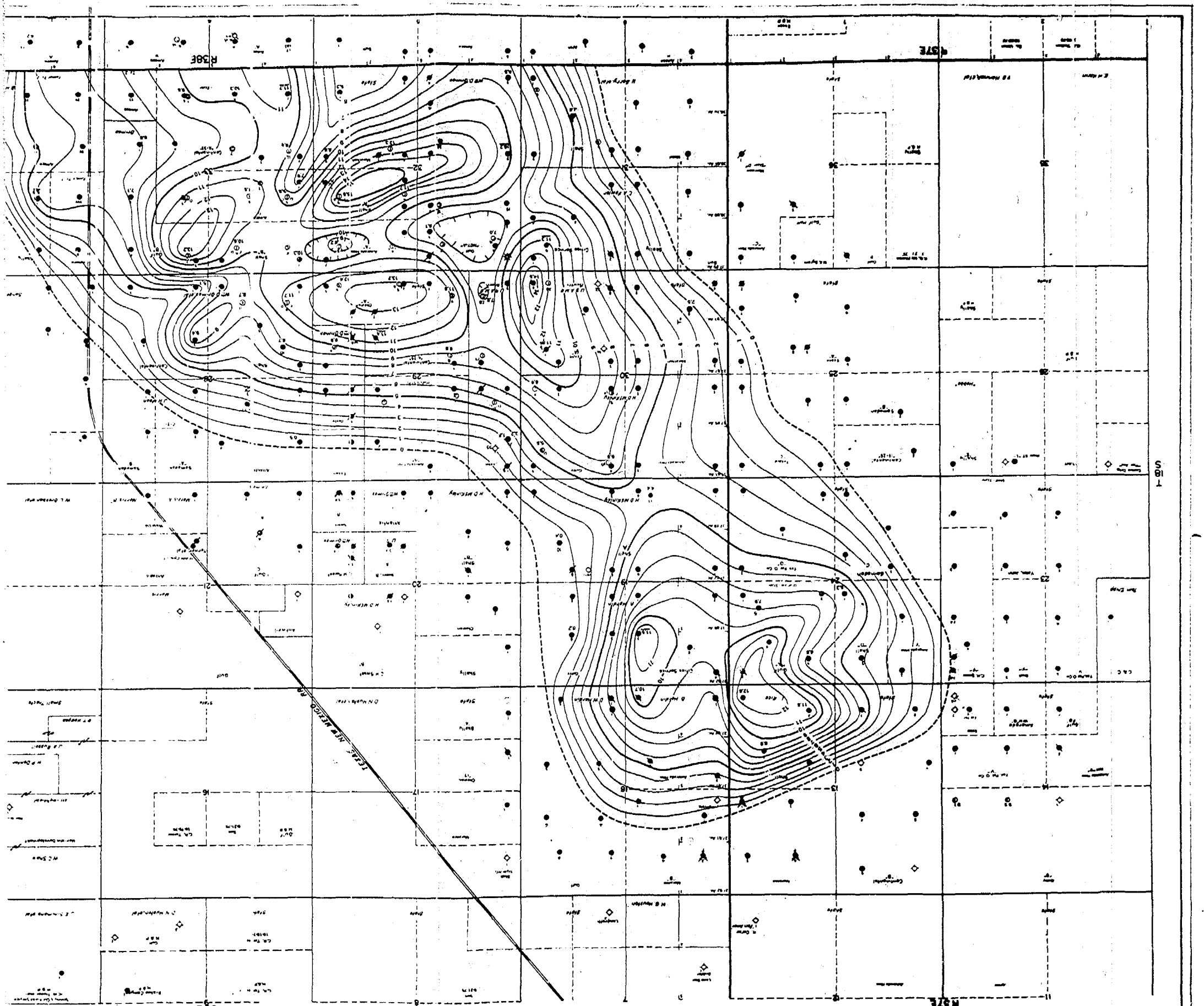
SHELL OIL COMPANY | WESTERN E & P REGION MID-CONT. DIV. | PRODUCTION DEPARTMENT

HOBBS (GRAYBURG-SAN ANDRES) FIELD
LEA COUNTY, NEW MEXICO

ZONE XII L On 160 ACRE
C.L. = 1 DECIMAL POROSITY FOOT

SCALE

UM-289 A


R38E
R37E
T18S
TEXAS NEW MEXICO RR

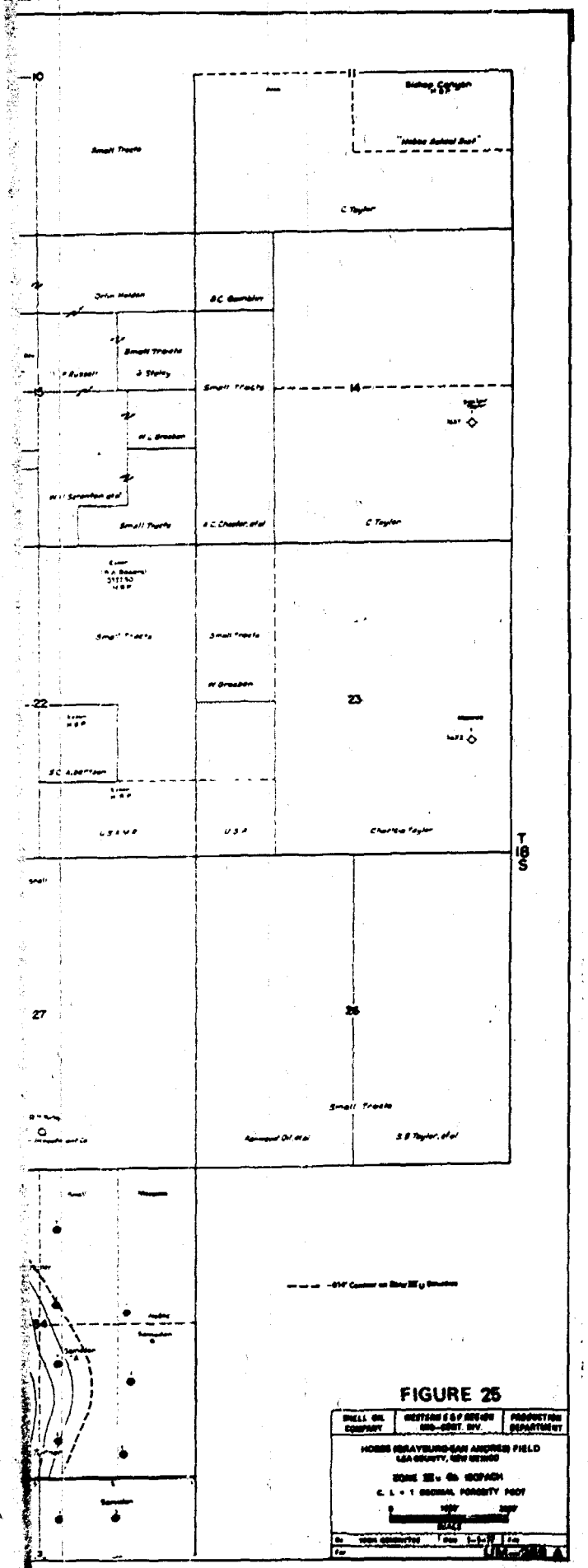


FIGURE 25

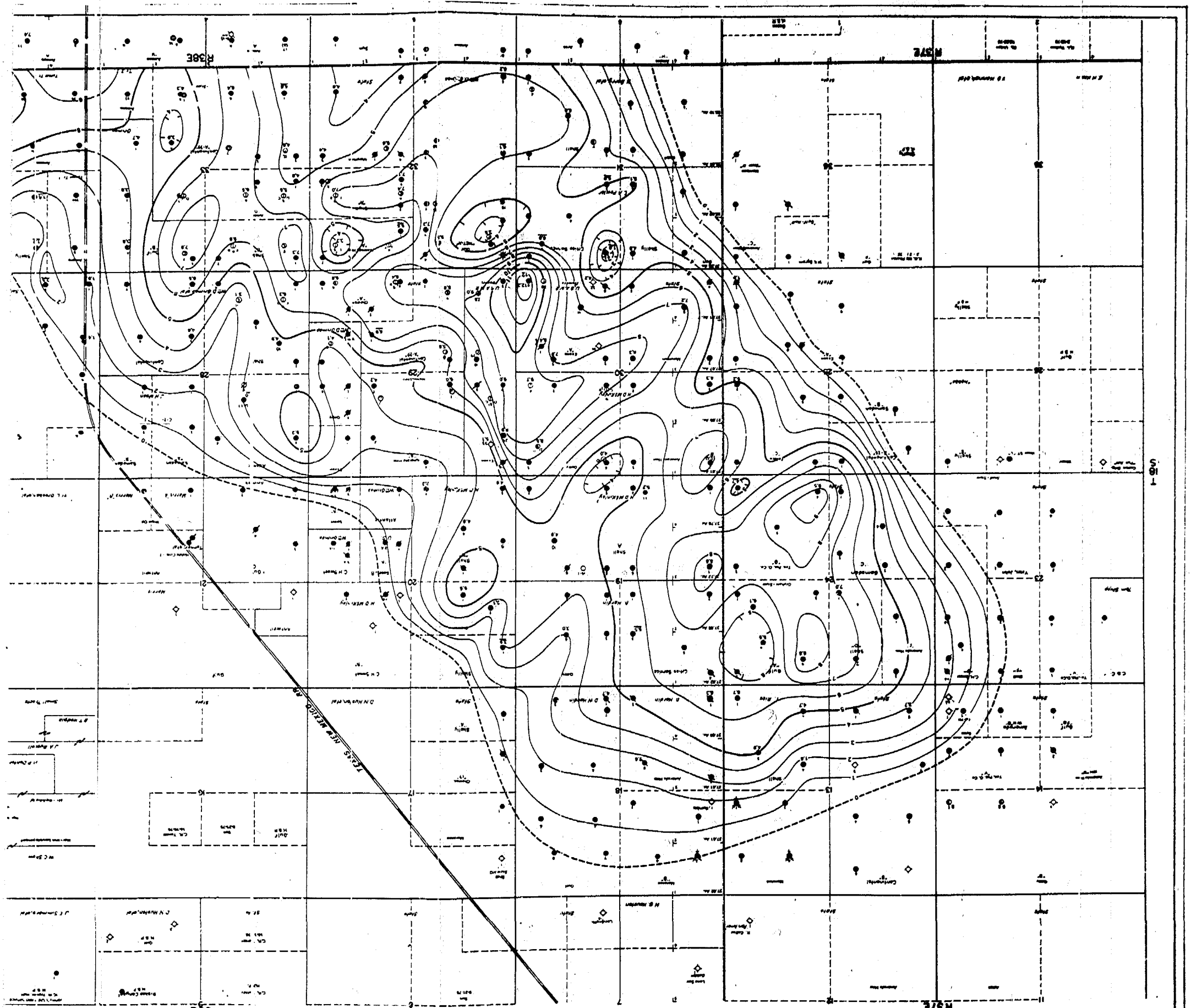
SHELL OIL COMPANY	WESTERN E & P REGION MID-CONT. DIV.	PRODUCTION DEPARTMENT

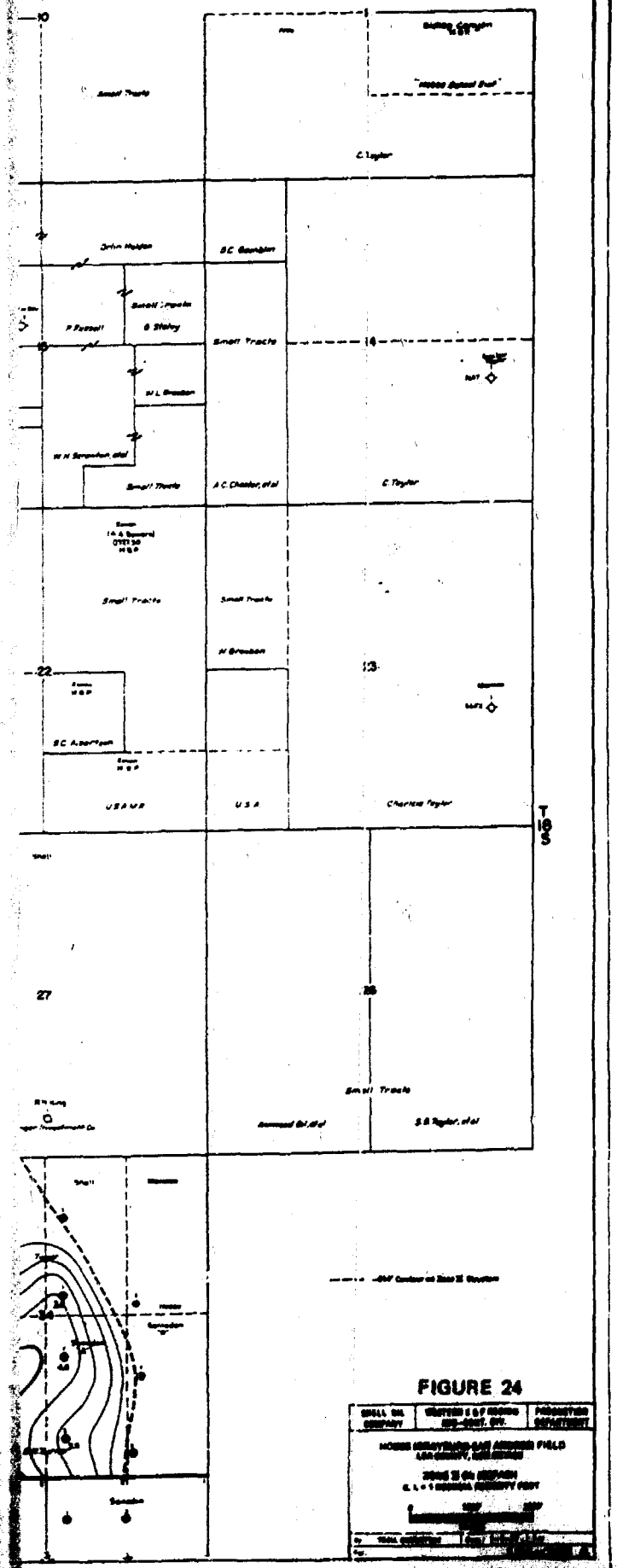
HOBBS (GRAYBURG-SAN ANDRES) FIELD
LEA COUNTY, NEW MEXICO

ZONE IIIc + IIIb ISOPACH

C. I. = 1 EQUIVALENT POROSITY FOOT

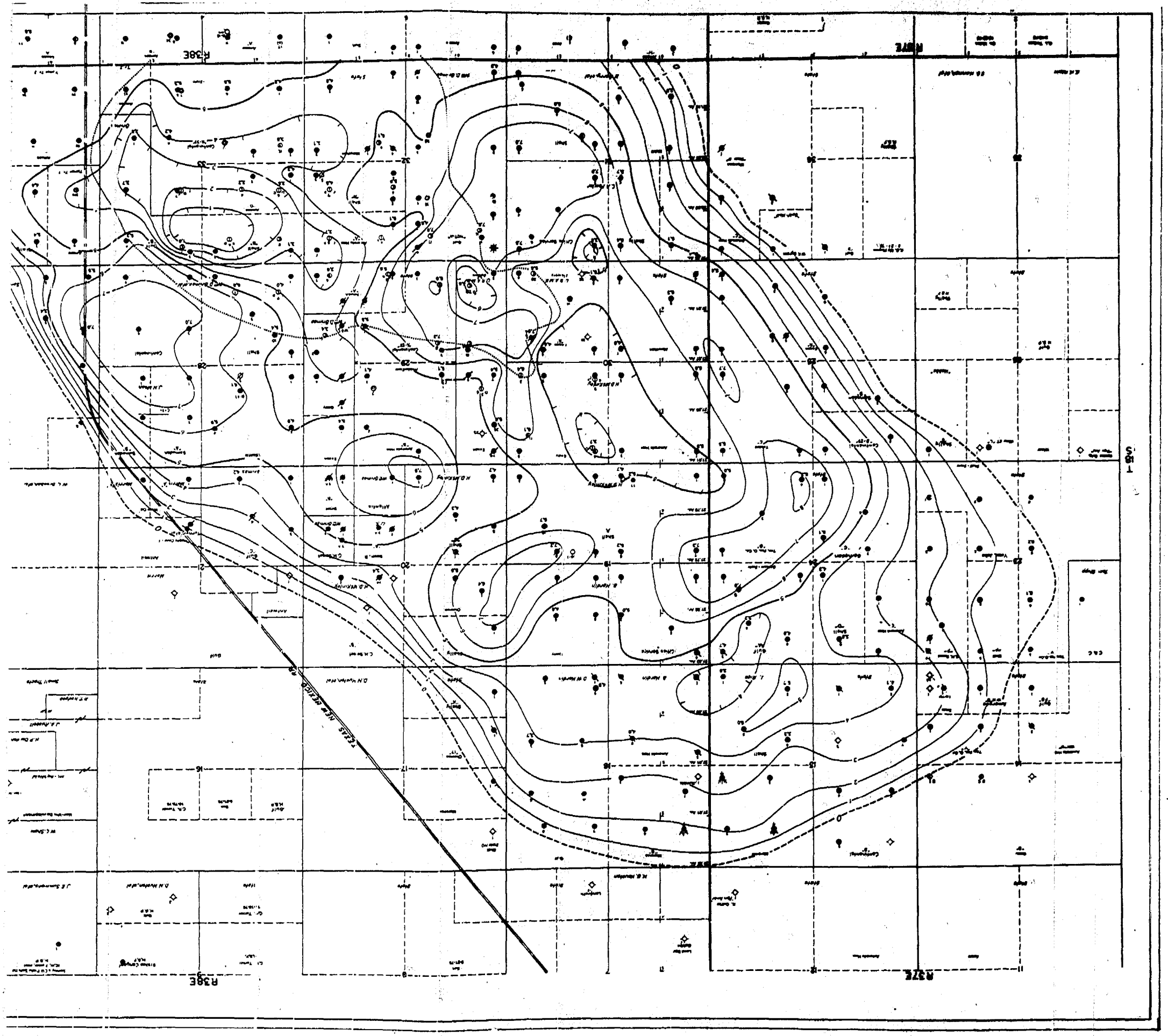
SCALE


R38E
R37E
T18S
TEXAS NEW MEXICO RR



10
Small Tracts
C. Taylor
Orlin Holden
S.C. Gamblin
Small Tracts
P. Russell
G. Staley
Small Tracts
14
W.L. Brooken
W.H. Scranton, et al
Small Tracts
A.C. Chester, et al
C. Taylor
Small Tracts
Small Tracts
H. Brooken
22
13
S.C. Albertson
U.S.A.M.R.
U.S.A.
Charles Taylor
T 18 S
27
26
Small Tracts
Ammond Oil, et al
S.B. Taylor, et al
Shell
Sanadon

FIGURE 24


R38E
R37E
TEXAS NEW MEXICO

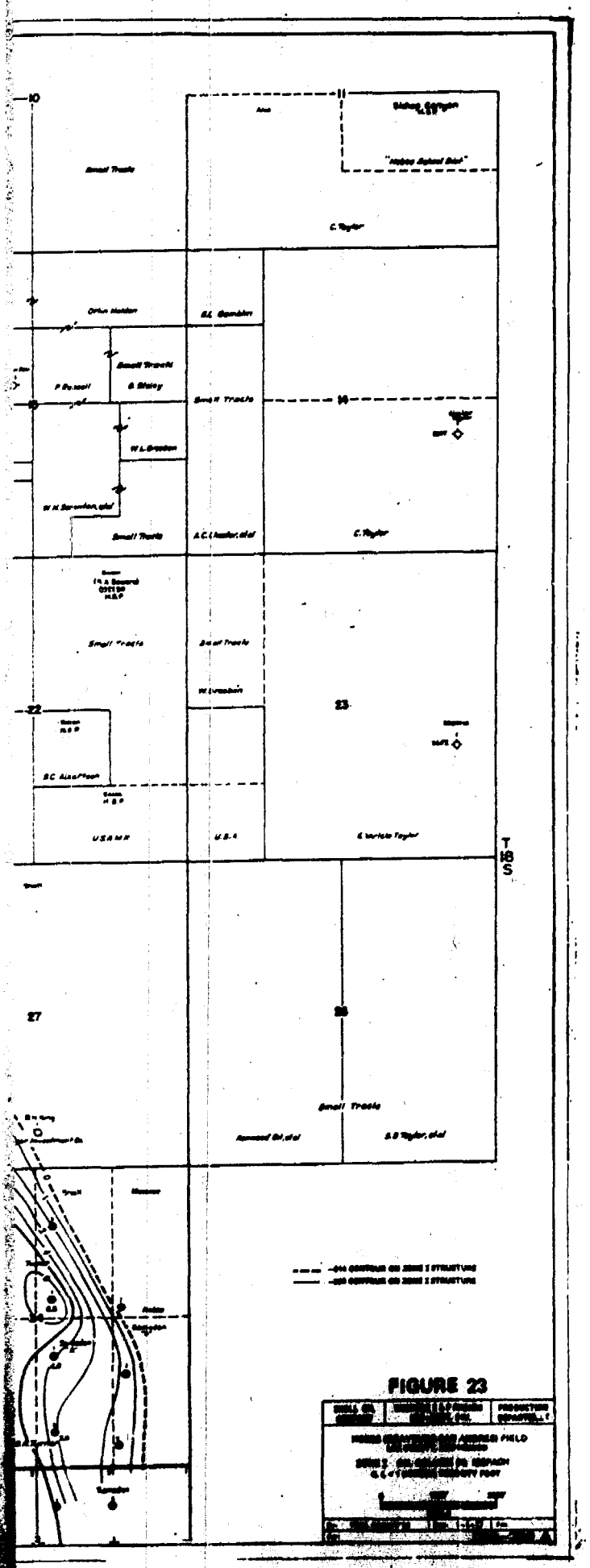
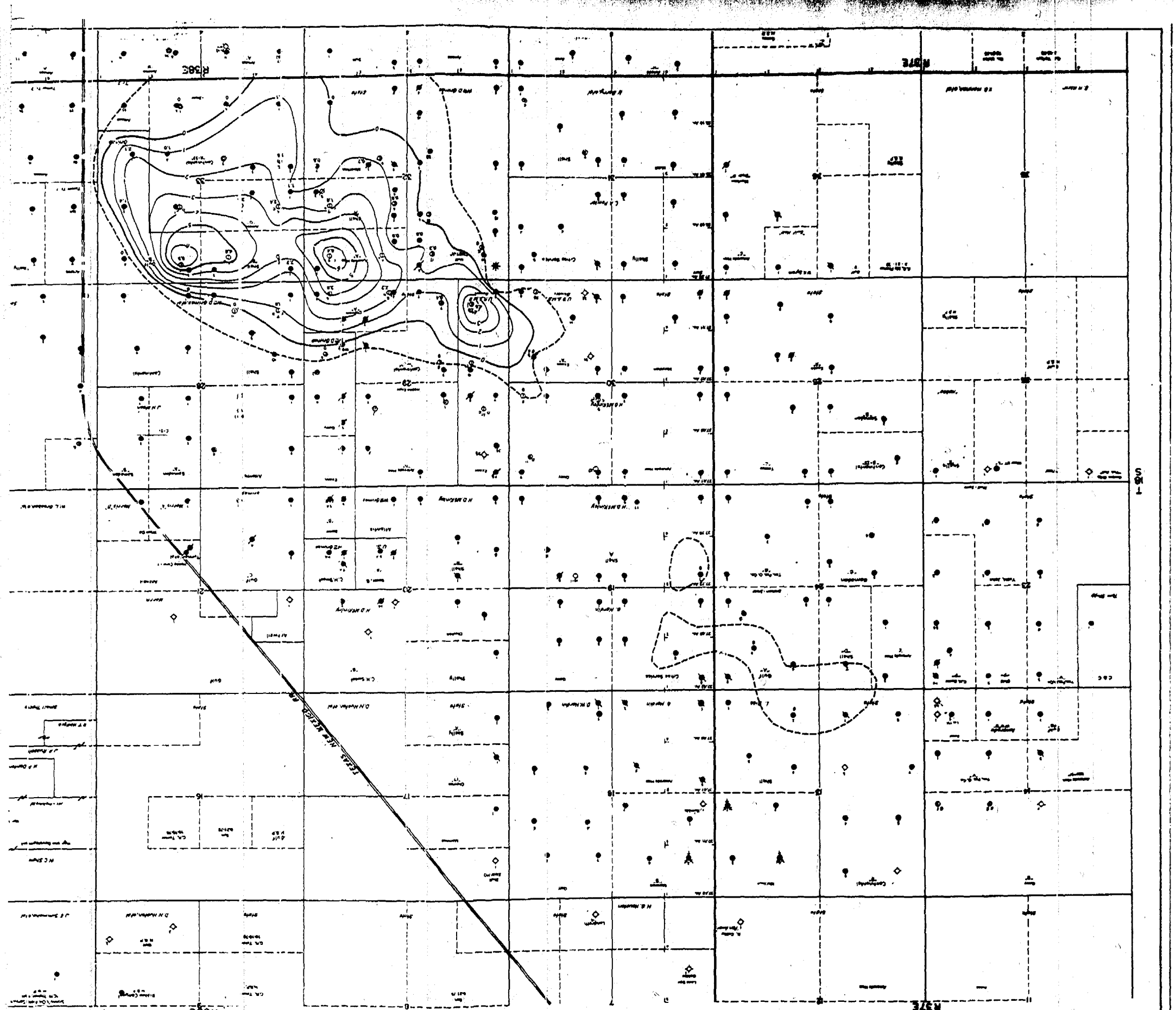

10
11
Small Tracts
C. Taylor
Small Tracts
14
Small Tracts
C. Taylor
Small Tracts
Small Tracts
22
23
T
18
S
27
26
Small Tracts

FIGURE 23


R38E
R37E
T 16 S
TEXAS
NEW MEXICO

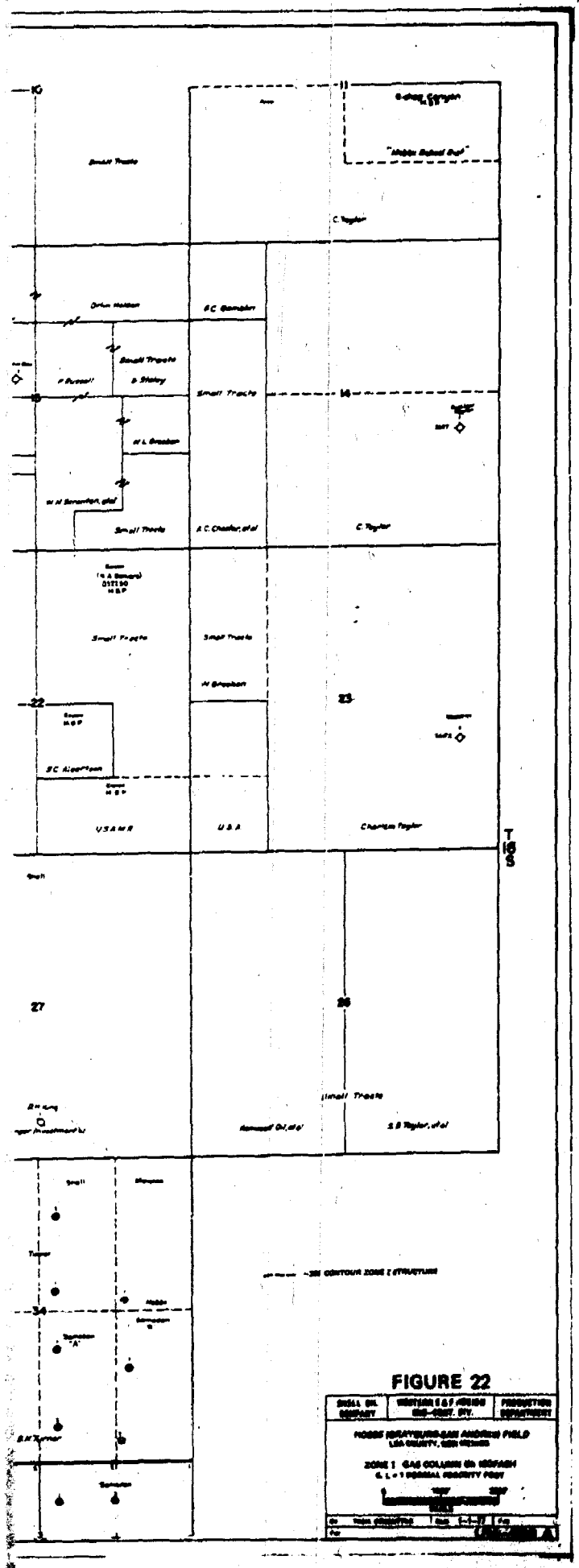
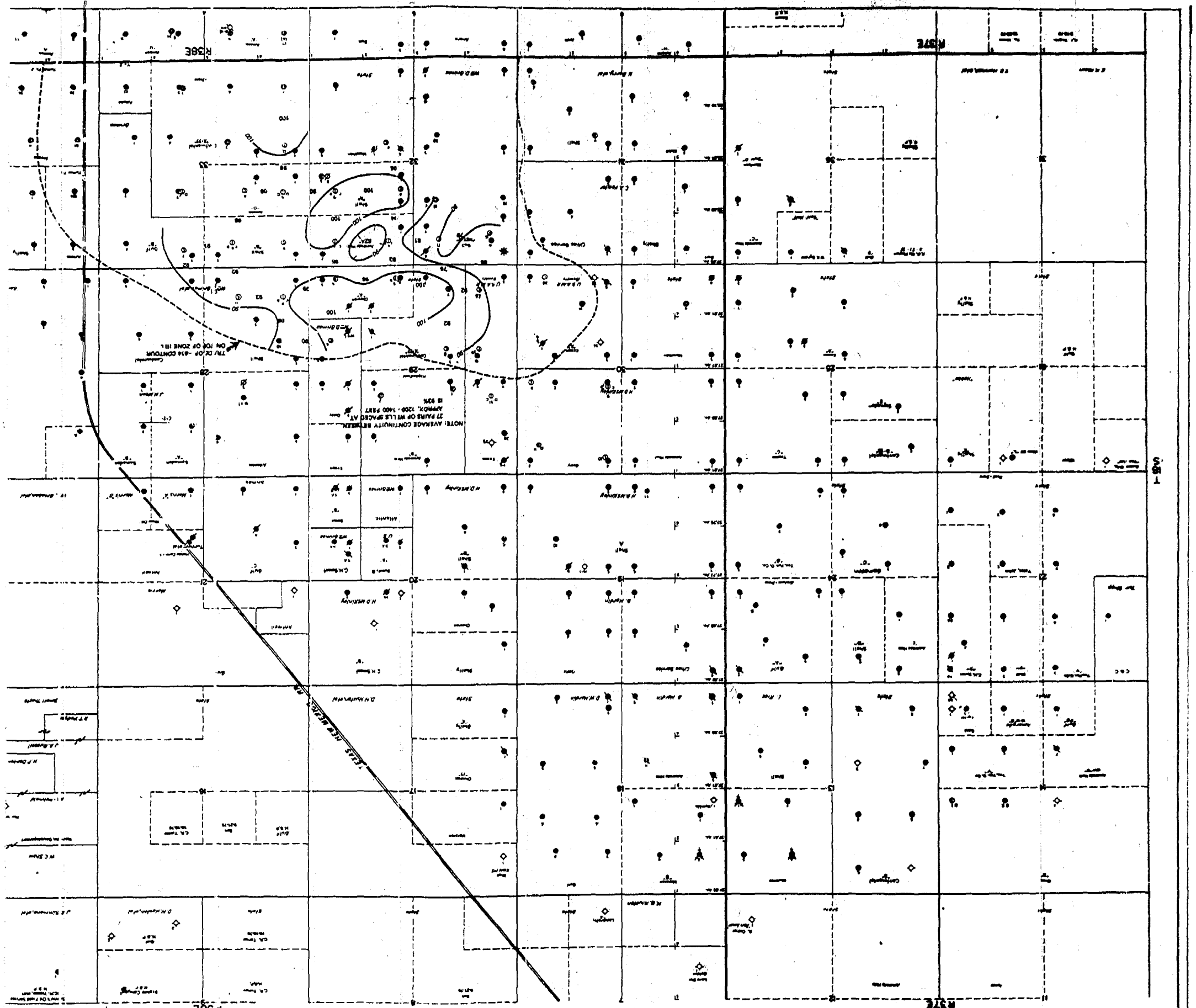


FIGURE 22

SHELL OIL COMPANY | WESTERN E & P REGION MID-CONT. DIV. | PRODUCTION DEPARTMENT

HOBBS (GRAYBURG-SAN ANDRES) FIELD
LEA COUNTY, NEW MEXICO

ZONE 1 GAS COLUMN ON ISOFACH
C. L. = 1 NORMAL POROSITY FOOT


R 38E
R 37E
T 18S
TEXAS NEW MEXICO RR
NOTE: AVERAGE CONTINUITY BETWEEN 27 PAIRS OF WELLS SPACED AT APPROX. 1200 - 1400 FEET IS 93%
TRUE OF -614 CONTOUR ON TOP OF ZONE III

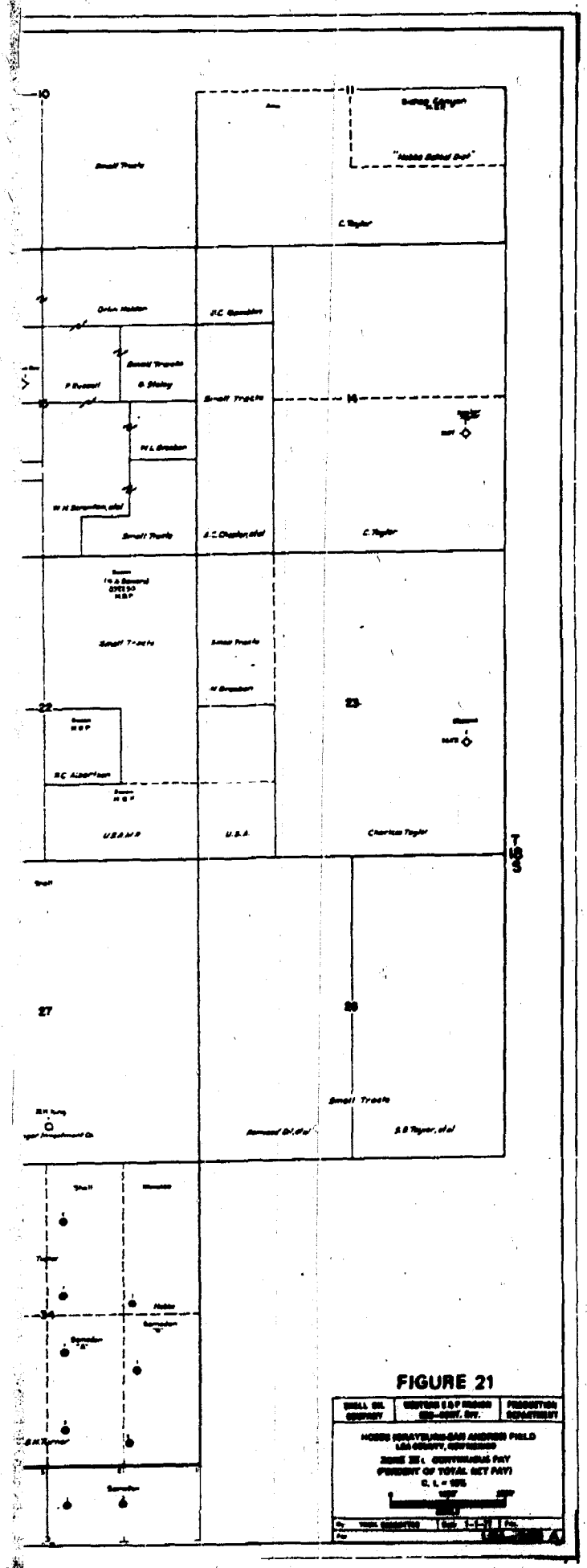
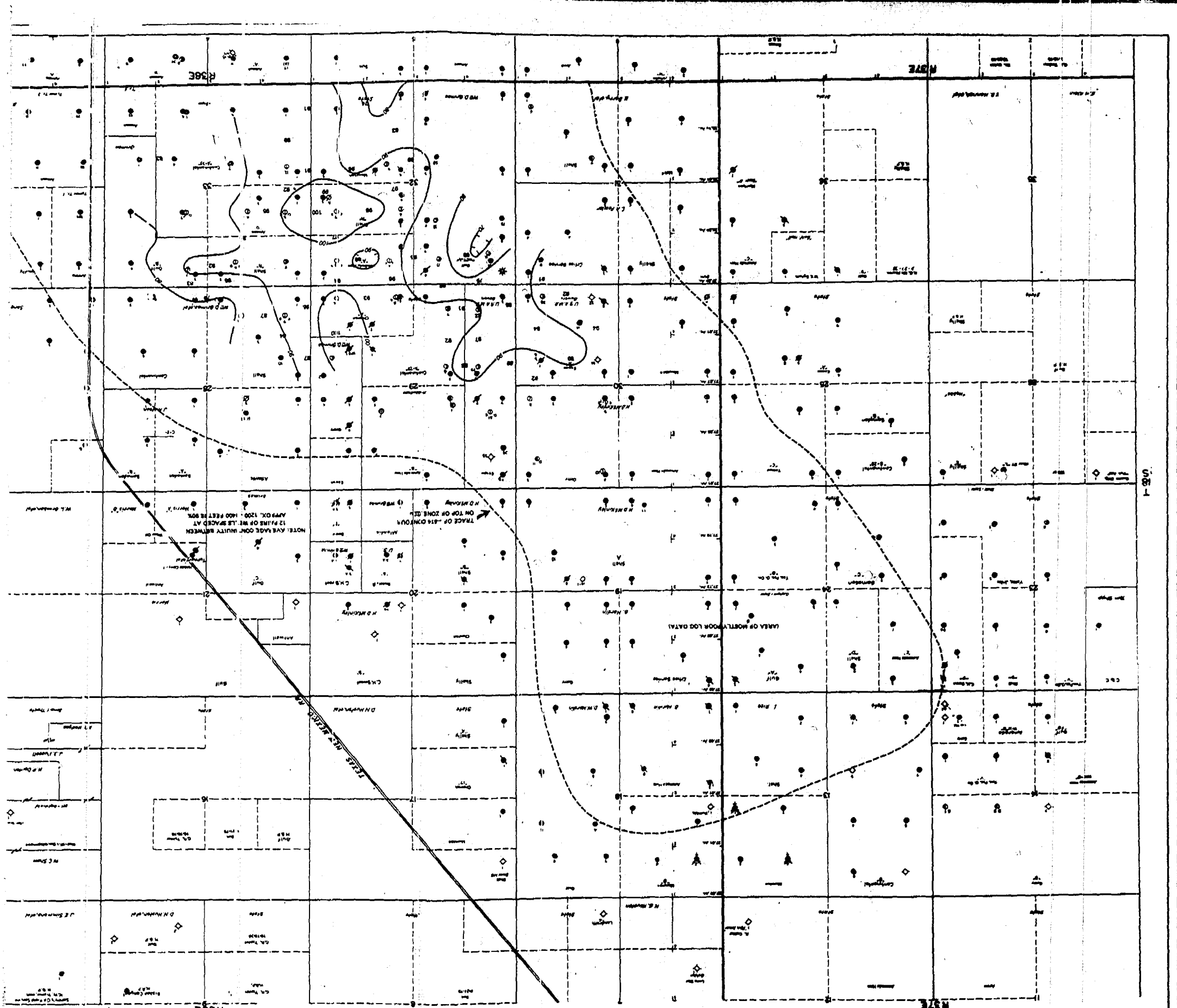
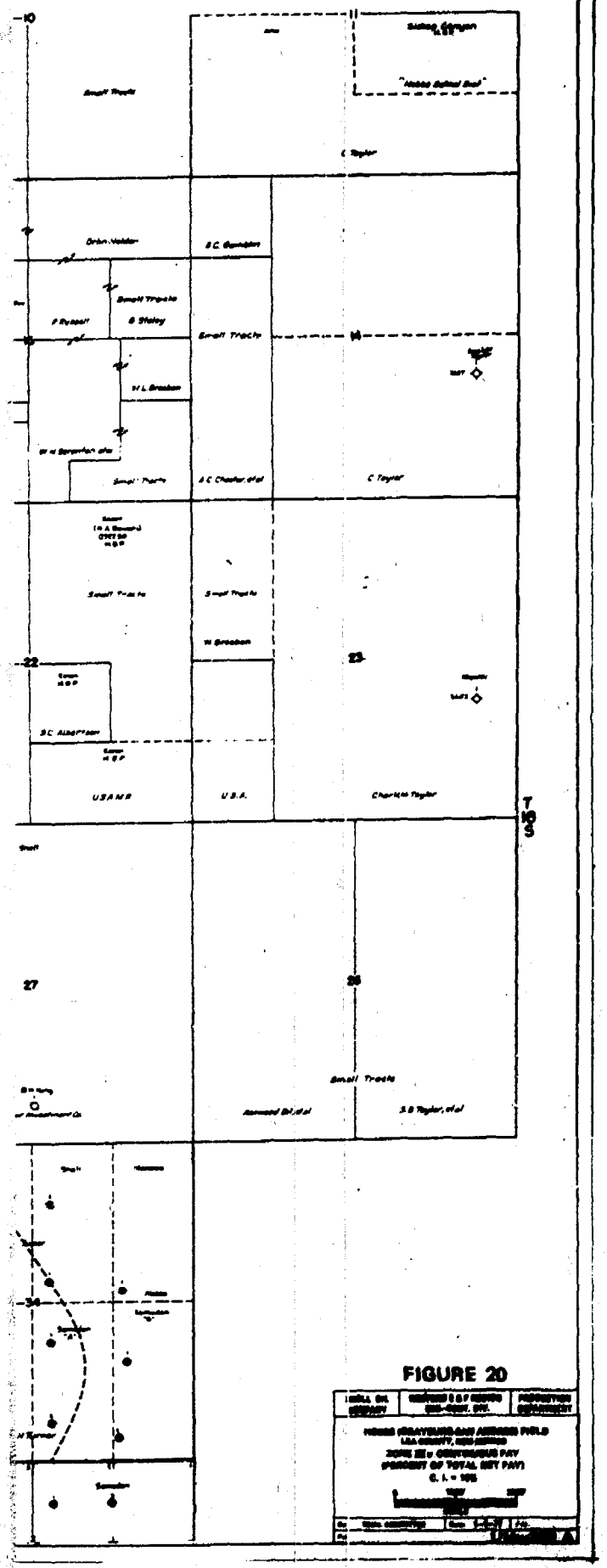


FIGURE 21

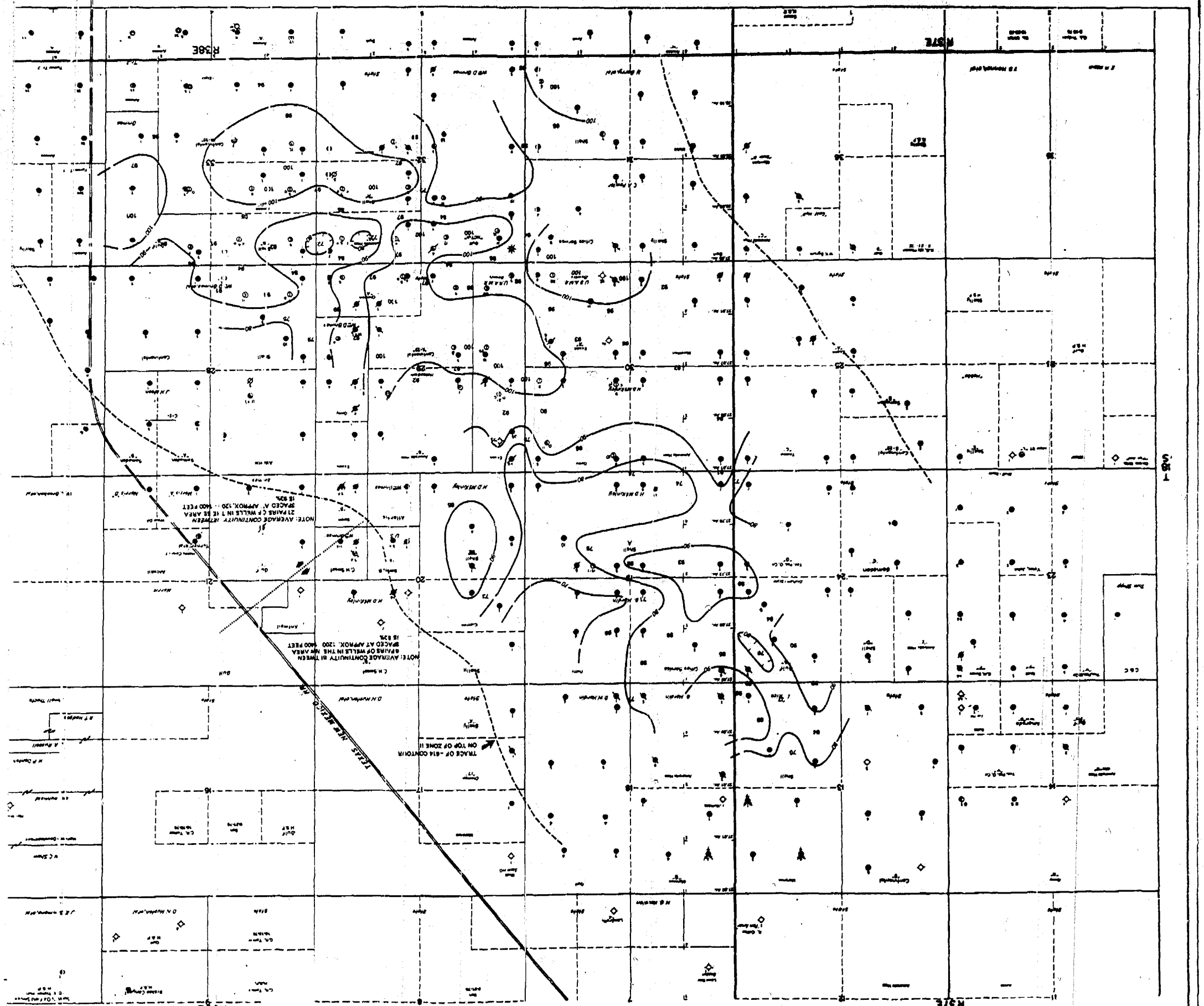
HOBBS HEAVY/LIGHT GAS ANDREWS FIELD
LEA COUNTY, NEW MEXICO
ZONE III (CONTINUOUS PAY)
(PERCENT OF TOTAL NET PAY)
C. I. = 10%
0 10% 20%


R38E
R37E
T8S
TEXAS NEW MEXICO RR
(AREA OF MOSTLY POOR LOG DATA)
TRACE OF -814 CONTOUR ON TOP OF ZONE DIV.
NOTE: AVERAGE CONTINUITY BETWEEN 12 PAIRS OF WELLS SPACED AT APPROX. 1200 - 1400 FEET IS 90%



Small Tracts
C Taylor
Orbin Holder
Small Tracts
Small Tracts
C Taylor
Small Tracts
Small Tracts
W Brosbon
23
22
USAMR
U.S.A.
Charlotte Taylor
T 16 S
27
26
Small Tracts
S.B. Taylor, et al

FIGURE 20


R38E
R37E
R38E
R37E
TEXAS
NEW MEXICO
TRACE OF -414 CONTOUR
ON TOP OF ZONE II
NOTE: AVERAGE CONTINUITY BETWEEN
21 PAIRS C.P. WELLS IN T 16 SE AREA
SPACED AT APPROX. 1200 - 1400 FEET
IS 93%
NOTE: AVERAGE CONTINUITY BETWEEN
6 PAIRS OF WELLS IN THIS NW AREA
SPACED AT APPROX. 1200 - 1400 FEET
IS 83%

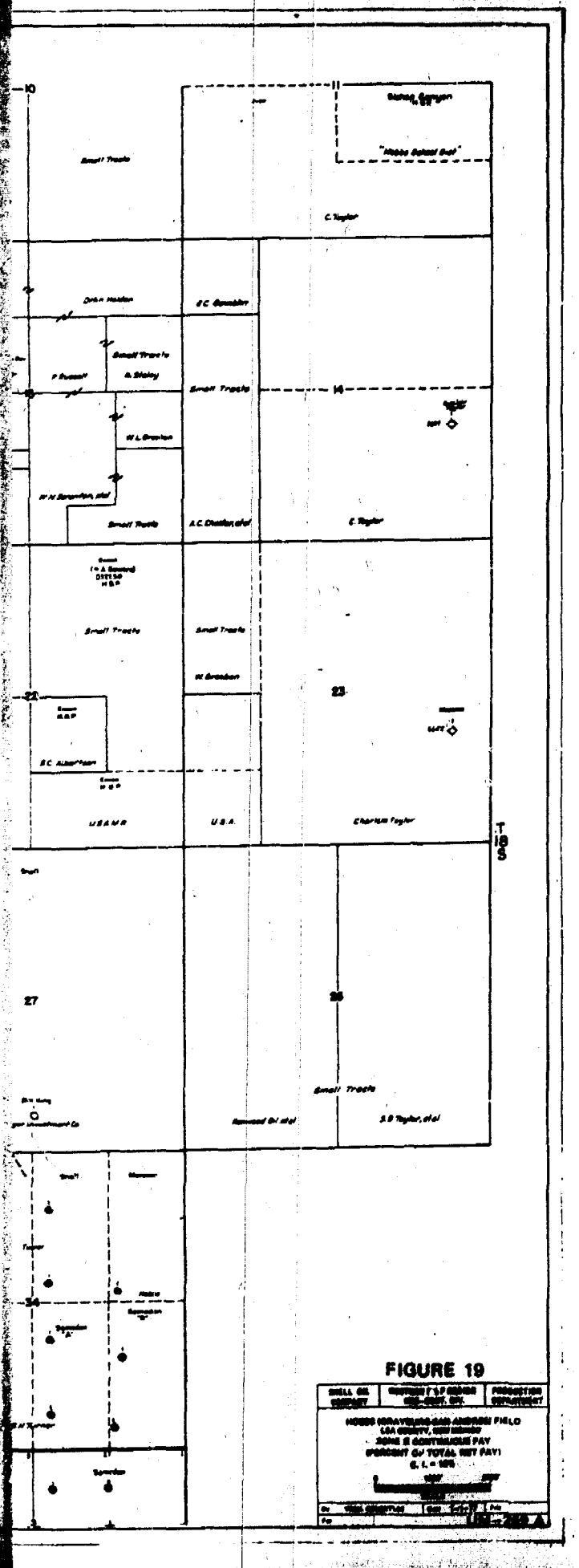
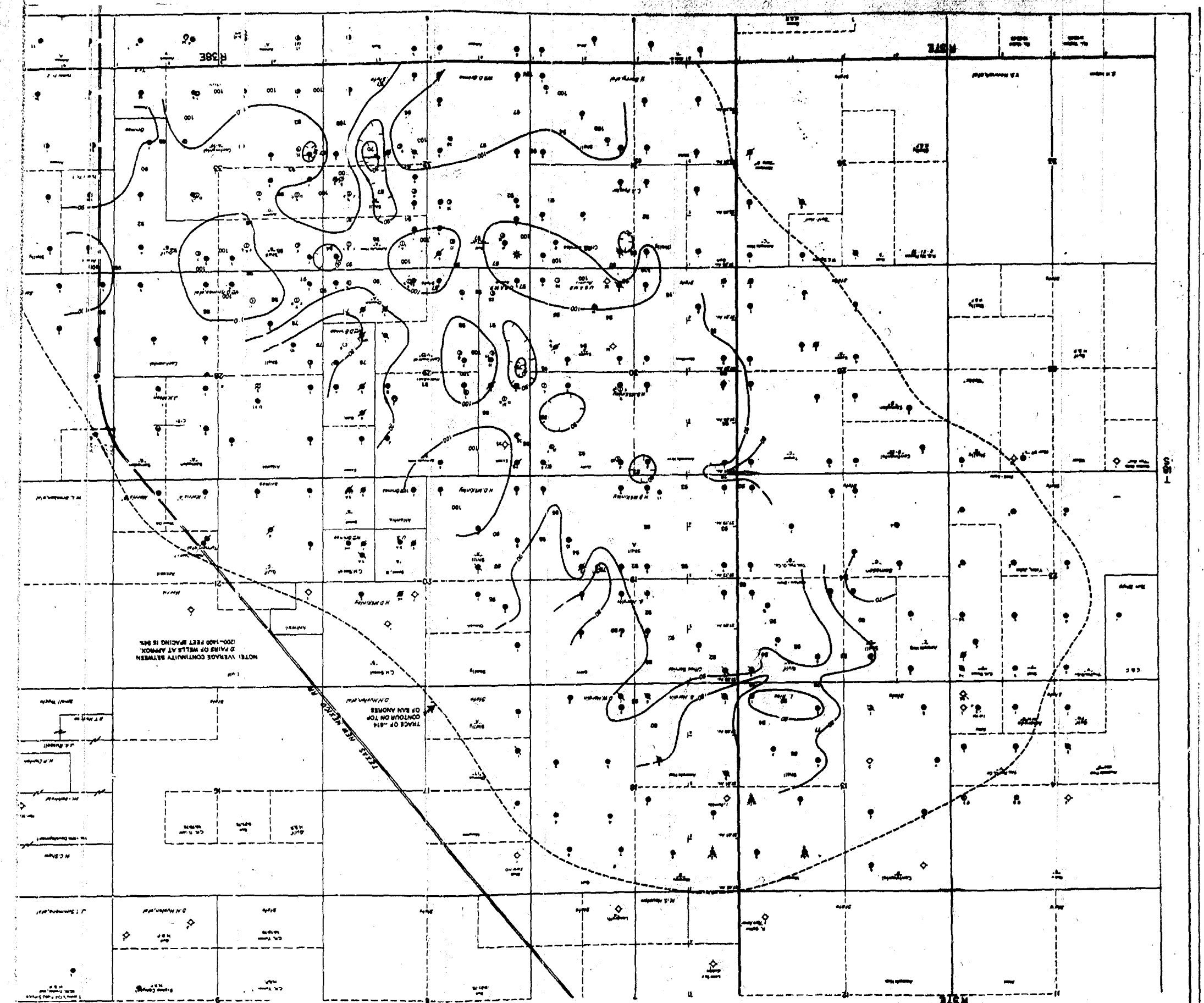
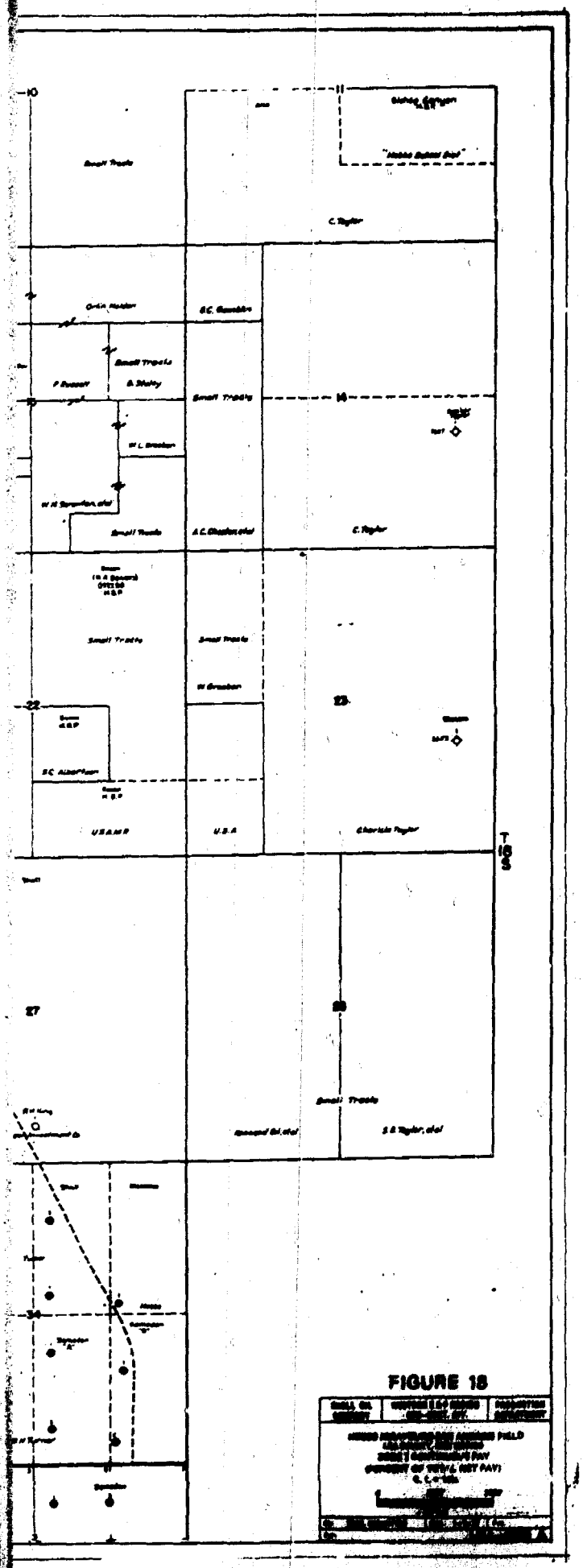


FIGURE 19

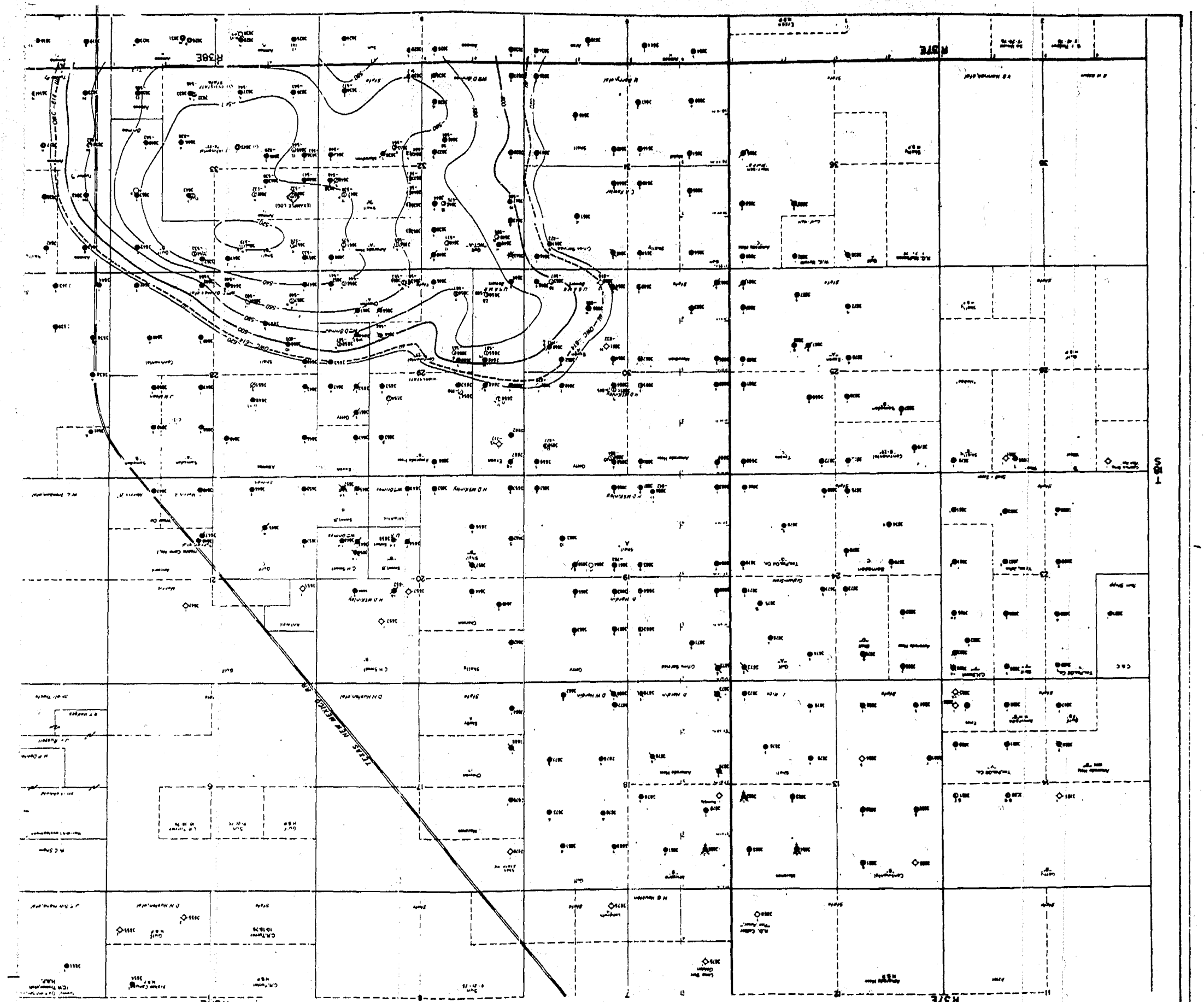
HOBBS NORTH FIELD GAS ANOMALY
LEA COUNTY, NEW MEXICO
ZONE B CONTINUOUS PAY
(PERCENT GAS TOTAL NET PAY)
C. I. = 10%


R38E
R37E
T 16 S
TEXAS NEW MEXICO
TRACE OF -614 CONTOUR ON TOP OF SAN ANDRES
NOTE: AVERAGE CONTINUITY BETWEEN 2 PAIRS OF WELLS AT APPROX. 1200-1400 FEET SPACING IS 94%



10
11
Small Tracts
C. Taylor
Orkin Holden
S.C. Gamblin
Small Tracts
P. Russell
D. Stalty
Small Tracts
14
W. L. Brooken
W. H. Scranton, etal
Small Tracts
A.C. Chaston, etal
C. Taylor
Small Tracts
Small Tracts
W. Brooken
22
23
S.C. Albertson
U.S.A.M.R.
U.S.A.
Charlotte Taylor
T
18
S
27
28
Small Tracts
Spencer Oil, etal
S.B. Taylor, etal
34

FIGURE 18


R30E
R37E
R31E
R32E
T6S
TEXAS NEW MEXICO
OWC -614.500
OWC -614.500
OWC -614.500

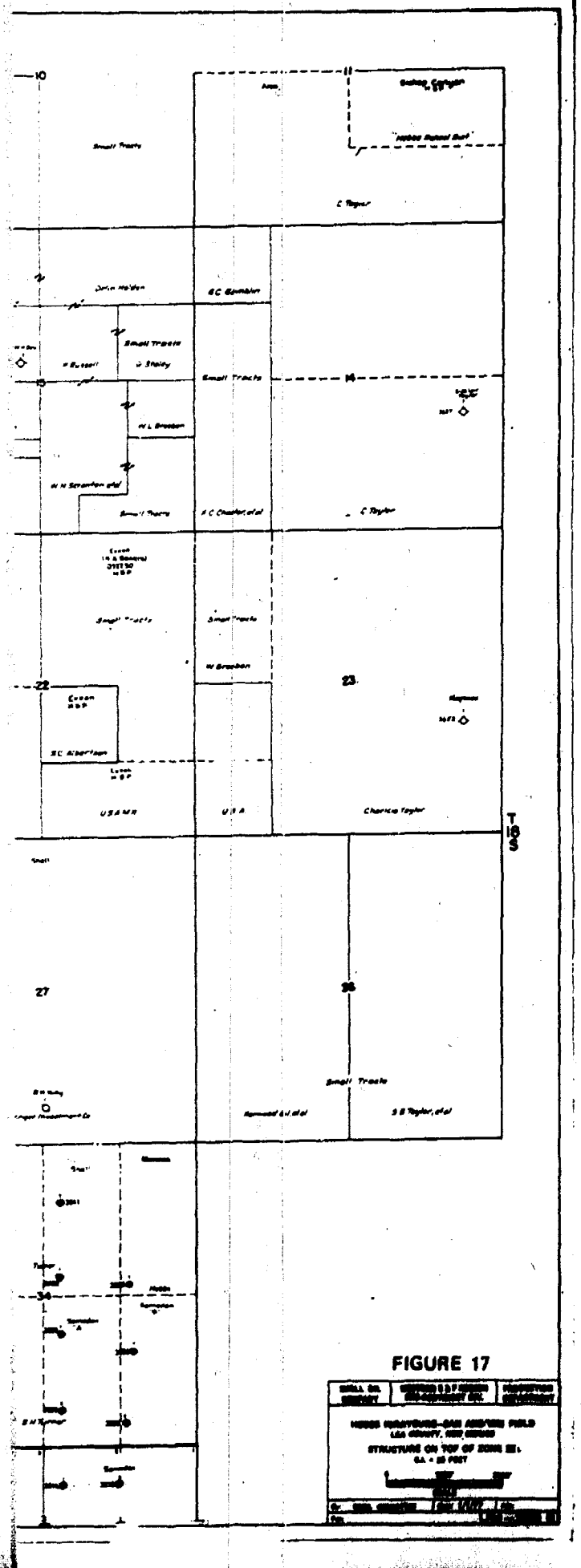
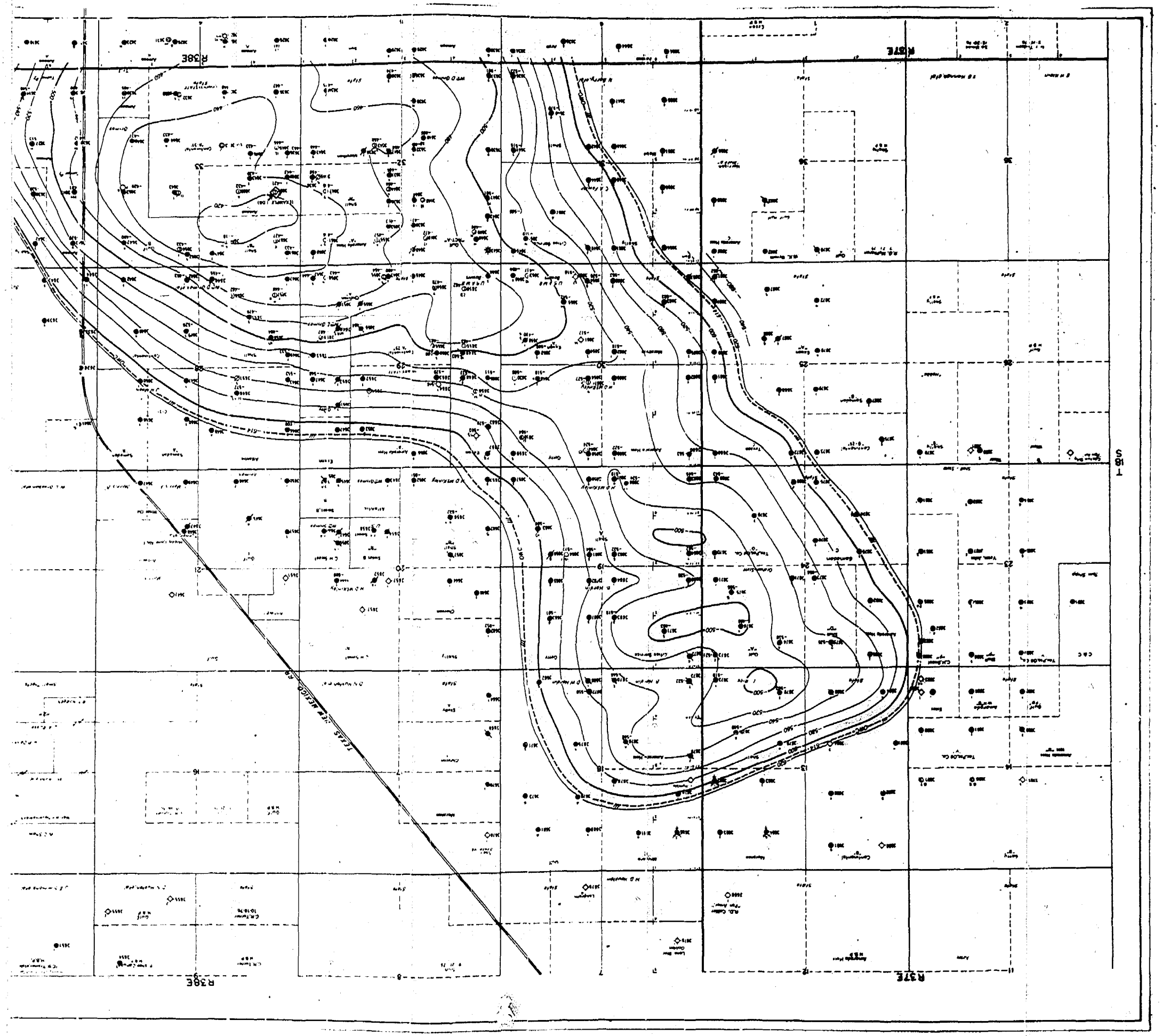

10
Small Tracts
C Taylor
Small Tracts
Small Tracts
14
W L Brooken
Small Tracts
C Taylor
Small Tracts
Small Tracts
W Brooken
22
23
SC Albertson
USAMR
U S A
Charles Taylor
T
18
S
27
26
Small Tracts
S B Taylor, et al
34

FIGURE 17


R38E
R37E
TEXAS NEW MEXICO RR
S
18
T

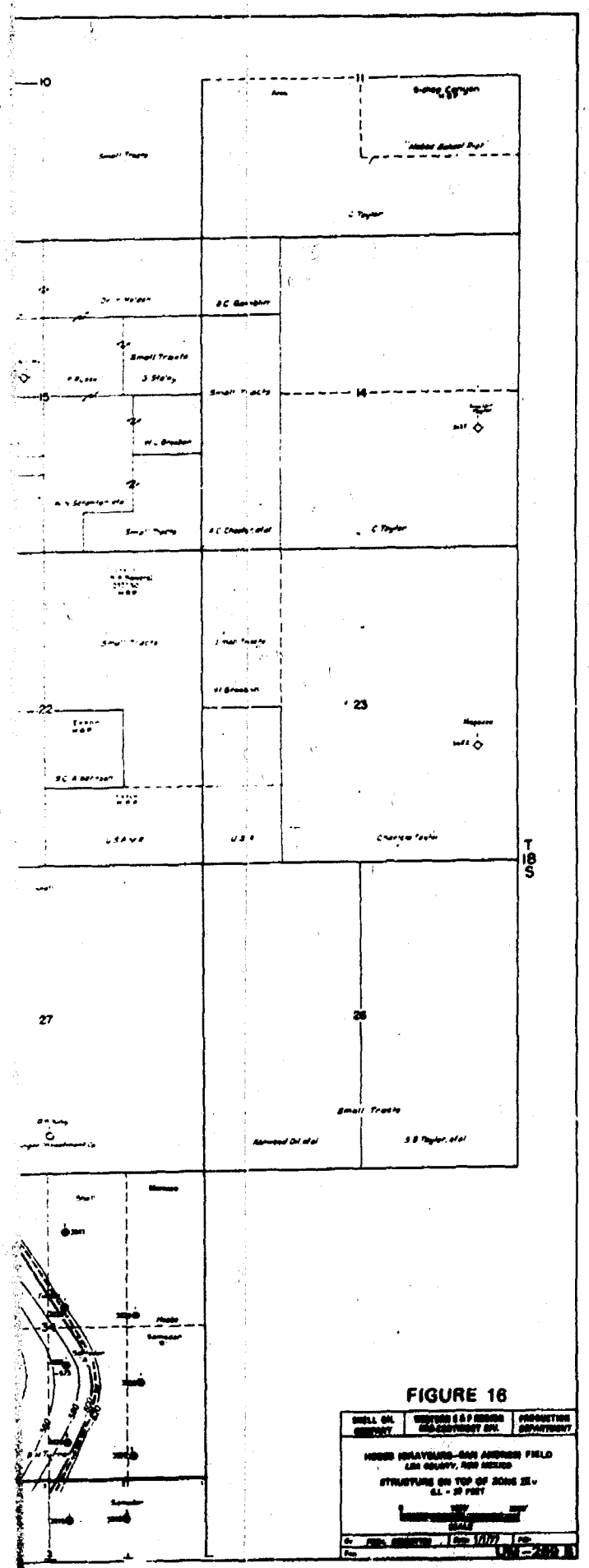


FIGURE 16

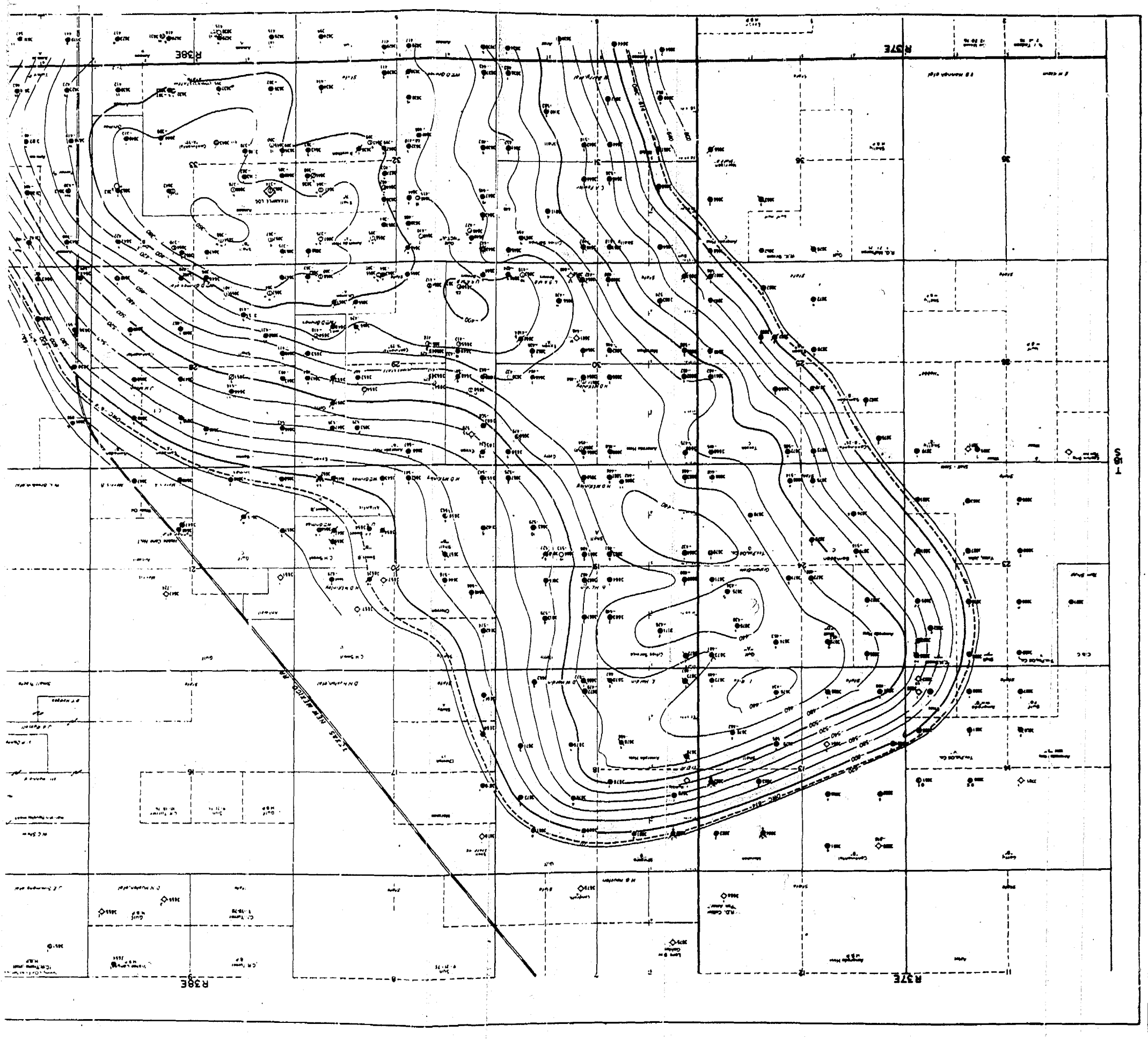
SHELL OIL COMPANY | WESTERN E & P REGION | PRODUCTION DEPARTMENT

HOBBS (GRAYBURG-SAN ANDRES) FIELD
LEA COUNTY, NEW MEXICO

STRUCTURE ON TOP OF ZONE IIIv
G.L. = 20 FEET

SCALE

Date 1/1/77



NOTICE THIS OVERLAY TO BE PRINTED WITH NOMAS BASE & POSTED "ELEVATIONS" ONLY.

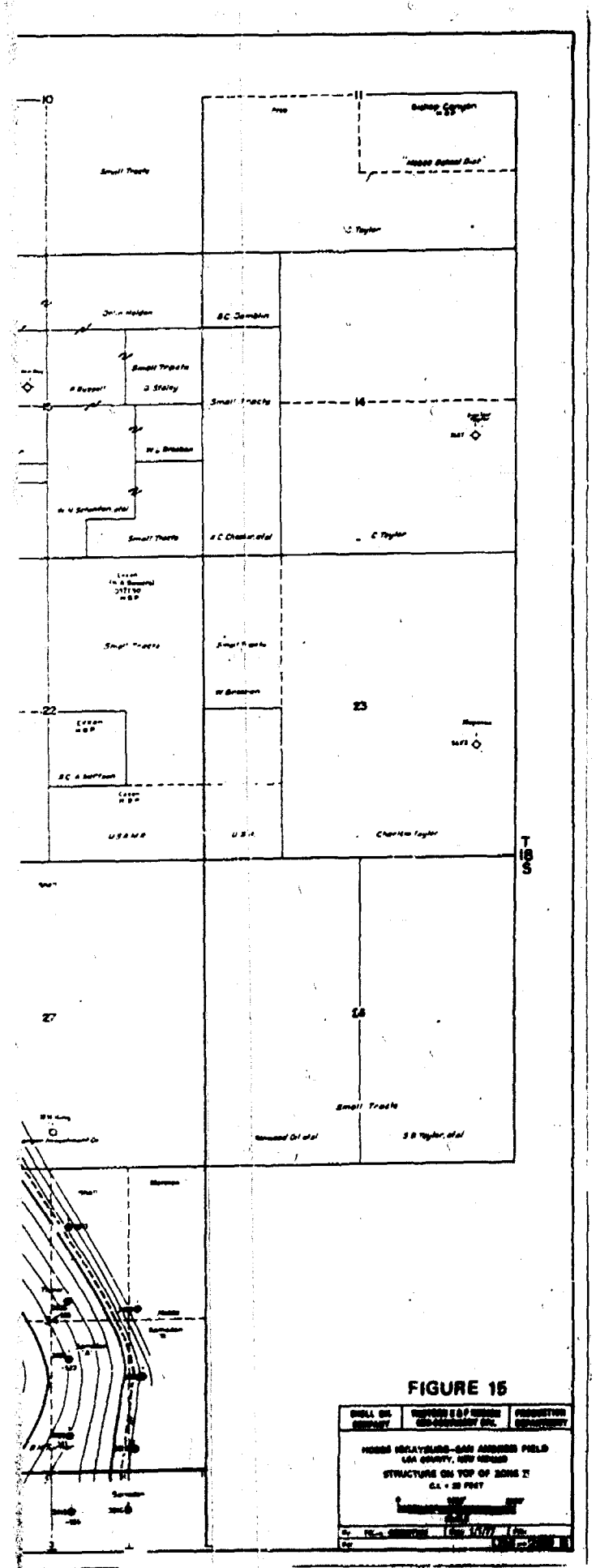
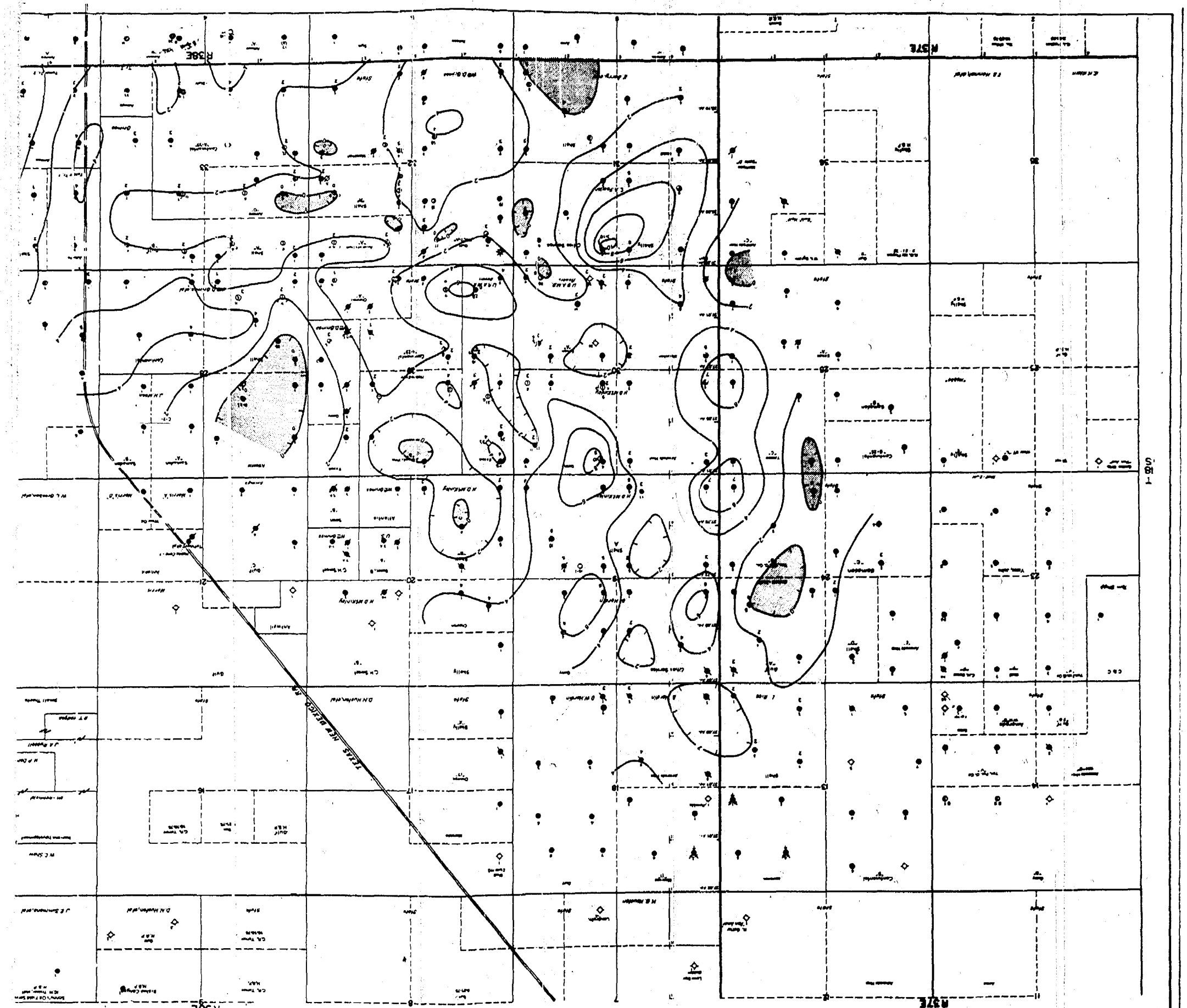


FIGURE 15

HOBBS SOLUTION-GAS ASSISTED FIELD
LEA COUNTY, NEW MEXICO
STRUCTURE ON TOP OF ZONE 2
C.I. = 20 FEET


R38E
R37E
T 18 S
TEXAS NEW MEXICO LINE

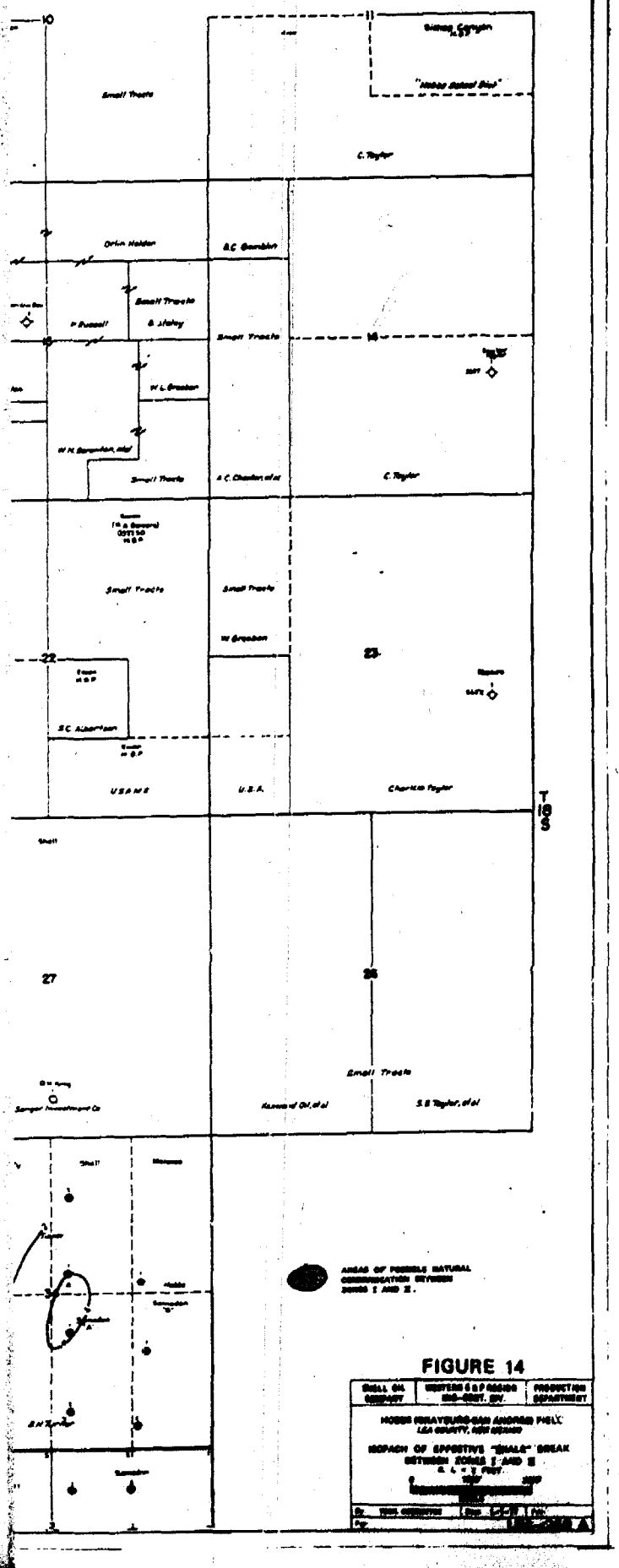


FIGURE 14

SHELL OIL COMPANY	WESTERN E & P REGION MID-CONT. DIV.	PRODUCTION DEPARTMENT

HOBBS (GRAYBURG-SAN ANDRES) FIELD
LEA COUNTY, NEW MEXICO

MAP(N OF EFFECTIVE "SHALE" BREAK
BETWEEN ZONES I AND II
C. I. = 5 FEET

R37E

R38E

T 18 S

TEXAS NEW MEXICO

(EXAMPLE LOG)

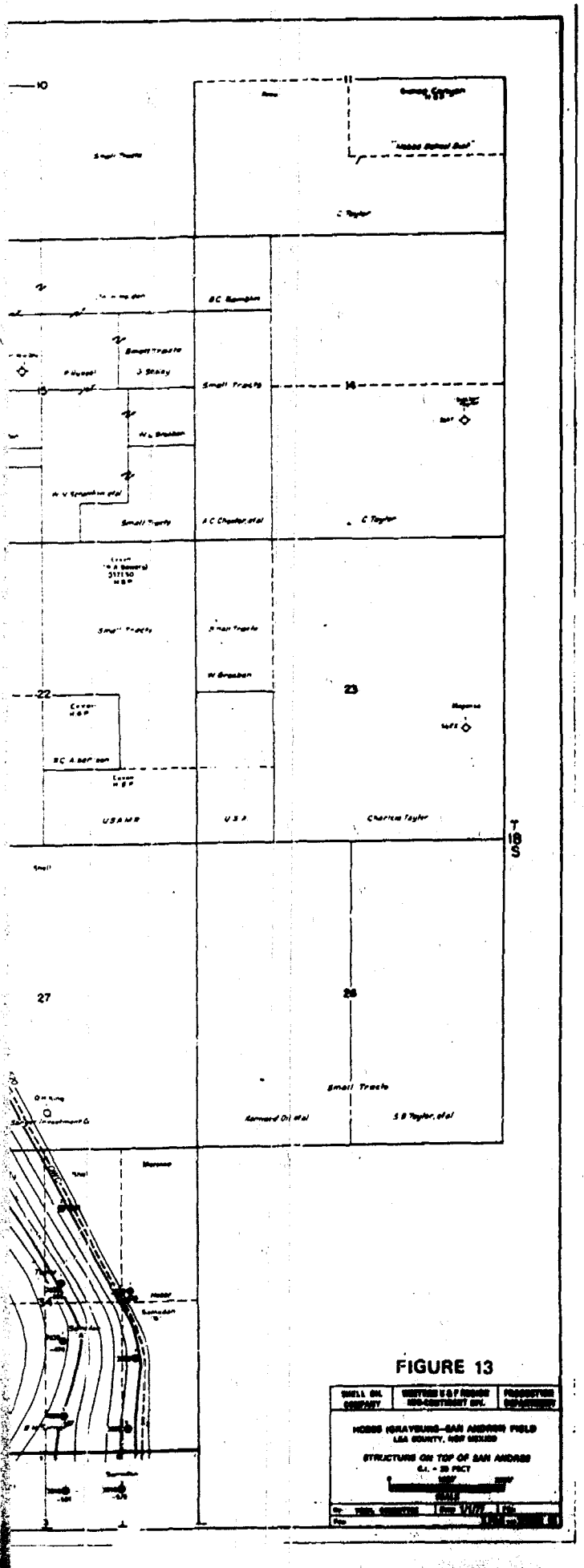


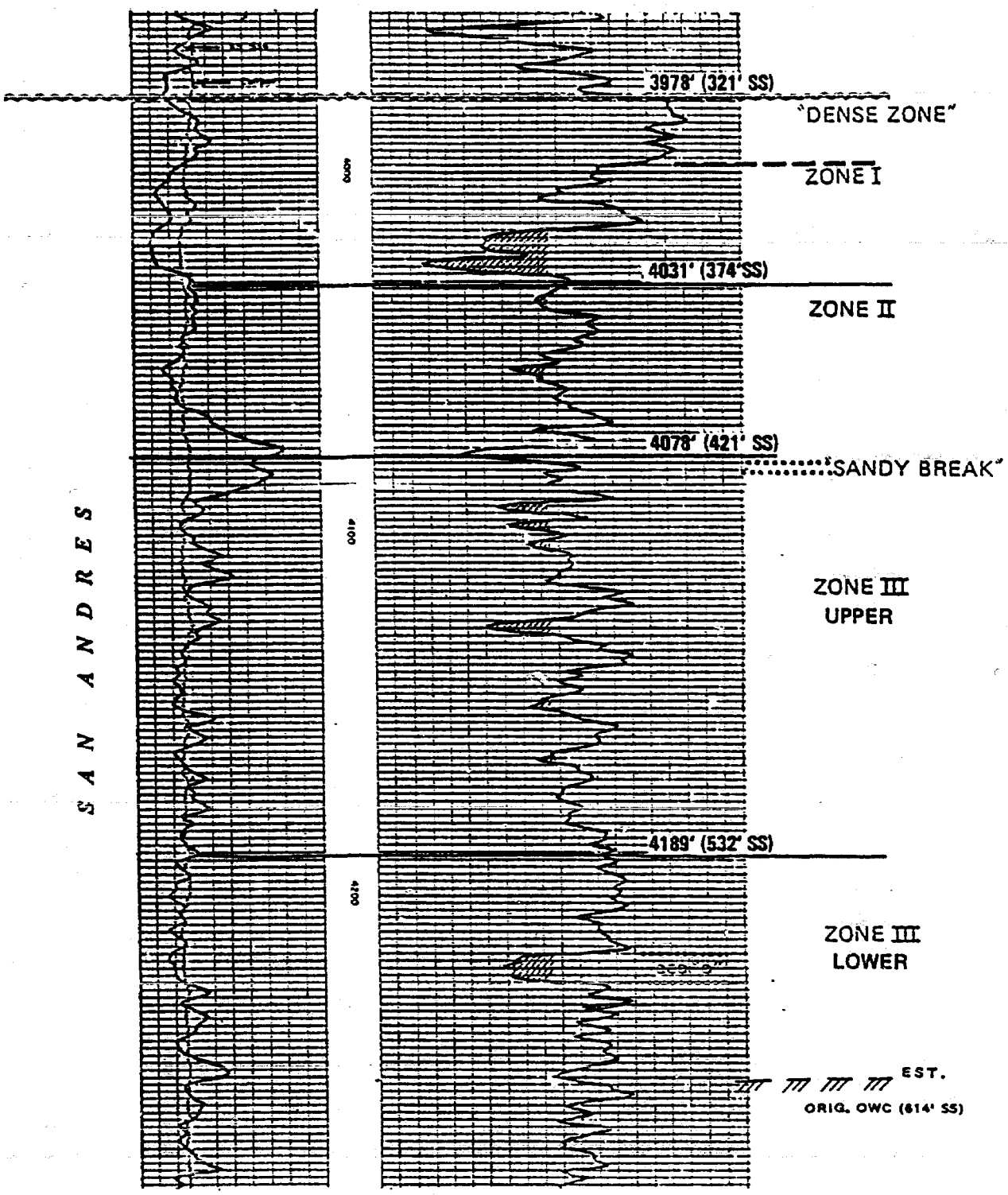
FIGURE 13

SHELL OIL COMPANY	WESTERN E & P REGION MID-CONTINENT DIV.	PRODUCTION DEPARTMENT

HOBBS (GRAYBURG-SAN ANDRES) FIELD
LEA COUNTY, NEW MEXICO

STRUCTURE ON TOP OF SAN ANDRES
C.I. = 25 FEET

AMOCO STATE G-5
SECTION 33 E
ELEV. 3657' KB



SAN ANDRES

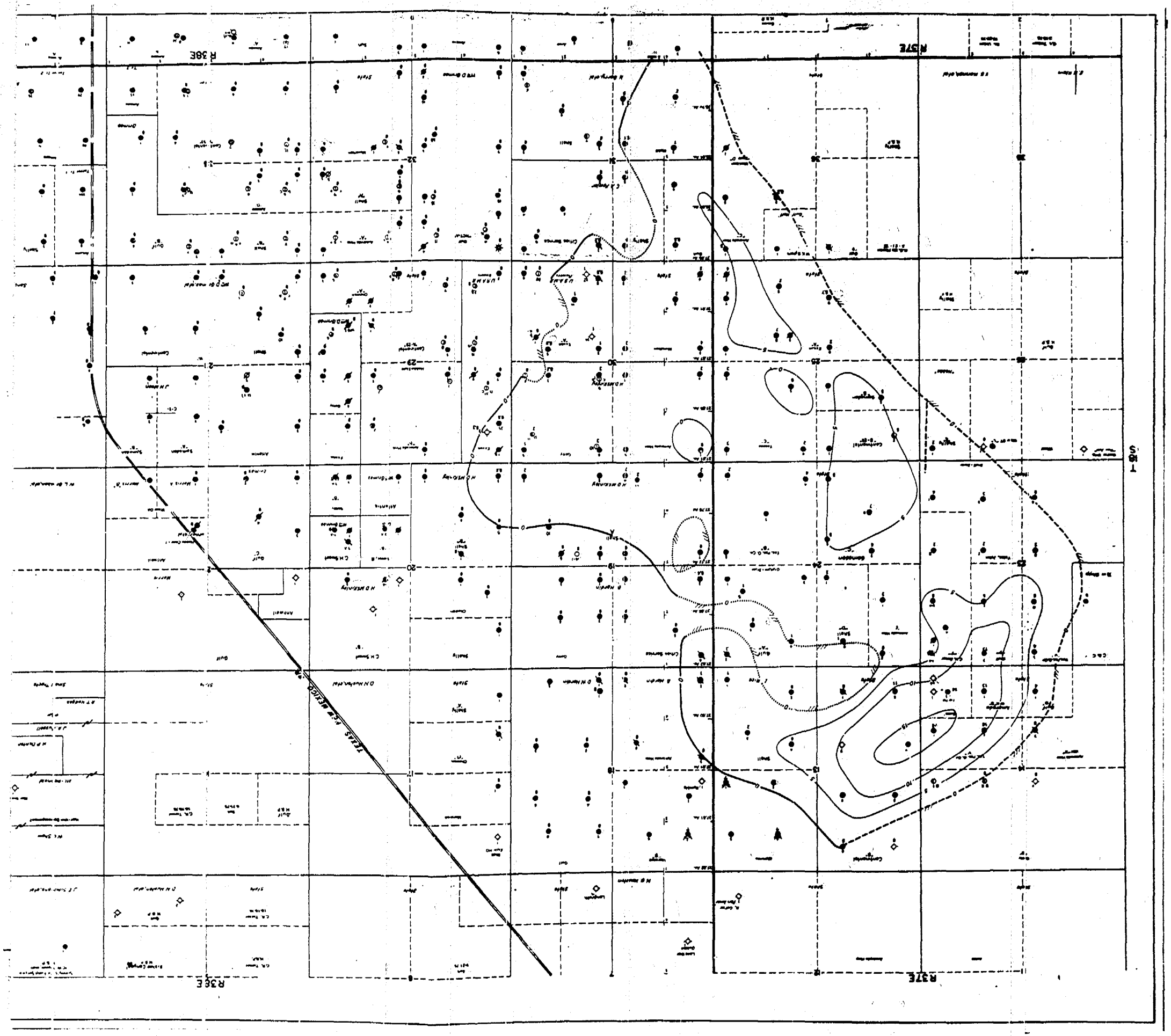
EXAMPLE LOG

SAN ANDRES RESERVOIR

BEDS OF HIGH POROSITY (OVER 15%)

ZM-2057 13

FIGURE 12


R 38E
R 37E
T 18S
TEXAS NEW MEXICO

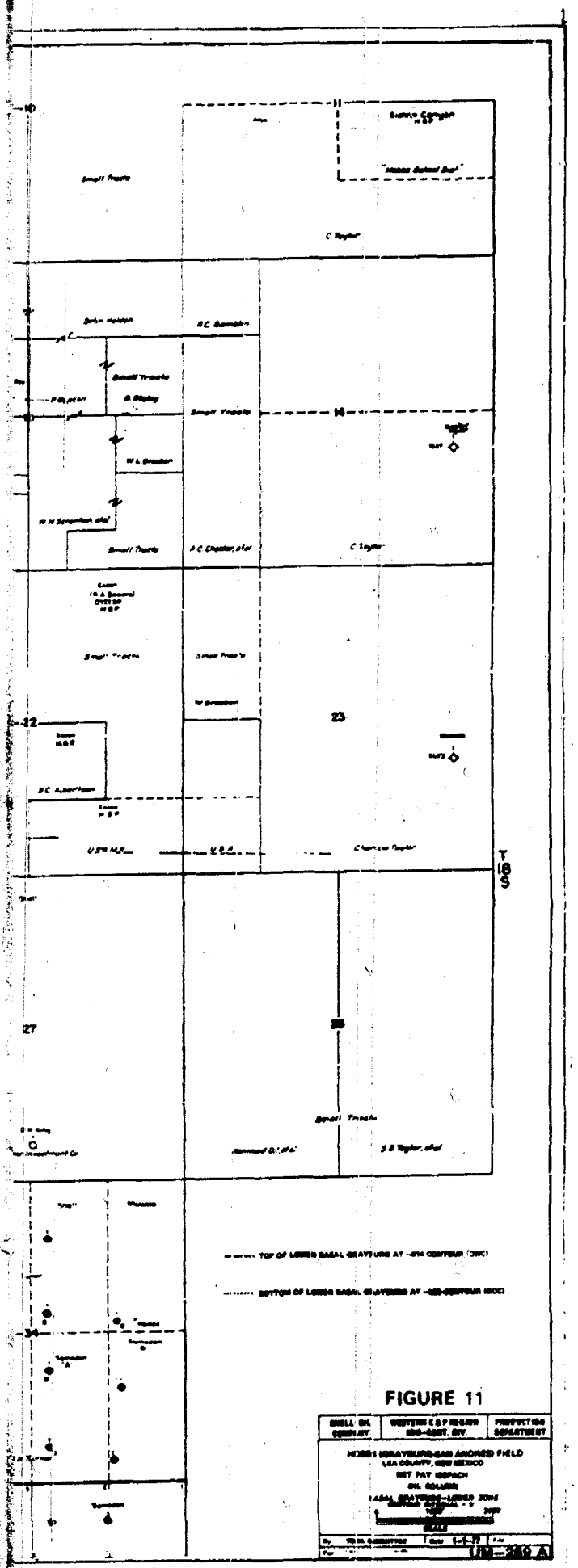
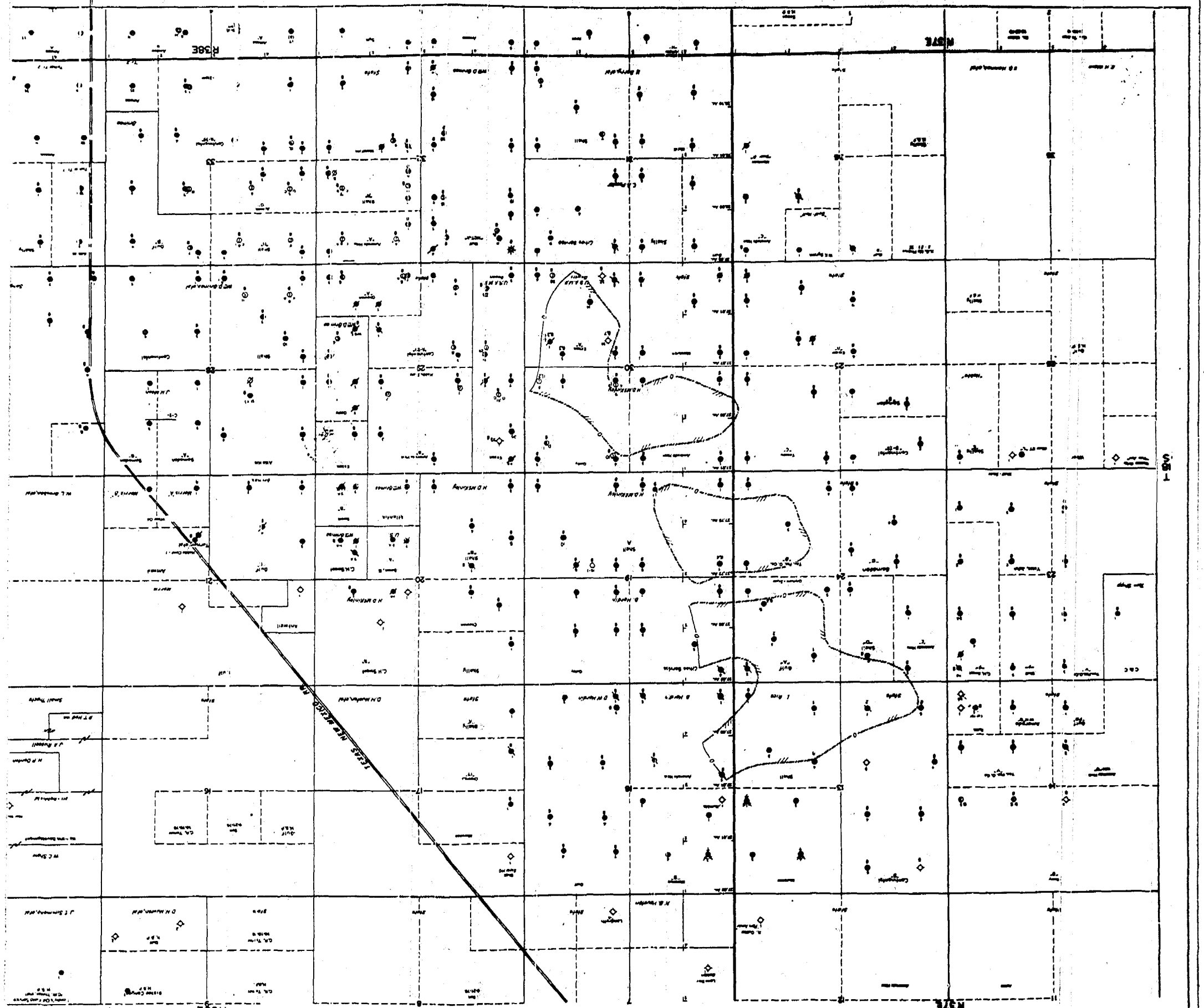


FIGURE 11

SHELL OIL COMPANY | WESTERN E & P REGION MID-CONT. DIV. | PRODUCTION DEPARTMENT

HOBBS (GRAYBURG-SAN ANDRES) FIELD
LEA COUNTY, NEW MEXICO
NET PAY ISOPACH
OIL COLUMN
BASAL GRAYBURG-LOWER ZONE
CONTOUR INTERVAL = 5'
SCALE

UM-289 A


R38E
R37E
T38S
T39S
LEASE NEW MEXICO
N.D. MEARNS
N.D. MEARNS
N.D. MEARNS

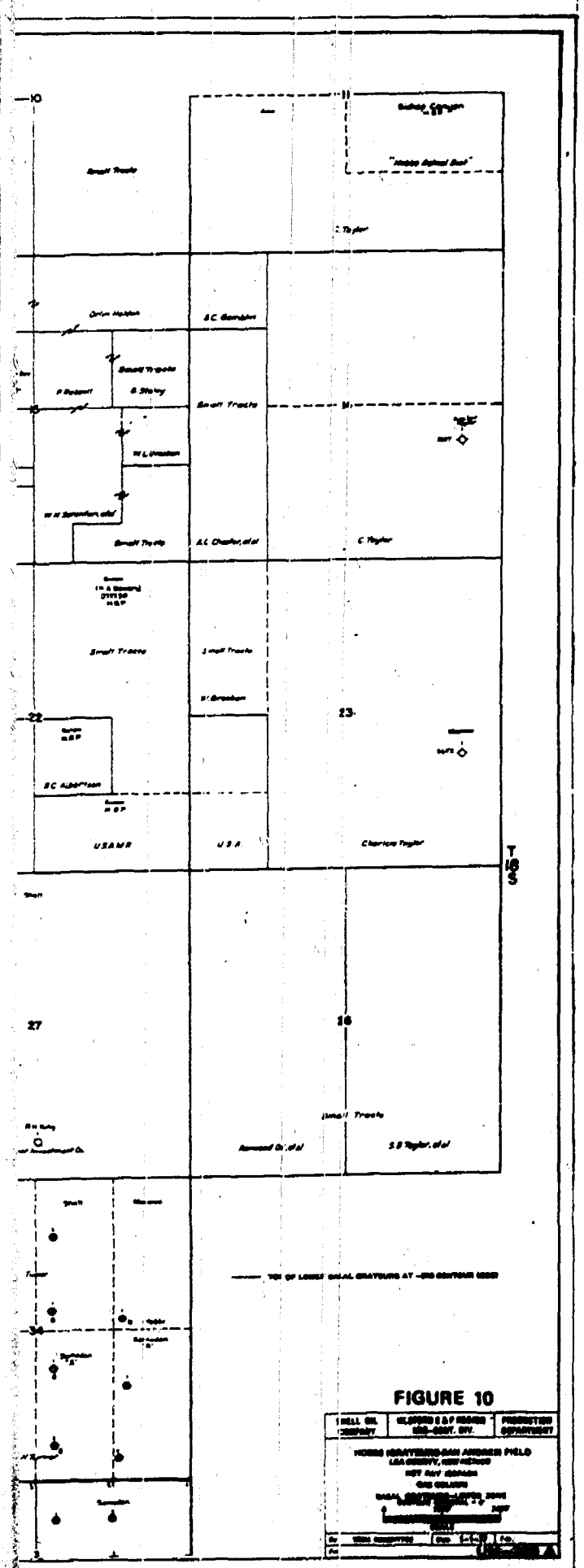
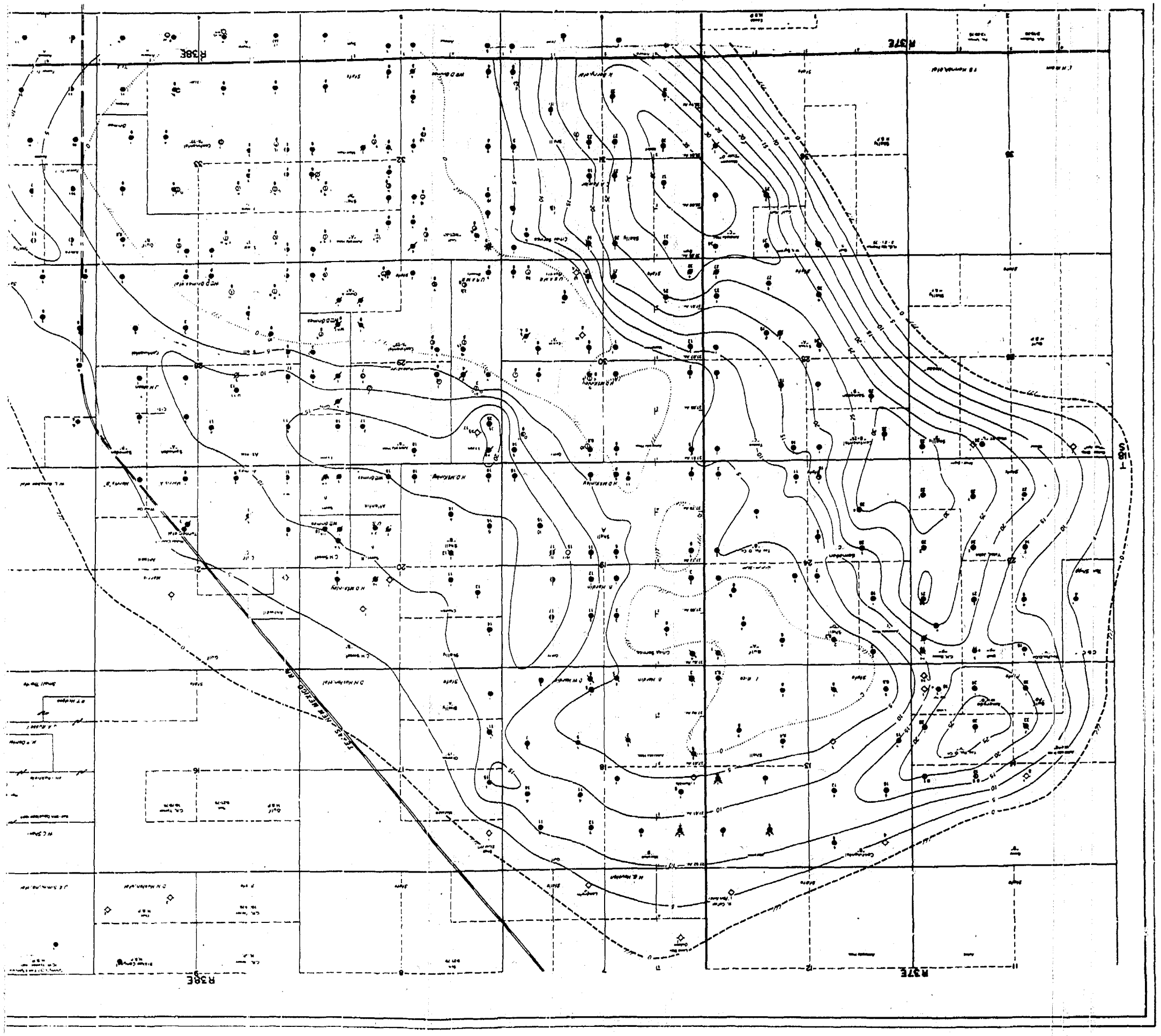
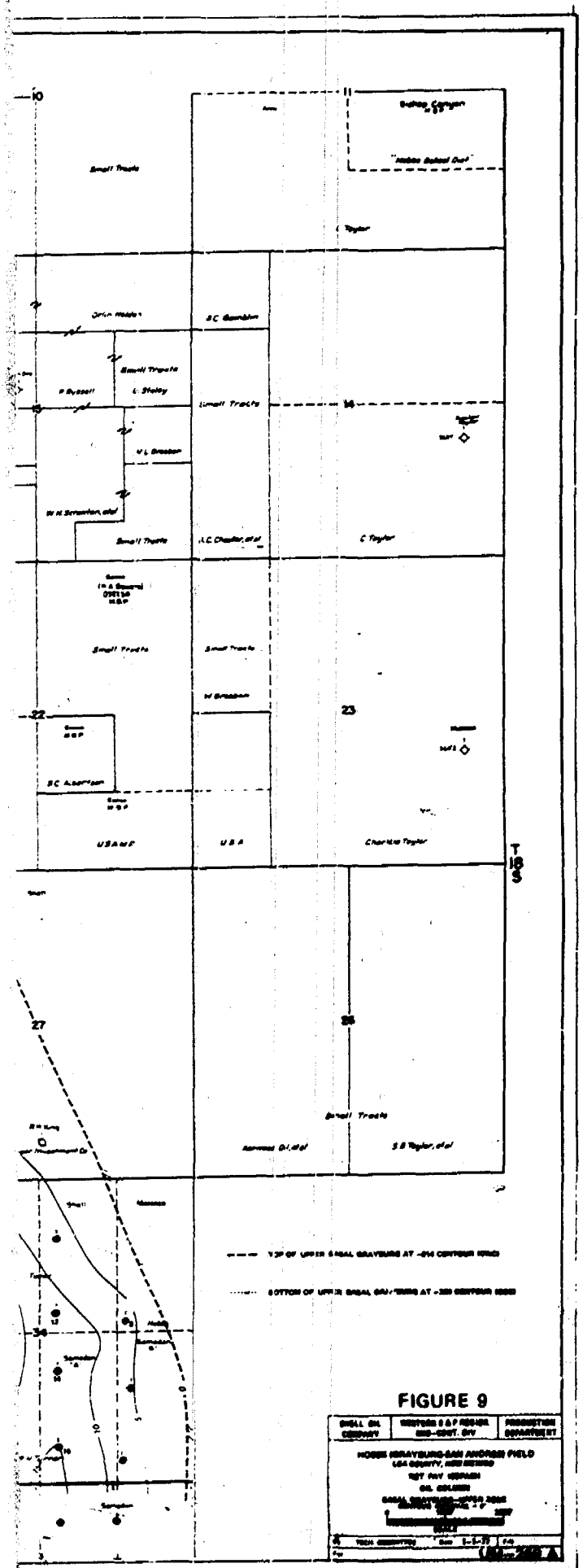


FIGURE 10

SHELL OIL COMPANY	WESTERN E & P REGION MID-CONT. DIV.	PRODUCTION DEPARTMENT

HOBBS IGRAYTURE-SAN ANDRES FIELD
LEA COUNTY, NEW MEXICO
NET PAY ISOPACH
GAS COLUMN
BASAL GRAYBURG-LOWER ZONE


R38E
R37E
T-16S
TEXAS-NEW MEXICO RR



10
11
Small Tracts
C Taylor
Orlin Holden
S C Gamblin
Small Tracts
P Russell
L Staley
Small Tracts
14
M L Gresham
W H Scranton, et al
Small Tracts
A C Chester, et al
C Taylor
Small Tracts
Small Tracts
W Gresham
22
23
S C Albertson
USAMF
U S A
Charlie Taylor
T 18 S
27
26
Small Tracts
S B Taylor, et al
34

FIGURE 9

R37E

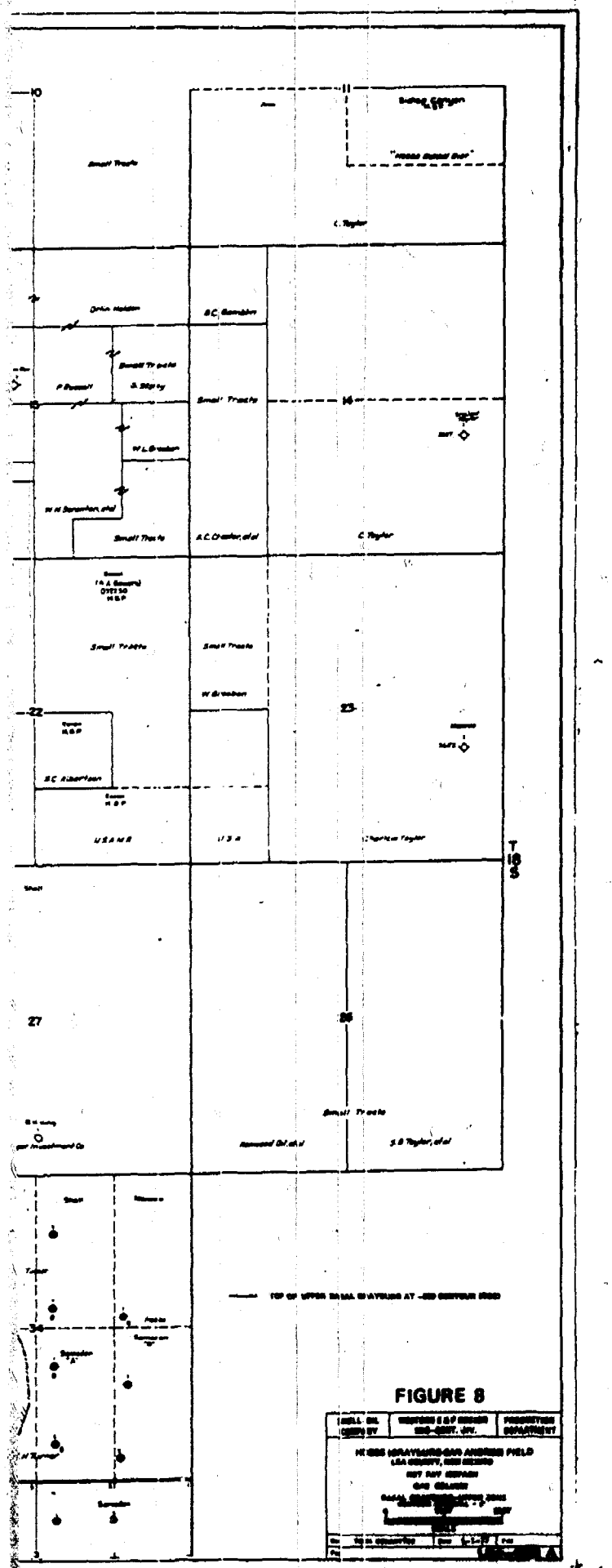
R38E

T 18 S

TEXAS NEW MEXICO LINE

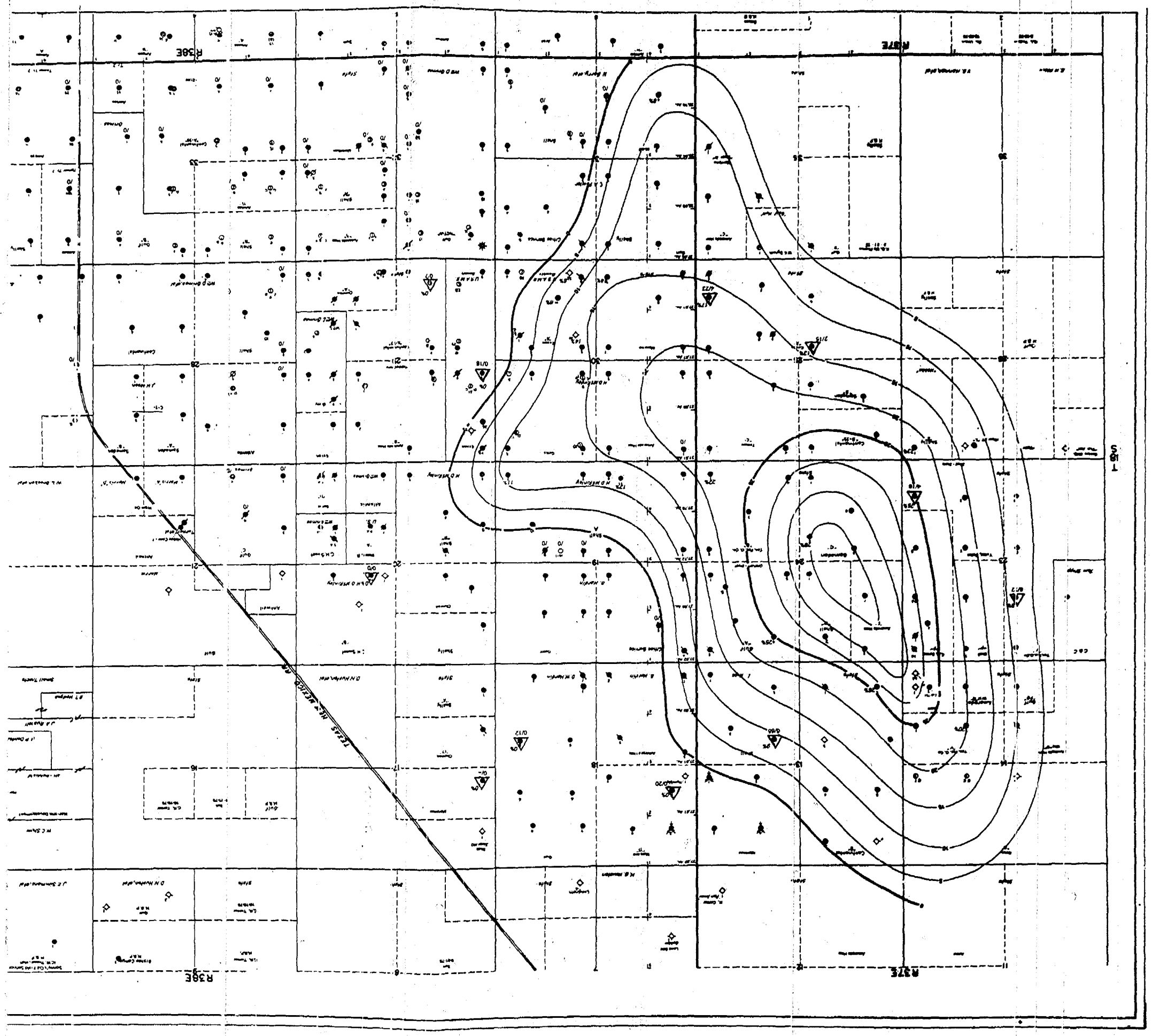
0
5
10
15
20
25
30

Shell
Gulf
Texaco
Continental
Amerada Hess
Atlantic
Ohio
Sinclair
Skelly
Humble
Cities Service
Anderson-Prichard
Sun
Marathon
Union Texas
Amoco
Conoco
Mobil
Hunt
Getty
Arco
Tenneco
Pennzoil
Phillips
Exxon
Kerr-McGee
Hondo
Forest
Diamond Shamrock
Southland Royalty
Meridian
Enron
Coastal States
Champlin
Energy Reserves Group
Transco
Natural Gas Pipeline
Northern Natural Gas
Panhandle Eastern
Texas Eastern
Transwestern
Colorado Interstate Gas
El Paso Natural Gas
Williams Brothers
Cotton Petroleum
Yates Petroleum
Mesa Petroleum
Hanson Oil
Bass Enterprises
Read & Stevens
Nearburg & Ingram
Harvey E. Yates
Yates Drilling
Yates Energy
Abo Petroleum
Myco Industries
Yates Petroleum Corporation
Yates Petroleum Corporation et al
Yates Petroleum Corporation et al
Yates Petroleum Corporation et al



Small Tracts
C. Taylor
Ortin Holden
B.C. Gamblin
Small Tracts
P. Russell
S. Stirley
Small Tracts
W.L. Greeban
W.H. Scranton, et al
Small Tracts
A.C. Chester, et al
C. Taylor
Small Tracts
Small Tracts
W. Greeban
S.C. Albertson
U.S.A.M.R.
U.S.A.
Charlton Taylor
T 18 S
Small Tracts
Kenwood Oil, et al
S.B. Taylor, et al

FIGURE 8


R38E
R37E
TEXAS NEW MEXICO RR

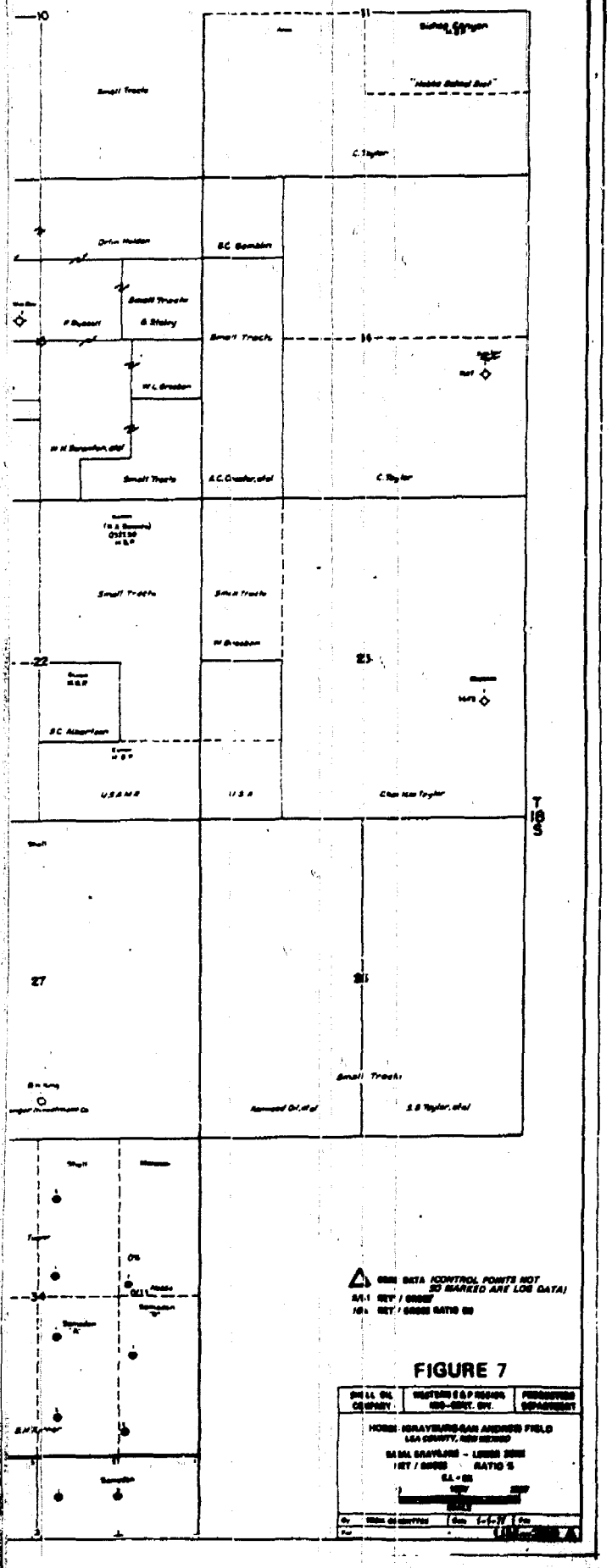


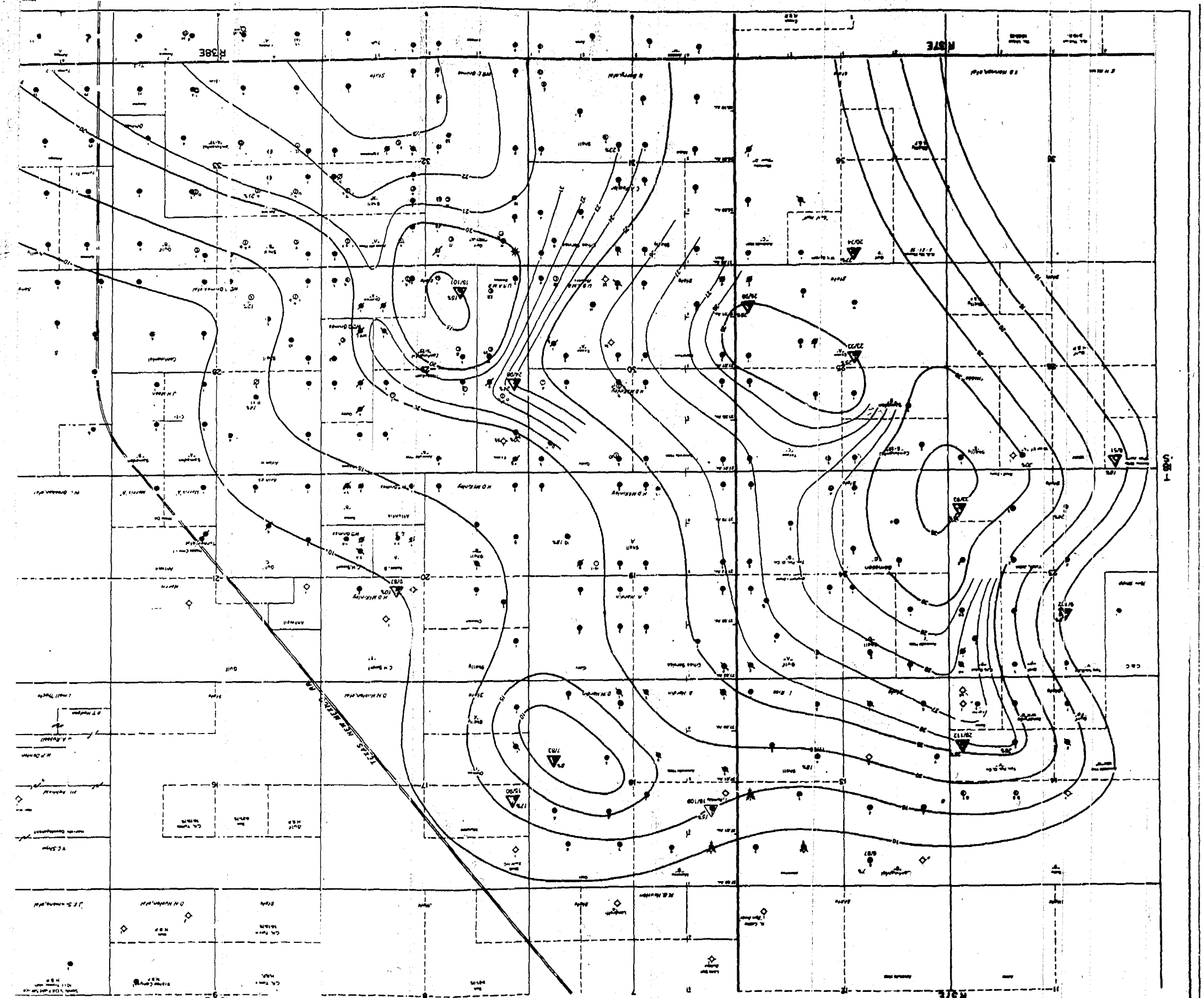
FIGURE 7

SHELL OIL COMPANY | WESTERN E & P REGION MID-CONT. DIV. | PRODUCTION DEPARTMENT

HOBBS-GRAYBURG-SAN ANDRES FIELD
LEA COUNTY, NEW MEXICO

SAMAL GRAYBURG - LOWER ZONE
NET / GROSS RATIO %

Date 1-1-77


R38E
R37E
R36E
T12S
NEW MEXICO
TEXAS

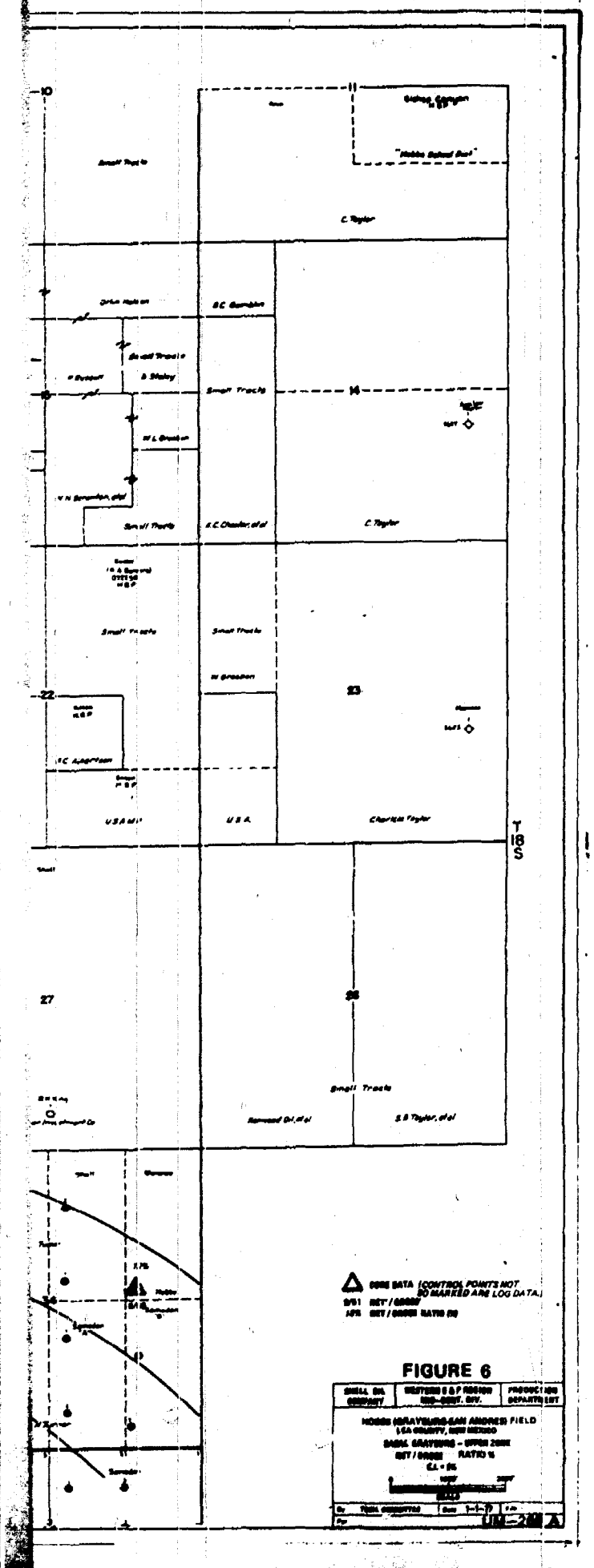


FIGURE 6

SHELL OIL COMPANY | WESTERN E & P REGION IND.-CONT. DIV. | PRODUCTION DEPARTMENT

HOBBS (GRAYBURG-SAN ANDRES) FIELD
LEA COUNTY, NEW MEXICO
SAGAL GRAYBURG - UPPER ZONE
NET / GROSS RATIO %
C.I. = 5%

By: TOM CONNITTAS | Date: 1-1-79 | File:
Per:

R37E

R38E

T 18 S

TEXAS NEW MEXICO

R37E

R38E

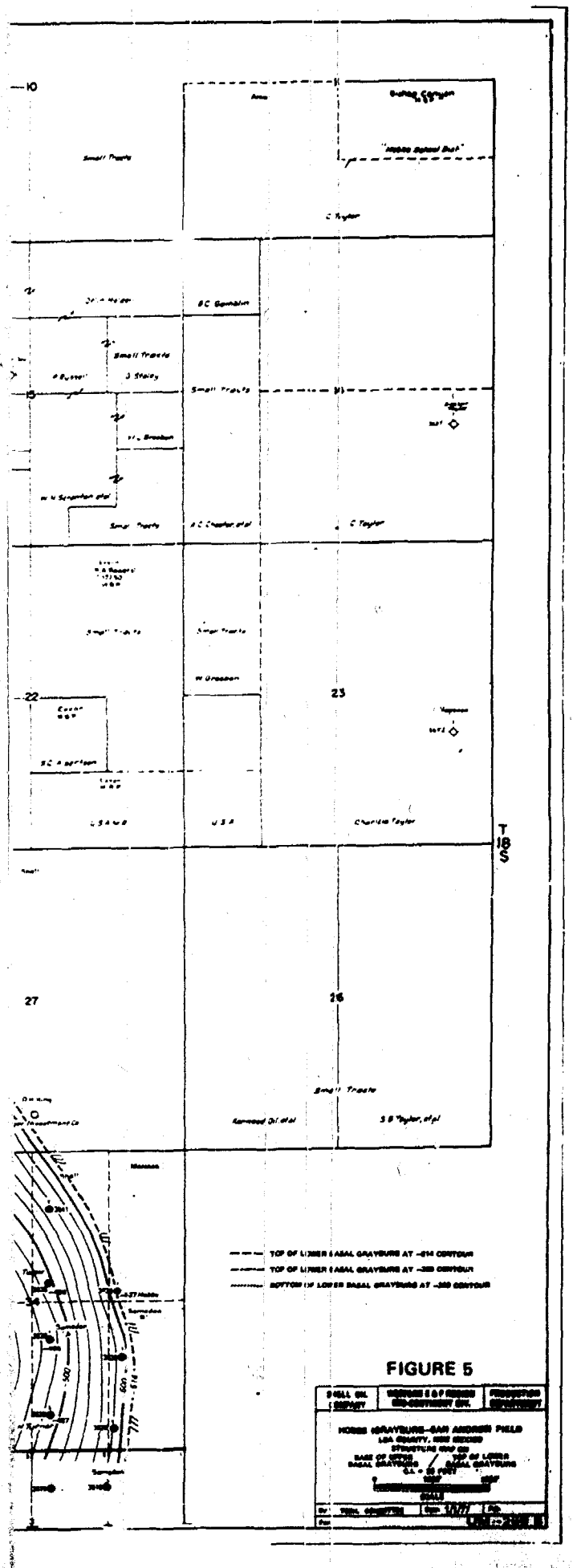
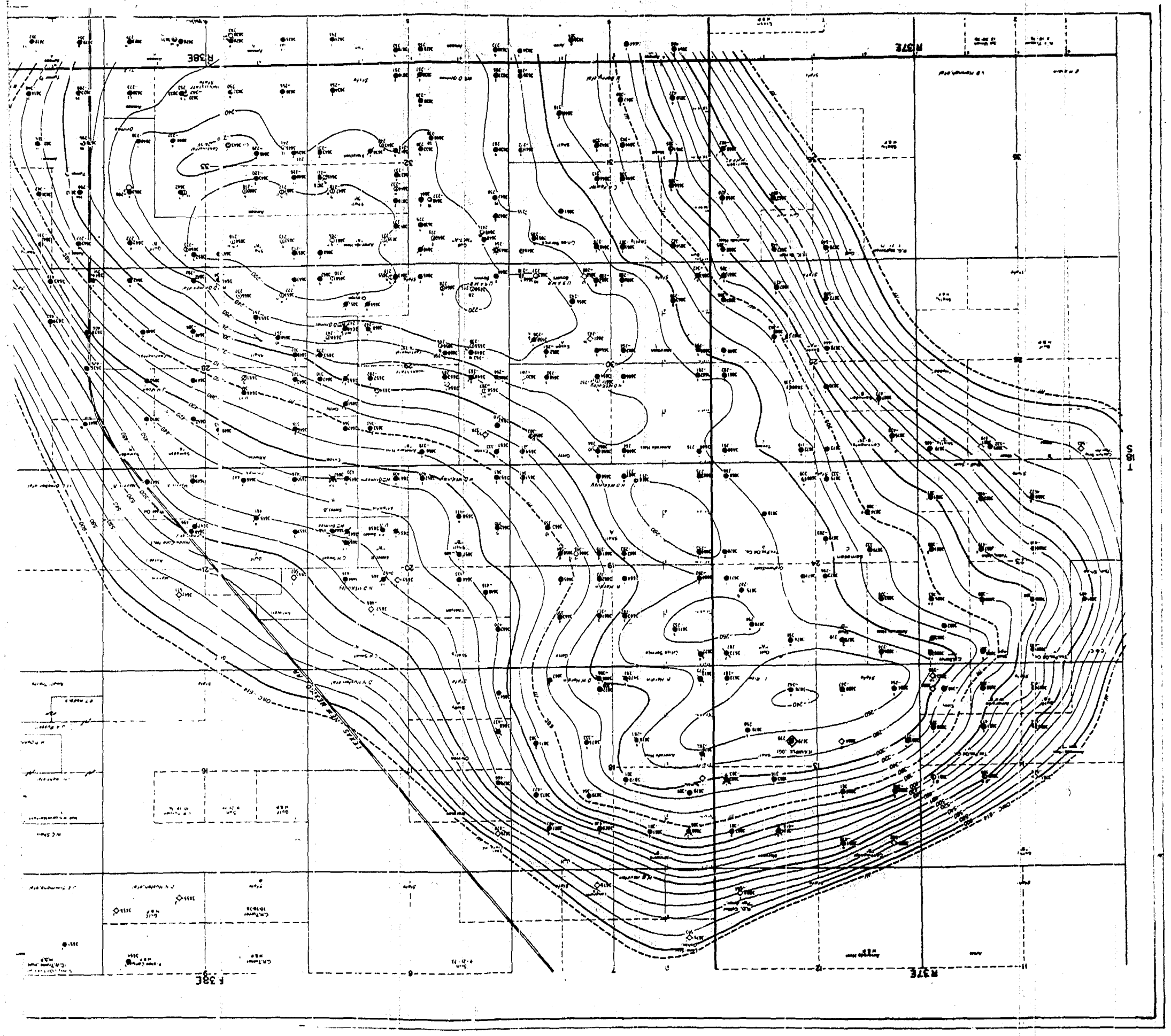

10
Small Tracts
C Taylor
BC Gamblin
Small Tracts
Small Tracts
C Taylor
Small Tracts
W Grosbon
22
23
T
18
S
27
26
Small Tracts
Kerwood Oil, et al
S B Taylor, et al
TOP OF LOWER BASAL GRAYBURG AT -614 CONTOUR
TOP OF LOWER BASAL GRAYBURG AT -300 CONTOUR
BOTTOM OF LOWER BASAL GRAYBURG AT -300 CONTOUR

FIGURE 5


R 38E
R 37E
T 18 S
F 38E
R 37E

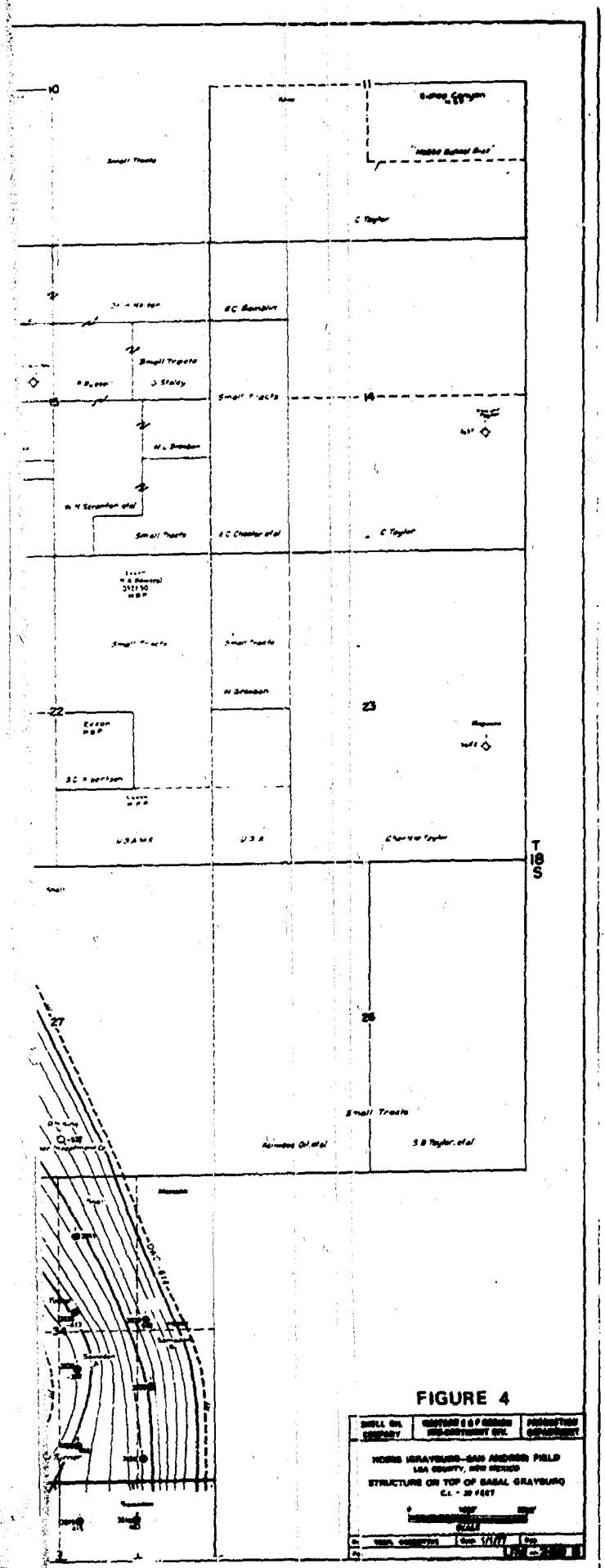
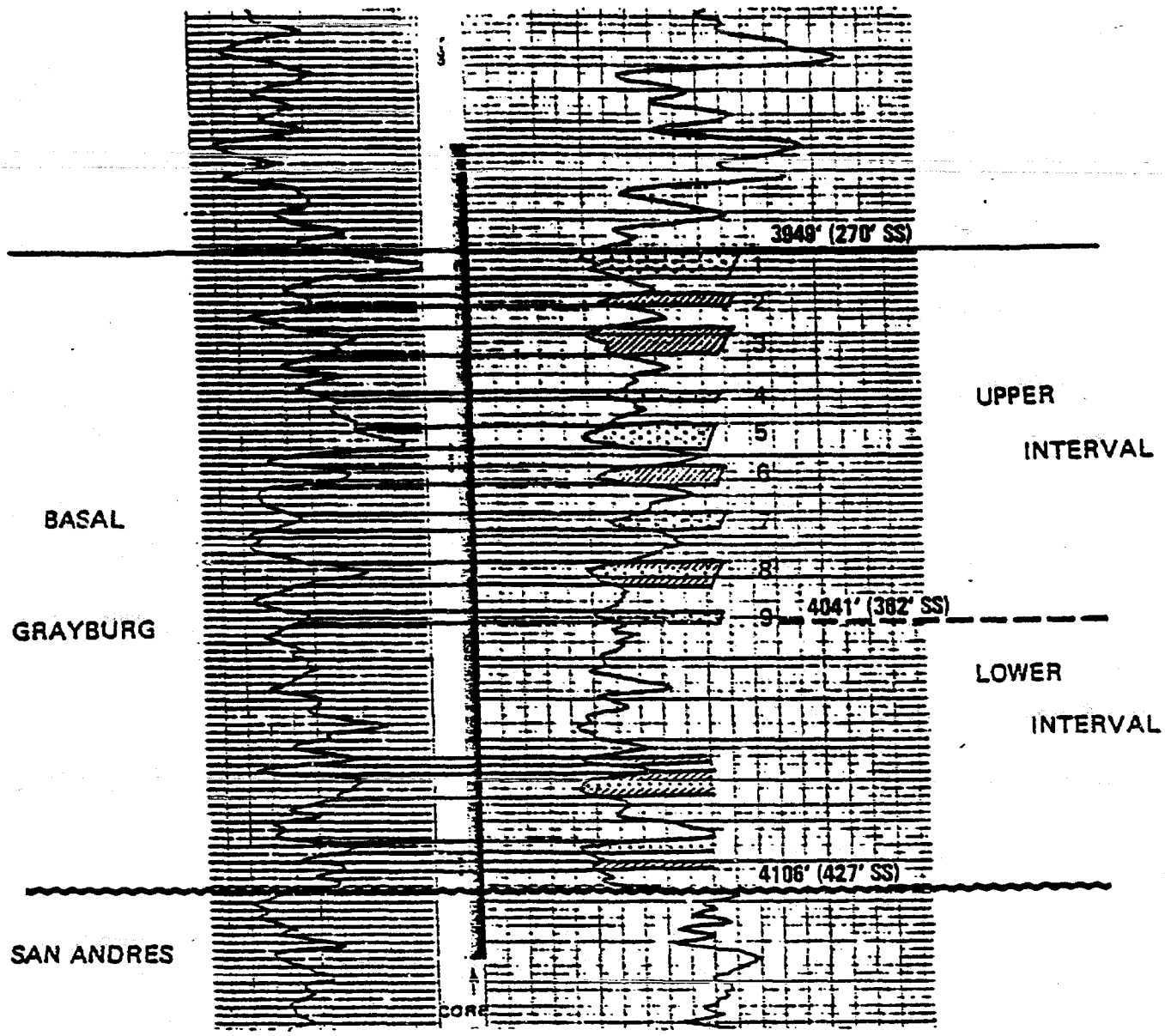


FIGURE 4

SHELL OIL COMPANY | WESTERN E & P REGION MID-CONTINENT DIV. | PRODUCTION DEPARTMENT

HOBBS (GRAYBURG-SAN ANDRES) FIELD
LEA COUNTY, NEW MEXICO
STRUCTURE ON TOP OF BASAL GRAYBURG
C.I. = 20 FEET

SCALE



EXAMPLE LOG

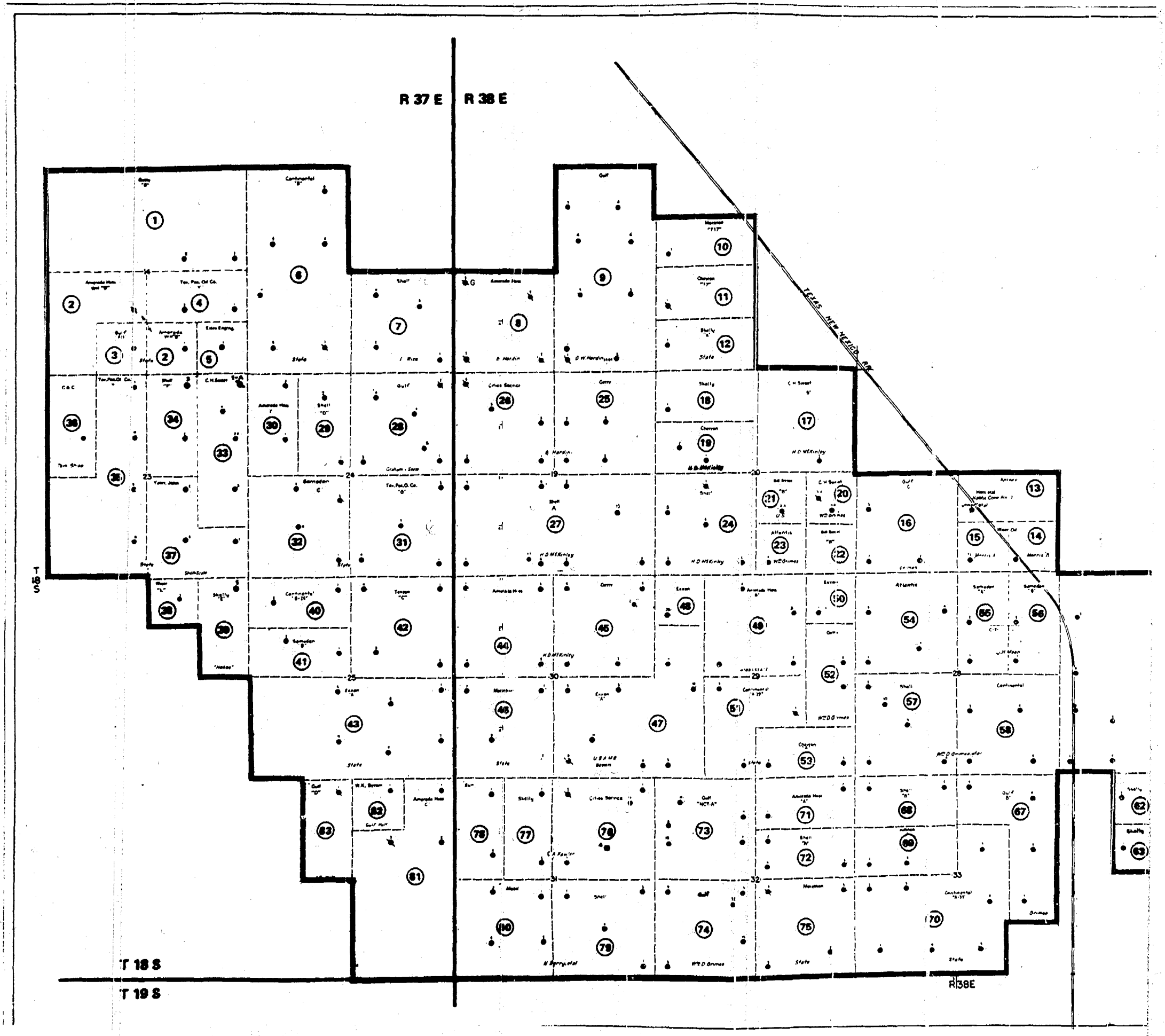
GRAYBURG RESERVOIR

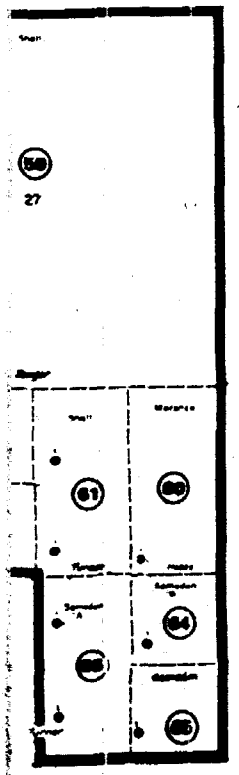
= SANDSTONE

= SILTSTONE

ZM-2067 C

FIGURE 3


R 37 E
R 38 E
T 18 S
T 19 S
R 38 E
TEXAS NEW MEXICO RR

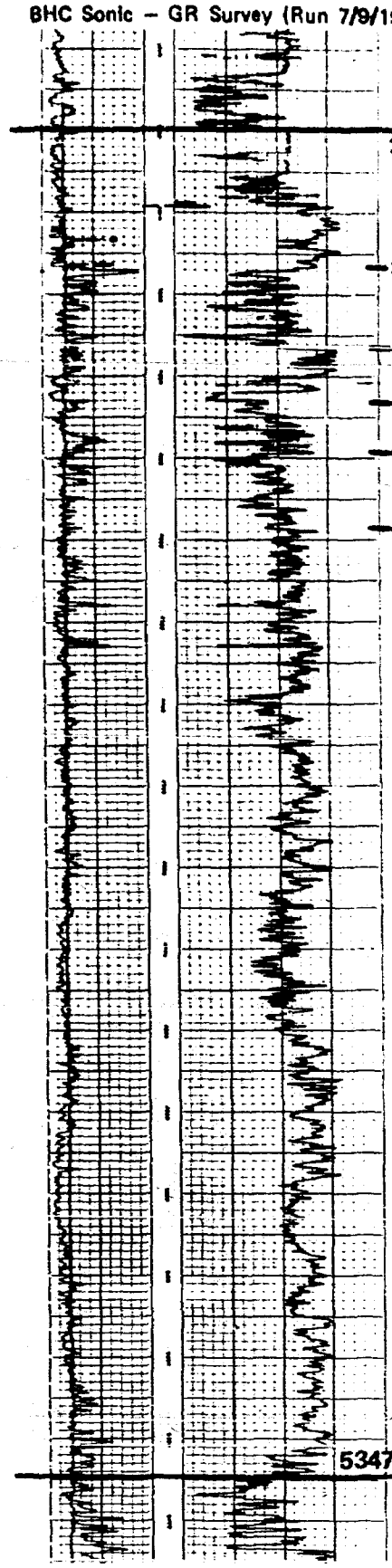


- ACTIVE PRODUCERS (222)
- USEABLE WELLS (SHUT IN OR TA) (19)
- UNIT BOUNDARY
- TRACT NUMBERS

FIGURE 2

SHELL OIL CO.	WEST. E & P REG. WESTERN DIV.	PROD. DEPT.
HOBBS (GRAYBURG–SAN ANDRES) FIELD PROPOSED NORTH UNIT AREA TRACT NUMBERS & USABLE WELLS 1/1/77 LEA COUNTY, NEW MEXICO		
TECH. COMM. DATE: 1–1–77		DM–32

SHELL, STATE A–7
KB ELEV. 3647'
(930' FNL & 650' FWL Sec 32, T18S, R38E)
BHC Sonic – GR Survey (Run 7/9/1969)



3698' (–51') TOP OF UNITIZED INTERVAL

3866' (–219') BASAL GRAYBURG (UPPER ZONE)

3915' (–318') SAN ANDRES (ZONE I)

4031' (–384') SAN ANDRES (ZONE II)

4082' (–446') SAN ANDRES (ZONE III_U)

4185' (–538') SAN ANDRES (ZONE III_L)

5347' (–1700') BOTTOM OF UNITIZED INTERVAL

ZM–2067

FIGURE 40

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

TONEY ANAYA
GOVERNOR

December 21, 1983

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

Shell Oil Company
P.O. Box 991
Houston, Texas 77001

Attention: George L. Carlson,
Division Production Manager

Re: Injection Pressure Increase
North Hobbs Grayburg-San Andres
Unit Well No. 13-331

Dear Mr. Carlson:

Your request for an increase in injection pressure in the subject well has been reviewed. After conferring with our Division Director, it was decided to allow Well No. 13-331 to inject at 800 psi (0.2 psi/ft to the uppermost injection interval). Injection at your requested pressure will be allowed provided the suggestion of the Division Supervisor of our Hobbs District Office be implemented. That suggestion being to abandon the unitized interval of the North Hobbs Unit Well No. 18-131 and monitor the recompleted upper portion of the salt section for any possible subsurface fluid movement. You shall consult the Hobbs District Supervisor in planning a monitoring schedule for Well No. 18-131.

Should any subsurface fluid movement be detected as a result of your periodic monitoring, injection into Well No. 13-331 shall cease immediately and the Hobbs District and this office shall be notified.

Should you have any questions, please call me at 827-5807.

Sincerely,

Gilbert P. Quintana

GILBERT P. QUINTANA
Petroleum Engineer

GPQ/dp

cc: Joe D. Ramey
Hobbs District Office
Case File 6653

PMX-89

Shell Oil Company

713-870-3770

December 12, 1983

P.O. Box 991
Houston, Texas 77001

RECEIVED
DEC 19 1983
OIL CONSERVATION DIVISION
SANTA FE

New Mexico Energy and Minerals Department
Oil Conservation Division
ATTN Mr. J. D. Ramey, Director
P. O. Box 2088
Santa Fe, NM 87501

Gentlemen:

REQUEST TO INJECT AT GREATER THAN HYDROSTATIC PRESSURE IN NORTH HOBBS GRAYBURG-SAN ANDRES UNIT NO. 13-331

Shell, as operator of the North Hobbs Grayburg-San Andres Unit requests authority to inject into unit Well No. 13-331 with up to 800 psi tubing pressure (0.2 psi/ft to top injection zone). Injection is currently limited to hydrostatic pressure because this well lies within one-half mile of a non-unit well, the Humble-Boon Hardin No. 1, that we have been unable to plug and abandon in the prescribed manner. The relative location of these wells is shown in Figure 1.

The basis for this request is our simulation work using a model of the Grayburg reservoir as shown in Figure 2. Input for the model included the historical performance of both North Hobbs unit wells and the Moranco Rice-Hardin waterflood which was initiated in 1971. Figure 3 illustrates the model's history match and forecast of the bottomhole pressure in the vicinity of the Boon-Hardin well. This plot shows that increasing the injection pressure to 800 psi in No. 13-331 would have very little affect on the bottomhole pressure around the Boon-Hardin well. The model predicts that the pressure in the vicinity of the Boon-Hardin well will essentially level off at about 1300± psia, which is significantly below the 1730 psia pressure required to support a hydrostatic head of water to the surface.

Some variations from model predictions can be expected because of changing well conditions and unforeseen circumstances. Therefore, as suggested by the Division Supervisor of the Hobbs District, North Hobbs Unit Well No. 18-131 will be abandoned in the unitized interval and be re-completed opposite the upper portion of the salt section to monitor possible subsurface fluid movement in this area.

Very truly yours,

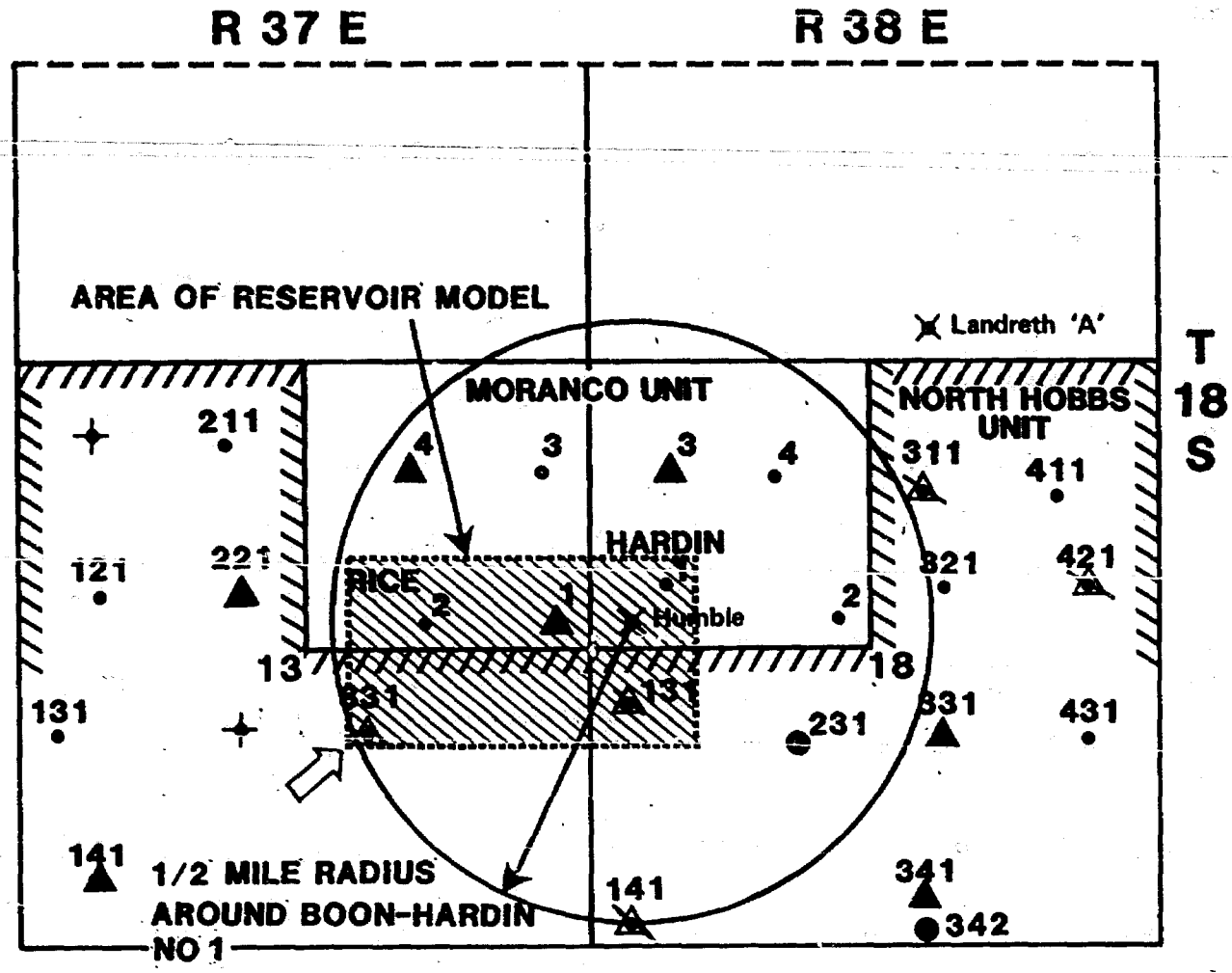
George L. Carlson

George L. Carlson
Division Production Manager
Mid-Continent Division

WRL:BC

Attachments

cc: Mr. J. Sexton, Supervisor NMOCD District 1
P. O. Box 1980
Hobbs, NM 88240



- ● CURRENT PRODUCER
- ▲ ACTIVE WATER INJECTOR
- △ PROPOSED WATER INJECTOR
- SI & TA
- P & A
- INADEQUATELY P & A WELLS
- NHU 13-331W

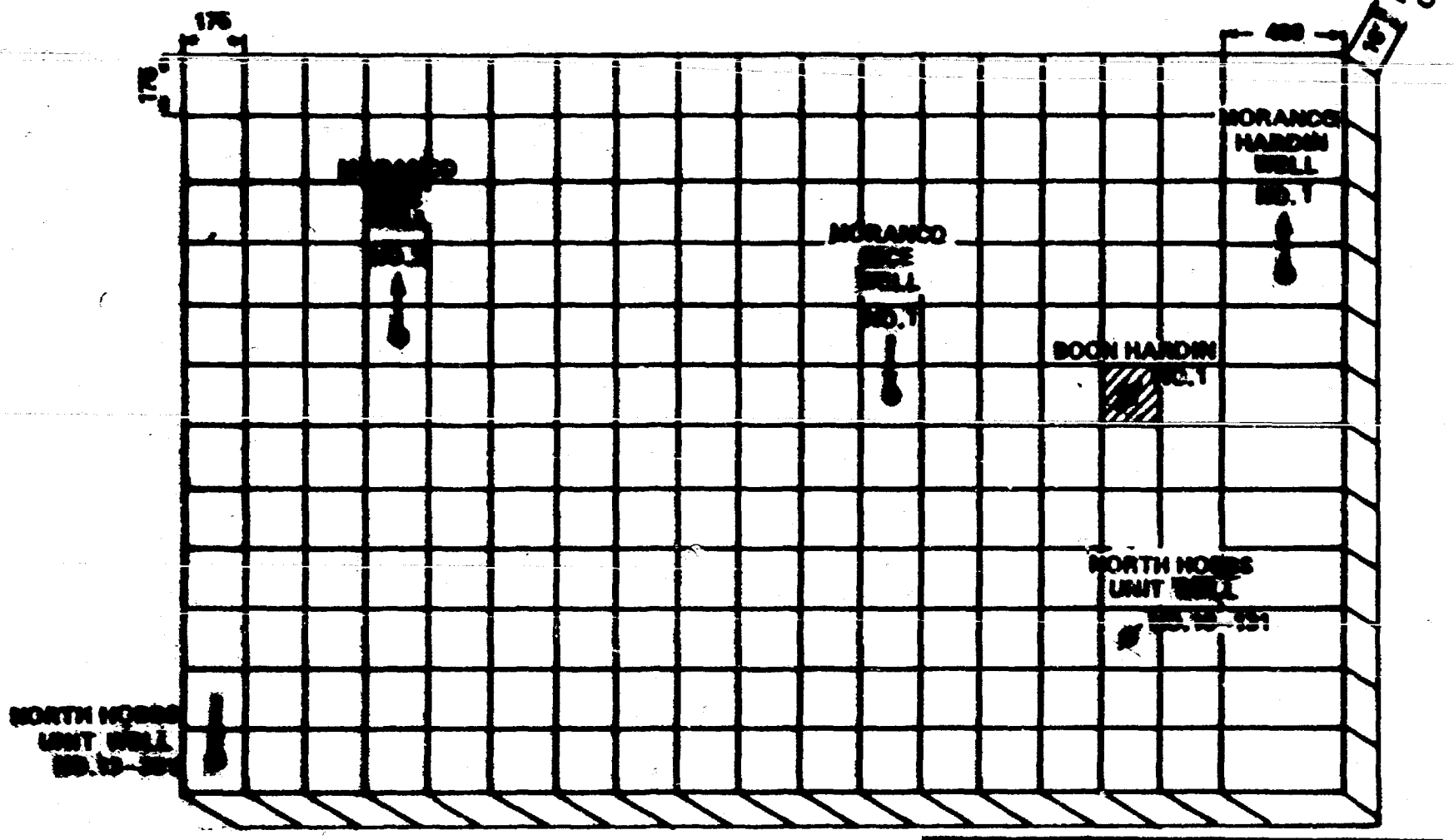
LOCATION MAP

GRAYBURG WELLS VICINITY
HUMBLE BOON – HARDIN NO 1 INCLUDING
(1) AREA ENCOMPASED IN 1/2 MILE RADIUS
(2) AREA INCLUDED IN RESERVOIR MODEL.

0' 1500'
SCALE

2VMC000931

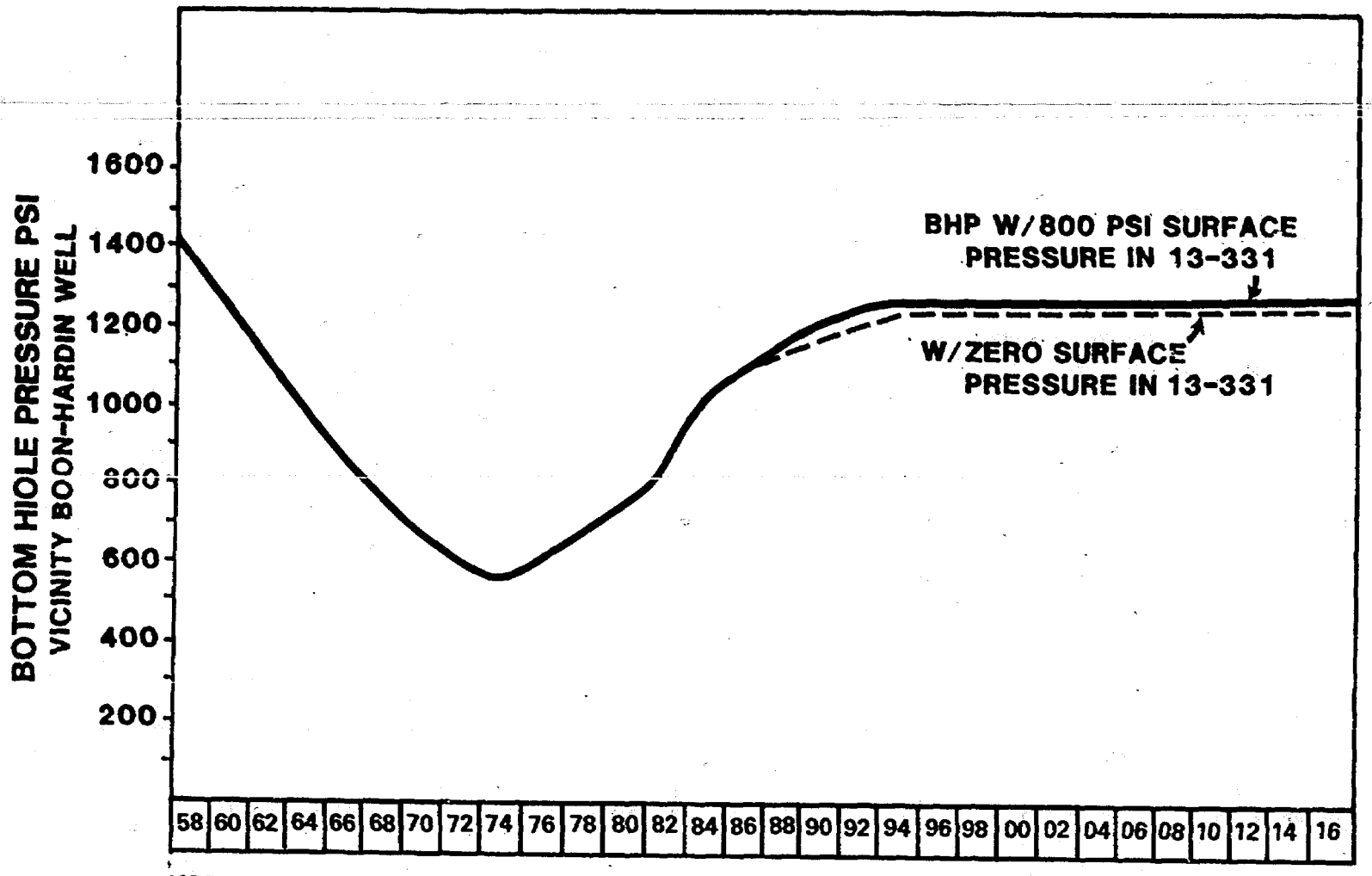
FIGURE 1



SINGLE LAYER MODEL USED TO SIMULATE AREA NEAR BOON HARDIN WELL

FIGURE 2

BOTTOM HOLE PRESSURE NEAR HUMBLE BOON HARDIN NO 1



ZVMC001084

FIGURE 3

INDEX FOR MINUTES AND ATTACHMENTS OF TECHNICAL COMMITTEE MEETINGS

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		Attendance List	7
3.	4/10-11-75	Minutes	8-9
		Attendance List	10
		Addressee List	11-12
4.	9/11-12/74	Minutes	13-15
		Attendance List	16
		Addressee List	17-18
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MINUTES OF ENGINEERING SUBCOMMITTEE MEETING
NORTH HOBBS UNIT PROPOSED
AUGUST 29, 1973

A meeting of the Engineering Subcommittee of the proposed North Hobbs Unit was held in Midland, Texas, on August 29, 1973. The attendance list is attached.

The meeting was called to order at 8:15 a.m. by Mr. Martin A. Thieme, representing Shell Oil Company. Mr. Thieme noted that the meeting would be of an organizational and planning nature. It was the unanimous opinion of those present that secondary oil potential exists in the proposed North Hobbs Unit and that the subcommittee would proceed to fulfill the charges given by the Working Interest Owners in their July 31, 1973, meeting.

Mr. Thieme noted that AMOCO has sent the subcommittee most of the data pertaining to the North Area. The individual well logs will be forthcoming.

Mr. S. B. Pontious, discussed differences in log Øh between his findings and those presented in the March 1972 field-wide study. With no objections, the subcommittee directed Shell as expediter to review all the geological x-sections received from AMOCO and report the results at the next meeting. Shell was further directed to re-evaluate the existing logs with special emphasis on recent logs and report their findings.

The subcommittee will meet in approximately six weeks to determine if more log data are required and, if necessary, recommend a key logging program to the Working Interest Owners.

Mr. W. R. Greene discussed the results of several workovers involving Zone I of the San Andres. He demonstrated that higher water cuts were found in Zone I than depicted in the field-wide study and that the Shell State B-1 (Section 33) tested 100% water.

All companies were requested to send the following information to the chairman of the Engineering Subcommittee at their earliest convenience:

1. Logs run since January 1, 1971, and not previously sent to AMOCO

2. Information on current perforated intervals not previously sent to AMOCO

There being no further business, the meeting was adjourned at 11:30 a.m.

MAT:NM

Attachments

ATTENDANCE LIST
ENGINEERING SUBCOMMITTEE MEETING
NORTH HOBBS UNIT
AUGUST 29, 1973

Name	Company
R. R. Denham	Amoco
Nelson Robertson	Arco
C. F. Dwyer	Chevron
E. C. Warren	Chevron
E. H. Lowrey	Cities Service
C. C. Woodward	Continental
W. E. Nolan	Exxon
J. M. Clayton	Exxon
Bert Marier	Getty
J. E. Eakin	Getty
C. L. Robertson	Gulf
D. E. Zlomke	Marathon
Leon Veeder	Samedan
M. A. Thieme	Shell
S. B. Pontious	Shell
W. R. Greene	Shell
F. E. Coupal	Shell
Frank McAtee	Skelly
Ken Barnett	Sun
Chuck Price	Sun
J. M. Roberts	Texaco
Gerald Bell	TPOC
Russ Meyers	TPOC

NORTH HOBBS UNIT
ENGINEERING SUBCOMMITTEE
ADDRESSEE LIST

AMERADA HESS CORPORATION
ATTN: MR. L. J. CRANDAL
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. J. C. BURTON
P. O. BOX 3092
HOUSTON, TX 77002

ATLANTIC RICHFIELD COMPANY
ATTN: J. L. TWEED
P. O. BOX 1610
MIDLAND, TX 79701

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

PENROSE PRODUCTION COMPANY
ATTN: MR. H. S. WINSTON
1605 COMMERCE BUILDING
FORT WORTH, TX 76102

MR. CHARLES B. READ
READ & STEVENS, INC.
P. O. BOX 2126
ROSWELL, NM 88201

CHEVRON OIL COMPANY
ATTN: MR. J. C. SOLARI
P. O. BOX 1660
MIDLAND, TX 79701

CITIES SERVICE OIL COMPANY
ATTN: MR. E. H. LOWREY
P. O. BOX 4906
MIDLAND, TX 79701

CONTINENTAL OIL COMPANY
ATTN: MR. L. P. THOMPSON
P. O. BOX 460
HOBBS, NM 88240

DEL-LEA, INC.
P. O. BOX 1889
HOBBS, NM 88240

GRACKLE OIL COMPANY
P. O. BOX 2038
HOBBS, NM 88240

GETTY OIL COMPANY
ATTN: MR. R. J. STARRAH
P. O. BOX 1231
MIDLAND, TX 79701

GULF OIL COMPANY - U. S.
ATTN: MR. F. W. MORAN, JR.
P. O. DRAWER 1150
MIDLAND, TX 79701

EXXON COMPANY - U. S. A. (2)
ATTN: JOINT INTEREST ENGINEERING
SUPERVISOR
P. O. BOX 1600
MIDLAND, TX 79701

MARATHON OIL COMPANY
ATTN: DISTRICT ENGINEER
P. O. BOX 522
MIDLAND, TX 79701

MINERALS, INC.
P. O. BOX 1320
HOBBS, NM 88240

MOBIL OIL CORPORATION
ATTN: MR. TED GRIFFITH
P. O. BOX 633
MIDLAND, TX 79701

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MR. J. H. MORRIS AS AGENT
1615 FIRST NATIONAL BUILDING
TULSA, OK 74103

POLARIS PRODUCTION CORPORATION
P. O. BOX 1703
MIDLAND, TX 79701

SAMEDAN OIL CORPORATION
ATTN: MR. H. LEON VEEDER
P. O. BOX 909
ARDMORE, OK 73401

SKELLY OIL COMPANY
ATTN: MR. FRANK D. McATEE
EXP. AND PROD. DEPT.
P. O. BOX 1351
MIDLAND, TX 79701

SKELLY OIL COMPANY
ATTN: MR. J. D. McCLAINE
P. O. BOX 1315
MIDLAND, TX 79701

MR. ROBERT L. SUMMERS
P. O. BOX 860
HOBBS, NM 88240

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THORNTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS &
MR. JACK ANDREWS
P. O. BOX 1861
MIDLAND, TX 79701

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO INC.
ATTN: DISTRICT SUPERINTENDENT
P. O. BOX 728
HOBBS, NM 88240

TEXACO INC.
ATTN: MR. V. F. DULLNIG
P. O. BOX 3109
MIDLAND, TX 79701

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. T. J. WALLER
P. O. BOX 4067
MIDLAND, TX 79701

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. G. R. MEYER
1700 ONE MAIN PLACE
DALLAS, TX 75250

THE WISER OIL COMPANY
ATTN: MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

YATES PETROLEUM CORPORATION
ATTN: MR. E. M. MAHFOOD
207 SOUTH FOURTH
ARTESIA, NM 88210

#2

MINUTES OF ENGINEERING SUBCOMMITTEE MEETING
NORTH HOBBS UNIT PROPOSED
NOVEMBER 26, 1973

A meeting of the Engineering Subcommittee of the proposed North Hobbs Unit was held in Midland, Texas on November 26, 1973. The attendance list is attached.

The meeting was called to order at 10:00 A.M. by Mr. Martin A. Thieme, representing Shell Oil Company. Mr. Thieme noted that the purpose of the meeting was to discuss the method and results of the petrophysical study and the geological study as completed to date, to determine if more log data were required and, if necessary, recommend a key logging program to the Working Interest Owners.

Mr. S. B. Pontious presented a summary of the petrophysical study as detailed in the attachment to the November 15, 1973 letter to the engineering subcommittee. Mr. Pontious discussed the plats of each zone which showed both the geographical areas where better quality logs gave good petrophysical control and the hashered areas where the existing poorer quality logs might require additional log data. It was moved by Shell and seconded by Skelly that the subcommittee accept the petrophysical study and preliminary results as presented. The motion was passed with the voting recorded as follows:

Vote	Companies
Yes	Chevron, Cities Service, Continental, Getty, Samedan, Shell, Skelly, Sun and Texaco
Pass	Amerada, Exxon and TPOC

Mr. F. E. Coupal presented a summary of the geological study as completed to date. East-West cross-sections have been constructed through every well to show the structural and stratigraphic distribution of the major porous beds. Mr. Coupal reported that it is evident from detailed correlation that each zone in the San Andres has one or more relatively high porosity beds that may behave as "thief" zones to water injection. Zone III seems to have the lowest range in permeability and also has a more effective upper seal (sandy break) from the more permeable upper zones. It may be difficult to isolate Zone II from the highly permeable interval at the base of Zone I. In addition, Zone I appears to have other individual porous beds that overlie and are poorly connected with the water drive interval. It appears in Section 31, at least, that the low water-cut production from Zone I in some of these wells may be from one of these "isolated" beds. Mr. Coupal further reported that nine Grayburg sand units can be correlated over most of the field with not more than three or four of the sands appearing to have sufficiently continuous permeability to be floodable. However, adequate data is lacking to quantitatively determine lateral continuity, or even satisfactory net pay values. A review of the Grayburg core analyses from seventeen wells in the North area indicated with reasonable certainty that for a minimum permeability of 0.2 md., a cut-off porosity of not less

than 11 percent should be used for the sands. This would require a reduction of approximately one half of the Grayburg "net pay" values as reported by the previous engineering subcommittee for the field wide study.

After much discussion, the subcommittee determined that there were three alternatives for establishing øh in the hashered areas of poor petrophysical control.

Alternative No. 1: Recommend a key logging program to the Working Interest Owners which would involve approximately twelve to fifteen wells.

Alternative No. 2: By utilizing the existing logs establish "net h" values in the areas of poor petrophysical control and extrapolate average porosity from offsetting areas of good petrophysical control to determine øh in areas of poor control.

Alternative No. 3: Determine the ratios of the øh values in the areas of good control to the øh values reported by the previous engineering subcommittee for the field wide study in the same areas. Apply these ratios to the øh values in the areas of poor control reported by the previous engineering subcommittee.

It was moved by Shell and seconded by Samedan that the subcommittee attempt to determine the øh values in the hashered areas of poor log control by a method other than a key logging program at this time. The motion passed with all companies present voting YES.

The subcommittee instructed Shell to determine the øh values under Alternatives Nos. 2 and 3 and report the results at the next subcommittee meeting to be held in February. There being no further business, the meeting was adjourned at 2:00 P.M.

MAT:BB

Attachment

ATTENDANCE LIST
ENGINEERING SUBCOMMITTEE MEETING
NORTH HOBBS UNIT
NOVEMBER 26, 1973

NAME	COMPANY
M. A. Thieme	Shell
S. B. Pontious	Shell
F. E. Coupal	Shell
R. W. Harchler	Texaco
J. E. Eakin	Getty
Peter Michelson	Getty
J. L. Hutchison	Gulf
Dale Nichols	Skelly
Clay Warren	Chevron
W. S. McCuen	Samedan
W. E. Nolan	Exxon
N. K. Reynolds	Exxon
Ken Barnett	Sun
Nelson Robertson	ARCO
C. C. Woodward	Continental
Vincent Foster	Texas Pacific Oil Co.
Reginald C. Keyes	Texas Pacific Oil Co.
A. M. Omar	Amerada Hess
F. A. Bowling	Amerada Hess
E. H. Lowrey	Cities Service
R. E. Dejmal	Mobil

MINUTES OF ENGINEERING SUBCOMMITTEE MEETING
NORTH HOBBS UNIT PROPOSED
APRIL 10-11, 197-

A meeting of the Engineering Subcommittee of the proposed North Hobbs Unit was held in Midland, Texas on April 10-11, 1974. The attendance list is attached.

The meeting was called to order at 9:30 a.m. by Mr. Martin A. Thieme, representing Shell Oil Company. Mr. Thieme noted that the purpose of the meeting was to discuss in detail the results of the geological and petrophysical re-evaluations, to construct Øh maps by zone, to construct water-cut maps by zone, and to construct a zonal completion status map.

Mr. F. E. Coupal discussed the completed geological study in detail; a summary of which was mailed to each member of the subcommittee on March 7, 1974.

The meeting was then turned over to Mr. S. B. Pontious for a discussion of the log analyses. A poll was taken which showed that only 5 of the 13 companies present were prepared to discuss and validate the log analyses on their leases. The chairman reminded the subcommittee that they were requested to be prepared to discuss in detail those items enclosed in the letter dated March 7, 1974 calling this meeting. The chairman then asked the subcommittee what more he or Shell could do to assist them in being prepared for future subcommittee meetings. The consensus of opinion was that Shell could not have done more to assist the members and that the problem was with individual company manpower allocations, etc. It was noted that the 5 companies that had reviewed the log analysis were in agreement with the resulting Øh calculations on their wells. Each company present was given a copy of the log analysis detail on their wells. The subcommittee decided unanimously that each company would check and validate their Øh values by zone by Friday, April 19, 1974, using the method approved by the subcommittee.

A discussion arose concerning the method of contouring the Øh maps. Three companies favored computerized contouring (Getty, TPOC and Skelly) while the other companies favored hand contouring. Skelly volunteered their services for computer contouring. The subcommittee then directed Skelly and/or Shell to contour the Øh maps by computer with payment of any expenses having to be authorized by the Working Interest Owners and that Shell should proceed to refine the existing preliminary Øh maps by hand using the work done by the subcommittee in the meeting. The results will be presented and finalized by the subcommittee at the next meeting which could then be changed only by new log data. Several companies indicated that new logs were forthcoming.

The well-zone completion status map as of January, 1974 was constructed using the available data. Water cuts calculated from the October, November, and December 1973 State Reports were used to initiate the construction of zonal water cut maps. Several anomalous areas developed in water cut trend. The subcommittee decided that each company should be requested to provide two

representative well tests (oil, water, and gas) on each of their wells. The first test being the most recent test just prior to January 1, 1974 and the second test being the most recent test after January 1, 1974. Shell was directed by the subcommittee to refine the water-cut maps by zone using the new well test data and present the results at the next meeting where the subcommittee will finalize the maps. Shell was further directed to construct preliminary GOR maps by zone to be finalized by the subcommittee at the next meeting.

There being no further business the meeting was adjourned at 3:30 p.m.

MAT:BJT

Attachment

ATTENDANCE LIST
ENGINEERING SUBCOMMITTEE MEETING
NORTH HOBBS UNIT
APRIL 10-11, 1974

Name	Company
M. A. Thieme	Shell
R. W. Phillips	Shell
S. B. Pontious	Shell
F. E. Coupal	Shell
H. Leon Veeder	Samedan
Nelson Robertson	Atlantic Richfield
Peter Michelson	Getty
Joe R. Paradiso	Getty
Frank D. McAtee	Skelly
Dale Nichols	Skelly
Fred Hensley	Skelly
Ralph R. Denham	Amoco
Gerald Bell	TPOC
Clay Warren	Chevron
C. D. Stenberg	Gulf
E. R. Green	Amerada Hess
E. D. Wallace	Texaco
N. K. Reynolds	Exxon
W. E. Nolan	Exxon
C. C. Woodward	Continental

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MINUTES OF ENGINEERING SUBCOMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
SEPTEMBER 11-12, 1974

A meeting of the Engineering Subcommittee of the proposed North Hobbs Unit was held in Houston, Texas on September 11-12, 1974. The attendance list is attached.

The meeting was called to order at 9:30 a.m. by Mr. Martin A. Thieme, representing Shell Oil Company. Mr. Thieme noted that the purpose of the meeting was to construct and finalize the Øh maps by zone, the water-cut maps by zone, the GOR maps by zone and to discuss various methods of determining remaining oil production by 40-acre tracts in Zone I San Andres.

While discussing the construction of the Øh maps, several companies stated that they would be logging wells in the near future and that these logs would be available for inclusion in the Øh map construction. The following tabulation shows the location of the wells these companies will log and the approximate time that the logs will be available to the subcommittee.

Company	Well Location	Timing
Continental	State A-29 #1 (J)	1 week
Skelly	Section 17 (M)	2 weeks
Amerada	Section 30	4 weeks
Amerada	Section 18	4 weeks
Getty	Section 19	by year end
Getty	Section 29	by year end
TPOC	Section 24 (P) State G-1	3 weeks
Cities Service	Section 31 (B) Fowler #2	by year end

After discussing the relative merits of hand contoured Øh maps and computer contoured Øh maps, the subcommittee decided to combine the hand and computer contoured maps for the finalized Øh maps for each zone. It was moved by AMOCO, seconded by Continental and unanimously approved by all companies present that the engineering subcommittee recommend to the Working Interest Owners that a cut-off date of January 1, 1975 be established for all well logging data and well test information that is to be considered by the engineering subcommittee in completing the charges given by the Working Interest Owners and that the subcommittee proceed with its work using the best available data. It was resolved that the engineering subcommittee would proceed with its work observing the January 1, 1975 cut-off date unless directed otherwise by the Working Interest Owners.

It was further moved by AMOCO, seconded by Continental and approved that the subcommittee would in constructing the finalized Øh maps use the hand contoured Øh maps as a base and make appropriate revisions as judged necessary from the computer contoured Øh maps. The voting is recorded as follows:

YES Skelly, AMOCO, Amerada, Continental, Exxon, Cities Service, Samedan, TPOC, and Shell
NO Chevron and Getty

It was moved by Skelly and seconded by Cities Service to delete the 0.7 Øh data point in Section 31 (B) on the San Andres Zone II Øh map. The motion failed with the voting recorded as follows:

YES	Skelly, Amerada, Continental, Getty, and Cities Service
NO	Chevron, Exxon, Samedan, TPOC, and Shell
PASS	AMOCO

It was moved by Shell and seconded by Chevron to retain the 0.7 Øh data point in Section 31 (B) on the San Andres Zone II Øh map and that the subcommittee effectively tighten the contour interval on this 40 acre tract and minimize its affect on the surrounding acreage. The motion passed with the voting recorded as follows:

YES	Chevron, Skelly, Continental, Getty, Exxon, Samedan, TPOC, and Shell
NO	Amerada
PASS	AMOCO and Cities Service

(It was noted that Cities Service intends to re-log this well by year end.)

The subcommittee constructed the San Andres Øh maps by zone and approved each map as finalized subject to change only by new log data secured by the subcommittee by the cut-off date of January 1, 1975. The subcommittee approval of the finalized San Andres Øh maps by zone is recorded as follows:

	San Andres Øh Map			
Company	Zone I	Zone II	Zone IIIU	Zone IIIL
Chevron	Yes	Yes	Yes	Yes
Skelly	Yes	Yes	Yes	Yes
AMOCO	Pass	Yes	Yes	Yes
Amerada	Yes	Yes	Yes	Yes
Continental	Yes	Yes	Yes	Yes
Getty	Yes	Yes	Yes	Yes
Exxon	Yes	Yes	Yes	Yes
Cities Service	Yes	Pass	Yes	Yes
Samedan	Yes	Yes	Yes	Yes
TPOC	Yes	Pass	Yes	Yes
Shell	Yes	Yes	Yes	Yes

As directed by the subcommittee in its April 10-11, 1974 meeting, Shell had refined the San Andres water cut maps by zone and presented these maps for finalization by the subcommittee along with a discussion of how they were constructed. Shell noted that the preliminary San Andres GOR maps by zone had also been constructed as directed by the subcommittee in its April, 1974 meeting. Due to the hour, the subcommittee decided to defer finalization of the water-cut and GOR maps until its next meeting to be held the first week in November, 1974.

Further subcommittee work was then discussed in detail. The general consensus of opinion was that current company work loads did not permit individual subcommittee members sufficient time to do significant subcommittee work outside of subcommittee meetings and that the work would best be done in future meetings. In view of these comments, it was moved by AMOCO and seconded by Cities Service that further subcommittee work on the water-cut and GOR maps be done in

subcommittee meetings and that no additional data tabulations or maps be mailed out to subcommittee members. The motion passed with the voting recorded as follows:

YES	Chevron, Skelly, AMOCO, Amerada, Getty, Cities Service, TPOC and Shell
NO	Continental, Exxon and Samedan

Shell led a brief discussion concerning techniques for determining remaining oil production by 40-acre tracts in San Andres Zone I. Various suggestions were made by subcommittee members with no decisions being made. Due to the late hour, further discussion on Zone I was defered to the next meeting.

There being no further business the meeting was adjourned at 4:00 p.m.

MAT:PEE

Attachments

ATTENDANCE LIST
ENGINEERING SUBCOMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
SEPTEMBER 11-12, 1974

Name	Company
M. A. Thieme	Shell
F. E. Coupal	Shell
Steve Pontious	Shell
Hank Swartz	Shell
J. C. Solari	Chevron
Frank McAtee	Skelly
Freddie J. Hensley	Skelly
Ralph R. Denham	AMOCO
Ralph Green	Amerada
C. C. Woodward	Continental
J. E. Eakin	Getty
A. H. Pokky	Getty
John M. Clayton	Exxon
W. E. Nolan	Exxon
Ed Lowrey	Cities Service
H. Leon Veeder	Samedan
Allen Wicke	TPOC
Russ Meyers	TPOC

NORTH HOBBS UNIT
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September 20, 1974

Subject: Minutes of Engineering Subcommittee
Proposed North Hobbs Unit
Lea County, New Mexico

The Engineering Subcommittee
North Hobbs Unit
(Addressee List Attached)

Gentlemen:

Attached are the minutes of the North Hobbs Engineering Subcommittee meeting held in Houston, Texas on September 11-12, 1974. Although we did not accomplish all of the items that were set forth on our agenda, we did have a productive and successful meeting. The next subcommittee meeting will be scheduled during the first week of November, 1974.

As a result of reassignments Mr. H. J. Swartz has become the chairman of the Engineering Subcommittee. Please change your mailing lists accordingly.

Yours very truly,

H. J. Swartz

for M. A. Thieme
Chairman Engineering Subcommittee
Proposed North Hobbs Unit

MAT:PEE

Attachments

Minutes of Engineering Subcommittee Meeting
Proposed North Hobbs Unit
November 6-7, 1974

A meeting of the Engineering Subcommittee of the proposed North Hobbs Unit was held in Houston, Texas on November 6-7, 1974. The attendance list is attached.

The meeting was called to order at 8:45 a.m. by Mr. H. J. Swarts, representing Shell Oil Company. It was noted that the main purpose of the meeting was to construct water cut and GOR maps for each San Andres zone. Production and completion statistics have been updated and recorded by Shell as follows: 1) Individual well data sheets (zonal completion history and Øh, BHP surveys, monthly production history, well tests and overall assessment of current well status), 2) Updated cross sections, 3) Well status map (current completion zone and whether or not suspicion of behind pipe communication) and 4) State-witnessed "GOR" test sheets (water and gas data posted on appropriate zonal map). While preparing and collecting this data the special problem of frequent behind pipe communication became evident. Most of these wells were initially completed, during the 1930's, as open hole Grayburg - San Andres Zone I producers. Approximately fifteen years later the wells were frequently deepened to Zone III, a liner set and perforated completions made in the lower zones. In many cases the perforated completion interval has been changed several times and been subjected to several stimulation attempts with acid treatments.

Mr. R. W. Phillips presented some examples of Shell's experience with behind pipe communication problems on the McKinley A, McKinley B, Rice and State A leases. Based on the results of production tests, temperature surveys and radioactive tracer logs, Mr. Phillips believes that the water production problems experienced in these wells resulted because of the inability to isolate the production from high permeability in the Zone I San Andres reservoir. Instances of both successful and unsuccessful attempts to eliminate high water producing rates from Zone I were reported. It was concluded that behind pipe communication with Zone I is quite common throughout the field and is generally characterized by high water producing rates.

Those present decided to use the production data from the State-witnessed Annual "GOR" tests, taken during the third quarter of 1974, as the main control points. The completion status and production data posted on the zonal maps were verified and the necessary changes made. If a completion interval included a portion of a dense zone, only the productive zone was posted on the maps. The subcommittee then attempted to construct water cut contour lines for each of the four San Andres zones. The Zone I production performance appears to be indicative of edge water encroachment and a reasonable water cut map was constructed. However, the water cuts from the other zonal completions were erratic and difficult to fit to an edge water concept. It was pointed out that the subsea depth of 614 feet, that is often erroneously

referred to as an original oil-water contact, is actually the depth at which the first water production was obtained in the discovery well. This depth is an arbitrary one which has been used to define productive limits but is not intended to infer an original or current water level. Overlays of the water cut maps that had been prepared for Zones II, III_U and III_L were superimposed on the Zone I water cut map to demonstrate that the control points matched and therefore appeared to be indicative of communication problems. The consensus was that the water source was most likely the lower portion of Zone I. However, there still was disagreement over what degree of water invasion, if any, has occurred in the other zones.

A motion was made by Amerada and seconded by Skelly that all of the current water production be considered to be coming from Zone I and that a water cut map should be prepared for only this reservoir with the lower zones assumed to have no quantifiable water influx. The voting is recorded as follows:

YES: Amerada, Arco, Cities Service, Getty, Samedan, Skelly, TPOC, and Shell

NO: Continental and Exxon

A motion was made by Amerada and seconded by Continental to approve the water cut map for Zone I, as drawn, with the condition that revisions would be made as necessary to correct for new data resulting from future remedial efforts completed prior to the cutoff date of January 1, 1975. The motion was approved unanimously. A copy of this approved water cut map is attached. It is requested that each representative carefully review the completion status depicted on this map and advise Mr. H. J. Swartz, Shell (713-220-1022), of any errors.

The Committee members were advised that Shell, on the behalf of all operators, has requested the Field Permanent Bottom Hole Pressure Committee to confine the selection of key wells to twenty-four flowing producers that are completed in only one zone. Hopefully two or three surveys in each zone can be obtained. It was also requested that the shut in time be increased from 24 to 48 hours. It is believed that these changes will greatly improve the quality of the data that will be obtained during the next annual survey in April, 1975.

Construction of GOR maps for San Andres Zones II, III_U and III_L were commenced but not completed due to lack of time. These maps should be finalized at the next engineering committee meeting which will be held in Midland on December 5, 1974.

Mr. Paul Czarkowski, Shell, presented a review of the method used by the previous engineering committee to determine primary and secondary reserves by zones. These calculations are based on the water cut, GOR and pore volume maps in conjunction with a material balance prediction of solution gas drive efficiency and a prediction of waterflood recoveries. Secondary reserves were based on a Stiles approach applied to an 80-acre five-spot

flood pattern. A decision on what changes and adjustments should be made on these techniques will be decided on at the December meeting. Also at this meeting it will be necessary to decide on a method for predicting the remaining primary reserves by tract for Zone 1. ~~Mr. H. J. Swartz, Shell, presented an example calculation which incorporated three arithmetically-weighted factors: distance from the 100 per cent water cut line, water cut and oil production rate.~~ The engineering representatives were asked to consider what weighting should be assigned to a Zone I well that is also completed in other zones. ~~It was requested that everyone prepare a recommended procedure for the apportionment of remaining Zone I reserves and submit it to Shell prior to December 5th if unable to attend the meeting.~~

Messrs. F. E. Coupal and S. B. Pontious reviewed the results of a study of the basal Grayburg net pay development. (Most of this data was sent to each member of the Engineering Subcommittee on March 7, 1974). The new data presented by Messrs. Coupal and Pontious are: 1) A tabulation of the total net pay determinations by well and 2) a total net pay isopach of this basal Grayburg sand reservoir. A copy of each of these items is attached. The separation between gas cap and oil column thicknesses will be done at a later date. It was their considered opinion that it will not be possible to sufficiently quantify the porosity variations to justify the construction of porosity - feet maps. Therefore ~~the recommendation~~ is to apply an average porosity to ~~the net pay maps~~.

The meeting was adjourned at 3:30 p.m. on Thursday, November 7, 1974.

Attachments

Attendance List
Engineering Subcommittee Meeting
Proposed North Hobbs Unit
November 6-7, 1974

Name	Company	Location
Ralph Green	Amerada	Seminole
Nelson Robertson	Arco	Midland
Don Barrett	Cities Service	Midland
C. C. Woodward	Continental	Hobbs
J. M. Clayton	Exxon	Midland
W. E. Nolan	Exxon	Midland
Jim Eakin	Getty	Midland
Arne H. Pokky	Getty	Midland
H. Leon Veeder	Samedan	Ardmore
Fred Hensley	Skelly	Midland
Frank McAtee	Skelly	Midland
Allen Wicke	TPOC	Midland
Frank Coupal	Shell	Houston
R. W. Phillips	Shell	Houston
Steve Pontious	Shell	Houston
Paul Szatkowski	Shell	Houston
Hank Swartz	Shell	Houston

NORTH HOBBS UNIT
ENGINEERING SUBCOMMITTEE
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
ATTN: MR. JOHN A. YATES
YATES BUILDING
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. L. J. CRANDAL
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. E. E. MORRIS
P. O. BOX 3092
HOUSTON, TX 77001

ATLANTIC RICHFIELD COMPANY
ATTN: C. R. LEGGOTT
P. O. BOX 1610
MIDLAND, TX 79701

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

CHEVRON OIL COMPANY
ATTN: MR. J. C. SOLARI
P. O. BOX 1660
MIDLAND, TX 79701

CITIES SERVICE OIL COMPANY
E & P DIVISION
P. O. BOX 1919
MIDLAND, TX 79701

CONTINENTAL OIL COMPANY
ATTN: MR. R. E. McWILLIAMS
P. O. BOX 460
HOBBS, NM 88240

MR. JOHN P. CUSACK
P. O. BOX 250
ROSWELL, NM 88201

EXXON COMPANY - U.S.A. (2)
ATTN: JOINT INTEREST ENGINEERING
SUPERVISOR
P. O. BOX 1600
MIDLAND, TX 79701

GETTY OIL COMPANY
ATTN: MR. W. J. NEWMAN
P. O. BOX 1231
MIDLAND, TX 79701

GETTY OIL COMPANY
ATTN: MR. E. J. MILLER
P. O. BOX 249
HOBBS, NM 88240

GULF OIL COMPANY - U. S.
ATTN: MR. F. W. MORAN, JR.
P. O. DRAWER 1150
MIDLAND, TX 79701

MARATHON OIL COMPANY
ATTN: DISTRICT ENGINEER
P. O. BOX 522
MIDLAND, TX 79701

MOBIL OIL CORPORATION
ATTN: MR. TED GRIFFITH
P. O. BOX 633
MIDLAND, TX 79701

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

POLARIS PRODUCTION CORPORATION
WALL TOWERS WEST
MIDLAND, TX 79701

SAMEDAN OIL CORPORATION
ATTN: MR. H. LEON VEEDER
P. O. BOX 909
ARDMORE, OK 73401

SAMEDAN OIL CORPORATION
ATTN: MR. W. S. McCLUEN
2207 WILCO BUILDING
MIDLAND, TX 79701

SKELLY OIL COMPANY
ATTN: MR. FRANK D. McATEE
EXP. AND PROD. DEPT.
P. O. BOX 1351
MIDLAND, TX 79701

'ELLY OIL COMPANY
ATTN: MR. F. J. HENSLEY
P. O. BOX 1315
MIDLAND, TX 79701

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THORNTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS &
MR. JACK ANDREWS
P. O. BOX 1861
MIDLAND, TX 79701

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO INC.
ATTN: DISTRICT SUPERINTENDENT
P. O. BOX 728
HOBBS, NM 88240

TEXACO INC.
ATTN: MR. V. F. DULLNIG
P. O. BOX 3109
MIDLAND, TX 79701

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. T. J. WALLER
P. O. BOX 4067
MIDLAND, TX 79701

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. G. R. MEYER
1700 ONE MAIN PLACE
DALLAS, TX 75250

THE WISER OIL COMPANY
P. O. BOX 2467
HOBBS, NM 88240

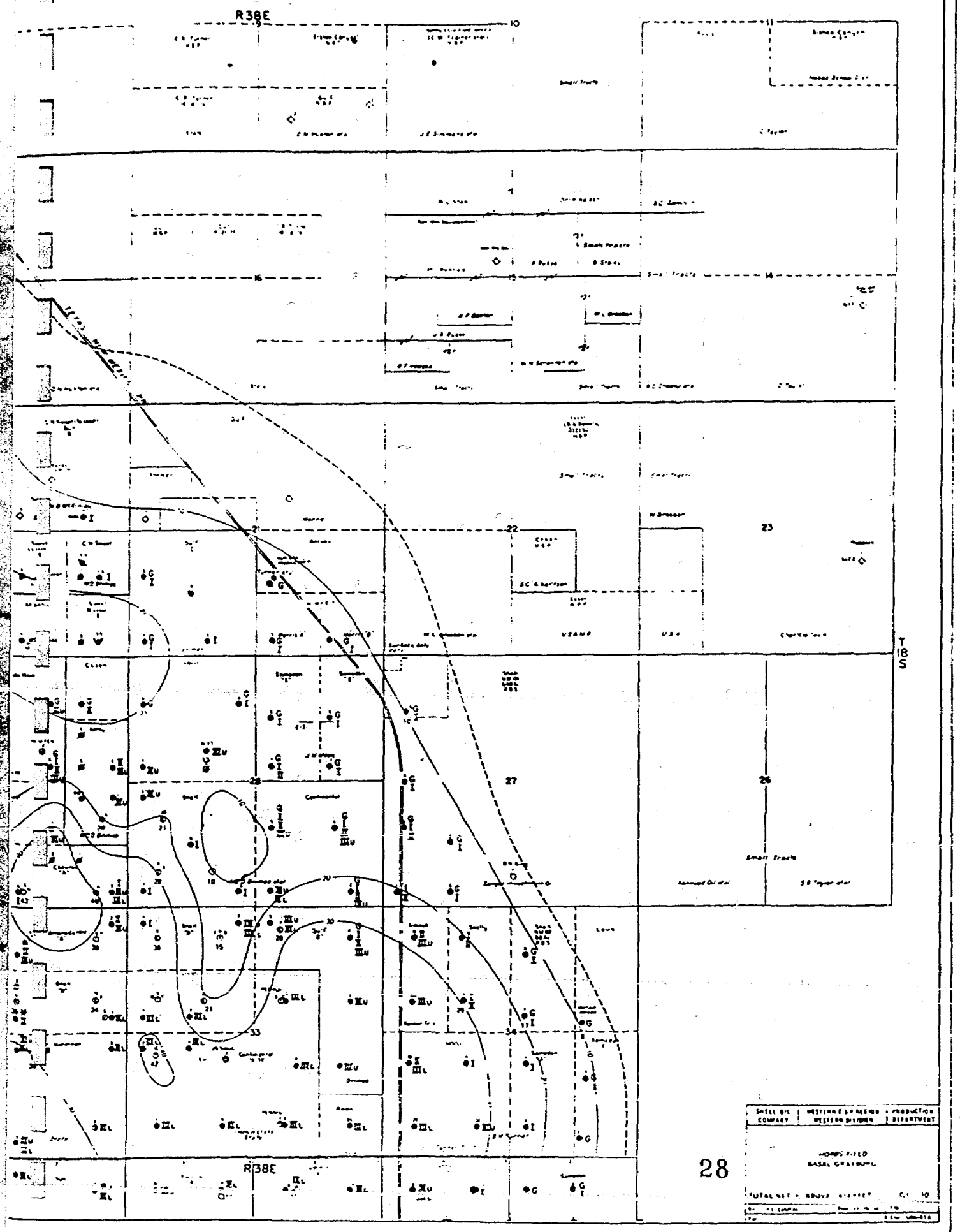
YEAGER & ARMSTRONG
'ESTERN UNITED LIFE BUILDING
.DLAND, TX 79701

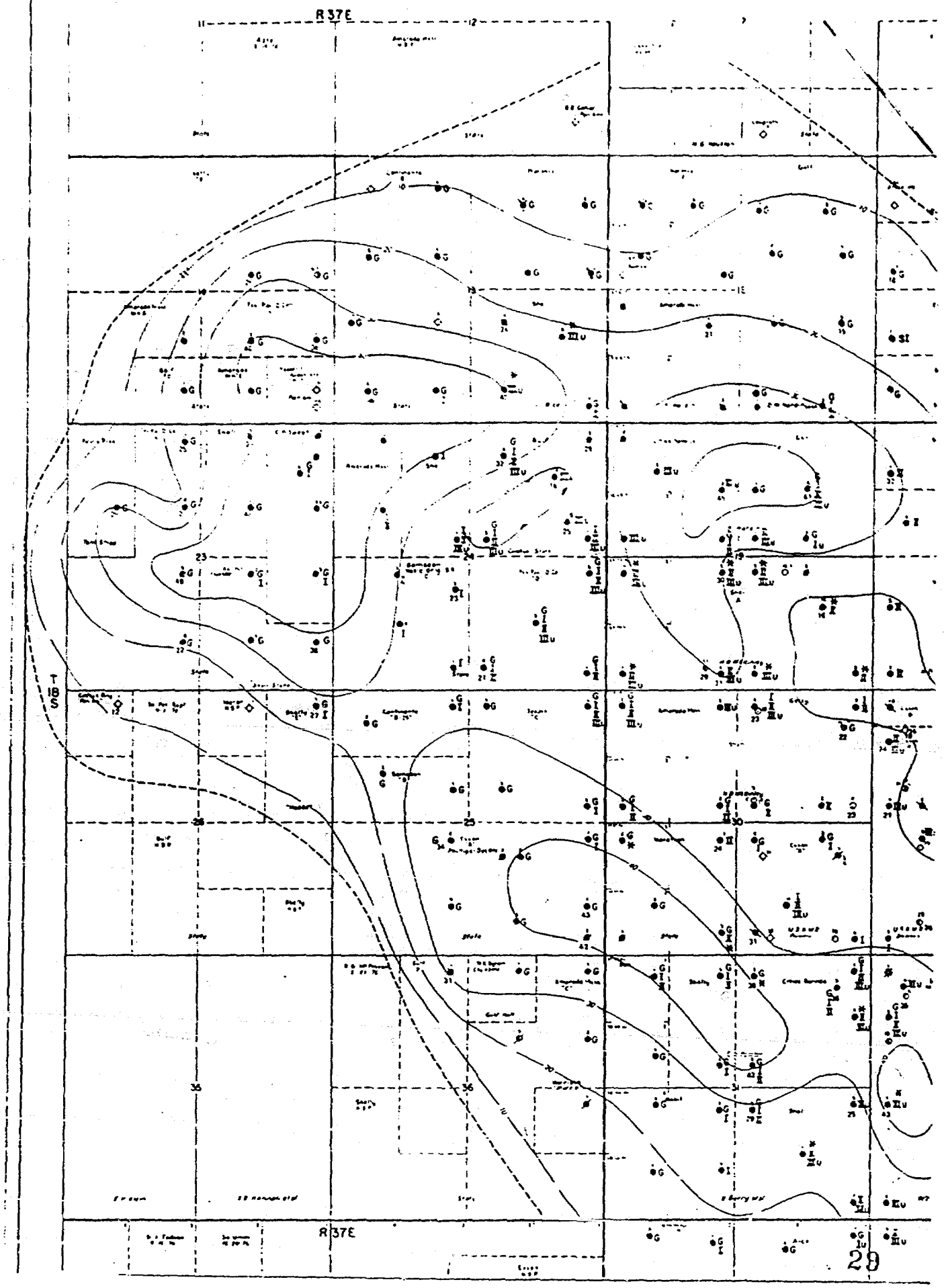
NORTH HOBBS BASAL GRAYBURG
NET FEET OF PAY TABLE

SECTION	WELL	NET h	ANALYSIS
T18S, R37E			
13	Shell Rice #1	40' x	SNP
	Shell Rice #2	24'	Core
14	TPOC V #1	36' x	Core
	TPOC V #2	40'	GRN
	Getty B #2	26' x	GRN
23	TPOC V #3	25'	GRN
	TPOC V #4	20' x	Core
	TPOC V #5	49'	GRN
	TPOC V #6	22'	GRN
	Shell F #2	48'	GRN
	Shell F #3	39' x	GRN
	Gato Shipp #1	29' x	GRN
	Yates Shell #1	38'	Core
24	Gulf Graham #2	28' x	GRN
	Gulf Graham #4	32' x	Acoustic
	Gulf Graham #5	25'	Acoustic
	Gulf Graham #6	16'	Acoustic
	Samedan C #2	23'	GRN
	TPOC G #4	21'	SNP
25	Exxon A #2	42'	GRN
	Exxon A #6	34'	Core
	Exxon A #7	43' x	Core
26	Cactus Pan Am St. #1	12'	Core
	Skelly E #1	27'	GRN
36	Gulf Holt #1	31' x	Core
T18S, R38E			
17	Moran St. 17 #1	18' x	Core-Acoustic
18	Amerada Hardin B #5	21'	GRN
	Moran Hardin B #1	10'	Core
	Gulf Hardin #3	15'	Core
19	Shell McKinley A #4	31' x	GRN
	Shell McKinley A #6	30' x	GRN
	Shell McKinley A #10	16'	Acoustic
	Shell McKinley A #11	29'	SNP
	Cities Service Hardin #3	45' x	GRN
	Getty Hardin #4	41'	GRN

SECTION	WELL	NET h	ANALYSIS
20	Shell McKinley B #2	25'	Acoustic
	Shell McKinley B #4	23'	SNP
	Skelly McKinley #1	32'	CNL
	Moran St. 20 #1	8' x	Core-Acoustic
2[illegible]	Shell Sanger #[illegible]	10' x	SNP
28	Arco Grimes #2A	13'	GRN
	Arco Grimes #3	21'	GRN
	Arco Grimes #4	16'	GRN
	Shell Grimes #9	29'	SNP
	Shell Grimes #10	21'	SNP
	Shell Grimes #11	10'	SNP
29	Amerada B #2	16' x	SNP
	Chevron I #5	43'	SNP
	Chevron I #6	40'	SNP
	Continental A-29 #1	41' x	SNP
	Continental A-29 #7	25'	Core
	Continental A-29 #8	16'	SNP
	Exxon Bowers #7	21'	Core
	Exxon Bowers #28	26'	Acoustic
	Exxon Bowers #33	18'	SNP
	Exxon Bowers #35	24'	Acoustic
	Getty Grimes #6	20'	Acoustic
30	Exxon Bowers #8	31'	GRN
	Getty McKinley #8	23'	Acoustic
	Getty McKinley #10	23'	SNP
	Getty McKinley #11	22'	Acoustic
	Marathon St. 30 #1	24' x	GRN
31	Cities Service Fowler #2	38'	FDC
	Cities Service Fowler #9	36'	FDC
	Shell Berry #2	29'	SNP
	Shell Berry #3	25' x	GRN
32	Amerada A #5	38'	SNP
	Gulf Grimes #9	43' x	Acoustic
	Gulf Grimes #16	35'	Acoustic
	Marathon St. 32 #9	30'	Acoustic
	Shell St. A # 6	35'	Acoustic
	Shell St. A #7	34'	Acoustic
33	Amoco St. G #6	21'	Acoustic
	Continental A-33 #12	42'	SNP
	Gulf Grimes #7	28'	SNP
	Shell St. B #5	36'	Acoustic
	Shell St. B #6	15'	Acoustic
34	Skelly Turner #1	29'	CNL
	Moran Hobbs #1	8'	Core

x Net h extrapolated


R38E
T
18
S
R38E
28
SHELL OIL COMPANY
WESTERN E & P REGION
WESTERN DIVISION
PRODUCTION DEPARTMENT
HOBBS FIELD
BASAL GRAYBURG


R 37 E
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R 37 E

R38E

T 12 S

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63 (39)
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570 (94)
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50 (34)
326 (73)
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10 (11)
4 (5)
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13 (14)
155 (91)
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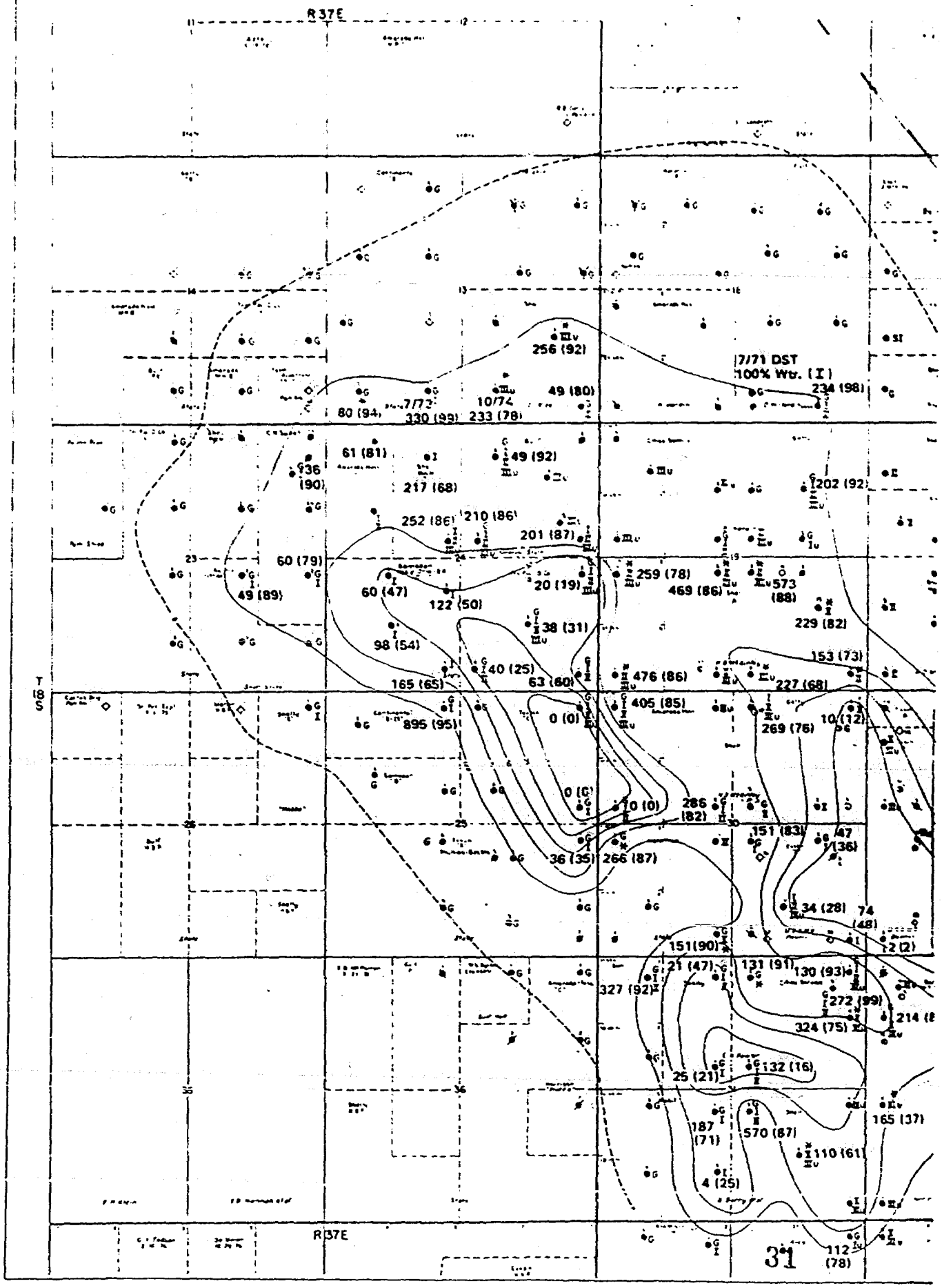
14 (13)
139 (62)
15 (15)
238 (94)
15 (15)
15 (15)

R38E

30


R37E
T 18 S
R37E
31
256 (92)
7/71 DST
100% Wtr. (I)
234 (98)
49 (80)
10/74
80 (94)
7/72
330 (99)
233 (78)
61 (81)
49 (92)
936 (90)
217 (68)
202 (92)
252 (86)
210 (86)
201 (87)
60 (79)
49 (89)
60 (47)
20 (19)
259 (78)
469 (86)
573 (88)
122 (50)
229 (82)
38 (31)
98 (54)
153 (73)
40 (25)
63 (60)
476 (86)
165 (65)
227 (68)
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895 (95)
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269 (76)
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10 (0)
286 (82)
151 (83)
47 (36)
36 (35)
266 (87)
34 (28)
74 (48)
151 (90)
2 (2)
21 (47)
131 (91)
130 (93)
327 (92)
272 (99)
324 (75)
214 (8
25 (21)
132 (16)
165 (37)
187 (71)
570 (87)
110 (61)
4 (25)
112 (78)

Minutes of Engineering Subcommittee Meeting
Proposed North Hobbs Unit
December 5, 197-

The meeting was called to order at 8:45 a. m. by Mr. H. J. Swartz. It was noted that the main purpose of the session was to construct and approve GOR maps for each San Andres zone. There was a discussion of the method of approach (using the State-witnessed GOR tests taken during the third quarter of this year as the main control points) and of the use of these maps for reserve determinations. It was unanimously agreed that a GOR map was not needed for Zone I inasmuch as it is anticipated that the remaining reserves from that reservoir can be recovered by continued water influx. A uniform current gas saturation will be assumed. All known corrections to well completion status were made. Unanimous approval was obtained for the GOR maps that were constructed for San Andres Zones II, III_U and III_L. These maps will be updated and finalized at the next Engineering Committee meeting.

A discussion followed on the technique to be used for calculating remaining primary and secondary San Andres reserves by tracts. It was agreed that a similar method to that used by the previous engineering committee would be preferable and that Shell should prepare the required predictive performance curves (based on material balance and waterflood recovery calculations). The results of these studies will be presented at a future meeting in order to obtain final committee approval before calculating tract reserves.

The need for obtaining BHP buildup surveys on selected wells were discussed. These wells are those which are flowing and which are effectively completed in only one zone. Very few wells meet these prerequisite and it was recommended that surveys be taken as near to year-end as possible in the following wells: Amerada Hess McKinley 3, III_U in Section 30(C); Continental State A-33 No. 1, III_L in Section 33 (M); Exxon Bowers A Federal No. 10, III_U in Section 29 (L); Getty McKinley No. 2, II in Section 30 (H); Gulf Grimes B-1, III_U in Section 33 (I); and Gulf Grimes A-5, III_U in Section 32 (M). It was also agreed that the Engineering Subcommittee would recommend to the Working Interest Owners that an adjustment be made to any production parameter that incurred a production loss because of these BHP surveys. In addition it is requested that each operator furnish Shell with a copy of all BHP build up data with sufficient information to make a Horner-type interpretation.

The subject of ~~a procedure for apportioning by 40-acre tracts the Zone I reserves were then discussed in detail.~~ Potential factors considered were: ~~distance from the 100 percent water cut line, oil production rate, water cut, current recoverable oil in place and areal sweep efficiencies.~~ In addition, Mr. Leon Veeder, Samedan Oil Corporation, presented hypothetical calculations that predicted recoveries based on assigning different areal sweep efficiencies (between 65 and 95 percent), depending on the water cut. ~~It was unanimously agreed that a "correct" solution to this complex problem of~~ future oil migration ~~must consider the effects of different oil rates,~~ porosity feet,

well spacing and strength of the aquifer. Simplifying assumptions could include the simultaneous opening of the entire Zone I productive interval in each well bore and uniform permeability, swept zone residual oil and current formation volume factor. It appeared to those present that this "correct" solution would best be done by the use of a reservoir simulation model. Shell volunteered to investigate this possibility and prepare an estimated cost for this type of study.

The question of completion intervals in Zone I affecting the production performance was discussed. Some of the representatives felt that additional work should be done to determine if various correlatable members in Zone I appeared to contain the bulk of the water. Shell volunteered to make a cursory review of the data and present the findings at the next engineering committee meeting. At that time the Engineering Committee will determine the feasibility of further study to better define the Zone I water influx.

The meeting was adjourned at 4:30 p. m.

ATTENDANCE LIST

Engineering Subcommittee Meeting
Proposed North Hobbs Unit
December 5, 1974

Name	Company	Location
E. R. Green	Amerada Hess	Seminole
Grant B. Miller	Amerada Hess	Seminole
A. M. Omar	Amerada Hess	Seminole
Nelson Robertson	Atlantic Richfield	Midland
J. C. Solari	Chevron	Midland
Don Barrett	Cities Service	Midland
C. C. Woodward	Continental	Hobbs
J. E. Eakin	Getty	Midland
Joe R. Paradiso	Getty	Midland
Fernando Cardeñosa	Gulf	Midland
W. E. Nolan	Exxon	Midland
Leon Veeder	Samedan	Ardmore
Fred Hensley	Skelly	Midland
Frank D. McAtee	Skelly	Midland
Allen Wicke	TPOC	Midland
W. R. Larsen	Wiser	Midland
F. E. Coupal	Shell	Houston
H. J. Swartz	Shell	Houston

MINUTES OF THE ENGINEERING SUBCOMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
JANUARY 22-23, 1975

The meeting was called to order at 8:45 a.m. by Mr. H. J. Swartz. Eleven companies, which operate 70 percent of the current producers, were represented (attendance list attached). The main purpose of this meeting was to finalize the porosity-feet, water cut and GOR maps for each of the four San Andres zones and to develop an approach for apportioning the San Andres Zone I reserves.

The first order of business was the finalization of the porosity-feet maps. Since the construction of the maps at the engineering subcommittee meeting of September 11-12, 1974, Shell has received 13 usable new logs. In addition, top of zone correlation changes in three wells required adjustments to the individual zonal values and a core analysis was obtained on Sweet McKinley B 1-A-G, Section 20 (I). Also, it is necessary to differentiate the Zone I porosity-feet between original gas and oil columns. All of the San Andres zonal porosity-feet maps were finalized and approved unanimously. Attached are copies of these maps and a tabulation summarizing all of the petrophysical interpretatons by wells. The original oil and gas in place in the San Andres for each lease will be determined by using the grid technique (ten-acre blocks) at the next engineering subcommittee meeting.

Grayburg net oil, net gas pay and total net pay isopach maps have been prepared by Shell. Copies of these are attached and we request that each representative review these in detail and be prepared to finalize these at the next meeting. Individual well porosity determinations cannot be made because of the lack of petrophysical data.

At the December 5 subcommittee meeting, Shell had volunteered to make a cursory review of the occurrence of net pay development with respect to completion intervals in order to determine if further study was warranted to better define San Andres Zone I water influx. The results of such a geological review were presented by Mr. F. E. Coupal. He has constructed a map with a schematic representation for each well of the vertical location of the net pay, streaks of higher than average porosity development (and presumably higher permeability), dense streaks separating pay zones, and the thickness of the argillaceous zone which separates Zone I and Zone II net pay. The location of the completion intervals was then superimposed on the pay development and attempts were made to explain anomalous water cut performance between offsetting wells. ~~It was concluded that this reservoir could not be subdivided into correlatable and extensive subzones.~~ Also presented was an isopachous map of the thickness of the argillaceous zone separating Zone I and Zone II net pay. It was the consensus of the subcommittee that there is more areal separation existing between the zones than previously believed to be present.

The subcommittee then directed their attention to the finalization of the water cut maps. These maps will be used to determine the volumes of each reservoir that have been swept by natural water influx in order to ascertain tract and total reserves. The current completion status has been reviewed and many changes made. Each company representative should carefully examine the zones shown to be open to production for his wells and advise me (713-220-1022) of any disagreements. Some of these changes in completion status helped explain two anomalous areas on the Zone I water cut map drawn by the subcommittee on November 7. Firstly, the zero contour

ne in Sections 25 and 30 could be eliminated because two of the clean wells, exaco State C 1 and 2, were determined to be completed in the Grayburg only and therefore did not constitute control points. In addition, although Amerada Hess McKinley 4 is currently a clean producer from upper Zone I, production prior to ebruary 1973, was at a high water cut when all of Zone I was produced. This portion of the map was adjusted accordingly. Similarily, Mobil Berry 2, is also a Grayburg only producer and not a control point. Significant changes were also made round the Chevron lease located in Section 29. A southern offset to the Chevron ease, Amerada State A-1, was worked over in December 1974 to open the entire Zone I section to production with three other zones and is now producing at 76 percent ater cut. Based on this additional point and a study of Mr. Coupal's geologic eview, the contours in this area were adjusted accordingly. A copy of the finalized map is attached and was approved by everyone present except for a negative ote by the Amoco representative.

The question of whether or not water cut maps should be constructed for the other San Andres zones was re-examined. At the November subcommittee meeting water ut maps were drawn for each zone but because the control was sparse and questionable (behind pipe communication with Zone I?), it was decided to assume that all water production was from Zone I and that the other zones would be considered to be at the nitial water saturation. The voting on this motion was eight in favor and two (Continental and Exxon) opposed. This is the only significant disagreement in the subcommittee to date and consequently considerable time was devoted at this meeting to iscussing the "best" method of determining whether any significant water influx has curred in these other San Andres zones. It was concluded that whereas water has ntered these reservoirs either by direct communication naturally (between I and II here no argillaceous separation exists) or because of mechanical failure (behind pipe ommunication), it is not possible to quantify the degree of influx on a lease basis. A statement was formulated at this meeting as follows: "It is apparent from the study of San Andres zonal production performance that Zone I is the major source of water production and encroachment and that only Zone I water saturation can be reasonably estimated on the areal basis; by the construction of water cut maps. Consequently, current water saturations for Zones II, III and IIIb will be estimated on a reservoir basis." This approach was approved by everyone present except for Amoco. These values for current water saturations will be approved at the next engineering subcommittee meeting.

The next order of business was the apportionment of Zone I primary reserves by tracts, assuming continued water influx. To date two methods for approximating these reserves have been presented but neither has been accepted. At the last meeting Shell volunteered to investigate the feasibility of using a reservoir simulation model to resolve the problem. Mr H. J. Swartz reported the results of consultation with Shell's computer experts. In summary, it appears that a "proven" Shell program could be used and a study completed within a reasonable period of time. However, because of the anomalous behavior of some wells (clean wells offset by high water cut producers), it is strongly recommended that a history match be attempted in order to match the general influx pattern and approximate the aquifer strength. It is recommended that this history match be attempted on a very coarse grid (10 by 15) and include the entire field. An arbitrary and quick allocation of production between ne I and other reservoirs would be necessary. It was therefore recommended by Shell hat the coarse grid approach be tried immediately and the results reported to the subcommittee in order to better ascertain the feasibility and costs of such an endeavor. The prediction mode would require a much more detailed grid and would require a ballot for approval by each working interest owner to share in the associated expenses. Each company representative present expressed the belief that the reservoir

simulation approach appeared to offer the only acceptable method of apportionment that is recognized at this time but that they would like to have the insight to future costs and complexity of resolution that can be obtained by a quick coarse grid run to be performed by Shell. Following a review of the preliminary results, a specific recommendation will be made to the Working Interest Owners Committee.

During the discussions on the feasibility of reservoir simulation, the question was raised concerning the variations in reservoir pressure between zones and areally within zones. Unfortunately, none of the requested historical BHP buildup data had been received before the meeting but based on the key well BHP statics and the analyses of four special buildup surveys, it can be tentatively concluded that the BHP in the proposed northern unit area is highest in Zone I, about 100 psi lower in Zone II, and another 150 psi lower in Zone III. It is again requested that each operator submit all BHP buildup data on all Grayburg-San Andres completions. The additional data should enable the construction of zonal pressure history with time and areal kh variances in conjunction with core analyses. The year 1974 BHP data received to date is summarized on an attachment.

Mr. P. J. Szatkowski then presented a detailed review of the planned method for calculating reserves. Key assumptions will include: current GOR, initial and current water saturations, relative permeability relationships, current pressure and abandonment pressure. Water cut (I) and GOR (II, IIIU, and IIIL) values will be determined by 40-acre tracts by "gridding" these maps at the next engineering sub-committee meeting. It was agreed at the December meeting to accept the relative ermeability curves, initial water saturation and the abandonment pressure (100 psi) used in the Amoco report.

The GOR maps that were constructed at the December meeting were then finalized with unanimous approval. The only new data resulted from two Arco wells, Grimes 1 and 2, which are located in Section 28 and were both recently perforated in Zone II so that they are now producing from II and IIIU. This work resulted in overall lower GOR's which were consistent with the previously depicted GOR's for these zones. Copies of the finalized maps are attached. A reservoir-wide average GOR will be assigned to Zone I at a later date.

The meeting was adjourned at 3:00 p.m., Thursday, January 23, 1975.

HJS:VMS

ATTENDANCE LIST

ENGINEERING SUBCOMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
January 22-23, 1975

A. M. Omar	Amerada Hess	Seminole, Texas
Grant B. Miller	Amerada Hess	Seminole, Texas
Ralph Denham	Amoco	Houston, Texas
Nelson Robertson	Atlantic Richfield	Midland, Texas
Don Barrett	Cities Service	Midland, Texas
C. C. Woodward	Continental	Hobbs, New Mexico
John Clayton	Exxon	Midland, Texas
W. E. Nolan	Exxon	Midland, Texas
J. E. Eakin	Getty	Midland, Texas
A. H. Pokky	Getty	Midland, Texas
Leon Veeder	Samedan	Ardmore, Oklahoma
Fred Hensley	Skelly	Midland, Texas
Frank Mc Atee	Skelly	Midland, Texas
Allen Wicke	Texas Pacific	Midland, Texas
F. E. Coupal	Shell	Houston, Texas
Steve Pontious	Shell	Houston, Texas
Paul Szatkowski	Shell	Houston, Texas
Hank Swartz	Shell	Houston, Texas

MINUTES OF THE TECHNICAL COMMITTEE MEETING
PROPOSED NORTH ROBBS UNIT
MARCH 5&6, 1975

The meeting was called to order at 9:15 a.m. by Mr. L. J. Swartz. Fifteen companies, which operate 87 percent of the current producers were represented during at least a portion of the two-day session. (Attendance list attached.) The main purposes of this meeting were to formulate a recommendation for determining Zone I reserves and to establish a procedure for determining San Andres zonal tract values for original oil and gas in place, average producing GOR (II, IIIU & IIIL) and average water cut (I..

At the January meetings it had been decided that Shell should make preliminary computer runs with their three-dimensional, three-phase, compressible fluid program in order to better evaluate the feasibility and costs for making an anlysis of future Zone I production by the use of reservoir simulation. The results of the preliminary efforts were discussed with the committee and are summarized as follows. The reservoir model used for these preliminary runs consisted of three non-communicating San Andres layers (I, II and III) covering the entire field with the structural location and porosity-feet values as determined by the Technical Committee. Fluid properties and relative permeability relationships were the same as those in the previous Technical Committee report. A five by ten grid was superimposed on the structure in a manner which resulted in all of the producers being located in 27 grid blocks. The wells in each grid block were summarized by completion interval and represented by one composite well, in the center of the block, containing the total zonal millidarcy-feet open to production in that grid block. An infinite and radial aquifer was placed in communication with only Zone I and input at three westerly-located points. The cumulative field production was represented as being produced at a constant rate over life. Several initial or Phase 1 runs have been made, based on the aforementioned conditions. Adjustments to the data are now being made, but in the opinion of the Shell computer experts the proposed application is feasible and Shell is willing to make the complete analysis for one set of predictive premises for a flat rate charge of $6000. This amount was determined by estimating the actual computer time needed to complete all phases of the study ($5000) and includes a $1000 estimate for contract clerical help, needed to prepare data and assemble annual production statistics for about 350 wells over a 40-year period. No charges will be made for professional or non-professional overhead nor would a charge be made for a program licensing fee. Continuation of this study, for the purposes of predicting Zone I reserves for a given set of conditions, would consist of inputting actual well production with time, and adjusting the permeabilities and various constraints until a satisfactory history match is obtained. Following this a similar history match would be obtained using a finer grid system. An analysis would then be made of future production performance for a given set of conditions. Shell would then present the Technical Committee with a report of the assumptions made and results with an interpretation of their meaning. Shell made a motion, which was seconded by Samedan, that the Technical Committee recommend to the Working Interest Owners that a computer analysis of Zone I reserves be made, for a given set of predictive conditions, on the Shell reservoir simulation program for a flat rate of $6000. The voting on this proposal was:

FOR: Amerada, Amoco, Arco, Cities Service, Continental, Getty Exxon, Samedan, Skelly, Texaco, Texas Pacific and Shell

PASS: Gulf

A ballot for sharing these costs will be mailed, under separate cover, to the operators. It was also recommended by the Technical Committee that the predictive mode of this study should be based on the premises that the current completion intervals are maintained status quo. This would serve as a base case and it is recognized that apportionments will then have to be made to the results in order to credit leases which have Zone I reserves but no current drainage points. Attached is a map which depicts the current completion status of each well in the proposed North Unit Areas as described in our records. It is imperative that each operator verify this description and notify me (713 220-1022) of any discrepancies.

The next order of business was a presentation of average zonal porosity and permeability values. Average porosity values have been obtained from both log and core analyses and are considered to be reliable inasmuch as they are generally accurately measured and represent excellent areal coverage of the proposed unit area. The average permeability values are more questionable because of the wide range in values and the limited data. Permeability values were averaged from three sources: cores, buildup pressure analyses and those used by the previous Technical Committee. The core-derived values exhibited large differences and the data were averaged both arithmetically and geometrically for all available core analyses from wells within one mile of the proposed unit area. Arbitrarily the average of these two summations (arithmetic and geometric) was used as representative of the cored values. Stratification analyses, using the Dykstra-Parsons variance approach have been made and will be used as a guide for the reservoir simulation study. Shell has measured 83 BHP buildup surveys in 24 different wells. Only 29 of these, taken in 10 wells, are representative of single zone performance. In addition three of the four buildup surveys that were requested by the Technical Committee, at year-end, were usable for permeability determinations. Since no other company has ever taken buildup surveys in the proposed unit area, the resulting averages from this source are representative of only limited portions of the reservoirs. The previous Technical Committee used zonal permeability values which were derived from cores and adjusted to fit performance. A comparison was also made, by Shell, of the initial potential tests of all wells completed by 1931. This data was recorded on a map and iso-potential lines drawn. These date can only be used in a qualatative manner but strongly indicate that the lowest productivities are in the south unit area whereas a fairway which generally follows the structural highs is located in the northern unit area and average to good productivities occur in the remainder of the wells. The resulting average permeabilities, which are summarized in the attachment, are therefore considered to be tentative. Additional insight into actual values should result from the reservoir simulation study and will be incorporated with these aforementioned values.

At the last meeting it was decided to assign reservoir average current water saturation values to the Grayburg and San Andres (II, IIIU & IIIL) and reservoir average current gas saturations to the Grayburg and Zone I.

These values were in lieu of tract determinations and would be used in calculating reserves in conjunction with relative permeability relationships. Producing data from "key wells" are being assembled but it is believed that valuable insight as to the degree of water influx into the lower San Andres will be gained from the computer analysis. In addition, similar relative permeability relationships should be used for estimating current gas and water saturations from producing gas-oil ratios and water cuts. It is therefore recommended that the determination of these average values be made at a later date.

Approval of the Grayburg net oil, net gas and total net pay isopaches maps was deferred at the request of one of the representatives in order to permit a more detailed check of the values used.

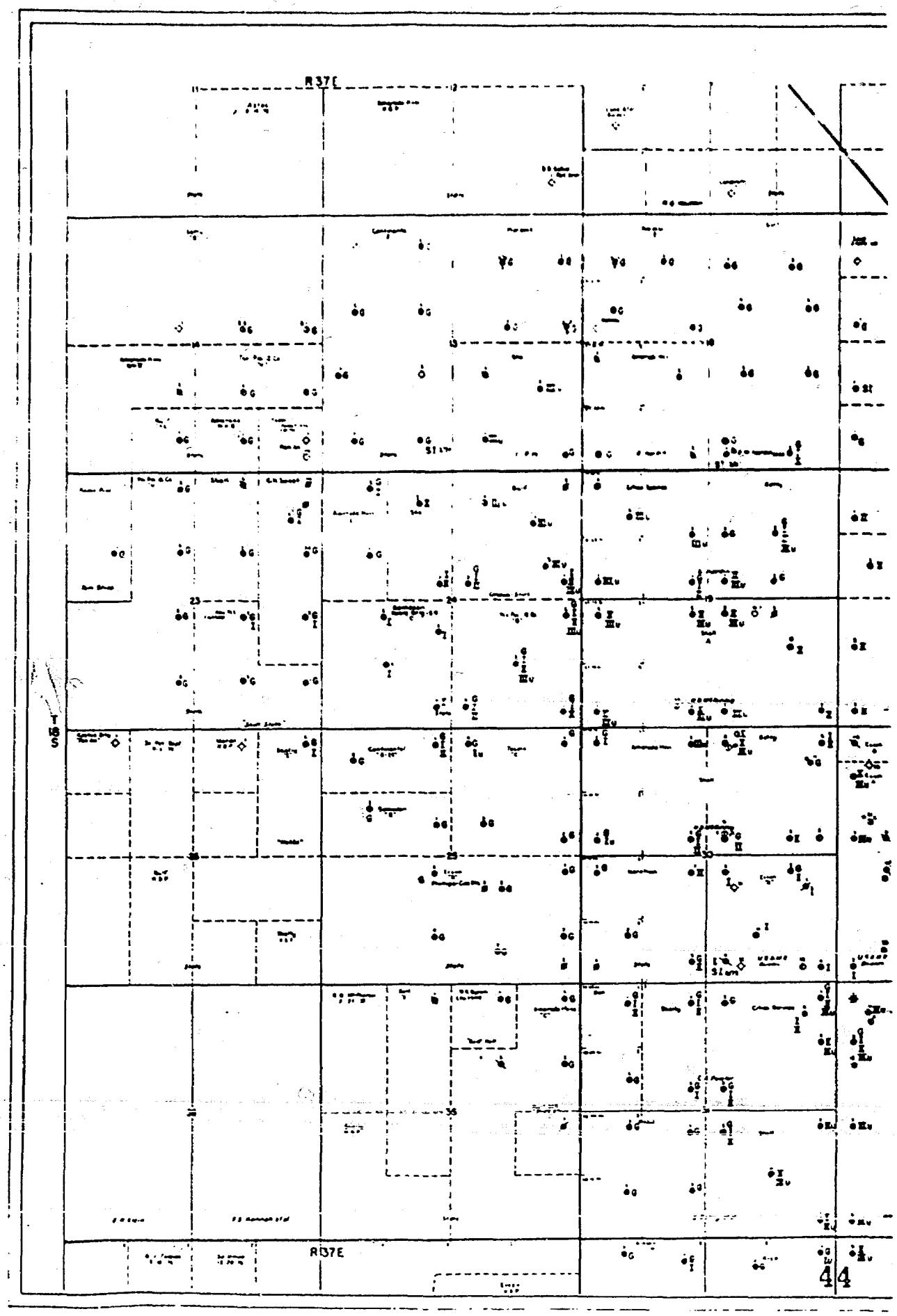
The Technical Committee then decided to determine tract values from the approved San Andres porosity-feet and Zone I water cut contour maps by using a ten-acre grid system whereas the GOR values would be based on a 40-acre grid. Values were selected for each grid block and were based on mechanical interpolation between contour lines. The determinations of tract value for original oil and gas in place, current saturations and remaining primary and secondary reserves will necessarily be made at a later date and then presented for review.

ATTENDANCE LIST
TECHNICAL COMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
MARCH 5 & 6, 1975
MIDLAND, TEXAS

NAME	COMPANY	LOCATION
Grant B. Miller	Amerada Hess	Seminole
A. M. Omar	Amerada Hess	Seminole
Paul D. Kossmann	Amoco	Houston
Bob Leggett	Atlantic Richfield	Midland
Donald D. Barrett	Cities Service	Midland
C. C. Woodward	Continental	Hobbs
J. M. Clayton	Exxon	Midland
W. E. Nolan	Exxon	Midland
J. E. Eakin	Getty	Midland
Arne H. Pokky	Getty	Midland
F. Cardeñosa	Gulf	Midland
H. Leon Veeder	Samedán	Ardmore
Chris Bosecker	Skelly	Midland
Frank McAtee	Skelly	Midland
Ben Barnett	Sun	Midland
Paul H. Davis	Texaco	Midland
Allen Wicke	Texas Pacific	Midland
John A. Yates	Yates Pet.	Artesia
F. E. Coupal	Shell	Houston
P. J. Szatkowski	Shell	Houston
H. J. Swartz	Shell	Houston

DETERMINATIONS OF AVERAGE POROSITY AND PERMEABILITY

	Gb	I	II	III
I. AVERAGE Ø:				
A. Logs				
No. wells	-	11	9	8
h - ft.	-	4097	3741	4970
Øh	-	607.5	530.4	675.3
Ø - %	-	14.8	14.2	13.6
B. Cores (North Area)				
No. Wells	19	10	5	5
h	295.5	212	162	104
Øh	41.3	31.7	20.2	12.7
Ø	14.0	14.9	12.5	12.3
Avg. Ø - %	14.0	14.8	14.2	13.6
II. AVERAGE k:				
A. Cores (North Area)				
Arithmetic ka h	750.8	30263	7333	6529
k	2.5	143	45	63
Geometric kg h	270.6	3375	1032	807
kg	0.9	16	6.4	7.8
Avg Ka & kg	1.7	79	26	35
B. Buildups				
No. wells (Surveys)	1 (2)	3 (6)	2 (6)	7 (18)
k	2	137	12	19
C. Previous Engr. Rept.	3.5	40	50	25
Avg. k - mds.	2.4	85	29	26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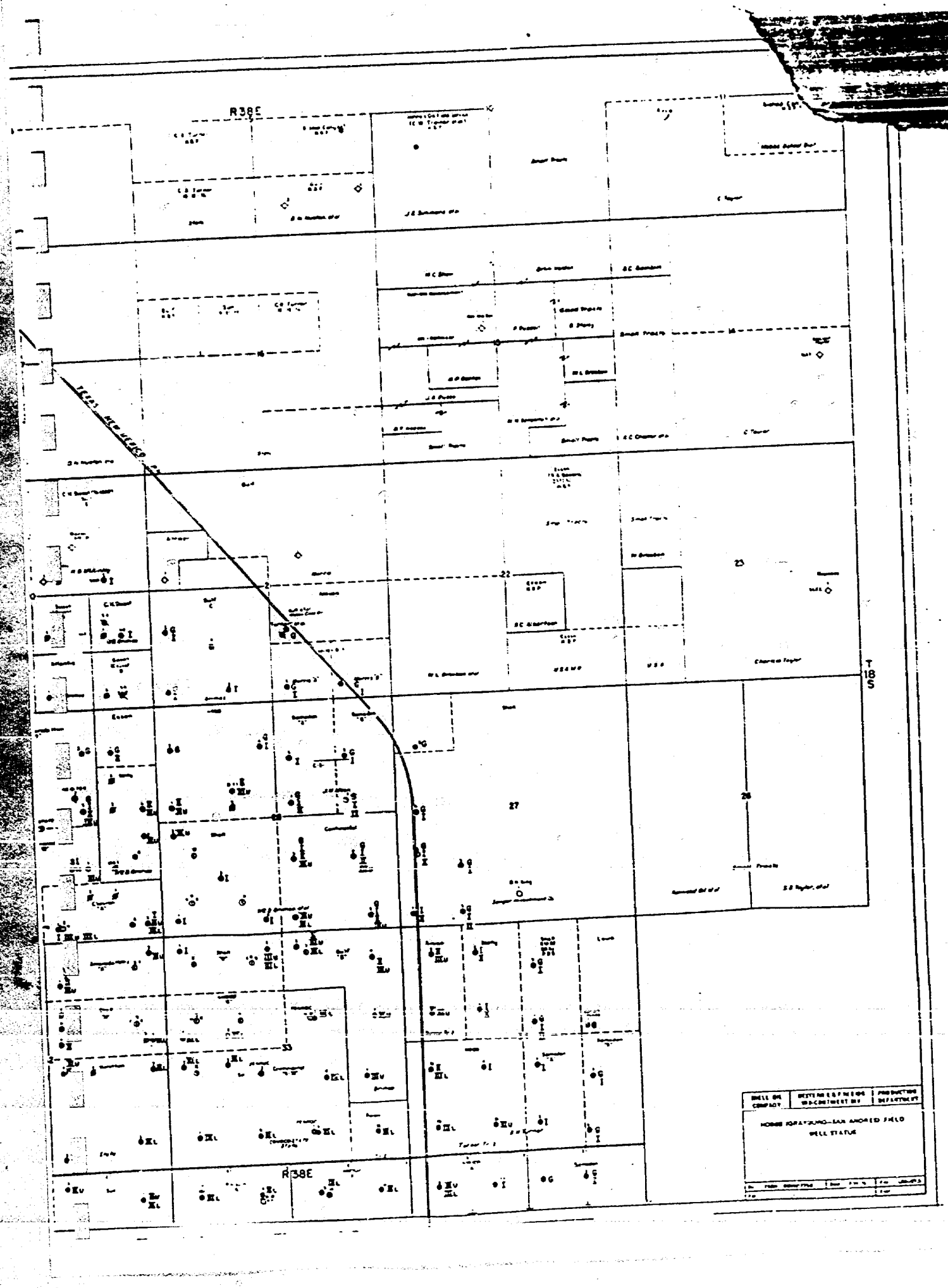
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TEXAS NEW MEXICO
HOBBS (GRAYBURG-SAN ANDRES) FIELD
WELL STATUS

Minutes of the Technical Committee Meeting
Proposed North Hobbs Unit
June 4, 1975

The meeting was called to order at 8:45 a.m. by Mr. H. J. Swartz. Thirteen companies, which operate 85 percent of the current producers were represented. (Attendance list is attached.) The main purposes of this meeting were to:

1) describe the reservoir simulation models and techniques that are currently being used by Shell for this unitization effort and

2) determine a method for constructing acceptable Grayburg net pay isopach maps.

Mr. W. C. Miller, supervisor of the reservoir simulation group at Shell Development Company, presented a detailed description of the reservoir simulation model being used by Shell to analyze the San Andres reservoir performance and in particular to determine Zone I reserves. The model can be briefly described as a three-phase, three-dimensional, compressible fluid reservoir simulation program. A relatively coarse grid of 150 blocks (ten by five areally with three zones vertically) is being used in the initial phase of this study. Each block contains about 500 acres and the anticlinal structure is included by digitized data on the top of Zone I porosity and the gross thicknesses for each San Andres Zone (I, II and III) for each block. Similarily, each block's zonal net pay was determined from porosity-feet isopach maps (constructed by the current Technical Committee for the North Unit area and by the previous Technical Committee for the South Unit wells) and the average porosity attributed to each zone. The initial gas-oil-contacts and water-oil contacts are 360 feet subsea and 614 feet subsea respectively. This mathematical representation contains an original oil-in-place for the San Andres of 835 million STB, which compares favorably to the 819 million STB calculated by the previous Technical Committee.

Input gas-oil relative permeabilities are the same as the rock curves previously used, but the oil-water relative permeabilities have been adjusted to reflect the Dykstra-Parsons stratification calculated from cores in the North Unit area. The aquifer is strategically located at three locations and communicated only with Zone I.

Oil production and zonal completion history have been input by well in five-year increments up to 1970, then the next three-year period and finally 1974 production. The latter is actually based on the rates reported in the State-witnessed annual gas-oil ratio tests taken in mid-1974. These tests have been judged, by the Technical Committee, to be the most reliable indicators of current conditions. Each well's oil rate is automatically allocated by the simulation program to the zones open to production during its entire history. The pertinent factors such as each zone's pressure, permeability, fluid saturation are accounted for in the calculations for each well. Zonal production rates are computed and a history match, for each well, is based on a comparison of cumulative oil, cumulative water, BHP history and current rates; with emphasis on current conditions.

Once a satisfactory history match is obtained, the predict mode will be run with the current completion intervals open. Each well's primary reserves will be computed by the simulator. A similar simulation, history match and comparable predict mode will then be made using a finer grid system in order to check the sensitivity of the results to this parameter. These results will then be presented to the Technical Committee at which time it will be determined what additional work is required to assign Zone I reserves by tract.

Following Mr. Miller's presentation, Shell requested an expression of opinion from those present as to whether or not there were any objections to the assumptions made or techniques being used or any suggestions. Mr. Joseph C. Solari, Chevron, suggested that the computed current tract saturations by zone, be compared to the water cut and GOR maps, prepared by the Technical Committee. It was also brought out that the computed ultimate recoveries should furnish additional insight into both primary and secondary recovery efficiencies and the crossflow volumes with time into the various San Andres layers. It may also be desirable to use this reservoir model as a basis for waterflood predictions

Concurrent with this major reservoir simulation effort Shell plans to investigate waterflood recoveries with the use of reservoir model work on both the Grayburg and the Zone III lower San Andres reservoirs. The Grayburg analysis will be based on a five-spot 40-acre symmetry element which is representative of the Grayburg reservoir considered to be floodable (northern and western flanks). The history match will be made by comparing current average well producing characteristics. It is intended to simulate the performance of the San Andres III Lower reservoir by modeling the entire reservoir, as described by the current Technical Committee work, and comparing the results of water injection under at least two different injection patterns. The benefits of infill drilling will also be examined with this model.

An error in the productive limits of the Zone I oil column porosity-feet map was shown to the Committee. The problem was caused by a miscorrelation of the top of the San Andres in that area and results in only a slight adjustment to the original oil-in-place values for the Gulf Hardin (Section 18 A, B and H) and Moranco State (Section 17E) leases. To date only twelve of the twenty-five operators have returned the forms for verification of tract original hydrocarbon-in-place values. A revised tabulation will be distributed as soon as all of the necessary corrections have been received. Three minor adjustments are also required to contours on the Zone I water cut map. These concern the 25 percent water cut line in the SE/4 of Section 34 (should curve north of Samedan Turner B-2) and the 50 and 75 percent water cut lines in the NE/4 of Section 30 (75% should be west of Getty McKinley 1 and the 50% bowed accordingly). It was also pointed out that Mobil Berry No. 4 (Section 31M) is currently completed in both the basal Grayburg and an upper Zone I (four net feet of pay) stringer. During the 1974 annual GOR State Test the well produced 30 BOPD plus 18BW but it is mapped, by the Technical Committee, to be completely

watered out in Zone I. Following a discussion and further review of the situation it was unanimously decided that the map is correct as drawn. If anyone knows of any descrepancies on any of the maps distributed to date, please advise me as soon as possible inasmuch as we intend to soon have these maps drafted for the Technical Committee report.

Mr. F. E. Coupal presented net pay continuity maps for each of the four Sun Andres reservoirs. These representations are based on determining how much of the net pay in each well zone is correlatable with the net pay development in each of the direct offsets. The net pay continuity appears to be very good and the reservoir averages are: Zone I, 94 percent; Zone II, 93 percent, Zone III_u, 90 percent; and Zone III_l 93 percent.

The current well status tabulation, furnished to each operator with our letter of May 14, 1975, should be checked carefully and returned to me as soon as possible. Particular attention should be paid to the completion interval and that the elevation shown is compatible with these measurements. Logs run in these wells have used every imaginable elevation datum and some are unique. If you have any questions about this tabulation please call either Frank Coupal (220-1333) or Hank Swartz (220-1022). Your cooperation in carefully verifying this tabulation and that of the original hydrocarbon-in-place is greatly appreciated.

Exxon Company, U.S.A. had previously expressed concern that the Grayburg net pay values selected from logged wells might include some siltstone or nonproductive rock. (See their letter dated May 2, 1975.) Mr. John M. Clayton, Exxon, summarized his work on the problem and pointed out that the production statistics on the western flanks of the proposed unit area seem to indicate that the southern wells have performed much better than the northern producers in contrast with Shell's net pay depiction which shown both areas to have similar net pay development. In summary, Exxon feels that these net pay representations should be modified. Mr. F. E. Coupal then reviewed the geologic premises used and pointed out that the nine zones at the top of the basal Grayburg are correlative across the entire field whereas the underlying wedge of net pay is more erratic in occurrence. He then distributed statistics which geographically summarized the distribution of net pay based on data from 18 cored wells. The tabulation included comparisons of cored well net pay with log-interpreted net pay and a break-out of non-permeable (less than 0.2 md) rock over 11% porosity. A tentatively revised Grayburg net pay map was presented based only on core data and a few logged wells with net pay estimates compatible with nearby cored wells. The revised map did not reflect the differences in productivity along the west flank as interpreted by Exxon. Inasmuch as no other suggestions were made, Shell volunteered to:

1) prepare Grayburg net pay isopach maps of both only the nine correlatable zones and only the underlying wedge and

2) recompile the Grayburg production statistics, in a similar fashion as that presented by Exxon, but adjusted to remove the volumes which are believed to have been produced from the San Andres reservoirs.

It was requested that Shell furnish the other operators estimates of the timing of unitization and the amounts of capital investment that will be required for secondary recovery operations. In response to this we tentatively predict the following schedule:

December 1, 1975, publish the Technical Committee report;
October 1, 1976, effective date of unitization;
and May 1, 1977, initiate water injection.

Preliminary estimates of the capital investment requirements are $12,000,000 initially and another $3,000,000 within the following two years.

HJS:BJT

ATTENDANCE LIST 6/4/75

Name	Company	Location
K. Y. Kassim	Amerada Hess	Seminole
Tom Porter	Atlantic Richfield	Midland
L. C. Soileau IV	Atlantic Richfield	Midland
Joseph C. Solari	Chevron	Midland
Clay Warren	Chevron	Midland
Don Barrett	Cities Service	Midland
C. C. Woodward	Continental Oil	Hobbs
John M. Clayton	Exxon	Midland
R. K. Gourley	Exxon	Midland
J. E. Eakin	Getty Oil Co.	Midland
A. H. Pokky	Getty Oil Co.	Midland
Fernando Cardeñosa	Gulf	Midland
C. D. Stenberg	Gulf	Midland
Leon Veeder	Samedan	Ardmore
C. F. Bosecker	Skelly Oil	Midland
Frank D. McAtee	Skelly Oil	Midland
Paul H. Davis	Texaco	Midland
Allen Wicke	TPOC	Midland
Wm. C. Miller	Shell Dev. Co.	Houston
F. E. Coupal	Shell Oil Co.	Houston
H. J. Swartz	Shell Oil Co.	Houston

NORTH HOBBS UNIT
TECHNICAL COMMITTEE
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ATLANTIC RICHFIELD COMPANY
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MR. W. K. BYROM
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E & P DIVISION
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CONTINENTAL OIL COMPANY
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MR. JOHN P. CUSACK
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DEL LEA (ANTWEIL)
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GETTY OIL COMPANY
ATTN: MR. W. J. NEWMAN
P. O. BOX 1231
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GETTY OIL COMPANY
ATTN: MR. E. J. MILLER
P. O. BOX 249
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GULF OIL COMPANY - U. S.
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P. O. DRAWER 1150
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MARATHON OIL COMPANY
ATTN: DISTRICT ENGINEER
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MIDLAND, TX 79701

MOBIL OIL CORPORATION
ATTN: MR. TED GRIFFITH
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MORANCO
MR. R. M. MORAN
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PETRO-LEWIS CORPORATION
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POLARIS PRODUCTION CORPORATION
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SAMEDAN OIL CORPORATION
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SKELLY OIL COMPANY
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P. O. BOX 1315
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SUN OIL COMPANY (DELAWARE)
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12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS &
MR. JACK ANDREWS
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TEXACO INC.
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TEXAS PACIFIC OIL CO., INC.
ATTN: MR. T. J. WALLER
P. O. BOX 4067
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TEXAS PACIFIC OIL CO., INC.
ATTN: MR. G. R. MEYER
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DALLAS, TX 75250

THE WISER OIL COMPANY
110 GIHLS TOWER EAST
MIDLAND, TX 79701

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701

MINUTES OF THE TECHNICAL COMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
OCTOBER 14 and 15, 1975

A meeting of the Technical Committee was held on October 14 and 15 in Midland, Texas. The major objectives of these sessions were to review net pay isopach maps of the Grayburg formation and to determine primary reserves of the Grayburg and upper stringer San Andres producers by the extrapolation of production performance. Fourteen companies, which operate 79 percent of the current producers were represented on Tuesday and eleven companies (76 percent of the wells) were represented on Wednesday. Attendance lists for both sessions are attached.

A brief review of previous Grayburg studies prepared by Shell for the Technical Committee was presented for reference. These include a report distributed on March 7, 1974 and an update which was presented at the Technical Committee meeting held on November 6, 1974. Net pay isopach maps, based on log and core data, were prepared by Shell and distributed to Committee members on February 10, 1975. Discussion of these maps are included in the minutes of the Technical Committee meetings held on March 6, 1975 and June 4, 1975. At the June meeting it was recommended that Shell prepare revised net pay isopach maps that would be based only on core and selected log data. It was also requested that the basal Grayburg horizon be subdivided into an upper interval (comprised of nine correlatable sands) and the lower ("wedge") interval. In addition it was recommended that Shell evaluate the amount of cumulative oil production attributable to the Grayburg, by wells, particularly along the northern and western flanks.

Mr. E. W. Kitchen who has replaced Mr. F. E. Coupal as Shell's Geological Engineering representative on the Technical Committee then presented the four revised net pay isopach maps (oil and gas pay maps for both basal Grayburg zones. These maps were based only on the data from cored well and selected logs (good quality logs which indicated similar net pay/gross interval thickness ratio to those calculated from "nearby" core control points). The enclosed type logs on Shell Rice 4 and Amoco State G5 show the stratigraphic intervals that were mapped. He then presented structure maps on the top of the Grayburg and the four San Andres subzones. Maps were also presented which reflected the cumulative oil production believed to be definitely from the Grayburg and an arbitrary allocation between zones where the Grayburg and San Andres production had been commingled. These determinations indicate that whereas the differences in production performance between areas is not as great as indicated by Exxon at the last meeting, it does appear that the wells along the southwestern flank, particularly those located in Sections 25, 31 and 36 have been the most prolific Grayburg producers.

Considerable discussion followed and revolved primarily about the problem of interpolating or contouring net pay values in areas of limited control. It was concluded that an attempt should be made to first construct percent net pay to gross thickness ratio contour lines for each map which could then be used in conjunction with the gross thickness of each well (determined from logs and/or structure maps) in order to develop the isopach of net pay maps. These percent net to gross ratio maps were constructed and reviewed and considerable discussion followed on the techniques used and whether or not these ratio maps should be segregated on the basis of fluid content or drawn irrespective of contacts. The Technical Committee members finally decided that the percent net to gross ratio maps are a reflection of rock quality and should be independent of fluid content. Therefore, it was recommended that Shell should construct these maps, using only the core and selected log control points applicable to each stratigraphic interval, for each of the two basal Grayburg zones. It was also agreed that Shell should submit these two percent net pay to gross thickness ratio maps to each Committee member in order to obtain approval prior to constructing the net pay oil and gas maps for each zone.

The techniques to be used for determining the remaining primary reserves were then discussed. The enclosed map shows the location of eight groups of wells that are within the proposed unit area and have remaining primary reserves. The majority of the wells are currently producing from one or more of the San Andres zones and the primary reserves for this group will be determined with the use of the reservoir simulation study which is now in progress. The remaining wells are producing from the Grayburg formation and/or the upper San Andres stringer zones. It is recommended that the primary reserves for these wells be determined by extrapolating production performance or by a similar type approximation. Individual decline curves have been prepared for 62 of these wells and each well has been categorized into one of six groups based on similar geographic location and producing characteristics. A composite production curve has also been prepared for each of the six groups and all lease production curves have been updated.

Each Committee representative present analyzed the production performance of these 62 wells, six composite group and eleven lease curves. The annual decline rate and corresponding initial rate was estimated for each of these curves. The reserves determined from these estimates will then be averaged for each curve and the results distributed to all of the Technical Committee members.

The "Well Status" tabulation has once again been revised and a corrected copy will be distributed. One of these elevation changes, to Continental State A-33 No. 4 (33 J), resulted in a redistribution of the amount of porosity-feet in the Zone I gas and oil columns and consequently contour changes to the porosity-feet maps in Zone I. These changes result in a net increase of 201 MMCF for the OGIP and a net decrease of 395,658 BO for the OOIP. Corrected sheets will be sent out to reflect these changes. These and all previous changes to the porosity-feet maps were shown to the Committee.

The need for determining current OIP, by tracts, was discussed. This parameter will be based on tract values of GOR (determined from previously constructed GOR contour maps for II, IIIU and IIIL zones and an average reservoir value for Grayburg and I) and water cut values (determined from contour map on I and estimated average reservoir values for the other zones). In addition to possible use as a parameter, these values will be used as the basis for apportioning secondary reserves to each tract.

HJW:ELP
10/24/75

ATTENDANCE LIST
TUESDAY, OCTOBER 14, 1975

NAME	COMPANY	LOCATION
Kassim Y. Kassim	Amerada Hess	Seminole, Texas
Tom Porter	Atlantic Richfield	Midland, Texas
Cris G. Rhodes	Atlantic Richfield	Midland, Texas
Don Barrett	Cities Service	Midland, Texas
Dana Burnsides	Cities Service	Midland, Texas
C. C. Woodward	Continental Oil	Hobbs, New Mexico
M. K. Reynolds	Exxon	Midland, Texas
A. E. Pokky	Getty Oil	Midland, Texas
S. D. Sutaria	Getty Oil	Midland, Texas
Fernando Cardeñosa	Gulf Energy & Min.	Midland, Texas
C. D. Stenberg	Gulf Energy & Min.	Midland, Texas
Ken McPeters	Moranco	Hobbs, New Mexico
Bill Spires	Polaris Prod.	Midland, Texas
C. F. Bosecker	Skelly Oil	Midland, Texas
Frank D. McAtee	Skelly Oil	Midland, Texas
Ken Barnett	Sun Oil	Midland, Texas
Craig Hinrichs	Texaco	Hobbs, New Mexico
Oran L. Hall	Texas Pacific	Midland, Texas
Allen Wicke	Texas Pacific	Midland, Texas
E. W. Kitchen	Shell Oil	Houston, Texas
H. J. Swartz	Shell Oil	Houston, Texas

ATTENDANCE LIST
WEDNESDAY, OCTOBER 15, 1975

NAME	COMPANY	LOCATION
Kassim Y. Kassim	Amerada Hess	Seminole, Texas
Lou Soileau IV	Atlantic Richfield	Midland, Texas
Don Barrett	Cities Service	Midland, Texas
Dana Burnsides	Cities Service	Midland, Texas
C. C. Woodward	Continental Oil	Hobbs, New Mexico
Russell G. Estes	Estes Engr. Co.	Midland, Texas
N. K. Reynolds	Exxon	Midland, Texas
W. E. Nolan	Exxon	Midland, Texas
A. H. Pokky	Getty Oil	Midland, Texas
S. D. Sutaria	Getty Oil	Midland, Texas
Fernando Cardeñosa	Gulf Energy & Minerals	Midland, Texas
Frank D. McAtee	Skelly Oil	Midland, Texas
Allen Wicke	TPOC	Midland, Texas
H. J. Swartz	Shell Oil	Houston, Texas

Minutes of the Technical Committee Meeting
Proposed North Hobbs Unit
January 13-14, 1976

The meeting was called to order at 9:30 AM. Fifteen companies, which operate 86 percent of the current producers, were represented (Attendance List is attached). The sole purpose of this meeting was to redetermine tract primary reserves for those wells producing from the Grayburg and/or upper San Andres stringers.

Mr. Swartz initiated the meeting with a review of work done to date for determining primary reserves. In summary, the primary reserves for the proposed North Hobbs Unit is being determined by two methods: (1) by analysis of production performance for all wells which are currently considered to be producing from the Grayburg and/or upper San Andres stringers and (2) by a reservoir simulation study (currently in progress) for all wells currently producing predominantly from the San Andres reservoir(s). There will be no overlap as each well has been placed in only one of the above categories.

A plan of attack was then developed by the Committee members. It was decided to first assign reserves to all of the applicable lease and composite groupings. Then wherever the lease production performance curve could not be used (i.e. when most of the current production on a lease is from wells completed in the San Andres reservoir); the reserves were estimated from the individual well decline curves. These curves have all been updated to include at least the production between January, 1972 and October, 1975. In many cases the November and December, 1975 production figures were also available as well as the production prior to January, 1972 for all of the one-well leases. The sum of all the wells within a group (groupings are described in prior correspondence) were then compared to the extrapolation of the applicable Composite Group curve as a check of the reserves so estimated.

All of these production performance curves were projected with a view graph and an annual decline rate (dy) and an initial 1/1/76 rate (q) was determined by those present. Complete agreement was obtained for each curve and the 1/1/76 reserves were calculated using an economic limit of one BOPD/well. These determinations are summarized on the attached tabulation and are considered to be final.

HJS:ELP

Attachments

ATTENDANCE LIST OF JANUARY 13-14, 1976
MEETING OF PROPOSED NORTH HOBBS UNIT
TECHNICAL COMMITTEE

NAME	COMPANY	LOCATION
K. Y. Kassim	Amerada Hess	Seminole
Grant Miller	Amerada Hess	Seminole
Bob Malaise	Atlantic Richfield	Midland
Tom Porter	Atlantic Richfield	Midland
Don Barrett	Cities Service	Midland
C. C. Woodward	Continental	Hobbs, NM
W. E. Nolan	Exxon	Midland
Jim Eakin	Getty	Midland
Fernando Cardeñosa	Gulf	Midland
R. E. Dejmal	Mobil	Midland
Ken McPeters	Moranco	Hobbs, NM
Boyce Perry	Samedan	Ardmore, OK
Chris Bosecker	Skelly	Midland
Ken Barnett	Sun	Midland
Oran Hall	Texas Pacific	Midland
William Larsen	Wiser	Midland
H. J. Swartz	Shell	Houston

NORTH HOBBS UNIT
TECHNICAL COMMITTEE
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ESTES ENGINEERING CO.
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PROPOSED NORTH HOBBS UNIT

COMPANY	LEASE	WELL(S)	LOCATION	@ 1/1/76 qo (BOPD)	dy (%)	RESERVES* (BBL)
Amerada Hess	Hardin	1,2,3,5	18K,L,M,N	0	0	0
" "	State B	3,4	29B,C	5[illegible]	1[illegible]	148,475
" "	State C	1,2	36A,H	2[illegible]	1[illegible]	55,66[illegible]
" "	State C	3	36G	0	0	0
" "	State E	1	34E	7	20	9,814
" "	State WEB	1	1[illegible]	[illegible]	1[illegible]	1[illegible]
			Subtotal	9[illegible]		226,05[illegible]
Amwell	Hobbs CT	1	21J	8	12	19,987
Atlantic Richfield	Grimes	1	20C	7.5	1[illegible]	15,73[illegible]
" "	Grimes SOC	3	28D	4.7	18	6,90[illegible]
			Subtotal	12.[illegible]		22,63[illegible]
Byron	Holt State	1	36E	10	16	31,179
C&C Oper.	Shipp A	1	23E	1.5	13	1,310
Chevron	State 17	1	17L	0	0	0
Continental	State B-13	2,5,7	13M,2.[illegible]	8	17	9,79[illegible]
"	"	1,4,6	13N,F,C	0	0	0
	" B-25	2	25[illegible]	C	[illegible]	0
Exter	State	1	14P	**	**	14,46[illegible]
Exxon	New Mex. State	1,5,6,7, 8,9	25I,O,E,P,J,N	120	15	256,03[illegible]
Getty	Hardin	2	19M	7	10	20,786
"	"	3	19[illegible]	17	1[illegible]	38,7[illegible]
	State B	1,2	14H,G	[illegible]	[illegible]	8,75[illegible]
			Subtotal	28		68,28[illegible]
Gulf	Hardin	3,4,5,6	18I,G,[illegible]			
"	"	7,8,9	H,B,A,O	23	11	50,114
	LeaPO State	1	14N	4	9	11,611
			Subtotal	27		61,725
Marathon	State 30	9	30M	3.4	18	4,414
Mobil	Berry	2,3,4	31M,L,N	55	11	162,671
Morraco	Hobbs	1	34H	14	11	40,716
"	State T 17	1	17[illegible]	4.5	[illegible]	9,99[illegible]
			Subtotal	18.5		50,711
Samedan	State B	1,2	25F,E	9	11	21,925
Shell	Rice	4	13J	11	14	24,201
"	Sanger	6	27D	11	19	17,321
"	State F	2	23G	3.5	20	4,089
	State F	3	23B	6.4	16	11,305
			Subtotal	31.9		56,916
Skelly	Hobbs E	1	26A	5.3	17	8,423
"	State A	1	17M	3.3	10	7,968
			Subtotal	8.6		16,391
Sun	Fowler	4	31E	12.5	10	39,839
Bill Sweat	Bowers B	2	20J	3.5	10	8,661
C.H. Sweat	Grimes	1A	20I	0	0	0
"	McKinley B	2	20H	3.5	10	8,661
"	State F	2,3,4	23H,I,A	25	10	76,215
			Subtotal	28.5		84,876
Texas Pacific	State V Ac 1	1,2	14I,J	13	11	34,454
"	State V Ac 2	3,4,5,6	23C,F,K,N	14	10	34,643
			Subtotal	27		69,097
Wiser	State	1	26B	-	-	***
Yates	Shell State	1,2,3	22P,J,O	17	16	29,308
TOTALS		62	Producers	521.6		1,256,348
		1	Completing			***
		11	TA			0

Notes: * Economic Limit assumed to be one BOPD/well.

** New well with erratic production. Reserves are arithmetic average of 4 offset wells (TOPC ST. V AC-1, 2 wells; Amer. St. WHB 1, and Shell State F-3)

*** New well now being completed, will assign reserves at a later date.

11

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

January 20, 1976

Subject: Technical Committee Meeting
Proposed North Hobbs Unit
Lea County, New Mexico

Technical Committee
(Addressee List Attached)

Gentlemen:

Attached are the minutes of the Technical Committee meeting which was held in Midland, Texas on January 13 and 14, 1976.

At this meeting the primary reserves were finalized for all wells which are currently producing from the Grayburg and/or upper San Andres stringers. This totals about 1.3 million barrels for 63 producers. Primary reserves for the remaining wells, which produce predominantly from the San Andres reservoir(s), are being determined with the use of a reservoir simulation computer program.

It would be greatly appreciated if each Company would return the ballots on the revised percent net pay to gross thickness ratio maps for the upper and lower Basal Grayburg Zones. (These were sent with letter dated December 31, 1975.) Once the volumetrics on the Grayburg are completed we will finalize a waterflood plan for this reservoir.

Yours very truly,

H. J. Swartz

H. J. Swartz, Chairman
Technical Committee

HJS:ELP

Attachment

63

MINUTES OF THE TECHNICAL COMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
MARCH 25, 1976

The meeting was called to order at 9:15 AM. Fourteen companies, which operate 79 percent of the current producers, were represented. (Attendance list is attached). The main purposes of this meeting were to: (1) finalize net pay isopachs of the Grayburg formation, (2) present the results of a Grayburg waterflood evaluation on a 40-acre symmetry element and (3) decide on a waterflood plan for the Grayburg reservoir.

Mr. E. W. Kitchen presented a brief review of the method and decisions involved in the construction of the four Grayburg net pay isopach maps. Copies of these maps were mailed to each representative with the letter calling the meeting. After a brief discussion the maps were unanimously approved as drawn. It was requested that committee members review all maps submitted to them today for accuracy of information and data since these maps will be sent for drafting in final form shortly. The tract values of original hydrocarbons-in-place will be determined from these maps by use of the "gridding" technique with a ten-acre grid. Tabulations of the tract values and copies of the gridded maps will be sent to each operator for verification.

Mr. H. J. Swartz presented the results of a reservoir simulation study of the Grayburg formation. This analysis was done with the use of a three-phase, three dimensional, compressible fluid reservoir simulation program using a 40-acre symmetry element and a 9 by 17 grid system. The reservoir volume represented was 1028 NAF with an average porosity of 14 percent, water saturation of 30 percent and average permeability of 5 millidarcies. The value of permeability was determined by trial and error by comparing recent production history and water injectivities using the Moranco waterflood experience as a guide. Pseudo relative permeability curves were constructed using a Dykstra-Parsons variance factor of 0.7 (determined from 256 core samples) and a five layer stratification.

Based on the production history of 69 wells which were producing predominantly from the Grayburg, the average producing characteristics at January 1, 1975 were estimated to be 15 BOPD per well with a GOR of 5035 cubic feet per barrel. Fractional flow equations were used in conjunction with the pseudo relative permeability curves to relate this GOR to an average gas saturation of 19 percent and an average oil saturation of 51 percent. These values represent a cumulative oil recovery of 16.23 percent of the OOIP or about 10.2 million barrels, which fits prior estimates of cumulative oil production allocated to the Grayburg. The average reservoir pressure at January 1, 1975 was estimated to be 400 psig at 400 feet subsea.

Using these initial conditions, a base case was run to establish the results to be expected for continued primary depletion as a function of time. This analysis indicates that ultimate primary recovery (to an economic limit of one BOPD per well) would be 1098 STB per NAF or 18.7 percent of the OOIP. The January 1, 1975 reserves are 14.9 STB per NAF. Assuming that water injection would be initiated in mid-1978, this base case indicated that the average oil saturation at that time would be 48.6% and the reservoir pressure would be 220 psig.

A waterflood program using a five-spot pattern resulted in an ultimate recovery efficiency of 33.1 percent. This reflects an additional 84 STB/NAF (14.4%) of secondary oil per five-spot pattern. Economic analyses were made for this case and infill drilling. The effects of pattern skewness and shutting in producers to conserve reservoir energy were also evaluated with the computer program.

The conclusions reached from this study and discussions with the Technical Committee are summarized as follows:

(1) because of the low permeability of the Grayburg reservoir it will be necessary to use a pressurized injection system (about 1500 psig surface) and a ratio of one injector per producer (five-spot or line drive pattern).

(2) An 80-acre five-spot waterflood is economically attractive. However, a complete infill program (40-acre five spot) cannot be economically justified at this time. The flood performance is improved if high GOR-low oil rate producers are shut-in while injecting water during the 5-year fillup period.

(3) Final pattern selection and well utilization should be made after the San Andres water injection program is finalized.

At the Technical Committee meeting of December 5, 1974, special BHP buildup surveys were requested in four selected wells. It was agreed that the Technical Committee would recommend to the Working Interest Owners that an adjustment be made to any production parameter that incurred a production loss because of these BHP surveys. Several methods were discussed at this meeting and it was then decided to adjust any parameter affected by averaging each well's production for two months prior to the survey and two months afterwards and subtracting the actual production obtained during the survey month(s). The well involved and the adjustment are:

Well	Location	Date Shut-In	Hours SI	Adjustment (Bbls.)
Amerada McKinley 3	30C	1/06/75	67	240
Exxon Fed. Bow. 10	29L	12/30/74	70	200
Getty McKinley 2	30H	12/11/74	72	0
Marathon State 30-1	30K	12/02/74	67	589

It was requested that all Technical Committee representatives carefully review the "Well Status Summary" (last revised 10/15/75) mailed with our letter dated October 31, 1975, and advise H. J. Swartz (713-220-1022) whether or not the data are correct as shown.

HJW:FLP
3/29/76

ATTENDANCE LIST
THURSDAY, MARCH 25, 1976

NAME	COMPANY	LOCATION
Kassim Y. Kassim	Amerada Hess	Seminole
Paul Kossmann	Amoco	Houston
Bob Malaise	Arco	Midland
Don Barrett	Cities Service	Midland
C. C. Woodward	Continental	Hobbs
J. E. Eakin	Getty	Midland
A. H. Pokky	Getty	Midland
C. D. Stenberg	Gulf	Midland
W. E. Nolan	Exxon	Midland
N. K. Reynolds	Exxon	Midland
Loren Stiles	Exxon	Midland
Joe Janice	Morance	Hobbs
Frank D. McAtee	Skelly	Midland
Ken Barnett	Sun	Midland
Ed Wallace	Texaco	Midland
Russ Meyers	Texas Pacific	Dallas
Earl Kitchen	Shell	Houston
Hank Swartz	Shell	Houston

NORTH HOBBS UNIT
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#13

Minutes of the Technical Committee Meeting
Proposed North Hobbs Unit
October 13, 1976

The meeting was called to order at 9:00 a.m. Seventeen companies, which operate 90 percent of the current producers, were represented. (Attendance list attached). The main purpose of this meeting was to present the results of Shell's reservoir simulation study of primary recovery performance from the San Andres.

Mr. Swartz presented a brief review of the history of Technical Committee progress and emphasized the following points:

1. Attempts to form a fieldwide unit were aborted during 1975, primarily because of disagreement over the determination of remaining primary reserves.

2. Resolution of the problem of determining tract reserves (both primary and secondary) for the proposed North Unit should eliminate the last major hurdle for the Technical Committee.

3. The main complication for determining tract primary reserves is the existence of strong water influx into the upper San Andres (Zone I). This water drive is primarily from west to east and has caused an unusually large amount of oil migration and maintained the reservoir pressure and consequently the productivity of Zone I at higher levels than in the other productive intervals. This is particularly evident along the eastern flank of the proposed North Unit area.

4. Two prior methods for allocating tract primary reserves for the San Andres have been presented to the committee at meetings held on October 5, 1974 and November 7, 1974. Both were rejected and subsequent discussions led to the conclusion that the problem would best be resolved with the use of a reservoir simulation study.

5. A letter ballot, dated March 13, 1975, for a Shell computer study at a flat rate of $6000 (estimate based on computer time and outside clerical help only) was approved by 88.52 percent of the operators with only one dissenting vote.

6. Consequently Shell made a feasibility study and at a Technical Committee meeting held on June 4, 1975, Mr. W. C. Miller, section leader of the reservoir simulation group in Shell's research organization, presented a description of the mathematical model and techniques that would be used.

7. Primary reserves have already been determined by the use of production decline analysis for 62 wells which produce from the Grayburg and/or upper San Andres stringers. Please refer to the enclosed map (Figure 1) which shows those wells included in the reservoir simulation study.

8. Prior to completing the reservoir simulation study it was thought that it would be necessary for the Technical Committee to reallocate reserves to wells located in a common grid block. However, because of differences in completion zones and well model characteristics, it is believed by Shell that representative and equitable primary reserve determinations have been simulated on an individual well basis.

Mr. W. C. Miller then reviewed the premises, model description and the results of the history match. Discussion centered about the following points:

1. A 10 by 20 grid system, depicted in Figure 2 was superimposed on all completions in the field using a three-layer representation for the San Andres reservoirs (I, II and III_U/III_L).

2. All of the Technical Committee data developed to date were input for reservoir description. These include: Structure maps (fitted with curvilinear coordinates for a smooth surface as shown in Figure 3), individual well zonal porosity determinations, zonal original hydrocarbons-in-place (using the previous Engineering Committee work for the South Hobbs Unit area) and rock relative permeability curves modified to pseudo curves by stratification effects.

3. Oil production history, from initial completion to January 1, 1976, was input for every completion in the field after factoring out a minor amount attributed to the Grayburg formation on the basis of relative permeabilities and well storage differences in the completed intervals.

4. The actual well completion history (zone changes) were input in five-year intervals and the "current" (January 1, 1976) completion zones are shown in Figure 1. As previously decided by the Technical Committee, all wells producing in excess of 100 BWPD but not completed in Zone I were assumed to have behind pipe communication with that zone.

5. As previously discussed at previous sessions there are many indications of preferential flow channels. One obvious example is between two wells (29P and 28M) which although they are located about 700 feet apart and are both apparently completed in equivalent Zone I sections, one is a clean oil producer and the other makes in excess of 70 percent water cut. In view of this and other anomalous production performances it was necessary to establish flow channels (in Zone I only) in order to obtain a satisfactory history match. The transmissibilities of these flow channels were varied but it was found necessary to use a value of zero. The flow channels or barrier locations are depicted in Figure 4.

6. The quality of the history match was evaluated primarily by comparing the calculated zonal water production rates for each well to those reported to the New Mexico Conservation Commission during the year 1975. Attention was also focused on current zonal and areal reservoir pressure variations and comparisons with measured data reported at prior meetings. Figures 5 thru 10 represent both qualitative and quantitative comparisons of these data.

7. Shell believes that a good history match has been obtained, especially considering the interzonal interactions resulting from multicompletions, variations in reservoir pressure and selective completions intervals.

Following these discussions, Mr. W. C. Miller then presented the results of the prediction phase and emphasized the following points:

1. As decided by the Technical Commettee, the predict was run with each well retaining the current completion interval for the remaining life.

2. A top allowable well was assigned a January 1, 1976 bottom hole flowing pressure of 300 psi whereas the remaining wells were assumed to have 100 psi flowing bottom hole pressures. These top allowable wells are designated on Figure 11.

3. The permeability - thickness product of each well in each zone had been automatically varied throughout the history match to simulate actual performance. The last adjusted zonal kh for each well was kept constant during the predict mode.

4. The economic limit was arbitrarily selected to be 5 BOPD and/or 95 percent water cut and the prediction terminated at the end of year 2024.

5. It was assumed that those wells which contain a Grayburg completion with the main San Andres would not obtain any future primary reserves from the Grayburg because of the significant differences in permeability - thickness products and static reservoir pressures.

6. The predicted performance of each well was then summed into field, lease and operator totals which are summarized in Figures 12 thru 15 The estimated future rates were plotted on the enclosed lease production graphs. The previously estimated (by decline curve analysis) production for Grayburg and/or Upper San Andres producers has been added to the simulated predictions for the main San Andres wells where a lease contains wells in both categories.

Shell believes that the resulting predictions are reasonable and equitable projections of future performance. The economic limit was subsequently recalculated at the decontrolled stripper oil price and is 3 BOPD or 99 percent water cut, whichever is reached first. The results using the higher economic limit is labelled "Set A" whereas the recommended runs with the lower economic limit are designated as Set B. Figures 16 thru 19 are summary tables of actual and estimated primary oil performance from the San Andres reservoir for both the field and the proposed North Unit by zones and in total. Figure 20 is a summary of recent production statistics for the North Unit.

The Technical Committee members were asked to suggest variations to the simulation runs presented. None were suggested at the meeting but it was left open so that any Technical Committee representative wishing a variation in the assumptions should call the Chairman of this committee. It was requested that every one come to the next meeting on November 4, 1976, be prepared to vote on acceptance of this simulation study as the basis for tract primary reserves for those wells in the study area. Shell recommends using the San Andres primary reserves which are summarized in Set B. We feel that these represent equitable estimates and are much more representative than those obtained by methods previously suggested to the Technical Committee.

ATTENDANCE LIST
(10/13/76)

Name	Company	Location
Kassim Y. Kassim	Amerada Hess	Seminole
Paul Kossmann	Amoco	Houston
Bob Malaise	Arco	Midland
Don D. Allen	Chevron	Midland
Donald D. Barrett	Cities Service	Midland
Ken Harpole	Cities Service	Tulsa
C. L. Hearn	Cities Service	Tulsa
Arthur J. Henry	Conoco	Houston
C. C. Woodward	Conoco	Hobbs
R. G. Estes	Estes Engr.	Midland
W. E. Nolan	Exxon	Midland
Loren Stiles	Exxon	Midland
J. F. Ellebracht	Getty	Midland
Harold G. O'Dell	Getty	Houston
G. G. Bingham	GEM-U.S.	Midland
Fernando Cardeñosa	GEM-U.S.	Midland
John J. Justen	Mobil	Houston
Ken McPeters	Moranco	Hobbs
Boyce Perry	Samedan	Ardmore
Chris Bosecker	Skelly	Midland
David Williams	Skelly	Midland
Jess B. Nunnelee	Skelly	Midland
Ken Haggart	Sun	Midland
Chuck Price	Sun	Midland
G. R. Meyers	Texas Pacific	Dallas
W. E. Buck	Shell	Houston
W. C. Miller	Shell	Houston
H. J. Swartz	Shell	Houston

DATE : 03 NOV 76

FILE (NORTH HOBBS)

TENTATIVE

OPER	NO. OF WELLS USBL 7/76	NO. OF WELLS ACTV 7/76	CUM OIL 7MOS.76 PRODUCTION PROD 1-1-76	OILPRO BBLS	GASPRO MCF	ORIG OIL IN PLACE GB BBLS	SA BBLS	TOTLE BBLS	1/1/76 PRIMARY RES. # GRYBRG BBLS	SANAN BBLS
AMERADA HESS	21.0	15.0	16108886	115999	305109	6700388	44165489	50865877	226050	2415897
AMOCO	2.0	2.0	2272648	32417	37089	0	10226595	10226595	0	754786
ANTZEIL	1.0	1.0	39261	1595	26900	182819	69903	252222	19987	0
ATLANTIC	5.0	5.0	4015471	25038	192994	1427813	9252067	10679880	22535	946497
BYRON	1.0	1.0	199814	2122	4850	619012	42126	661138	31179	0
CHEVRON	5.0	4.0	3566150	40191	29137	859999	14880977	15740976	0	1397560
CITIES SER.	10.0	8.0	7578942	53754	37271	1204430	29625192	30829622	0	1135582
CONOCO	22.0	18.0	15657790	164160	475500	4495249	69785272	74280521	9794	4712941
CAC	1.0	1.0	17733	458	23	163046	0	163046	1310	0
ESTES	1.0	1.0	71473	2465	19061	701800	806352	1508152	14465	0
EXXON	16.0	15.0	14507450	101501	491722	4876291	40211047	45087338	256032	1782097
GETTY	13.0	13.0	11226411	76254	282910	2814314	29454644	32268958	68262	1890921
GULF	34.0	31.0	18935550	173799	645231	3485042	77972882	81057924	131388	3512265
MARATHON	8.0	8.0	8812011	46168	164552	1723499	29696553	31420052	4414	1290407
MOBIL	4.0	4.0	1693660	20831	88895	2766778	2399457	5166235	300685	0
MONARCO	2.0	2.0	280317	4202	14900	243777	53623	297400	50711	0
SAMEDAN	14.0	14.0	9427785	153707	298273	5291903	15843962	21135865	21925	4580147
SHELL	44.0	43.0	31749807	410445	1016711	7327212	99628921	106956133	56916	9991897
SHELLY	7.0	7.0	4975199	58392	136780	3512693	10285943	13798636	16391	1500345
SUNOIL	2.0	2.0	892087	5712	39710	1657647	1677823	3335470	39839	30578
SWEETB	1.0	1.0	821469	677	1861	565359	2558743	3124102	8661	0
SWEETC	7.0	5.0	1023568	5727	81218	2958733	4020489	6979222	84876	0
TEXACO	4.0	4.0	4383365	53844	167862	1232596	8749629	9982225	0	1238733
TEXAS PAC.	10.0	10.0	4595765	73369	113900	4052829	14021282	18074111	69097	1827551
WISER	3.0	3.0	1077122	8129	41296	698409	732619	1431028	2855	206337
YATES	3.0	3.0	417531	3268	16924	2004752	550523	2555275	29308	0
	241.0	221.0	164267765	1634254	4730679	61566390	516711613	578278003	1466680	39214541

* BASED ON DECLINE CURVE ANALYSIS
Will be updated & revised on 11/17/76

** BASED ON FIG. 15 w/ minutes of 10/13/76
meeting. Will be updated & revised!

DATE : 03 NOV 76

FILE (NORTH ROBBS)

	NO. OF WELLS		CUM OIL THRU 76 PRODUCTION			ORIG OIL IN PLACE *			1/1/76 PRIMARY RES **	
OPR	USNL 7/76	ACTV 7/76	PROD 1-1-76	OILPRO BBLS	GASPRO MCF	GB BBLS	SA BBLS	TOTLE BBLS	GRYBRG BBLS	SANAN BBLS
AMERADA HESS	8,71369	6,78733	9,80648	7,09798	6,44958	10,88319	8,58742	8,79609	15,41236	6,16072
AMOCO	,82988	,90498	1,38350	1,98360	,78401	,00000	1,97917	1,76846	,00000	1,92476
ANDREIL	,81498	,85249	,02820	,09760	,56863	,29695	,01343	,04362	1,36274	,00000
ATLANTIC	2,07469	2,26244	2,44447	1,53208	4,07963	2,31914	1,79057	1,84684	1,53686	2,41364
BYRON	,81498	,85249	,12164	,12985	,10252	1,00544	,00815	,11433	2,12582	,00000
CHEVRON	2,07469	1,88995	2,17098	2,95929	,61592	1,39686	2,87994	2,72204	,00000	3,56388
CITIES SER.	4,18938	3,61991	4,61377	3,28921	,78786	1,25631	5,73341	5,33128	,00000	2,89582
CONOCO	9,12463	8,14488	9,53187	10,04495	10,05141	7,30147	13,50545	12,66512	,66777	12,01835
C&C	,81498	,85249	,01080	,02986	,00089	,26483	,00000	,02820	,08932	,00000
ESTES	,81498	,85249	,04151	,15083	,40292	1,13991	,15605	,26080	,98628	,00000
EXXON	6,63900	6,78733	8,03159	6,21085	10,39432	7,92038	7,78211	7,79683	17,45657	4,54448
GETTY	5,39819	5,88235	6,83421	4,66598	5,98033	4,57119	5,70040	5,58018	4,65918	4,82199
GULF	14,10788	14,62715	11,52725	10,63476	13,63929	5,66062	15,09021	14,08629	8,95819	8,95654
MARATHON	3,31950	3,61991	5,36442	2,82502	3,47840	2,79942	5,78722	5,43338	,30095	3,29063
MOBIL	1,65975	1,80995	1,03108	1,27465	1,87912	4,99397	,46937	,89338	20,50106	,00000
MONARCO	,82988	,90498	,12195	,25712	,31497	,39596	,01038	,05143	3,45754	,00000
SANEDAN	5,80913	6,33484	5,73928	9,40533	6,30508	8,59544	3,06631	3,65497	1,49487	11,67972
SHELL	18,25726	19,85701	19,32408	25,11513	21,49186	11,90132	19,28134	18,49563	3,88060	25,48008
SKELLY	2,90456	3,16742	3,02871	3,57301	2,89134	5,70554	1,99065	2,38616	1,11756	3,82599
SUNOIL	,82988	,90498	,54307	,34952	,83941	2,69245	,32471	,57679	2,71627	,07798
SWEETIN	,81498	,85249	,50008	,04183	,03934	,91829	,49520	,54024	,59052	,00000
TENECO	2,90456	2,26244	,62311	,35044	1,71684	4,80576	,77809	1,20690	5,78695	,00000
TEXACO	1,65975	1,80995	2,66843	3,29471	3,50837	2,00206	1,69333	1,72620	,00000	3,15886
TEXAS PAC.	4,18938	4,52489	2,79773	4,48945	2,40769	6,58286	2,71356	3,12551	4,71112	4,66039
WISER	1,24881	1,35747	,65571	,49741	,87294	1,13440	,14178	,20786	,19466	,52617
YATES	1,24881	1,35747	,25418	,19997	,35775	3,25624	,10654	,44188	1,99825	,00000
	99,99999	99,99999	99,99999	99,99999	99,99999	99,99999	99,99999	99,99999	99,99999	*********

DATE : 03 NOV 76

FILE (NORTH HOBBS)

		NO. OF WELLS		CUM. OIL FROM 76 PRODUCTION			ORIG OIL IN PLACE			1/1/76 PRIMARY RES.	
TR NO	TRACTS	USBL 7/76	ACTV 7/76	PROD 1-1-76	OIL BBLS	GAS MCF	GR BBLS	SA BBLS	TOTLE BBLS	GRYBRG BBLS	SANAN BBLS
1	GETTY - STATE B	2.0	2.0	57421	1151	820	724124	11916	736040	8755	0
2	AMERADA HESS-STATE A&B	2.0	1.0	128605	1186	7302	1068176	143368	1211544	12100	0
3	GULF - LEA E U STATE	1.0	1.0	68537	829	2632	433169	0	433169	11611	0
4	TEXAS PACIF.-STATE V AC1	2.0	2.0	192596	2655	22747	1480992	391981	1872973	34454	0
5	ESTES ENGR. STATE	1.0	1.0	71473	2465	19061	701800	806352	1508152	14465	0
6	CONTINENTAL - STATE B 13	6.0	4.0	841291	976	2009	2559420	6709383	9268803	9794	0
7	SHELL - RICE	4.0	4.0	1688640	9815	63670	240571	12079112	12319683	24201	138810
8	AMERADA HESS - B HARDIN	4.0	.0	1819582	0	0	249531	10968245	11217776	0	0
9	GULF - DAN HARDIN	8.0	8.0	1761393	8355	77894	1633476	8078778	9712254	50114	23033
10	MONARCH - STATE T 17	1.0	1.0	70210	876	1177	209704	52506	262210	9993	0
11	CHEVRON - STATE I 17	1.0	.0	61888	0	0	326630	326254	652884	0	0
12	SHELLY - STATE A	1.0	1.0	298276	648	1167	802190	889486	1291676	7968	0
13	C&C OPER. - SHIPP A	1.0	1.0	17733	488	23	163046	0	163046	1310	0
14	TEXAS PACIF.-STATE V AC2	4.0	4.0	295240	2648	8893	1777925	60558	1838883	34643	0
15	SHELL - STATE E	2.0	2.0	125705	1119	7755	1186335	357954	1544289	15394	0
16	C H SWEET - STATE F	4.0	3.0	630840	4980	63719	2138211	2074317	4212528	76215	0
17	JOHN A YATES-SHELL STATE	3.0	3.0	417531	3268	16924	2004752	550523	2555275	29308	0
18	AMERADA HESS-STATE E	2.0	2.0	1015321	5539	19277	850138	3089937	4540075	9814	71421
19	SHELL - STATE D	2.0	2.0	1048745	18941	56271	343625	5739370	6082995	0	281776
20	GULF - GRAHAM STATE A	6.0	5.0	2930543	33453	61935	148641	15523758	15672399	0	508937
21	SAMEDAN - STATE C	8.0	8.0	3371788	64582	101468	2658946	7830550	10089896	0	1257541
22	TEXAS PACIF.-STATE G	8.0	4.0	4107929	67866	82260	793912	13568743	14362655	0	1827551
23	CITIES SERVICE - HARDIN	5.0	4.0	3414545	17290	18781	152267	15417627	15569894	0	227938
24	GETTY - BOUKE HARDIN	4.0	4.0	3193992	8742	38904	1297980	8690699	9988679	59507	54573
25	SHELL - MCKINLEY A	9.0	9.0	9180071	93458	167240	1370916	22110859	23501675	0	1902681
26	SHELLY - H D MCKINLEY	1.0	1.0	604958	752	4085	480850	2243427	2724277	0	0
27	CHEVRON - H D MCKINLEY	2.0	2.0	1393169	9152	16746	533369	3966988	9000357	0	214404
28	C H SWEET - MCKINLEY B	1.0	1.0	95606	682	17499	595770	1103653	1699423	8661	0
29	SHELL - MCKINLEY B	5.0	4.0	3852726	31930	75114	1387273	6975125	8362398	0	957755
30	BILL SWEET-BOWERS B FED.	1.0	1.0	371921	671	1861	262941	1109983	1372924	8661	0
31	C H SWEET - GRIMES	2.0	1.0	293122	65	0	224752	842519	1067271	0	0
32	ATLANTIC RICH.-GRIMES	1.0	1.0	862360	1740	12774	330782	1510948	1841730	15730	0
33	BILL SWEET-BOWERS B FED.	.0	.0	449542	0	0	302418	1408760	1751178	0	0
34	GULF - A.O.GRIMES NCT C	3.0	3.0	1470827	4703	15693	796485	2410302	3206787	69663	0
35	AMERADA-HOBBS COWDEN TOWNS	1.0	1.0	39761	1595	26900	182819	69403	252222	19987	0
36	WISER-MORRIS A	1.0	1.0	564431	5581	11688	162350	586505	748855	0	127186
37	WISER-MORRIS M	1.0	1.0	502714	2362	24608	94217	143787	238004	0	79151
38	SHELLY - HOBBS E	1.0	1.0	86396	1051	2817	892135	103430	995565	8423	0
39	CONTINENTAL - STATE B 25	2.0	1.0	972907	1049	0	1409803	2169415	3619218	0	80647
40	SAMEDAN - STATE B	2.0	2.0	390127	1839	8946	1211565	810075	2021640	21925	0
41	TEXACO - N.M. DD B C ST	4.0	4.0	8383365	53808	167862	1232596	8749629	9982225	0	1238733
42	EXXON - N.M. STATE A	6.0	6.0	3359302	24747	201525	3753837	4622508	8376425	256032	0
43	AMERADA - H D MCKINLEY	4.0	4.0	5137031	53641	99293	327688	11037323	11365011	0	1382064
44	GETTY - H D MCKINLEY	5.0	5.0	5293575	51798	160416	523397	14668577	15191974	0	1090213
45	MARATHON-ST.-LAND-SEC.30	4.0	4.0	3907538	27492	73356	1723099	11091318	12814817	4414	699350

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TR NO	TRACTS	NO. OF WELLS USBL 7/76	NO. OF WELLS ACTV 7/76	CUM OIL PROD 1-1-76	7MOS,76 PRODUCTION OIL BBLS	7MOS,76 PRODUCTION GAS MCF	ORIG OIL IN PLACE GU BBLS	ORIG OIL IN PLACE SA BBLS	ORIG OIL IN PLACE TOTLE BBLS	1/1/76 PRIMARY RES, GRYBRG BBLS	1/1/76 PRIMARY RES, SANAN BBLS
46	EXXON-BOWERS A FED,SEC30	5,0	4,0	5201565	38424	94917	102761	17589511	17752272	0	741308
47	EXXON-BOWERS A FED,SEC	1,0	1,0	920202	9858	10977	443421	2379161	2822582	0	278573
48	EXXON-BOWERS A FED,SEC29	3,0	3,0	3868103	26302	126748	135194	13857479	13992673	0	744551
49	AMERADA - STATE B	4,0	4,0	4877919	25669	118794	1138788	8823266	9962054	148475	385064
50	EXXON - W D GRIMES	1,0	1,0	1158278	2570	17555	381078	1762308	2143386	0	17665
51	CONTINENTAL-STATE A 29	3,0	2,0	3738508	31067	95778	22300	14463859	14486159	0	851250
52	GETTY - W D GRIMES	2,0	2,0	2681421	14563	82770	268813	6083452	6352265	0	342135
53	CHEVRON - STATE I-29	2,0	2,0	2111091	31039	12391	0	11087735	11087735	0	1183156
54	ATLANTIC - W D GRIMES SOC	4,0	4,0	3153111	23298	180220	1097031	7741119	8838150	6905	906497
55	SAMEDAN - HOWE A	2,0	2,0	1503776	25460	52851	438064	3017707	3455771	0	984388
56	SAMEDAN - BOWN B	2,0	2,0	1415290	22076	61010	295868	2014643	2310511	0	1121090
57	SHELL - GRIMES	5,0	5,0	3841866	46805	76686	129108	15217380	15346488	0	1273556
58	CONTINENTAL - W D GRIMES	4,0	4,0	2992071	44663	216937	463726	11331459	11795185	0	1914266
59	SHELL - SANGER	6,0	6,0	3637283	87195	228517	689548	3816238	4505786	17321	2725168
60	GULF - J R HOLT NCT D	2,0	,0	22926	0	0	246408	0	246408	0	0
61	SYRON - J R HOLT STATE	1,0	1,0	199814	2122	4850	619012	42126	661138	31179	0
62	AMERADA HESS - STATE C	3,0	2,0	688156	3725	14116	3066067	486845	3552912	55661	0
63	SUN - CLARA FOWLER	2,0	2,0	892087	5712	39710	1657647	1677823	3335470	39839	30578
64	SHELLY - CLARA FOWLER	2,0	2,0	2125891	22241	34757	1309010	3954625	5263635	0	589169
65	CITIES SERVICE - FOWLER	5,0	4,0	4164397	36464	18490	1052163	14207565	15259728	0	908144
66	MOBIL - MIRA BERRY	4,0	4,0	1693660	20831	88895	2766778	2399457	5166235	100685	0
67	SHELL - BERRY	4,0	4,0	3154628	46487	190456	1581215	11157369	12738584	0	924261
68	GULF - D GRIMES NCT A/2	10,0	10,0	9383389	87715	352006	193451	36454346	36647797	0	2046819
69	AMERADA HESS - STATE A	2,0	2,0	2442272	26219	46327	0	9216505	9216505	0	577348
70	SHELL - STATE A	3,0	3,0	2176145	19416	42548	0	11367022	11367022	0	337754
71	MARATHON - STATE SEC 32-18	4,0	4,0	4068473	18676	91196	0	18605235	18605235	0	591057
72	SHELL - STATE B	2,0	2,0	1565120	21261	70909	0	9920034	9920034	0	398383
73	AMOCO - STATE G	2,0	2,0	2272648	32417	37989	0	10226595	10226595	0	754786
74	GULF - W D GRIMES NCT B	4,0	4,0	3297935	38744	135071	33412	15505698	15539110	0	893076
75	CONTINENTAL - STATE A 33	7,0	7,0	7113027	86405	160776	0	35111156	35111156	0	1866778
76	SHELLY-B H TURNER 162	2,0	2,0	1867882	33700	93954	428508	3094975	3523483	0	911176
77	SHELL - TURNER	2,0	2,0	1474918	34018	37545	298721	884458	1183179	0	1051753
78	HOWARD - HUBBS	1,0	1,0	130107	3326	13723	34073	1117	35190	40718	0
79	SAMEDAN - TURNER A	2,0	2,0	1620616	25443	24464	535532	2431575	2967107	0	932016
80	SAMEDAN - TURNER B	2,0	2,0	1125532	18287	89534	155928	139412	295340	0	325112
81	WISER - STATE L	1,0	1,0	9977	186	0	441842	2327	444169	2855	0
		241,0	221,0	164267765	1634254	4730679	61546390	516711613	578278003	1466689	39214541

DATE : 03 NOV 76

FILE (NORTH HOBBS)

TR NO	TRACTS	NO. OF WELLS USBL 7/76	NO. OF WELLS ACTV 7/76	CUM OIL 7805.76 PRODUCTION PROD 1-1-76	OIL PRO BBLS	GAS PRO MCF	ORIG OIL IN PLACE GR BBLS	ORIG OIL IN PLACE SA BBLS	ORIG OIL IN PLACE TOTLE BBLS	1/1/76 PRIMARY RES GRYBRG BBLS	1/1/76 PRIMARY RES SANAN BBLS
1	GETTY - STATE B	.82988	.90498	.03496	.07043	.01733	1.17617	.00231	.12728	.59693	.00000
2	AMERADA HESS-STATE ANN	.82988	.45249	.07829	.07257	.15435	1.73500	.02775	.20951	.82499	.00000
3	GULF - LEA-F-4-STATE	.41494	.45249	.04172	.05073	.05569	.70358	.00000	.07491	.79165	.00000
4	TEXAS PACIF.-STATE V AC1	.82988	.90498	.11725	.16246	.48084	2.40552	.07586	.32389	2.34911	.00000
5	ESTES ENGR. STATE	.41494	.45249	.08351	.15083	.40292	1.13991	.15605	.26080	.98624	.00000
6	CONTINENTAL - STATE B-13	2.48963	1.80995	.61214	.05972	.09247	4.15717	1.29848	1.60283	.66777	.00000
7	SHELL - RICE	1.65975	1.80995	1.02798	.60058	1.38590	.39075	2.33769	2.13081	1.65005	.35398
8	AMERADA HESS - B HARDIN	1.65975	.00000	1.10769	.00000	.00000	.40530	2.12270	1.93986	.00000	.00000
9	GULF - DAN HARDIN	3.31950	3.61991	1.07227	.51124	1.64657	2.65319	1.56350	1.67951	3.81603	.05976
10	MONARCH - STATE I 17	.41494	.45249	.04274	.05360	.02488	.34061	.01016	.04534	.68133	.00000
11	CHEVRON - STATE I 17	.41494	.00000	.03768	.00000	.00000	.53053	.06314	.11290	.00000	.00000
12	SKELLY - STATE A	.41494	.45249	.17659	.03965	.02467	.65326	.17218	.22337	.59327	.00000
13	C&C OPLN. - SHIPP A	.41494	.45249	.01080	.02986	.00049	.24483	.00000	.02820	.08932	.00000
14	TEXAS PACIF.-STATE V AC2	1.65975	1.80995	.17973	.17427	.18799	2.88782	.01172	.31792	2.36200	.00000
15	SHELL - STATE F	.82988	.90498	.07652	.06847	.16393	1.92692	.06928	.26705	1.04958	.00000
16	C H SWEET - STATE F	1.65975	1.35747	.38647	.30473	1.38693	3.47302	.40145	.72846	5.19643	.00000
17	JOHN A YATES-SHELL STATE	1.24481	1.35747	.25918	.19997	.35775	3.25624	.10654	.40188	1.99825	.00000
18	AMERADA HESS-STATE E	.82988	.90498	.61809	.33893	.40749	1.38085	.67541	.75052	.66913	.18213
19	SHELL - STATE D	.82988	.90498	.63844	1.15900	1.18949	.55814	1.11075	1.05192	.00000	.71855
20	GULF - GRAHAM STATE A	2.48963	2.26244	1.78400	2.04699	1.30922	.20143	3.00434	2.71018	.00000	1.39983
21	SAMEDAN - STATE C	1.65975	1.80995	2.05259	3.95177	2.14489	4.31683	1.43805	1.74475	.00000	3.20682
22	TEXAS PACIF.-STATE G	1.65975	1.80995	2.50075	4.15272	1.73886	1.28952	2.62598	2.48369	.00000	4.66039
23	CITIES SERVICE - HARDIN	2.07469	1.80995	2.07865	1.05798	.39700	.20732	2.98380	2.69246	.00000	.57998
24	GETTY - BOONE HARDIN	1.65975	1.80995	1.99438	.53492	.82238	2.10826	1.68192	1.72731	4.05726	.13917
25	SHELL - MCKINLEY A	3.73444	4.07240	5.59091	5.71869	3.53522	2.38899	4.27915	4.07791	.00000	4.85198
26	SKELLY - H D MCKINLEY	.41494	.45249	.36827	.04601	.08635	.78103	.43417	.47110	.00000	.00000
27	CHEVRON - H D MCKINLEY	.82988	.90498	.80811	.56001	.35399	.86633	.67097	.69177	.00000	.54675
28	C H SWEET - MCKINLEY A	.41494	.45249	.05820	.04173	.36990	.96769	.21359	.29388	.59052	.00000
29	SHELL - MCKINLEY B	2.07469	1.80995	2.34539	1.95380	1.58781	2.25330	1.34991	1.44609	.00000	2.44235
30	BILL SWEET-MAGERS H FED.	.41494	.45249	.22642	.04143	.03934	.42709	.21482	.23742	.59052	.00000
31	C H SWEET - GRIMES	.82988	.45249	.17844	.00398	.00000	.36506	.16305	.18456	.00000	.00000
32	ATLANTIC RICH.-GRIMES	.41494	.45249	.52097	.10647	.27002	.53728	.29242	.31049	1.07249	.00000
33	BILL SWEET-MAGERS B FED.	.00000	.00000	.27366	.00000	.00000	.09121	.28038	.30283	.00000	.00000
34	GULF - H.D.GRIMES NCT C	1.24481	1.35747	.89538	.28778	.33173	1.29370	.46607	.55454	2.74971	.00000
35	ANTWELL-HOBBS CONE TOWNS	.41494	.45249	.02420	.09760	.56863	.29695	.01303	.04362	1.36274	.00000
36	AIKEN-HOBBS A	.41494	.45249	.34360	.34150	.28707	.26370	.11351	.12950	.00000	.32433
37	AIKEN-HOBBS B	.41494	.45249	.39603	.14453	.62587	.15303	.02783	.04116	.00000	.20184
38	SKELLY - HOBBS E	.41494	.45249	.05259	.06431	.05955	1.44906	.02002	.17216	.57429	.00000
39	CONTINENTAL - STATE B-25	.82988	.45249	.59227	.06419	.00000	2.35486	.41985	.62586	.00000	.20566
40	SAMEDAN - STATE B	.82988	.90498	.23749	.11253	.18911	1.96790	.15678	.34960	1.09487	.00000
41	TEXACO - N.M. DD H C ST	1.65975	1.80995	2.66843	3.29471	3.54837	2.00206	1.69333	1.72620	.00000	3.15886
42	EXXON - N.M. STATE A	2.48963	2.71493	3.04502	1.51427	5.10550	6.09722	.69462	1.44851	17.45657	.00000
43	AMERADA - H D MCKINLEY	1.65975	1.80995	3.12723	3.28229	2.09892	.53225	2.13607	1.96532	.00000	3.52437
44	GETTY - H D MCKINLEY	2.07469	2.26244	3.22253	3.16952	3.39097	.85013	2.83883	2.62711	.00000	3.81035
45	MARATHON-ST. LAND SEC. 30	1.65975	1.80995	2.40311	1.68224	1.55060	2.79942	2.19652	2.21603	.30095	1.78339

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TR NO	TRACTS	NO. OF WELLS USHL 7/76	NO. OF WELLS ACTV 7/76	CUM OIL THOS.76 PRODUCTION PROD 1-1-76	CUM OIL THOS.76 PRODUCTION OILPRO BBLS	CUM OIL THOS.76 PRODUCTION GASPRO MCF	ORIG OIL IN PLACE GR BBLS	ORIG OIL IN PLACE SA BBLS	ORIG OIL IN PLACE TOTLE BBLS	1/1/76 PRIMARY RES GRYBRG BBLS	1/1/76 PRIMARY RES SANAN BBLS
46	EXXON-BOWERS A FED,SEC30	2.07469	1.80995	3.16652	2.35116	2.00641	.26437	3.40413	3.06985	.00000	1.89039
47	EXXON-BOWERS A FED.COM	.41494	.45249	.56018	.57873	.23204	.72023	.46044	.48810	.00000	.71038
48	EXXON-BOWERS A FED.SEC29	1.24481	1.35747	2.35475	1.60942	2.67928	.21959	2.68186	2.41971	.00000	1.89866
49	AMERADA - STATE H	1.65975	1.80995	2.96949	1.57191	2.51114	1.84969	1.70758	1.72271	10.12320	.98198
50	EXXON - A D GRIMES	.41494	.45249	.70512	.15726	.37109	.61897	.34106	.37065	.00000	.04505
51	CONTINENTAL-STATE A 29	1.24481	.90498	2.27586	1.90099	2.02461	.03622	2.79921	2.50505	.00000	2.17075
52	GETTY - A D GRIMES	.82988	.90498	1.63235	.69111	1.74964	.43662	1.17734	1.09848	.00000	.87247
53	CHEVRON - STATE I 22	.82988	.90498	1.28515	1.89922	.26193	.00000	2.18583	1.91737	.00000	3.01714
54	ATLANTIC - A D GRIMES SOC	1.65975	1.80995	1.91989	1.42560	3.80960	1.78187	1.49815	1.52836	.46397	2.41364
55	SAMEDAN - NONA A	.82988	.90498	.91544	1.55912	1.11720	.70503	.58402	.59691	.00000	2.40826
56	SAMEDAN - NONA B	.82988	.90498	.86200	1.35083	1.28961	.48057	.38990	.37955	.00000	2.85886
57	SHELL - GRIMES	2.07469	2.26244	2.33878	2.86400	1.62104	.20971	2.94504	2.65383	.00000	3.24766
58	CONTINENTAL - W D GRIMES	1.65975	1.80995	1.82146	2.73293	4.58575	.75321	2.19299	2.03971	.00000	4.88152
59	SHELL - SANGER	2.48963	2.71493	2.21422	5.33546	4.83053	1.12001	.73856	.77917	1.18097	6.94938
60	GULF - J R HOLT NCT D	.82988	.00000	.01396	.00000	.00000	.00023	.00000	.00261	.00000	.00000
61	HYNOM - J R HOLT STATE	.41494	.45249	.12164	.12985	.10252	1.00588	.00815	.11433	2.12582	.00000
62	AMERADA HESS - STATE C	1.24481	.90498	.41892	.22793	.29039	4.98010	.09422	.61440	3.79503	.00000
63	SUN - CLARA FOWLER	.82988	.90498	.54307	.34952	.83981	2.69285	.32471	.57679	2.71627	.07798
64	SKELLY - CLARA FOSLER	.82988	.90498	1.29916	1.36093	.73471	2.12618	.76534	.91023	.00000	1.50242
65	CITIES SERVICE - FOWLER	2.07469	1.80995	2.53513	2.23123	.39085	1.70899	2.74961	2.63882	.00000	2.31584
66	MOBIL - NONA BERRY	1.65975	1.80995	1.03104	1.27465	1.87912	4.09397	.46437	.89338	20.50106	.00000
67	SHELL - BERRY	1.65975	1.80995	1.92042	2.84458	4.02598	2.56831	2.15930	2.20285	.00000	2.35693
68	GULF - D GRIMES NCT A42	8.18938	8.52089	5.21225	5.36728	7.44092	.31422	7.05507	6.33740	.00000	5.21958
69	AMERADA HESS - STATE A	.82988	.90498	1.48676	1.60434	.97929	.00000	1.78368	1.59378	.00000	1.47228
70	SHELL - STATE A	1.24481	1.35747	1.32475	1.18806	.89941	.00000	2.19988	1.96567	.00000	.86130
71	MARATHON-STATE SEC 32-18	1.65975	1.80995	2.96131	1.14278	1.92776	.00000	3.60070	3.21735	.00000	1.50724
72	SHELL - STATE H	.82988	.90498	.95279	1.30096	1.49892	.00000	1.92061	1.71614	.00000	1.01591
73	AMOCO - STATE G	.82988	.90498	1.38350	1.98360	.78401	.00000	1.97917	1.76646	.00000	1.92476
74	GULF - A D GRIMES NCT B	1.65975	1.80995	2.00766	2.37075	2.85521	.05427	3.00084	2.68713	.00000	2.27741
75	CONTINENTAL - STATE A 35	2.90456	3.16742	4.33014	5.28712	3.39858	.00000	6.79512	6.07167	.00000	4.76042
76	SKELLY-B H TURNER 182	.82988	.90498	1.13710	2.06210	1.98606	.69601	.59898	.60931	.00000	2.32357
77	SHELL - TURNER	.82988	.90498	.89787	2.08156	.79365	.88520	.17117	.20460	.00000	2.68205
78	MONARCO - HOBBS	.41494	.45249	.07920	.20352	.29009	.05534	.00022	.00609	2.77620	.00000
79	SAMEDAN - TURNER A	.82988	.90498	.98657	1.55686	.51714	.86984	.47059	.51309	.00000	2.37671
80	SAMEDAN - TURNER B	.82988	.90498	.68518	.87422	1.04708	.25327	.02698	.05107	.00000	.82906
81	AISER - STATE L	.41494	.45249	.00607	.01138	.00000	.71767	.00045	.07681	.19466	.00000
		99,99998	99,99998	99,99998	99,99998	99,99998	99,99997	99,99998	99,99998	99,99999	*********

MINUTES OF THE TECHNICAL COMMITTEE
PROPOSED NORTH HOBBS UNIT
NOVEMBER 4, 1976

The meeting was called to order at 8:15 a.m. Thirteen companies, which operate 82 percent of the number of current producers, were represented. (Attendance list attached). The main purpose of this meeting was to vote on the acceptance of Shell's reservoir simulation study as the basis for the determination of primary reserves from the main San Andres reservoirs.

After considerable discussion and vote taking it was decided to take the following course of action:

1. Accept Shell's reservoir simulation approach as the best method for determining primary reserves from the main San Andres reservoirs.

2. Approve the techniques and mathematical descriptions used by Shell and as presented to the Technical Committee at the October 13, 1976 meeting by Mr. W. C. Miller of Shell Development. (Skelly registered the only no-vote based on the results obtained for their Turner lease relative to offsetting tracts.)

3. Approve the approach that the primary reserves parameter for those wells included in the reservoir simulation study would be based on the assumption that the current completion status (shown in Figure 1 attached to minutes of October 13, 1976 meeting) would be constant over the remaining life.

4. Update the reservoir simulation history match to include the first eight months of 1976 oil production. The determination of each well's permeability thickness (kh) should be based on the last twelve months of history. (Wells that have been shut in during July and August 1976 due to overproduction of gas would use the prior ten months (9/75 to 6/76) as the base for determining kh. These wells are: Arco Grimes SOC 1 and 2 (28E&F), Conoco Grimes 1, 2 and 4 (28O, P and I) and Conoco State A-29-3 (29K).)

5. Rectify an apparent discrepancy between actual production and computed production for the Getty Hardin Lease in Section 19.

6. Move the two Skelly Turner wells (34C and F) from grid block 12, 2 to grid block 12,1 in order to obtain a better match and representation.

7. Use an economic limit of 3 BOPD or 99 percent water cut and all production stopped on December 31, 2024.

Shell agreed to make the preceding changes and distribute the results of this analysis to all Technical Committee members (in approximately one week). Shell pointed out to the Committee representatives that this would be the final simulation run under the agreement set forth in the letter dated March 13, 1975 about the computer analysis for this field.

It was decided to reconvene in two weeks (November 17 and 18) to cover the agenda scheduled for this meeting.

In response to several requests for information on other participation parameters determined to date, a tabulation of ten parameters was distributed and a copy is enclosed with these minutes. Also a summary of a conservative economic analysis of a unitized waterflood was shown; a copy of that summary is also attached.

HJS:ELP

Attachments

ATTENDANCE LIST *
(11/4/76)

Name	Company	Location
K. Y. Kassim	Amerada Hess	Seminole
Paul D. Kossmann	Amoco	Houston
Donald D. Barrett	Cities Services	Midland
Arthur J. Henry	Conoco	Houston
W. E. Nolan	Exxon	Midland
N. K. Reynolds	Exxon	Midland
J. E. Eakin	Getty	Midland
Harold O'Dell	Getty	Houston
G. G. Bingham	GEM-US	Midland
R. E. Dejmal	Mobil	Houston
Boyce Perry	Samedan	Ardmore
Chris F. Bosecker	Skelly	Midland
Jess B. Nunnelee	Skelly	Midland
C. R. Price	Sun	Midland
G. R. Meyers	Texas Pacific	Dallas
W. C. Miller	Shell	Houston
H. J. Swartz	Shell	Houston

* Chevron not in attendance but sent telegram approving reservoir simulation study.

NORTH HOBBS UNIT
TECHNICAL COMMITTEE
ADDRESS LIST

ABO PETROLEUM CORPORATION
ATTN: MR. JOHN A. YATES
YATES BUILDING
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: TECHNICAL SERVICES MANAGER
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. T. DON STACY
P. O. BOX 3092
HOUSTON, TX 77002

ATLANTIC RICHFIELD COMPANY
ATTN: MR. J. L. TWEED
P. O. BOX 1610
MIDLAND, TX 79701

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

C&C OPERATING CORP.
P. O. BOX 1829
HOBBS, NM 88240

CHEVRON OIL COMPANY
ATTN: MR. DON D. ALLEN
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CITIES SERVICE OIL COMPANY (2)
E & P DIVISION
P. O. BOX 1919
MIDLAND, TX 79701

CONTINENTAL OIL COMPANY (2)
ATTN: MR. R. E. McWILLIAMS
P. O. BOX 460
HOBBS, NM 88240

MR. JOHN P. CUSACK
P. O. BOX 250
ROSWELL, NM 88201

DEL LEA (ANTWEIL)
P. O. BOX 1889
HOBBS, NEW MEXICO 88240

EXXON COMPANY - U.S.A. (2)
ATTN: JOINT INTEREST ENGINEERING
SUPERVISOR
P. O. BOX 1600
MIDLAND, TX 79702

GETTY OIL COMPANY (2)
ATTN: MR. W. J. NEWMAN
P. O. BOX 1231
MIDLAND, TX 79701

GETTY OIL COMPANY
ATTN: MR. E. J. MILLER
P. O. BOX 249
HOBBS, NM 88240

GULF ENERGY & MINERALS CO. - U.S.
ATTN: MR. J. M. THACKER
DISTRICT OPERATIONS MANAGER
MIDLAND, TX 79701

GULF ENERGY & MINERALS CO. - U.S.
ATTN: MR. V. M. HENDRICKS
DISTRICT RESERVOIR ENGINEER
P. O. BOX 1150
MIDLAND, TX 79701

MARATHON OIL COMPANY
ATTN: DISTRICT ENGINEER
P. O. BOX 522
MIDLAND, TX 79701

MOBIL OIL CORPORATION
ATTN: MR. B. P. CLARK
3 GREENWAY PLAZA EAST, SUITE 800
HOUSTON, TX 77046

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

SAMEDAN OIL CORPORATION
ATTN: MR. BOYCE PERRY
P. O. BOX 909
ARDMORE, OK 73401

SAMEDAN OIL CORPORATION
ATTN: MR. W. S. McCUEN
2207 WILCO BUILDING
MIDLAND, TX 79701

SKELLY OIL COMPANY
ATTN: MR. FRANK D. McATEE
EXP. AND PROD. DEPT.
P. O. BOX 1351
MIDLAND, TX 79701

SKELLY OIL COMPANY
ATTN: MR. CHRIS BOSECKER
P. O. BOX 1315
MIDLAND, TX 79701

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THORNTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS &
MR. CHARLES DICKSON
P. O. BOX 1861
MIDLAND, TX 79701

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXACO INC.
ATTN: DIVISION ENGINEER
P. O. BOX 3109
MIDLAND, TX 79701

TEXAS PACIFIC OIL CO., INC. (2)
ATTN: MR. ORAN HALL
P. O. BOX 4067
MIDLAND, TX 79701

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. G. R. MEYER
1700 ONE MAIN PLACE
DALLAS, TX 75250

THE WISER OIL COMPANY
110 GIHLS TOWER EAST
MIDLAND, TX 79701

ESTES ENGINEERING CO.
306 PETROLEUM BLDG.
MIDLAND, TX 79701

W. D. ANDERSON & SONS
P. O. BOX 136
MIDLAND, TX 79701

PRELIMINARY ECONOMIC ANALYSIS
PROPOSED NORTH HOBBS UNIT

ASSUMPTIONS:

1. ADDITIONAL OIL BY WATERFLOODING IS 30 MMB OR ABOUT 7% OF THE OOIP IN GB, II, III_U, III_L ZONES. (THE SECONDARY OIL RECOVERY OF 30 MMB IS EQUIVALENT TO A SECONDARY TO PRIMARY ULTIMATE RATIO OF 0.28 FOR THESE ZONES.) THE WATERFLOOD LIFE IS 35 YEARS.

2. CAPITAL INVESTMENT IS $16,000,000 INITIALLY AND $4,000,000 TWO YEARS LATER.

3. A CRUDE OIL PRICE OF $5.911 PER BARREL IS USED THROUGHOUT. THERE IS NO ESCALATION FOR OPERATING COSTS. THE OPERATING COSTS USED FOR THE WATERFLOOD ARE 44% HIGHER THAN THE EQUIVALENT FOR PRIMARY OPERATIONS TO PROVIDE FOR AN INCREASED AMOUNT OF WORKOVERS AND WATER COSTS (PURCHASING AND HANDLING).

RESULTS:

1. THE ADDITIONAL OCI (UNDISCOUNTED AND BEFORE FIT) IS $3.80 PER BARREL OF OIL. THE ADDITIONAL OCI (DISCOUNTED AT 10% AND BEFORE FIT) IS $1.75 PER BARREL OF OIL. THE AVERAGE ANNUAL EARNING POWER (BEFORE FIT) IS 33% AND THE PAYOUT OF THE CAPITAL INVESTMENT IS 4.1 YEARS. THE UNDISCOUNTED PROFIT IS $94 MILLION OR 470% OF THE REQUIRED CAPITAL INVESTMENT.

NOTE: THIS IS AN INTENTIONALLY CONSERVATIVE PROFITABILITY TO DEMONSTRATE AN ECONOMICALLY ATTRACTIVE PROSPECT EVEN WITH LOW OIL RECOVERIES AND HIGH COSTS.

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

November 8, 1976

Subject: Technical Committee Meeting
Proposed North Hobbs Unit
Lea County, New Mexico

Technical Committee
Proposed North Hobbs Unit
(Addressee List Attached)

A two-day meeting of the Technical Committee is called for Wednesday and Thursday, November 17 and 18, 1976, at 8:00 a.m. in Conference Room 19109, Entex Building, 1200 Milam Street, Houston, Texas.

The agenda for this meeting is:

1. Vote on approval of Shell's reservoir simulation study for determining San Andres primary reserves by tracts. (See attached minutes).

2. Review primary reserve determinations made from decline curve analyses of wells producing from the Grayburg and/or upper San Andres stringers. (See Minutes of January 13 and 14, 1976, Technical Committee meeting). The production performance curves have been updated and there are some wells that have not yet been analyzed.

3. Discuss the procedure to be adopted for allocating secondary reserves to tracts.

4. Other business.

This agenda is the same as scheduled for the Technical Committee meeting held on November 4, 1976. Attached are the minutes of that session which show that only the first agenda item was discussed in detail. Whereas there is agreement with the assumptions and techniques used by Shell in their reservoir simulation study, sufficient modifications to the October 18, 1976 analysis (summarized in Figures 14 and 15 of the enclosures sent with the minutes of the October 13, 1976 meeting) were approved by the Technical Committee to justify an additional run. The results of this final run will be distributed to all Technical Committee representatives as soon as available (in approximately one week). We request that each Company representative attending the November 17 and 18, 1976 meeting be prepared to vote on the acceptance of the forthcoming computer analysis as the basis for the primary reserves unitization parameter.

Shell Oil Company now feels that they have fulfilled the intent and requirements set forth in our letter dated March 13, 1975 discussing the computer analysis for this field.

Yours very truly,

R. J. Swartz

HJS:ELP

R. J. Swartz, Chairman

#15

MINUTES OF TECHNICAL COMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
NOVEMBER 17 AND 18, 1976

The meeting was initiated with a brief review of the agenda and in particular the modifications that had been made to the Shell reservoir simulation study of the San Andres reservoirs primary performance. These changes had been requested by the Technical Committee at the November 4, 1976, meeting, are outlined in the minutes, and were at the time intended as the final computer run. The results of this analysis were transmitted to all members with letter dated November 10, 1976.

Shell moved that the results of the reservoir simulation study, summary of equity transmitted to all Operators on November 10, 1976, be used for the San Andres (main zones) tract primary reserve parameter. This motion was seconded by Amoco and the results of the vote were:

FOR (11) : Amerada, Amoco, Chevron (by telegram), Exxon, Getty, Gulf, Mobil, Samedan, Sun, Texas Pacific and Shell.

OPPOSED (3): Cities Service, Conoco and Skelly

The reasons for these objections were discussed and the respective positions are appended as follows: Cities Service (Attachment No. 1), Continental (Attachment No. 2) and Skelly (Attachment No. 3). Shell's response to each of the exceptions is noted at the end of each attachment.

A motion was made by Skelly that their two Turner wells (located in Section 34C and F) be assigned a Zone I primary reserve value of 540,000 barrels each (rather than the 319,000 and 321,000 barrel determination made by the last Shell computer run). All other wells would retain the assigned values shown in this final analysis. Samedan seconded the motion and the resulting vote was as follows:

FOR (2) : Getty and Skelly.

OPPOSED (11): Amerada, Amoco, Cities Service, Continental, Exxon, Gulf Mobil, Samedan, Sun, Texas Pacific and Shell.

A motion was then made by Shell that the Zone I primary oil reserves determined for the two Skelly Turner wells and three directly offsetting wells: Shell Sanger 2(27N), 514,000 barrels; Shell Turner 2(34B), 352,000 barrels; and Shell Turner 1(34G) 576,000 barrels; be arithmetically averaged and the resulting value (approximately 416,400 barrels) be assigned to each of these five wells. No other reserve values would be changed from those determined in the final run. Amoco seconded this motion and the results of the vote were:

FOR (7) : Amerada, Amoco, Gulf, Mobil, Sun, Texas Pacific and Shell

Opposed (4): Cities Service, Conoco, Exxon and Skelly

PASS (2) : Getty and Samedan

Getty requested the inclusion of their comments in the minutes. (See Attachment 4). Mr. W. E. Nolan stated Exxon's preference that no arbitrary adjustments affecting the tract reserve determinations be made.

After additional discussions about alternative proposals to resolve the disagreements (none were finalized as motions), it was decided by the Chairman of the Technical Committee that the results of the "final" Shell reservoir simulation study (first motion) would be submitted to the Working Interest Owners as the San Andres (main zones) primary reserve parameter. This decision was based on the observation that no constructive alternatives had been recommended and whereas it was a controversial determination it had received the most support from the representatives. Furthermore, based on current and prior discussions it appeared that all of the objections were directly related to equity and the disagreements could therefore best be resolved by the Working Interest Owners. The Technical Committee should now continue with their assigned task to determine the economic feasibility of unitized Supplemental Recovery operations and the development of additional parameters. Meanwhile Shell will continue to search for an alternative solution to the primary reserves parameter that would be acceptable to everyone.

The next agenda item was to review primary reserve determinations made from decline curve analyses of those wells producing from the Grayburg and/or upper San Andres stringers. (See minutes of January 13 and 14, 1976, Technical Committee meeting.) The production performance of these wells had been updated to include an additional ten months of history and there were several wells that had not previously been analyzed. Viewgraphs of each updated production performance graph marked with the previously determined initial oil rate (at 1/1/76) and the annual decline rate assigned were shown and reviewed for any necessary adjustments. The results of these evaluations are tabulated in Attachment No. 5. As noted in this summary, twelve revisions were made. Also, seven graphs were classified as erratic performance requiring further analysis and one new lease was added. This tabulation of course represents the current analysis and replaces the summary previously transmitted with the minutes of the January 13 and 14, 1976 Technical Committee meeting.

A description of the problems involved with determining the tract secondary reserve potential for the Grayburg reservoir were presented. The meeting was then adjourned for the day. The Thursday meeting began with a quick review of the results of Shell's reservoir simulation study of the Grayburg waterflood potential. These results had been presented and accepted at the

Technical Committee meeting held on March 25, 1976. That presentation included only the results expected from a five-spot waterflood pattern of the Grayburg formation using the average reservoir characteristics found along the northern and western flanks of the field. Those areas are currently developed by 67 Grayburg wells which can conveniently be converted to an 80-acre five-spot waterflood pattern. Because of the low permeability of the Grayburg net pay it will be necessary to use a pressurized water injection system with an expected surface injection pressure of about 1500 psig. Because of this fact and the small casing sizes it appears impractical to either simultaneously or dually inject water into both the Grayburg and San Andres in the same wellbore. Herein lies the problem. The availability of "Grayburg only" wells will permit the secondary recovery development of about one-half of the original-oil-in-place. The remaining potential is underlain and developed by more prolific San Andres producers. In light of past history it is doubtful that high pressure water injection could be mechanically confined to the Grayburg in most of these wells.

It was decided by the Technical Committee that Shell should make the following determinations:

(1) Quantify the volume of Grayburg reservoir that can be affected by an 80-acre five-spot waterflood pattern with currently available wells. This volume should include the expected encroachment of water beyond the normal well pattern in accordance with a 1955 report by Caudle et al. (See Page 57 of the AIME Monograph Volume 3 by Forrest F. Craig, Jr.)

(2) Evaluate the economic feasibility of drilling Grayburg water injectors but utilizing existing producers for drainage points in the reservoir volume not encompassed in Item 1. This evaluation would also be based on an 80-acre five-spot pattern, upper tier oil price, constant revenue and costs, before federal income taxes, and values discounted at 10 percent and undiscounted. It will be assumed that water injection would be initiated in mid-1979 and the reservoir pressure at that time in this area would be 400 psig.

These determinations should establish what volumes of the Grayburg reservoir can economically be exploited with a waterflood.

Considerable discussion then ensued on the best method to be used in determining the San Andres waterflood potential. Shell had planned to make a reservoir simulation study by modelling the Zone III_L reservoir in its entirety in the northern unit area. Average oil saturations at the start of water injection were to be determined for each floodable zone (II, III_U and III_L) from the recently completed San Andres primary performance simulation study by Shell.

Waterflood recovery would then be evaluated for several cases with different location and number of injectors and producers. However, in view of the previously described controversies about that primary performance simulation study (see Attachments 1, 2, 3 and 4) it was decided that it would be preferable to evaluate the secondary recovery potential of the San Andres by analogy with existing waterfloods in similar reservoirs the West Texas - New Mexico area. Consequently, each representative was requested to supply the Chairman with data on this type of project. However, in order to avoid duplication of effort and incomplete data, Shell will send out a letter requesting specific data from the operator of specific selected projects. Shell will then summarize and average these data and the Technical Committee will then determine the San Andres secondary reserves volumes to be used for the North Hobbs Unit by applying a recovery factor to the OOIP (Zones II, III_L and III_U) for each tract.

It was requested by the Committee that Shell review the computed saturations and reservoir pressures in the latest simulation run to ascertain that significant differences do not exist between grid blocks during mid-1979. Subsequent to the meeting, it was established by Shell that the pressure gradient existing between grid blocks in the North Unit Area averaged 21 psi in Zone II and 16 psi in Zone III and that the saturation differences were not significant for these floodable San Andres zones. The average reservoir pressure in both zones is 580 psig at mid-1979. Shell will continue to design a waterflood plan and present a recommendation to the Technical Committee.

It was estimated that the next meeting would be held in mid-January and be relative to the aforementioned waterflood analyses.

HJS:ELP
11/30/76

ATTENDANCE LIST*

(November 17 & 18, 1976)

Name	Company	Location
K. Y. Kassim	Amerada Hess	Seminole
Paul D. Kossman	Amoco	Houston
Don Barrett	Cities Service	Midland
Arthur J. Henry	Conoco	Houston
C. C. Woodward	Continental	Hobbs
W. E. Nolan	Exxon	Midland
W. W. Reynolds	Exxon	Midland
J. E. Eakin	Getty	Midland
Harold O'Dell	Getty	Houston
G. G. Bingham	GEM-US	Midland
R. E. Dejmal	Mobil	Houston
Boyce Perry	Samedan	Ardmore
Chris Bosecker	Skelly	Midland
Jess Nunnelee	Skelly	Midland
Chuck Price	Sun	Midland
Oran L. Hall	Texas Pacific	Midland
G. R. Meyers	Texas Pacific	Dallas
Wm. C. Miller**	Shell	Houston
W. E. Buck**	Shell	Houston
P. L. Bondor**	Shell	Houston
H. J. Swartz	Shell	Houston

* Chevron not in attendance but sent telegram approving reservoir simulation study.

** In attendance 11/17/76 only.

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TECHNICAL COMMITTEE
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ATTACHMENT NO. 1

OBJECTION BY CITIES SERVICE OIL COMPANY

Cities Service Oil Company believes that the computed San Andres primary reserves for their B. Hardin lease (NW/4 Section 19) are too low and do not properly reflect the remaining value of this lease. This contention is based on the observation that this tract has higher equity values (percent in the proposed North Hobs Unit) in the following parameters: useable wells 2.075%, active wells 1.810%, cumulative oil production (to 1/1/76) 2.079%, current oil production (1st 7 mos. 1976) 1.058%, San Andres OOIP 2.984% whereas the computed primary reserves are equivalent to only 0.693% of the unit total.

SHEL OIL COMPANY RESPONSE TO CITIES SERVICE OIL COMPANY'S OBJECTION

It is recognized that there is a considerable range in the many parameters -- that is the very reason for developing them. The history match for the 4 wells on this lease is quite adequate. One well is now at the economic limit applied to all wells in the simulation (3 BOPD) and is not credited with any reserves. The remaining wells average only 26 B/D oil production by solution gas drive in Zone 3. The predicted reserve of 86.000 barrels per well gives a reserve to production ratio of a reasonable 9.1 years.

ATTACHMENT NO. 2

OBJECTION BY CONTINENTAL OIL COMPANY

Continental Oil Company objects to the use of an arbitrary time cutoff in the reservoir simulation study for determining San Andres primary reserves, which in effect produces some wells to the economic limit while many others are producing at rates above the economic limit at the cutoff date. Continental believes each well should be carried to the economic limit and thereby credited with reserves in a manner consistent with every other well.

SHELL OIL COMPANY'S RESPONSE TO CONTINENTAL OIL COMPANY OBJECTION

Continental Oil Company raises a valid point when they suggest that all wells should be treated alike and be allowed to produce until they reach an economic limit of 3 BOPD or 99 percent water cut. However if this is done for this study some of the well lives would probably be extended an additional 50 years or a total future life of about 100 years. Shell feels that it is not realistic to expect this type of well service. The cutoff time chosen (2025.0) is arbitrary and was based on several factors such as: now is mid-point in life, recovery efficiencies are already high, discounted values after 50 years are extremely low, and reservoir pressure at 2025.0 in the depletion drive reservoirs are very low (251 psi in Zone II and 170 psi in Zone III).

ATTACHMENT NO. 3

OBJECTION BY SKELLY OIL COMPANY

Skelly Oil Company does not approve the techniques and mathematical descriptions used for the determination of the San Andres Zone 1 primary reserve parameter. Skelly believes that its B.H. Turner Lease, which has two flowing 80 BOPD and 0 BWPD wells, is not being treated justly. The following is an illustration of this stated inequity using only the comparison of second row San Andres Zone 1 producers:

Operator	Lease & Well No.	Cur. Prod. Rate*	% Wtr. Cut	Zone 1 Rem. Prim. Resr.*
Samedan	Moon "A" #2	64 BOPD & 19 BWPD	23%	475,000 Bbls.
Samedan	Moon "B" #1	67 BOPD & 0 BWPD	0%	656,000 Bbls.
Shell	Sanger #3	80 BOPD & 7 BWPD	8%	638,000 Bbls.
Shell	Sanger #1	80 BOPD & 10 BWPD	11%	513,000 Bbls.
Skelly	Turner #2	80 BOPD & 0 BWPD	0%	319,000 Bbls.
Skelly	Turner #1	80 BOPD & 0 BWPD	0%	320,000 Bbls.
Samedan	Turner"A"#1	50 BOPD & 19 BWPD	28%	460,000 Bbls.
Samedan	Turner"A"#2	57 BOPD & 19 BWPD	25%	495,000 Bbls.
Other Operator's Average Well		66 BOPD & 12 BWPD	15%	540,000 Bbls.
Skelly's Average Well		80 BOPD & 0 BWPD	0%	320,000 Bbls.

Note: The two Sekly wells are the only 80 BOPD, zero water cut, flowing, Zone 1 wells in this portion of the field.
*Based on Aug. Prod. Figures & Shell's Run "C" on the simulator.

A previous indication of this inequity for the Skelly Turner wells was noted in the committee after review of stimulator run "B" which allocated only 403,000 BBLS. per well for Zone 1 remaining primary reserves. At that time the committee agreed to move the two Skelly Turner wells to another grid block in order to obtain better representation of the Skelly Wells. (See Item No. 6 in the minutes of the November 4, 1976 Technical Committee Meeting which was prepared by Shell).

SHELL OIL COMPANY'S RESPONSE TO SKELLY OIL COMPANY OBJECTION

The migration of oil in Zone I has been clearly established as being controlled by edge water encroachment which is from the southwest in the vicinity of the Skelly Turner lease. This natural water influx negates structural advantages and places a premimum on distance from the watered out area, placing the Skelly lease at an unfavorable geographical location. Also the Skelly wells should not be compared to the two Samedan Moon wells which are located 6000 and 4500 feet from the nearest Skelly producer and are affected by different migration characteristics.

It should be noted that Skelly Turner 1 is no longer a top allowable producer. During the first eight months of 1976 this well has produced 88,293 MCF of gas or an overproduction of 19,973 MCF. The well will have to be shut in for 71 days to makeup for the excessive gas and Skelly has advised us that this well also overproduced the gas allowable during September. Clearly a top allowable oil producer, even if it is pumped because it makes some water production, is more desirable than a clean flowing oil well that is GOR penalized. Furthermore, if an adjacent lease is producing water it is indicative that the clean wells will soon produce water if they are opened to production in correlatable zones.

ATTACHMENT NO. 6

COMMENTS BY GETTY OIL COMPANY

Getty Oil Company requests the following comments be included in the minutes of the Technical Committee Meeting of the proposed North Hobbs, Lea County, New Mexico for consideration by the working interest owners' management representatives:

Getty Oil Company believes that numerical reservoir simulation is one of the most valuable tools available in the petroleum industry today for prediction of reservoir behavior. We use this tool often. We recognize both advantages and disadvantages of the tool. We believe that overall Shell Oil has done a good job in the numerical reservoir simulation of the proposed unit. However, some local discrepancies, such as in the area of the Skelly Turner lease, do exist and are not to be unexpected in this particular simulation for the following reasons:

(1) Although a three-dimensional model was used, there are only three layers in the vertical dimension; each representing a completely separate lithologic zone. This is offset to a degree by the use of pseudo relative permeabilities to represent stratification in each of the zones.

(2) A large areal grid size was used. In the majority of the cases, not only are there no grid blocks between wells, there is more than one well in most grids.

(3) Actual data shows that in some cases there are high water producers adjacent to low water or clean producers. Many no-flow boundaries were used during the history match to account for these occurrences.

(4) History matching does not present a unique solution. Even though the simulator accurately performs the calculations of the applicable physical phenomena, the simulator user inputs his own judgement decisions as to modifications of the original input so that computed and actual past performance are as close as practicable.

In summary, Getty Oil Company believes that overall the Shell Oil numerical reservoir simulation provides the best estimates of remaining primary recovery by tracts or wells and fluid saturations for determination of distributions to waterflood recovery. However, for the above stated reasons, the subject simulation results should be tempered by other available data in order to avoid obvious errors such as, but not necessarily restricted to, the area of the Skelly Turner lease.

SHELL OIL COMPANY'S RESPONSE TO GETTY OIL COMPANY COMMENTS

Shell appreciates Getty's concurrence that overall, the simulation provides the best estimates of remaining primary recovery by tracts or wells. As we have emphasized in Committee Meetings, for determination of primary reserves under the conditions which prevail at Hobbs, adequate detail is provided by the model described by Getty under their points 1 to 4. The key features of Hobbs' performance are represented by the use of three distinct zones, 127-acre grid blocks, and flow channels in Zone I (whose boundaries are represented mathematically as no-flow interfaces between certain grid blocks). As Shell stated in these meetings, for other objectives, e.g., to evaluate supplemental recovery by pattern waterflooding, smaller grid blocks would be required. Finally, it is not apparent that there are errors in the area of the Skelly Turner lease. Certainly, the history match obtained on the two Skelly wells and on the offset wells is quite adequate.

			Production Rates			
Well	Operator		Oil B/D	Gas MCF/D	Water B/D	Completion Zones
34C	Skelly	Calc.	79	73	21	1,2
		Actual*	79	85	0	
34F	Skelly	Calc.	80	74	21	1,2
		Actual*	80	310!	0	
34B	Shell	Calc.	80	47	21	1
		Actual*	80	93	13	
34G	Shell	Calc.	80	236	29	1,2
		Actual*	80	87	16	
27N	Shell	Calc.	80	56	21	1,2
		Actual*	80	215	7	

* Arithmetic average of last 12 months of production available (Sept. 1975 thru Aug. 1976).

One possible exception is in the comparison of some calculated and reported gas rates. The simulation does not reflect either the gas rate in Shell's 27N or even higher gas rate in Skelly's 34F (which subjects the latter well to shut-down in the latter part of 1976). Although the net effect upon predicted reserves is somewhat favorable to the Skelly well, we believe that such very localized regions of higher than average gas saturations have only a second order.

Finally, with regard to water rates, on the basis of an examination of the well records of all the wells producing from the several zones in the field, there is little significant distinction between wells making 20 B/D water or less (in this case, between 0 B/D water and 16 B/D).

RESERVES OF WELLS PRODUCING FROM GRAYBURG &/OR UPPER SAN ANDRES STRINGERS
PROPOSED NORTH HOBBS UNIT
(REVISED 11/17/76)

COMPANY	LEASE	WELL(S)	LOCATION	qo (BOPD)	dy (%)	RESERVES* (BBLS)	
				4 1/1/77			
Amerada Hess	Hardin	1,2,3,5	18K,L,M,N	0	0	0	
" "	State B	3,4	29B,C	54	12	148,475	
" "	State C	1,2	36A,H	20	14	43,561	R
" "	State C	3	36G	0	0	0	
" "	State E	1	24E	7	20	9,814	R
" "	State WNB	1	14O	6	14	12,100	U
			Subtotal	87		213,950	
Amwell	Hobbs CT	1	21J	8	12	19,987	
Atlantic Richfield	Grimes	1	20C	8.2	14	17,424	R
" "	Grimes SOC	3	28D	4.7	19	6,801	
			Subtotal	12.9		24,225	
Byron	Holt State	1	36E	11.5	10	36,375	R
C&C Oper.	Shipp A	1	23E	2.3	13	3,407	R
Chevron	State 17	1	17L	0	0	0	
Continental	State B-13	2,5,7	13N,E,I	8	17	9,794	
"	"	1,4,6	13N,F,O	***	***	***	
"	" B-25	2	25E	***	***	***	
Estes	State	1	14P	**	**	12,162	R
Exxon	New Mex. State	1,5,6,7, 8,9	25I,O,K,P,J,N	120	15	256,032	
Getty	Hardin	2	19E	7	10	20,786	
"	"	3	19E	17	14	38,721	
"	State B	1,2	14H,O	5	5	13,132	R
			Subtotal	29		72,639	
Gulf	Grimes C	1,2,3	21,L,M,N	23	8	87,549	RD
"	Hardin	3,4,5,6	18I,G,J				
"	"	7,8,9	M,B,A,O	29	11	68,907	R
"	LanFO State	1	14N	4	9	11,611	
			Subtotal	56		168,067	
Marathon	State 30	9	30M	3.4	18	4,414	U
Mobil	Berry	2,3,4,1	31N,L,M,K	105	10	349,894	R
Moranco	Hobbs	1	34B	15	11	43,850	R
"	State T 17	1	17E	4.5	12	9,993	
			Subtotal	19.5		53,843	
Samedan	State B	1,2	25P,E	9	11	21,925	
Shell	Rice	4	13J	11	14	24,201	U
"	Sanger	6	27D	11	19	17,321	
"	State F	2	23G	2.9	16	3,978	R
"	State F	3	23B	2.0	16	2,093	R
			Subtotal	26.9		47,593	
Skelly	Hobbs E	1	26A	5.3	17	8,423	
"	State A	1	17M	3.3	10	7,968	
			Subtotal	8.6		16,391	
Sun	Fowler	4	31E	12.5	10	39,839	
Bill Sweet	Bowers B	2	20J	3.5	10	8,661	
C.E. Sweet	Grimes	1A	20I	0	0	0	
"	McKinley B	2	20M	3.5	10	8,661	
"	State F	2,3,4	23M,I,A	25	10	76,215	U
			Subtotal	28.5		84,876	
Texas Pacific	State V Ac 1	1,2	14I,J	13	11	34,454	
"	State V Ac 2	3,4,5,6	23C,F,K,N	14	10	34,643	
			Subtotal	27		69,097	
Wiser	State	1	26B	1	-	204	U
Yates	Shell State	1,2,3	23P,J,O	12	16	29,308	
TOTALS		62	Producers	596.6		1,542,687	
		4	Recompleting			...	
		7	TA			0	

Notes: * Economic Limit assumed to be one BOPD/well.

** New well with erratic production. Reserves are arithmetic average of 4 offset wells (TOPC ST. V AC-1, 2 wells; Amer. St. WNB 1, and Shell State F-3)

*** Add wells recently recompleted; will assign reserves at a later date.

R Revision to prior estimate.
U May change. Update later and review.

#1

Minutes of the Technical Committee Meeting
Proposed North Hobbs Unit
January 13, 1977

Thirteen companies, which operate 81 percent of the current producers, were represented. (Attendance list is attached). The main purpose of this meeting was to finalize the tract secondary reserves for the unit.

Discussion was initiated with a brief review of the reservoir simulation study by Shell of the Grayburg waterflood potential. These results had been previously presented to the Technical Committee at a meeting held on March 25, 1976. The main conclusions are:

(1) Because of the low permeability it is necessary to use a pressurized water injection system (1500 psig surface) and a five-spot waterflood pattern.

(2) Primary ultimate recovery efficiency is 18.7 percent and secondary recovery efficiency is 14.4 percent for a symmetrical closed five-spot pattern.

(3) An 80-acre five-spot pattern waterflood, using existing wells, is economically attractive but will have a long life (43 years) and a relatively low response. A complete infill drilling program to obtain 40-acre five-spot patterns cannot be economically justified. The questions that needed to be resolved at this meeting are:

(1) What reserves should be assigned to the unit to discount the recovery efficiency of 14.4 percent for idealized conditions by the factors of well availability, non-symmetrical five-spots and incomplete patterns? and (2) On what basis should the unit secondary reserves be assigned to each tract?

A study was presented by Shell to show the expected encroachment of injected fluids beyond the normal well pattern (based on studies by Caudle et al, Petroleum Transactions, AIME (1955) 204, 79-85) and reduced sweep efficiencies due to incomplete patterns (based on results published by Craig, AIME Monograph, Volume 3, Chapter 5). The application of these techniques was approved by the Committee and resulted in unit secondary oil reserves of 6,560,000 barrels for a recovery efficiency of 10.6 percent of the OOIP. This is equivalent to a secondary reserve to primary ultimate ratio of 0.57 and requires the drilling of one injector at location 29D. It was decided by the Committee that this volume of secondary reserves should be apportioned to each tract on the basis of the tract OOIP.

It was pointed out that apparently the 320-acre Noranco Rice (Section 13) and Hardin (Sec. 18) leases were experiencing favorable response to Grayburg water injection. The October 1976 oil production from the Hardin tract is 1211 barrels (3 producers) which is the highest production level since 1963. In addition, the GOR has significantly decreased to 2695 cubic feet per barrel oil. Waterflood response from the Rice lease is not as pronounced but still encouraging. Water injection was started in August 1971, but has not been continuous.

At the last Technical Committee meeting it had been decided that San Andres secondary reserves should be determined by analogy with existing San Andres waterfloods in the vicinity that exhibited similar reservoir characteristics. Performance data on 8 such projects were reviewed and averaged a total recovery efficiency of 35 percent with a secondary to primary ratio of 0.85. It was noted that the volumetrically weighted permeability for these projects was 11 millidarcies whereas only two of the projects had average permeabilities as high as the North Hobbs Unit average for Zones II, III_U and III_L (28 millidarcies) and the ultimate recovery efficiency for those two floods are predicted to be 39.4 and 46.4 percent. Their secondary to primary ultimate recovery ratios are 0.43 and 0.68.

A Shell reservoir simulation study of the Zone III_L resulted in a primary recovery efficiency of 24 percent and a secondary recovery efficiency of 20 percent. The ultimate recovery efficiency is 44 percent and a secondary to primary ratio of 0.82. This study assumed a residual oil saturation of 35 percent in the swept zone and the final average saturation of 39 percent is equivalent to a sweep efficiency of 89 percent. It was pointed out that the San Andres Zone III_L is probably the most amenable to waterflooding because of the localized area and shape of the reservoir development.

Based on the foregoing, the Technical Committee determined that the ultimate oil recovery efficiency for the San Andres Zones II, III_U and III_L will be 40 percent. This should result in a secondary reserve for these zones of 48,640,000 barrels of oil. These recoveries are equivalent to an average residual oil saturation of 41.4 percent with a sweep efficiency of 85.1 percent. The ultimate recoveries for each zone in the proposed unit area are summarized in the attached tabulation. The Technical Committee also decided that the secondary reserves for the San Andres should be allocated to each tract on the basis original oil in place for each of the three zones.

Discussion then revolved about the scheduling of future work required for the Technical Committee to complete the charges by the Working Interest Owners. The following tentative schedule was developed: (1) determine the economics of waterflooding of both the Grayburg and San Andres reservoirs, (2) finalize the Grayburg primary reserves, by decline curve analysis, as soon as the production statistics are available through December 1976, and (3) prepare the Technical Committee report (tentatively scheduled for April 1977).

Attachments

ATTENDANCE LIST
Proposed North Hobbs Unit Technical Committee Meeting
Houston, Texas, January 13, 1977

NAME	COMPANY	LOCATION
Kassim Y. Kassim	Amerada Hess	Seminole
Ralph R. Denham	Amoco	Houston
Don Barrett	Cities Service	Midland
Arthur J. Henry	Conoco	Houston
W. E. Nolan	Exxon	Midland
J. E. Eakin	Getty	Midland
Royce Walker	Gulf	Midland
R. E. Dejmal	Mobil	Houston
Boyce Perry	Samedan	Ardmore
Chris Bosecker	Skelly	Midland
Chuck Price	Sun	Midland
Oran L. Hall	Texas Pacific	Midland
Hank Swartz	Shell	Houston

PROPOSED NORTH HOBBS UNIT
OOIP AND EXPECTED RECOVERIES (STB)
(Estimate of 1/13/77)

ZONE	OOIP	PRIMARY RECOVERY			SECONDARY RECOVERY	
		Cumulative Oil @ 9/1/76	Primary Res. 9/1/76	Ultimate Oil Recovery	RESERVES	Second Primar
Grayburg	61,566,390	10,100,000 (16.4%)	1,400,000 (2.3%)	11,500,000 (18.7%)	6,560,000 (10.7%)	0.5
S.A. I	171,623,081	82,480,292 (48.1%)	21,672,007 (12.6%)	104,152,299 (60.7%)	0	0
S.A. II	149,974,258	34,124,188 (22.8%)	7,807,152 (5.2%)	41,931,340 (28.0%)	18,000,000 (12.0%)	0.43
S.A. III_U	155,394,214	31,397,380 (20.2%)	6,307,708 (4.1%)	37,705,088 (24.3%)	24,400,000 (15.7%)	0.65
S.A. III_L	39,720,060	8,025,433 (20.2%)	1,612,303 (4.1%)	9,637,736 (24.3%)	6,240,000 (15.7%)	0.65
Subtotal S.A. II, III_U, III_L	345,088,532	73,547,001 (21.3%)	15,727,163 (4.6%)	89,274,164 (25.9%)	48,640,000 (14.1%)	0.54
UNIT TOTALS	578,278,003	166,127,293 (28.7%)	38,799,170 (6.7%)	204,926,463 (35.4%)	55,200,000 (9.6%)	0.27

Minutes of the Technical Committee Meeting
Proposed North Hobbs Unit
March 2, 1977

Twelve companies, which operate 83 percent of the current producers, were represented. (Attendance list is attached.) The main objectives of this meeting were to finalize the primary reserve determinations and to review the capital investment requirements and economics of waterflood operations.

The first agenda item was to finalize tract primary reserves for wells producing from the upper San Andres stringers and/or the Grayburg reservoirs. The last estimates had been made on November 11, 1976 and were based on production through August 31, 1976. The production performance graphs have now been updated to include the results through December 31, 1976. The oil reserves for the proposed North Unit area (as of January 1, 1977) were determined to be 1,485,275 barrels and are summarized by tracts on an attachment.

The next agenda item was to determine the method to be used to allocate the oil production from the last four months of 1976 in order to update tract primary reserves computed for wells producing from the main San Andres reservoirs. These reserves have been determined (as of September 1, 1976) with the use of a reservoir simulation program. (Please refer to the minutes of the Technical Committee meeting held on November 17 and 18, 1976.) Two alternatives were considered: 1) Use of computer program predict mode to estimate the zonal allocation of actual production for the last four months of 1976 on a unit basis and determine the tract zonal reserves by applying the same tract percentages previously determined or 2) use the computer program predict mode to estimate the zonal allocation of actual production for the last four months of 1976 on a tract basis and determine the tract zonal reserves by subtracting those values from the previously determined tract reserves (as of September 1, 1976). The latter method was selected; this may result in a slight change in the ratio of tract reserves to unit reserves that were previously furnished to you. Copies of the revised tract values will be mailed to you as soon as available.

A discussion was then initiated about an alternative solution to the computed reserves for the Getty (Skelly) Turner lease located in Section 34. The problem is described in the minutes of the Technical Committee meetings held on November 4, 1976, and November 17 and 18, 1976. The following motion was made by Samedan and seconded by Shell: The Technical Committee accepts the remaining primary oil reserves for the main San Andres zones as determined by the reservoir simulation run of November 8, 1976 (summary of equities transmitted to all Operators with letter dated November 10, 1976) except for a manual adjustment to the zone I primary oil reserves for five direct offset wells (Getty-Skelly Turner 1 (34F) and 2 (34C), Shell Turner 1 (34G) and 2 (34B) and Shell Sanger 2 (27N)) to correct an anomaly in misalingment of the simulator grid in that zone. The remaining zone I primary oil reserves (as of September 1, 1976) for each of those five wells is 416,437 barrels. The results of the vote were:

FOR (10): Amerada, Amoco, Exxon, Getty, Gulf, Mobil, Samedan, Sun, Texas Pacific and Shell
OPPOSED (1): Continental
PASS (1): Cities Service

The primary reserve parameter will therefore reflect this adjustment.

The next agenda item was a review of the economics of secondary recovery operations for this unit. A total capital investment of $24,600,000 will be required to waterflood the Grayburg and San Andres Zones II_L, III_U and III_L reservoirs. This amount includes $11,000,000 for centralized production facilities with fourteen satellite stations, $7,000,000 for the injection system and $600,000 for the source water gathering system. The Grayburg flood design is based on an 80 - acre five - spot pattern consisting of 40 injectors and 44 producers. One injector will be drilled. The expected waterflood recovery of 7.6 million barrels (6.6 secondary and 1.0 primary) should be produced in 36 years with a peak production rate of 1298 barrels of oil per day reached after 10 years of water injection. The San Andres flood design is based on a modified nine - spot injection pattern with an approximate spacing of 160 acres and consisting of 27-1/2 injectors (60 well zones) and 116 producers (192 well zones). Five unit producers and 14-1/2 unit injectors will be drilled which includes five (2-1/2 unit) injectors drilled along the common boundary with the Amoco-operated South Hobbs Unit. The expected waterflood recovery of 61.9 million barrels (48.6 secondary and 13.3 primary) should be obtained in 35 years with the peak oil production rate of 9280 barrels of oil per day occurring 8 years after the start of water injection and remaining flat for seven years. The oil and water production rates and volumes and water injection requirements are based on reservoir simulation studies on both the Grayburg and San Andres Zone III_L which have been previously reported. Copies of detailed cost estimates (captial and operating costs) and production functions were handed out to all in attendance and are available on request to those not attending.

The differential profitability analysis for the combined Grayburg - San Andres secondary oil additions of 55.2 million barrels yeild an undeferred before tax profit of $334 million (1359 percent) and a before tax profit, discounted at 10 percent, of $80 million (350 percent) based on constant dollars. Payout occurs in 6 years and the before tax earning power is 28 percent.

Attendance List
Technical Committee Meeting of March 2, 197[illegible]

Name	Company	Location
K. Y. Kassim	Amerada Hess	Seminole
Paul Kossman	Amoco	Houston
Don Barrett	Cities Service	Midland
C. C. Woodward	Continental	Hobbs
W. E. Nolan	Exxon	Midland
J. E. Eakin	Getty	Midland
C. F. Bosecker	Getty	Midland
R. D. Walker	Gulf	Midland
R. E. Dejmal	Mobil	Houston
Boyce Perry	Samedan	Ardmore
Chuck Price	Sun	Midland
Oran L. Hall	Texas Pacific	Midland
Hank Swartz	Shell	Houston

#17

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

March 8, 1977

Subject: Technical Committe Meeting
Proposed North Hobbs Unit
Lea County, New Mexico

Technical Committee
(Addressee List Attached)

Attached are the minutes of the Technical Committee meeting held in Houston on March 2, 1977.

At this session the Technical Committee updated the primary oil reserve determinations to include production through December 31, 1976. In addition it was agreed to make a manual adjustment to the reserves calculated with the reservoir simulation program for five offsetting wells in Section 27 and 34. The Technical Committee also reviewed the estimates of capital investments requirements and the economics of waterflood operations.

This will probably be the final meeting of the Technical Committee prior to the publication of the Report in April. Attached is copy of the Well Status tabulation which has been updated to reflect the conditions as of January 1, 1977. It would be appreciated if each operator would again review this summary and advise me of any errors.

Yours very truly,

H. J. Swartz

H. J. Swartz, Chairman

HJS:SA

Attachments

UNIT OPERATING AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

UNIT OPERATING AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

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UNIT OPERATING AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

THIS AGREEMENT, entered into as of the 1st day of July, 1978, by the parties who have signed the original of this instrument, a counterpart thereof, or other instrument agreeing to be bound by the provisions hereof;

WITNESSETH:

WHEREAS, the parties hereto as Working Interest Owners have executed, as of the date hereof, an agreement entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico", herein referred to as "Unit Agreement", which among other things, provides for a separate agreement to be entered into by Working Interest Owners to provide for the development and operation of the Unit Area as therein defined;

NOW, THEREFORE, in consideration of the mutual agreements herein set forth, it is agreed as follows:

ARTICLE 1
CONFIRMATION OF UNIT AGREEMENT

1.1 Confirmation of Unit Agreement. The Unit Agreement is hereby confirmed and by reference made a part of this agreement. The definitions in the Unit Agreement are adopted for all purposes of this agreement. If there is any conflict between the Unit Agreement and this agreement, the Unit Agreement shall govern.

1.2 Additional Definitions. For the purpose of this agreement, the following terms and expressions as used herein shall mean:

(a) "Investment Participation" shall mean the sum of .58 Phase II Unit Participation and .42 Phase III Unit Participation.

(b) "Investment Readjustment Date" shall mean the date of termination of Phase II or January 1, 1991, whichever is the earlier date."

ARTICLE 2
EXHIBITS

2.1 Exhibits. The following exhibits are incorporated herein by reference:

2.1.1 Exhibits A, B, C and D of the Unit Agreement.

2.1.2 Exhibit E, attached hereto, is a schedule showing the Tract Participation, the Unit Participation, and the Investment Participation of each Working Interest Owner. Exhibit E, or a revision thereof, shall not be conclusive as to the information therein, except it may be used as showing the Unit Participations of Working Interest Owners for purposes of this agreement until shown to be in error or revised as herein authorized.

2.1.3 Exhibit F, attached hereto, is the Accounting Procedure applicable to Unit Operations. If there is any conflict between this agreement and Exhibit F, this agreement shall govern.

2.1.4 Exhibit G, attached hereto, contains insurance provisions applicable to Unit Operations.

2.1.5 Exhibit H, attached hereto, is a form of Indemnity Agreement required under the provisions of Section 14(c) of the Unit Agreement.

2.2 Revision of Exhibits. Whenever Exhibits A, B or C are revised, Exhibit E shall be revised accordingly and be effective as of the same date. Unit Operator shall also revise Exhibit E from time to time as required to conform to changes in ownership of which Unit Operator has been notified as provided in the Unit Agreement.

2.3 Reference to Exhibits. When reference is made herein to an exhibit, it is to the exhibit as originally attached, or, if revised, to the last revision.

ARTICLE 3
SUPERVISION OF OPERATIONS BY WORKING INTEREST OWNERS

3.1 Overall Supervision. Working Interest Owners shall exercise overall supervision and control of all matters pertaining to Unit Operations pursuant to this agreement and the Unit Agreement. In the exercise of such authority, each Working Interest Owner shall act solely in its own behalf in the capacity of an individual owner and not on behalf of the owners as an entirety.

3.2 Specific Authorities and Duties. The matters with respect to which the Working Interest Owners shall decide and take action shall include, but not be limited to, the following:

3.2.1 Method of Operation. The method of operation, including any type of pressure maintenance, enhanced recovery, or other recovery program to be employed.

3.2.2 Drilling of Wells. The drilling of any well whether for production of Unitized Substances, for use as an injection well, or for other purposes.

3.2.3 Abandonment and Change of Status of Wells. The abandonment of any well or change of status of any well by converting such well for use as an injector or for any purpose other than production of Unitized Substances.

3.2.4. Expenditures. The making of any single expenditure in excess of twenty-five thousand dollars ($25,000); provided that, approval by Working Interest Owners of the drilling, reworking, deepening, or plugging back of any well shall include approval of all necessary expenditures required therefor, and for completing, testing, and equipping the well, including necessary flow lines, separators, and lease tankage.

3.2.5 Disposition of Unit Equipment. The selling or otherwise disposing of any major item of surplus Unit Equipment, if the list price of new equipment similar thereto is seven thousand five hundred dollars ($7,500) or more.

3.2.6. Appearance Before a Court or Regulatory Agency. The designating of a representative to appear before any court or regulatory agency in matters pertaining to Unit Operations; provided, however, that Unit Operator shall act as such representative in the absence of the designation of a different representative by Working Interest Owners, and provided, further, that such designation shall not prevent any Working Interest Owner from appearing in person or from designating another representative in its own behalf.

3.2.7 Audits. The auditing of the accounts of Unit Operator pertaining to Unit Operations hereunder; however, the audits shall

(a) not be conducted more than once each year except upon the resignation or removal of Unit Operator, and

(b) be made upon approval of the owner or owners of a majority of Working Interest other than that of Unit Operator, at the expense of all Working Interest Owners other than Unit Operator, or

(c) be made at the expense of those Working Interest Owners requesting such audit, if owners of less than a majority of Working Interest, other than that of Unit Operator, request such an audit, and

(d) be made upon not less than thirty (30) days' written notice to Unit Operator.

3.2.8 Inventories. The taking of periodic inventories under the terms of Exhibit F.

3.2.9 Technical Services. The authorizing of charges to the joint account for services by consultants or Unit Operator's technical personnel not covered by the overhead charges provided by Exhibit F.

3.2.10 Assignments to Committees. The appointment of committees to study any problems in connection with Unit Operations.

3.2.11 The removal of Unit Operator and the selection of a successor.

3.2.12 The enlargement of the Unit Area.

3.2.13 The adjustment and readjustment of investments.

3.2.14 The termination of the Unit Agreement.

ARTICLE 4
MANNER OF EXERCISING SUPERVISION

4.1 Designation of Representatives. Each Working Interest Owner shall inform Unit Operator in writing of the names and addresses of the representative and alternate who are authorized to represent and bind such Working Interest Owner with respect to Unit Operations. The representative or alternate may be changed from time to time by written notice to Unit Operator.

4.2 Meetings. All meetings of Working Interest Owners shall be called by Unit Operator upon its own motion or at the request of two (2) or more Working Interest Owners having a total voting interest of not less than ten percent (10%). No meeting shall be called on less than fourteen (14) days' advance written notice, with agenda for the meeting attached. Working Interest Owners who attend the meeting may amend items included in the agenda and may act upon an amended item or other items presented at the meeting; provided, however, that no expenditure or commitment for expenditure may be authorized unless it is included in the agenda attached to the notice of the meeting. The representative of Unit Operator shall be chairman of each meeting. The parties hereto may reduce the notice requirement to not less than three (3) days and may waive the requirement for an attached agenda by consent of Working Interest Owners having a combined voting interest not less than that required for an affirmative vote under the provision of Section 4.3.2.

4.3 Voting Procedure. Working Interest Owners shall decide all matters coming before them as follows:

4.3.1 Voting Interest. Each Working Interest Owner shall have a voting interest equal to its Phase II Unit Participation during Phase I and Phase II and equal to its Phase III Unit Participation during Phase III, depending upon which phase is in effect at the time the vote is taken.

4.3.2 Vote Required. Unless otherwise provided herein or in the Unit Agreement, Working Interest Owners shall determine all matters by the affirmative vote of Working Interest Owners have a combined voting interest of at least sixty-five percent (65%); however, should any one Working Interest Owner have more than thirty-five percent (35%) voting interest, its negative vote or failure to vote shall not defeat a motion, and such motion shall pass if approved by Working Interest Owners having a majority voting interest, unless one or more Working Interest Owners having a combined voting interest of at least five percent (5%) likewise vote against the motion or fail to vote.

4.3.3 Vote at Meeting by Nonattending Working Interest Owner. Any Working Interest Owner who is not represented at a meeting may vote by letter or telegram addressed to the representative of the Unit Operator if its vote is received prior to the vote on the item.

4.3.4 Poll Votes. Working Interest Owners may vote on and decide, by letter or telegram, any matter submitted in writing to Working Interest Owners. If no meeting is requested, as provided in Section 4.2, within seven (7) days after a written proposal is sent to Working Interest Owners, the vote taken by letter or telegram shall become final. Unit Operator will give prompt noice of the results of such voting to all Working Interest Owners.

ARTICLE 5
INDIVIDUAL RIGHTS OF WORKING INTEREST OWNERS

5.1 Reservation of Rights. Working Interest Owners severally reserve to themselves all their rights, except as otherwise provided in this agreement and the Unit Agreement.

5.2 Specific Rights. Each Working Interest Owner shall have, among others, the following specific rights:

5.2.1 Access to Unit Area. Access to the Unit Area at all reasonable times to inspect Unit Operations, all wells, and the records and data pertaining thereto.

5.2.2 Reports. The right to receive from Unit Operator, upon written request, copies of all reports to any governmental agency, reports of crude oil runs and stocks, inventory reports, and all other information pertaining to Unit Operations. The cost of gathering and furnishing information not ordinarily furnished by Unit Operator to all Working Interest Owners shall be charged to the Working Interest Owner that requires the information.

ARTICLE 6
UNIT OPERATOR

6.1 Unit Operator. Shell Oil Company is hereby designated as the Unit Operator.

6.2 Resignation or Removal and Selection of Successor. The resignation or removal of Unit Operator and the selection of a successor shall be governed by the provisions of the Unit Agreement.

ARTICLE 7
AUTHORITIES AND DUTIES OF UNIT OPERATOR

7.1 Exclusive Right to Operate Unit. Subject to the provisions of this agreement and to instructions from Working Interest Owners, Unit Operator shall have the exclusive right and be obligated to conduct Unit Operations.

7.2 Workmanlike Conduct. Unit Operator shall conduct Unit Operations in a good and workmanlike manner as would a prudent operator under the same or similar circumstances. Unit Operator shall freely consult with Working Interest Owners and keep them informed of all matters which Unit Operator, in the exercise of its best judgment, considers important. Unit Operator shall not be liable to Working Interest Owners for damages, unless such damages result from its gross negligence or willful misconduct.

7.3 Liens and Encumbrances. Unit Operator shall endeavor to keep the lands, leases and Unit Equipment in the Unit Area free from all liens and encumbrances occasioned by Unit Operations, except the lien and security interest of Unit Operator granted hereunder.

7.4 Employees. The number of employees used by Unit Operator in conducting Unit Operations, their selection, hours of labor, and compensation shall be determined by Unit Operator. Such employees shall be the employees of Unit Operator.

7.5 Records. Unit Operator shall keep correct books, accounts, and records of Unit Operations.

7.6 Reports to Working Interest Owners. Unit Operator shall furnish to Working Interest Owners quarterly reports of Unit Operations or reports a such less-frequent intervals as may be approved by Working Interest Owners.

7.7 Reports to Governmental Authorities. Unit Operator shall make all reports to governmental authorities that it has the duty to make as Unit Operator.

7.8 Engineering and Geological Information. Unit Operator shall furnish to a Working Interest Owner, upon written request, a copy of all logs and other engineering and geological data pertaining to wells drilled for Unit Operations.

7.9 Expenditures. Unit Operator is authorized to make single expenditures not in excess of twenty-five thousand dollars ($25,000) without prior approval of Working Interest Owners; provided that any capital expenditure in excess of five thousand dollars ($5,000) will be described in an informational authority for expenditure furnished to Working Interest Owners, except individual Working Interest Owners declining to receive such information. If an emergency occurs, Unit Operator may immediately make or incur such expenditures as in its opinion are required to deal with the emergency. Unit Operator shall report to Working Interest Owners, as promptly as possible, the nature of the emergency and the action taken.

7.10 Wells Drilled by Unit Operator. All wells drilled by Unit Operator shall be on a competitive bid basis. Unit Operator may employ its own tools and equipment under terms and conditions approved by Working Interest Owners.

7.11 Border Agreements. Unit Operator may, after approval by Working Interest Owners, enter into border agreements with respect to lands adjacent to the Unit Area for the purpose of coordinating operations.

ARTICLE 8
TAXES

8.1 Ad Valorem Taxes. Beginning with the first calendar year commencing after the Effective Date hereof, Unit Operator shall make and file all necessary ad valorem tax renditions and returns with the proper taxing authorities with respect to all property of each Working Interest Owner used or held by Unit Operator for Unit Operations. Unit Operator shall settle assessments arising therefrom. All such ad valorem taxes shall be paid by Unit Operator and charged to the joint account; however, if the interest of a Working Interest Owner is subject to a separately assessed overriding royalty interest, production payment, or other interest in excess of a one-eighth (1/8) royalty, such Working Interest Owner shall notify Unit Operator of such interest prior to the rendition date and shall be given credit for the reduction in taxes paid resulting therefrom.

8.2 Other Taxes. Each Working Interest Owner shall pay or cause to be paid all production, severance, gathering, and other taxes imposed upon or with respect to the production or handling of its share of Unitized Substances.

ARTICLE 9
INSURANCE

9.1 Insurance. Unit Operator, with respect to Unit Operations, shall:

9.1.1 Comply with the Workmen's Compensation Law of the State of New Mexico.

9.1.2 Provide employers' liability insurance with a limit of $100,000.

9.1.3. Provide other insurance as set forth in Exhibit G.

ARTICLE 10
ADJUSTMENT OF INVESTMENTS

10.1 Personal Property Taken Over. Upon the Effective Date hereof, Working Interest Owners shall deliver to Unit Operator the following:

10.1.1 Wells and Casing. All wells completed in the Unitized Formation, together with all casing therein.

10.1.2 Well and Lease Equipment. The tubing in each such well, the wellhead connections thereon, and all other well, lease and operating equipment used in the operation of such wells which Working Interest Owners determine is necessary or desirable for conducting Unit Operations. Working Interest Owners shall make such determination as soon as practicable after the Effective Date hereof, and all of such property that is determined to be surplus shall be returned as promptly as possible to the Working Interest Owners who delivered same to Unit Operator. Property determined by Working Interest Owners to be surplus shall not be considered to have been taken over under this agreement.

10.1.3 Condition of Wells. All wells, including the casing therein, shall be delivered to Unit Operator in reasonably good physical condition capable of being used for Unit Operations. If within one hundred and eighty (180) days after the Effective Date hereof (a) any such well is determined by the Working Interest Owners not to have been in reasonably good physical condition on said Effective Date, or (b) any casing failure or leak is discovered by Unit Operator in any such well, whether such casing failure or leak developed before or after the Effective Date hereof, the Working Interest Owner who contributed such well shall be liable to the other Working Interest Owners for liquidated damages in an amount, measured by the cost to Working Interest Owners of repairing such well or drilling a replacement well, not to exceed fifty thousand dollars ($50,000), provided that any amount in excess of fifty thousand dollars ($50,000) shall be treated as any other item of Unit Expense and charged to the joint account.

10.1.4 Records. A copy of all production and well records that pertain to such wells.

10.2 Inventory and Evaluation of Personal Property. Working Interest Owners shall at Unit Expense inventory and evaluate the personal property taken over under Section 10.1.2, except flowlines, and shall inventory the

casing taken over under Section 10.1.1, but casing shall be given no value. Such inventories shall include and be limited to those items of equipment indicated to be controllable in the most recent edition of the "Materials Classification Manual" prepared by the Council of Petroleum Accountants Societies of North America, except that, upon determination of Working Interest Owners, items considered noncontrollable may be included in the inventory in order to insure a more equitable adjustment of investment. All noncontrollable items of well and lease equipment installed within the Unit Area that are required in Unit Operations, although excluded from the inventories, shall nevertheless be taken over by the Unit Operator. Immediately following completion of such inventory, the material and equipment taken over under Section 10.1.2 shall be priced at a realistic value as determined by the Working Interest Owners, which pricing shall be performed under the supervision of, by the personnel of, and in the offices of the Unit Operator, with other Working Interest Owners furnishing such additional pricing help as may be available and necessary.

10.3 Investment Adjustment. Upon approval by Working Interest Owners of the inventory and evaluation, investments shall be adjusted as follows:

10.3.1 Initial Adjustment of Investments. Each Working Interest Owner shall be credited with the value, as determined in accordance with Section 10.2 above, of its interest in all personal property taken over by Unit Operator under Section 10.1.2 and charged with an amount equal to that obtained by multiplying the total value of all such personal property taken over by Unit Operator under Section 10.1.2 by such Working Interest Owner's Investment Participation, as shown on Exhibit E. If the charge against any Working Interest Owner is greater than the amount credited to such Working Interest Owner, the resulting net charge shall be paid and in all other respects be treated as any other item of Unit Expense chargeable against such Working Interest Owner. If the credit to any Working Interest Owner is greater than the amount charged against such Working Interest Owner, the resulting net credit shall be paid to such Working Interest Owner by Unit Operator out of funds received by it in settlement of the net charges described above.

10.3.2 Readjustments of Investments. Effective as of the Investment Readjustment Date, the investment account of the Working Interest Owners hereunder shall be readjusted on the basis of their respective Phase III Unit Participations, as shown on Exhibit E. For the purposes of such readjustment, each Working Interest Owner shall be (1) credited for its interest in the adjusted value of all personal property and facilities taken over or otherwise acquired by the Unit Operator pursuant to this agreement prior to the Investment Readjustment Date, and (2) charged with an amount equal to that obtained by multiplying the same adjusted value of personal property and facilities by such Working Interest Owner's Phase III Unit Participation. The adjusted value of all personal property and facilities for the purposes of this Section 10.3.2 shall be determined as follows:

(a) Value personal property and facilities initially taken over by Unit Operator on the same basis as that used when such personal property and facilities were taken over.

(b) Value all other investment items (controllable and noncontrollable materials and construction costs) acquired prior to the Investment Readjustment Date, including well casing subsequently purchased and installed, injection well conversion costs, and tank battery consolidation costs, on the basis of cost to the joint account.

(c) Add (a) and (b) together and deduct the value of all items of investment retired prior to the Investment Readjustment Date on the same basis that such items were originally charged.

Each Working Interest Owner shall be charged or credited with the net cash amount necessary to effect such readjustment of the investment account, and such charges and credits shall be settled in the same manner as the charges and credits referred to in Section 10.3.1.

10.4 General Facilities and Abandoned Installations. The acquisition of warehouses, warehouse stocks, lease houses, camps, facility systems, and office buildings necessary for Unit Operations shall be by negotiation by the owners thereof and Unit Operator, subject to the approval of Working Interest Owners. There shall be no adjustment for lease roads or appurtenances thereto.

10.5 Exchange of Interest in and Ownership of Personal Property and Facilities. Each Working Interest Owner hereby exchanges, and agrees to exchange, its interest in all of the personal property and facilities described in Section 10.1.2 above for its proportionate interest, as shown for Investment Participation on Exhibit E during the time prior to the Investment Readjustment Date and as shown for Phase III Unit Participation on Exhibit E from and after the Investment Readjustment Date in all such personal property and facilities described in Section 10.1.2. Each Working Interest Owner, individually, shall by virtue hereof own an undivided interest in all personal property and facilities taken over or otherwise acquired by Unit Operator pursuant to this agreement.

ARTICLE 11
UNIT EXPENSE

11.1 Basis of Charge to Working Interest Owners. Unit Operator initially shall pay all Unit Expense. Each Working Interest Owner shall reimburse Unit Operator for its share of Unit Expense on the basis provided in Sections 11.1.1 and 11.1.2 below. All charges, credits, and accounting for Unit Expense shall be in accordance with Exhibit F.

11.1.1. Operating Expense. Operating expense shall be shared and borne by Working Interest Owners in proportion to Phase I, Phase II or Phase III Unit Participation, whichever phase is in effect at the time such expense was incurred.

11.1.2. Investment Cost. The cost of investment items (as described in Section 10.3.2 (b) above) incurred prior to the Investment Readjustment Date shall be shared and borne by Working Interest Owners in proportion to Investment Participation. The cost of such investment items incurred after the Investment Readjustment Date shall be shared and borne by Working Interest Owners in proportion to Phase III Unit Participation.

11.2 Budgets. Before or as soon as practical after the Effective Date hereof, Unit Operator shall prepare a budget of estimated Unit Expense for the remainder of the calendar year, and, on or before the first day of each August thereafter, shall prepare such a budget for the ensuing calendar year. A budget shall set forth the estimated Unit Expense by quarterly periods. Budgets shall be estimates only, and shall be adjusted or corrected by Working Interest Owners and Unit Operator whenever an adjustment or correction is proper. A copy of each budget and adjusted budget shall promptly be furnished to each Working Interest Owner.

11.3 Advance Billings. Unit Operator shall have the right, without prejudice to other rights or remedies, to require Working Interest Owners to advance their respective shares of estimated Unit Expense by submitting to Working Interest Owners, on or before the 15th day of any month, an itemized estimate thereof for the succeeding month, with a request for payment in advance. Within fifteen (15) days thereafter, each Working Interest Owner shall pay to Unit Operator its share of such estimate. Adjustments between estimated and actual Unit Expense shall be made by Unit Operator at the close of each calendar month, and the accounts of Working Interest Owners shall be adjusted accordingly.

11.4 Commingling of Funds. Funds received by Unit Operator under this agreement need not be segregated or maintained by it as a separate fund, but may be commingled with its own funds.

11.5 Liens and Security Interest of Unit Operator. Each Working Interest Owner grants to Unit Operator and Unit Operator shall have as to each Working Interest Owner a lien upon its Oil and Gas Rights in each Tract, and a security interest in its share of Unitized Substances when extracted, and its interest in all Unit Equipment, to secure payment of its share of Unit Expense, together with interest thereon at the rate of twelve percent (12%) per annum or the maximum contract rate permitted by applicable usury laws, whichever is the lesser; provided, however, that notwithstanding anything in this agreement to the contrary, said lien shall not be enforceable by foreclosure and sale of the Oil and Gas Rights of any Working Interest Owner which is not a signatory party to this agreement.

To the extent that Unit Operator has a security interest under the Uniform Commercial Code of the State of New Mexico, Unit Operator shall be entitled to exercise the rights and remedies of a secured party under the Code. The bringing of a suit and the obtaining of judgment by Unit Operator for the secured indebtedness shall not be deemed an election of remedies or otherwise affect the lien rights or security interest as security for the payment thereof. In addition, upon default by any Working Interest Owner in the payment of its share of Unit Expense, Unit Operator shall have the right, without prejudice to other rights or remedies, to collect from the purchaser the proceeds from the sale of such Working Interest Owner's share of Unitized Substances until the amount owed by such Working Interest Owner, plus interest as aforesaid, has been paid. Each purchaser shall be entitled to rely upon Unit Operator's written statement concerning the amount of any default. Unit Operator hereby grants to the other Working Interest Owners a similar lien upon all of Unit Operator's right, title and interest as a Working Interest Owner hereunder as security for payment of any and all amounts that may become due and owing hereunder by Unit Operator to any of such other Working Interest Owners.

11.6 Unpaid Unit Expense. If any Working Interest Owner fails to pay its share of Unit Expense within sixty (60) days after rendition of a statement therefor by Unit Operator, each Working Interest Owner which is a signatory party to this agreement shall, upon request by Unit Operator, pay its proportionate part of the unpaid share of Unit Expense of the non-paying Working Interest Owner. Working Interest Owners that pay the share of Unit Expense of a non-paying Working Interest Owner shall be reimbursed by the Unit Operator for the amount so paid, plus any interest collected thereon, upon receipt by Unit Operator of any past due amount collected from or otherwise received for the account of the non-paying Working Interest Owner. Each Working Interest Owner so paying a non-paying Working Interest Owner's share of Unit Expense shall be subrogated to the lien and other rights herein granted Unit Operator, and each such Working Interest Owner, in proportion to the amounts so paid and not reimbursed, shall have and be entitled to exercise the voting interest of the non-paying Working Interest Owner.

11.7 Carved-out Interest. If any Working Interest Owner shall, after becoming bound by this agreement, create an overriding royalty, production payment, net proceeds interest, carried interest, or any other interest out of its Working Interest, such carved-out interest shall be subject to the terms and provisions of this agreement, specifically including, but without limitation, Section 11.5 hereof entitled "Lien and Security Interest of Unit Operator". If the Working Interest Owner creating such carved-out interest (a) fails to pay any Unit Expense chargeable to such Working Interest Owner under this agreement, and the production of Unitized Substances accruing to the credit of such Working Interest Owner is insufficient for that purpose, or (b) withdraws from this agreement under the terms and provisions of Article 17 hereof, the carved-out interest

shall be chargeable with a pro rata portion of all Unit Expense incurred hereunder, the same as though such carved-out interest were a Working Interest, and Unit Operator shall have the right to enforce against such carved-out interest the lien and all other rights granted in Section 11.5 for the purpose of collecting the Unit Expense chargeable to the carved-out interest.

11.8 Uncommitted Royalty. Should an owner of a Royalty Interest in any Tract fail to become a party to the Unit Agreement, and, as a result thereof, the actual Royalty Interest payments with respect to such Tract are more or less than the Royalty Interest payments computed on the basis of the Unitized Substances that are allocated to such Tract under the Unit Agreement, the difference shall be borne by or inure to the benefit of Working Interest Owners, in proportion to their respective Unit Participations at the time the Unitized Substances were produced; however, the difference to be borne by or inure to the benefit of Working Interest Owners shall not exceed an amount computed on the basis of one-eighth (1/8) of the difference between the Unitized Substances allocated to the Tract and the Unitized Substances produced from the Tract. Such adjustments shall be made by charges and credits to the joint account.

11.9 Rentals. The Working Interest Owners in each Tract shall pay and bear all rentals, minimum royalty, advance rentals or delay rentals due under the lease thereon and shall concurrently submit to the Unit Operator evidence of payment.

ARTICLE 12
NONUNITIZED FORMATIONS

12.1 Right to Operate. Any Working Interest Owner that now has or hereafter acquires the right to drill for and produce oil, gas, or other minerals, from a formation underlying the Unit Area other than the Unitized Formation, shall have the right to do so notwithstanding this agreement or the Unit Agreement. In exercising the right, however, the Working Interest Owner shall exercise care to prevent unreasonable interference with Unit Operations. No Working Interest Owner shall produce Unitized Substances through any well drilled or operated by it. If any Working Interest Owner drills any well into or through the Unitized Formation, the Unitized Formation shall be protected in a manner satisfactory to Working Interest Owners so that production of Unitized Substances will not be adversely affected.

12.2 Multiple Completions. No well now or hereafter completed in the Unitized Formation shall ever be completed as a multiple completion with the Unitized Formation and any other formation unless such multiple completion and the subsequent handling of the multiple completion is approved by Working Interest Owners in accordance with the voting procedure set out in Section 4.3.2 of this agreement.

ARTICLE 13
TITLES

13.1 Warranty and Indemnity. Each Working Interest Owner represents and warrants that it is the owner of the respective Working Interests set forth opposite its name in Exhibit B, and agrees to indemnify and hold harmless the other Working Interest Owners from any loss due to failure, in whole or in part, of its title to any such interest, except failure of title arising because of Unit Operations; however, such indemnity and any liability for breach of warranty shall be limited to an amount equal to the net value that has been received from the sale or receipt of Unitized Substances attributed to the interest as to which title failed. Each failure of title will be deemed to be effective, insofar as this agreement is concerned, as of 7:00 a.m. on the first day of the calendar month in which such failure is finally determined, and there shall be no retroactive adjustment of Unit Expense, or retroactive allocation of Unitized Substances or the proceeds therefrom, as a result of a title failure.

13.2 Failure Because of Unit Operations. The failure of title to any Working Interest in any Tract because of Unit Operations, including non-production from such Tract, shall not change the Unit Participation of the Working Interest Owner whose title failed in relation to the Unit Participation of the other Working Interest Owners at the time of the title failure.

ARTICLE 14
LIABILITY, CLAIMS, AND SUITS

14.1 Individual Liability. The duties, obligations, and liabilities of Working Interest Owners shall be several and not joint or collective; and nothing herein contained shall ever be construed as creating a partnership of any kind, joint venture, association, or trust among Working Interest Owners.

14.2 Settlements. Unit Operator may settle any single damage claim or suit involving Unit Operations if the expenditure does not exceed seven thousand five hundred dollars ($7,500.00) and if the payment is in complete settlement of such claim or suit. If the amount required for settlement exceeds the above specified amount, Working Interest Owners shall assume and take over the further handling of the claim or suit unless such authority is expressly delegated to Unit Operator. All costs and expense of handling, settling, or otherwise discharging such claim or suit shall be an item of Unit Expense. If a claim is made against any Working Interest Owner or if any Working Interest Owner is sued on account of any matter arising from Unit Operations over which such Working Interest Owner individually has no control because of the rights given Working Interest Owners and Unit Operator by this agreement and the Unit Agreement, the Working Interest Owner shall immediately notify the Unit Operator, and the claim or suit shall be treated as any other claim or suit involving Unit Operations.

ARTICLE 15
INTERNAL REVENUE PROVISION

15.1 Internal Revenue Provision. Notwithstanding any provisions herein that the rights and liabilities of the parties hereunder are several and not joint or collective, or that this agreement and operations hereunder shall not constitute a partnership, if for Federal income tax purposes this agreement and the operations hereunder are regarded as a partnership, then each of the parties hereto elects to be excluded from the application of all of the provisions of Subchapter K, Chapter 1, Subtitle A, of the Internal Revenue Code of 1954, as permitted and authorized by Section 761 of the Code and the regulations promulgated hereunder. Each party hereto agrees not to give any notices or take any other action inconsistent with the election made hereby. If any present or future income tax laws of the state or states in which the Unit Area is located, or any future income tax law of the United States, contain provisions similar to those in Subchapter K, Chapter 1, Subtitle A, of the Internal Revenue Code of 1954, under which an election similar to that provided by Section 761 of the Code is permitted, each of the parties agree to make such election as may be permitted or required by such laws. In making this election, each of the parties states that the income derived by such party from the operations under this agreement can be adequately determined without the computation of partnership taxable income.

ARTICLE 16
NOTICES

16.1 Notices. All notices required hereunder shall be in writing and shall be deemed to have been properly served when sent by mail or telegram to the address of the representative of each Working Interest Owner as furnished to Unit Operator in accordance with Article 4.

ARTICLE 17
WITHDRAWAL OF WORKING INTEREST OWNER

17.1 Withdrawal. A Working Interest Owner may withdraw from this Agreement by transferring, without warranty of title either express or implied, to the Working Interest Owners who do not desire to withdraw all its Oil and Gas Rights, exclusive of Royalty Interests, together with its interest in all Unit Equipment and in all wells used in Unit Operations, provided that such transfer shall not relieve such Working Interest Owner from any obligation or liability incurred prior to the first day of the month following receipt by Unit Operator of such transfer, and further provided that each of the non-transferring Working Interest Owners shall have the option to acquire a transferred interest and shall indicate such election by notifying the Unit Operator in writing within thirty (30) days of notice of withdrawal. The delivery of the transfer shall be made to Unit Operator for the transferees. The transferred interest shall be owned by the transferees in proportion to their respective Unit Participations. The

transferees, in proportion to the respective interests so acquired, shall pay the transferor for its interest in Unit Equipment, the salvage value thereof less its share of the estimated cost of salvaging same and of plugging and abandoning all wells then being used or held for Unit Operations, as determined by Working Interest Owners. In the event such withdrawing owner's interest in the aforesaid salvage value is less than such owner's share of such estimated costs, the withdrawing owner, as a condition precedent to withdrawal, shall pay the Unit Operator, for the benefit of Working Interest Owners succeeding to its interest, a sum equal to the deficiency. Within sixty (60) days after receiving delivery of the transfer, Unit Operator shall render a final statement to the withdrawing owner for its share of Unit Expense, including any deficiency in salvage value as determined by Working Interest Owners, incurred as of the first day of the month following the date of receipt of the transfer. Provided all Unit Expense, including any deficiency hereunder, due from the withdrawing owner has been paid in full within thirty (30) days after the rendering of such final statement by the Unit Operator, withdrawing owner shall be relieved from all further obligations and liabilities hereunder and under the Unit Agreement, and the rights of the withdrawing Working Interest Owner hereunder and under the Unit Agreement shall cease insofar as they existed by virtue of the interest transferred.

17.2 Limitation on Withdrawal. Notwithstanding anything set forth in Section 17.1, Working Interest Owners may refuse to permit the withdrawal of a Working Interest Owner if its Working Interest is burdened by any royalties, overriding royalties, production payments, net proceeds interest, carried interest, or any other interest created out of the Working Interest in excess of one-eighth (1/8) lessor's royalty, unless other Working Interest Owners willing to accept the assignment agree to accept the Working Interest subject to such burdens.

ARTICLE 18
ABANDONMENT OF WELLS

18.1 Rights of Former Owners. If Working Interest Owners decide to abandon permanently any well within the Unit Area prior to termination of the Unit Agreement, Unit Operator shall give written notice thereof to the Working Interest Owners of the Tract on which the well is located, and they shall have the option for a period of ninety (90) days after the sending of such notice to notify Unit Operator in writing of their election to take over and own the well. Within thirty (30) days after the Working Interest Owners of the Tract have notified Unit Operator of their election to take over the well, they shall pay Unit Operator, for credit to the joint account, the amount estimated by Working Interest Owners to be the net salvage value, as determined by Working Interest Owners, of the casing and equipment in and on the well up to and including the wellhead equipment, except the casing therein if contributed by such Working Interest Owners under Section 10.1.1. The Working Interest Owners of the Tract, by taking

over the well, agree to seal off effectively and protect the Unitized Formation, and upon abandonment to plug the well in compliance with applicable laws and regulations.

18.2 Plugging. If the Working Interest Owners of a Tract do not elect to take over a well located within the Unit Area that is proposed for abandonment, Unit Operator shall at Unit Expense plug and abandon the well in compliance with applicable laws and regulations.

ARTICLE 19
EFFECTIVE DATE AND TERM

19.1 Effective Date. This agreement shall become effective when the Unit Agreement becomes effective.

19.2 Term. This agreement shall continue in effect so long as the Unit Agreement remains in effect, and thereafter until (a) all unit wells have been plugged and abandoned or turned over to Working Interest Owners in accordance with Article 20, (b) all Unit Equipment and real property acquired for the joint account have been disposed of by Unit Operator in accordance with instructions of Working Interest Owners, and (c) there has been a final accounting.

ARTICLE 20
ABANDONMENT OF OPERATIONS

20.1 Termination. Upon termination of the Unit Agreement, the following will occur:

20.1.1 Oil and Gas Rights. Oil and Gas Rights in and to each separate Tract shall no longer be affected by this agreement, and thereafter the parties shall be governed by the terms and provisions of the leases, contracts, and other instruments affecting the separate Tracts.

20.1.2 Right to Operate. Working Interest Owners of any Tract that desire to take over and continue to operate wells located thereon may do so by paying Unit Operator, for credit to the joint account, the amount estimated by Working Interest Owners to be the net salvage value, as determined by Working Interest Owners, of the casing and equipment up to and including the wellhead equipment in and on the wells taken over, except the casing therein if contributed by such Working Interest Owners under Section 10.1.1, and by agreeing to plug properly each well at such time as it is abandoned.

20.1.3 Salvaging Wells: Unit Operator shall salvage as much of the casing and equipment in or on wells not taken over by Working

Interest Owners of separate Tracts as can economically and reasonably be salvaged, and shall cause the wells to be plugged and abandoned in compliance with applicable laws and regulations.

20.1.4 Cost of Abandonment. The cost of abandonment of Unit Operations shall be Unit Expense.

20.1.5 Distribution of Assets. Working Interest Owners shall share in the distribution of Unit Equipment, or the proceeds thereof, in the same proportion as then applicable to the sharing of investment costs.

ARTICLE 21
EXECUTION

21.1 Original, Counterpart, or Other Instrument. An owner of a Working Interest may become a party to this agreement by signing the original of this instrument, a counterpart thereof, or other instrument agreeing to be bound by the provisions hereof. The signing of any such instrument shall have the same effect as if all the parties had signed the same instrument.

ARTICLE 22
SUCCESSORS AND ASSIGNS

22.1 Successors and Assigns. This agreement shall extend to, be binding upon, and inure to the benefit of the parties hereto and their respective heirs, devisees, legal representatives, successors, and assigns, and shall constitute a covenant running with the lands, leases, and interests covered hereby.

IN WITNESS WHEREOF, the parties hereto have executed this agreement on the dates opposite their respective signatures.

SHELL OIL COMPANY
Unit Operator and Working Interest Owner

Date: July 31, 1978

By: Robert L. Avary
Attorney in Fact
ROBERT L. AVARY
P. O. Box 991
Houston, Texas 77001

STATE OF TEXAS)
)
COUNTY OF HARRIS)

The foregoing instrument was acknowledged before me this 31st day of July, 1978, by ROBERT L. AVARY, Attorney in Fact for SHELL OIL COMPANY, a Delaware corporation, on behalf of said corporation.

My Commission expires:

BELINDA ROEBER
Notary Public in and for Harris County, Texas
My Commission Expires July 21, 1979

Belinda Roeber
Notary Public in and for
Harris County, Texas

EXHIBIT E
ATTACHED TO UNIT OPERATING AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

UNIT PARTICIPATION AND INVESTMENT PARTICIPATION

Tract No.	Working Interest Owner	Working Interest In Tract	Unit Participation (By Tracts) Phase I	Phase II	Phase III	Investment Participation* (By Tracts)
1	Getty Oil Company	100.00000	0.04166	0.03449	0.13978	0.07871
2	Amerada Hess Corporation	100.00000	0.04372	0.03496	0.20696	0.10720
3	Gulf Oil Corporation	100.00000	0.03122	0.02643	0.08361	0.05045
4	Texas Pacific Oil Co., Inc.	100.00000	0.11473	0.10166	0.29162	0.18144
5	Ada A. Anderson	11.71875	0.00629	0.00396	0.02317	0.01203
	W. D. Anderson & Sons	23.43750	0.01257	0.00793	0.04633	0.02405
	Ada A. Anderson, Paul Donald Anderson & Payton V. Anderson, Executors of the Estate of Warren D. Anderson	11.71875	0.00629	0.00396	0.02317	0.01203
	J. M. Armstrong	23.43750	0.01257	0.00793	0.04633	0.02406
	Russell G. Estes d/b/a Estes Engineering Co.	6.25000	0.00335	0.00211	0.01236	0.00641
	W. A. Yeager	23.43750	0.01257	0.00793	0.04633	0.02406
		100.00000	0.05364	0.03382	0.19769	0.10264
6	Continental Oil Company	100.00000	0.05157	0.03087	1.35192	0.58571
7	Shell Oil Company	100.00000	0.33855	0.28554	2.37454	1.16292
8	Amerada Hess Corporation	100.00000	0.00000	0.00000	2.11560	0.88855

EXHIBIT E (CONT'D)

Tract No.	Working Interest Owner	Working Interest Tract	Unit Participation (By Tracts) Phase I	Phase II	Phase III	Investment Participation* (By Tracts)
9	Gulf Oil Corporation	100.00000	0.26552	0.20781	1.29435	0.66416
10A	Howell Spear	1.17190	0.00049	0.00042	0.00042	0.00043
	Ellie Sims Spear	1.17190	0.00049	0.00042	0.00042	0.00043
	J. N. Dunlavey	4.68750	0.00194	0.00171	0.00168	0.00169
	First Roswell Company	9.37500	0.00388	0.00341	0.00335	0.00339
	Getty Oil Company	25.00000	0.01034	0.00910	0.00894	0.00903
	George P. Laflin	4.68750	0.00194	0.00171	0.00168	0.00169
	Kenneth D. McPeters	7.03130	0.00291	0.00256	0.00251	0.00254
	Robert Martin Moran	28.12490	0.01164	0.01024	0.01005	0.01016
	Moranco	9.37500	0.00388	0.00341	0.00335	0.00339
	Loyd Whitley	4.68750	0.00194	0.00171	0.00168	0.00169
	A. T. Williamson	4.68750	0.00194	0.00171	0.00168	0.00169
		100.00000	0.04139	0.03640	0.03576	0.03613
10B	Getty Oil Company	100.00000	0.00000	0.00000	0.00504	0.00212
11	Chevron U.S.A., Inc.	100.00000	0.00000	0.00000	0.07277	0.03056
12	Getty Oil Company	100.00000	0.02525	0.02093	0.10735	0.05723
13	Del-Lea, Inc.	100.00000	0.08746	0.08048	0.03529	0.06150
14	Kenneth Noel Headley	12.50000	0.02166	0.02216	0.00227	0.01381
	Two States Oil Company	37.50000	0.06498	0.06649	0.00682	0.04143
	The Wiser Oil Company	50.00000	0.08663	0.08865	0.00910	0.05523
		100.00000	0.17327	0.17730	0.01819	0.11047
15	Mary Daniel Conrad	6.25000	0.02408	0.02508	0.00196	0.01537
	Herman R. Crile, Sr., Trustee of Herman R. Crile, Sr.	9.37500	0.03613	0.03762	0.00294	0.02305
	Kenneth Noel Headley	9.37500	0.03612	0.03761	0.00294	0.02306
	Peter Hurd	6.25000	0.02408	0.02508	0.00196	0.01537
	Ruby Wanda Conrad Judson	1.25000	0.00482	0.00502	0.00039	0.00307
	Kathryn Louise Conrad McCarthy	1.25000	0.00482	0.00502	0.00039	0.00307
	Nathlyn Ione Conrad Murdoch	1.25000	0.00482	0.00502	0.00039	0.00307

EXHIBIT E (CONT'D)

Tract No.	Working Interest Owner	Working Interest In Tract	Unit Participation (By Tracts) Phase I	Phase II	Phase III	Investment Participation* (By Tracts)
15	Frances I. Conrad Rose	1.25000	0.00482	0.00502	0.00039	0.00307
	Bettye Conrad Treadaway	1.25000	0.00482	0.00502	0.00039	0.00307
	The Wiser Oil Company	50.00000	0.19267	0.20062	0.01567	0.12295
	Dr. Henry Yeager, Jr., in care of Trust Oil Department Trust Services, First National Bank in Dallas	4.06746	0.01567	0.01632	0.00127	0.01000
	Ruth Anne Yeager	3.02580	0.01166	0.01214	0.00095	0.00744
	Ruth Peeler Yeager, Henry Yeager, Jr., & First National Bank in Dallas, Joint Trustees of Ruth Anne Yeager Trust No. 2	1.04167	0.00401	0.00418	0.00033	0.00256
	Mrs. Ruth Peeler Yeager in care of Trust Oil Department Trust Services, First National Bank in Dallas	4.36507	0.01682	0.01751	0.00137	0.01074
		100.00000	0.38534	0.40126	0.03134	0.24589
16	Gulf Oil Corporation	100.00000	0.17539	0.16097	0.17130	0.16531
17	First National Bank of Lea County, Trustee for the Cecil H. Sweet and Imo Emmetta Sweet Trust	100.00000	0.02662	0.02300	0.13047	0.06814
18	Getty Oil Company	100.00000	0.00853	0.00013	0.19617	0.08247
19	Chevron U.S.A., Inc.	100.00000	0.46388	0.44274	0.39268	0.42171
20	First National Bank of Lea County, Trustee Cecil H. Sweet and Imo Emmetta Sweet Trust	100.00000	0.00082	0.00000	0.04338	0.01822
21	Bill Sweet	100.00000	0.02651	0.02300	0.08569	0.04933

EXHIBIT E (CONT'D)

Tract No.	Working Interest Owner	Working Interest In Tract	Unit Participation (By Tracts) Phase I	Phase II	Phase III	Investment Participation* (By Tracts)
22	Bill Sweet	100.00000	0.00000	0.00000	0.09207	0.03867
23	Atlantic Richfield Company	100.00000	0.06415	0.05085	0.13035	0.08424
24	Shell Oil Company	100.00000	2.13208	2.18100	0.93009	1.65562
25	Getty Oil Company	100.00000	0.38428	0.34282	1.37055	0.77447
26	Cities Service Company	100.00000	0.73038	0.65783	2.93591	1.61462
27	Shell Oil Company	100.00000	4.99981	4.72987	3.68081	4.28926
28	Gulf Oil Corporation	100.00000	1.55912	1.44073	2.98865	2.09086
29	Shell Oil Company	100.00000	0.71513	0.61650	1.11779	0.82704
30	Amerada Hess Corporation	50.00000	0.16818	0.16350	0.35766	0.24504
	Getty Oil Company	50.00000	0.16818	0.16349	0.35766	0.24505
		100.00000	0.33636	0.32699	0.71532	0.49009
31	Texas Pacific Oil Company, Inc.	100.00000	4.47471	4.52936	2.18451	3.54452
32	Samedan Oil Corporation	37.80000	1.20719	1.12526	0.52622	0.87367
	First National Bank of Casper, Trustee, Tate Trusts	3.75000	0.11976	0.11163	0.05221	0.08667
	The First National Bank of Fort Worth, Agent for William S. Spradling	0.62500	0.01996	0.01861	0.00870	0.01445
	The First National Bank of Fort Worth, Trustee for Verda Spradling, Account No. 3211	0.62500	0.01996	0.01861	0.00870	0.01445
	C. C. Forbes	1.90000	0.06068	0.05656	0.02645	0.04391
	Ilamae Forbes	1.85000	0.05908	0.05507	0.02575	0.04276

EXHIBIT E (CONT'D)

Tract No.	Working Interest Owner	Working Interest In Tract	Unit Participation (By Tracts) Phase I	Phase II	Phase III	Investment Participation* (By Tracts)
32	Samuel Roberts Noble Foundation, Inc.	28.75000	0.91817	0.85585	0.40024	0.66449
	G. D. Morris	1.25000	0.03992	0.03721	0.01740	0.02889
	Richard L. Noble	15.20000	0.48543	0.45249	0.21160	0.35132
	Portales National Bank	1.87500	0.05988	0.05582	0.02610	0.04334
	John Roring	3.75000	0.11976	0.11163	0.05221	0.08667
	SRA Properties, Ltd.	0.75000	0.02396	0.02233	0.01044	0.01733
	E. C. Sullivan	1.87500	0.05988	0.05582	0.02610	0.04334
		100.00000	3.19363	2.97689	1.39212	2.31129
33A	First National Bank of Lea County, Trustee for Cecil H. Sweet and Imo Sweet Trust	100.00000	0.14618	0.13607	0.45033	0.26806
33B	First National Bank of Lea County, Trustee for Cecil H. Sweet and Imo Sweet Trust	100.00000	0.09081	0.08239	0.16981	0.11911
34	Shell Oil Company	100.00000	0.02065	0.00990	0.23908	0.10616
35	Texas Pacific Oil Company, Inc.	100.00000	0.09228	0.07279	0.34319	0.18636
36	C&C Operating Corporation	100.00000	0.01133	0.00688	0.03147	0.01721
37	Abo Petroleum Corporation	52.50000	0.06818	0.05615	0.20376	0.11815
	Ward Investment Corporation	10.00000	0.01299	0.01069	0.03881	0.02250
	Yates Petroleum Corporation	25.00000	0.03246	0.02674	0.09703	0.05626
	S. P. Yates	12.50000	0.01623	0.01337	0.04851	0.02813
		100.00000	0.12986	0.10695	0.38811	0.22504
38	The Wiser Oil Company	100.00000	0.00209	0.00000	0.08529	0.03582
39	Getty Oil Company	100.00000	0.03247	0.02415	0.17221	0.08633
40	Continental Oil Company	100.00000	0.29448	0.32197	0.44016	0.37161
41	Samedan Oil Corporation	100.00000	0.07122	0.06099	0.26713	0.14757

EXHIBIT E (CONT'D)

Tract No.	Working Interest Owner	Working Interest In Tract	Unit Participation (By Tracts) Phase I	Phase II	Phase III	Investment Participation* (By Tracts)
42	Texaco, Inc.	100.00000	3.15134	3.09110	1.16515	2.28220
43	Exxon Corporation	100.00000	0.66554	0.49553	0.98320	0.70035
44	Amerada Hess Corporation	100.00000	3.36952	3.41061	1.86735	2.76244
45	Getty Oil Company	100.00000	3.64803	3.75614	2.83435	3.36899
46	Marathon Oil Company	100.00000	1.83355	1.86777	1.98935	1.91883
47	Exxon Corporation	100.00000	3.37645	3.25911	6.10957	4.45630
48	Exxon Corporation	100.00000	0.59298	0.59347	0.42645	0.52332
49	Amerada Hess Corporation	100.00000	1.37425	1.32399	1.40956	1.35993
50	Exxon Corporation	75.00000	0.07896	0.07199	0.17944	0.11711
	Cities Service Company	25.00000	0.02632	0.02399	0.05981	0.03904
		100.00000	0.10528	0.09598	0.23925	0.15615
51	Continental Oil Company	100.00000	2.01126	2.10178	2.84880	2.41553
52	Getty Oil Company	100.00000	0.87710	0.86847	1.23597	1.02282
53	Chevron U.S.A., Inc.	100.00000	2.75083	2.95624	2.50776	2.76788
54	Atlantic Richfield Company	100.00000	2.07685	2.28579	1.09210	1.78444
55	John P. Cusack, Jr.	25.00000	0.56276	0.60802	0.06241	0.37886
	Michael F. Cusack	25.00000	0.56276	0.60802	0.06241	0.37886
	Samedan Oil Corporation	48.50000	1.09176	1.17956	0.12107	0.73500
	SEA Properties, Ltd.	1.50000	0.03377	0.03648	0.00374	0.02273
		100.00000	2.25105	2.43208	0.24963	1.51545

EXHIBIT E (CONT'D)

Tract No.	Working Interest Owner	Working Interest In Tract	Unit Participation (By Tracts) Phase I	Phase II	Phase III	Investment Participation* (By Tracts)
56	John P. Cusack, Jr.	25.00000	0.57333	0.63029	0.02671	0.37679
	Michael F. Cusack	25.00000	0.57333	0.63029	0.02671	0.37678
	Samedan Oil Corporation	48.50000	1.11227	1.22276	0.05182	0.73096
	SEA Properties, Ltd.	1.50000	0.03440	0.03781	0.00161	0.02261
		100.00000	2.29333	2.52115	0.10685	1.50714
57	Shell Oil Company	100.00000	2.91562	2.97071	3.07756	3.01559
58	Continental Oil Company	100.00000	4.16481	4.73239	1.68555	3.45272
59	Shell Oil Company	100.00000	6.45317	6.70337	0.33242	4.02757
60A	Del-Lea, Inc.	16.40625	0.00000	0.00000	0.00003	0.00001
	M. Ralph Lowe, Inc.	21.87500	0.00000	0.00000	0.00005	0.00002
	Kenneth D. McPeters	4.09500	0.00000	0.00000	0.00001	0.00001
	Robert Martin Moran	16.40625	0.00000	0.00000	0.00004	0.00001
	Moranco	20.51000	0.00000	0.00000	0.00004	0.00002
	Linda B. Parrish and Linda Ann Parrish Richardson, Co-Trustees under the will of M. C. Parrish, Jr.	8.20750	0.00000	0.00000	0.00002	0.00001
	Marshall & Winston, Inc.	12.50000	0.00000	0.00000	0.00003	0.00001
		100.00000	0.00000	0.00000	0.00022	0.00009
60B	Del-Lea, Inc.	18.75000	0.02346	0.02005	0.00119	0.01213
	M. Ralph Lowe, Inc.	25.00000	0.03128	0.02674	0.00159	0.01617
	Kenneth D. McPeters	4.68000	0.00585	0.00501	0.00030	0.00303
	Robert Martin Moran	18.75000	0.02346	0.02005	0.00119	0.01213
	Moranco	23.44000	0.02933	0.02507	0.00149	0.01517
	Linda B. Parrish and Linda Ann Parrish Richardson, Co-Trustees under the will of M. C. Parrish, Jr.	9.38000	0.01173	0.01003	0.00060	0.00607
		100.00000	0.12511	0.10695	0.00636	0.06470

EXHIBIT E (CONT'D)

Tract No.	Working Interest Owner	Working Interest In Tract	Unit Participation (By Tracts) Phase I	Phase II	Phase III	Investment Participation* (By Tracts)
61A	Shell Oil Company	100.00000	1.19303	1.22347	0.09076	0.74773
61B	Shell Oil Company	100.00000	1.06871	1.06806	0.01963	0.62772
62	Getty Oil Company	100.00000	1.15101	1.17464	0.11411	0.72922
63	Getty Oil Company	100.00000	1.15287	1.17515	0.31108	0.81224
64	Samedan Oil Corporation	62.50000	0.21472	0.19532	0.00916	0.11713
	Mary Frances Cusack	18.75000	0.06441	0.05860	0.00275	0.03514
	John Patrick Cusack, Jr., Trustee under the John Patrick Cusack Testamentary Trust	4.68750	0.01610	0.01465	0.00069	0.00878
	John Patrick Cusack, Jr.	7.03125	0.02416	0.02197	0.00103	0.01318
	Michael F. Cusack	7.03125	0.02416	0.02197	0.00103	0.01318
		100.00000	0.34355	0.31251	0.01466	0.18741
65	Samedan Oil Corporation	62.50000	0.23603	0.23150	0.01038	0.13863
	Mary Frances Cusack	18.75000	0.07081	0.06945	0.00311	0.04159
	John Patrick Cusack, Jr., Trustee under the John Patrick Cusack Testamentary Trust	4.68750	0.01770	0.01736	0.00078	0.01039
	John Patrick Cusack, Jr.	7.03125	0.02655	0.02605	0.00117	0.01560
	Michael F. Cusack	7.03125	0.02655	0.02604	0.00117	0.01560
		100.00000	0.37764	0.37040	0.01661	0.22181
66	Samedan Oil Corporation	87.89100	2.00419	2.17591	0.33331	1.40202
	Hattie C. Williams	5.85900	0.13360	0.14505	0.02222	0.09346
	Cities Service Company	6.25000	0.14252	0.15473	0.02370	0.09970
		100.00000	2.28031	2.47569	0.37923	1.59518
67	Gulf Oil Corporation	100.00000	2.17917	2.11608	3.40765	2.65854
68	Shell Oil Company	100.00000	0.96616	0.84228	2.48452	1.53202

EXHIBIT E (CONT'D)

Tract No.	Working Interest Owner	Working Interest In Tract	Unit Participation (By Tracts) Phase I	Phase II	Phase III	Investment Participation* (By Tracts)
69	Amoco Production Company	75.43501	1.38898	1.35806	1.87841	1.57661
	Landreth Interests	24.56499	0.45231	0.44224	0.61170	0.51341
		100.00000	1.84129	1.80030	2.49011	2.09002
70	Continental Oil Company	100.00000	4.69790	4.50257	7.98097	5.96350
71	Amerada Hess Corporation	100.00000	1.47100	1.45514	2.04430	1.70259
72	Shell Oil Company	100.00000	0.91041	0.83110	2.56349	1.55870
73	Gulf Oil Corporation	100.00000	2.09767	1.86731	3.47646	2.54315
74	Gulf Oil Corporation	100.00000	3.40184	3.62040	3.75733	3.67791
75A	Marathon Oil Company	50.00000	0.32452	0.37746	1.04791	0.65905
	Atlantic Richfield Company	50.00000	0.32451	0.37746	1.04792	0.65905
		100.00000	0.64903	0.75492	2.09583	1.31810
75B	Marathon Oil Company	50.00000	0.47836	0.47356	1.00267	0.69578
	Atlantic Richfield Company	50.00000	0.47837	0.47356	1.00266	0.69579
		100.00000	0.95673	0.94712	2.00533	1.39157
76	Cities Service Company	100.00000	2.34959	2.36589	2.52494	2.43269
77	Getty Oil Company	100.00000	1.22093	1.17282	0.70944	0.97820
78	Sun Oil Company	100.00000	0.22719	0.19658	0.43429	0.29642
79	Shell Oil Company	100.00000	2.40938	2.30652	1.96469	2.16295
80	Mobil Oil Corporation	100.00000	0.92642	0.82805	0.67264	0.76278
81	Amerada Hess Corporation	100.00000	0.14029	0.11442	0.60098	0.31878

EXHIBIT B (CONT'D)

Tract No.	Working Interest Owner	Working Interest In Tract	Unit Participation (By Tracts) Phase I	Phase II	Phase III	Investment Participation* (By Tracts)
82	W. K. Byrom	62.50000	0.07232	0.06827	0.07468	0.07096
	Robert G. McPherson	37.50000	0.04340	0.04096	0.04481	0.04258
		100.00000	0.11572	0.10923	0.11949	0.11354
83	Gulf Oil Corporation	100.00000	0.00000	0.00000	0.04756	0.01998
			100.00000	100.00000	100.00000	100.00000

EXHIBIT E (CONT'D) SUMMARY

Working Interest Owner	Tract Nos.	Unit Participation Phase I	Phase II	Phase III	Investment Participation*
Abo Petroleum Corporation	37	0.06818	0.05615	0.20376	0.11815
Amerada Hess Corporation	2	0.04372	0.03496	0.20696	0.10720
	8	0.00000	0.00000	2.11560	0.88855
	30	0.16818	0.16350	0.35766	0.24504
	44	3.36952	3.41061	1.86735	2.76244
	49	1.37425	1.32399	1.40956	1.35993
	71	1.47100	1.45514	2.04430	1.70259
	81	0.14029	0.11442	0.60098	0.31878
		6.56696	6.50262	8.60241	7.38453
Amoco Production Company	69	1.38898	1.35806	1.87841	1.57661
Ada A. Anderson	5	0.00629	0.00396	0.02317	0.01203
Ada A. Anderson, Paul Donald Anderson & Payton V. Anderson, Executors of the Estate of Warren D. Anderson	5	0.00629	0.00396	0.02317	0.01203
W. D. Anderson & Sons	5	0.01257	0.00793	0.04633	0.02405
J. M. Armstrong	5	0.01257	0.00793	0.04633	0.02406
Atlantic Richfield Company	23	0.06415	0.05085	0.13035	0.08424
	54	2.07685	2.28579	1.09210	1.78444
	75A	0.32451	0.37746	1.04792	0.65905
	75B	0.47837	0.47356	1.00266	0.69579
		2.94388	3.18766	3.27303	3.22352
W. K. Byrom	82	0.07232	0.06827	0.07468	0.07096
C&C Operating Corporation	36	0.01133	0.00688	0.03147	0.01721

EXHIBIT E (CONT'D)

Working Interest Owner	Tract Nos.	Unit Participation Phase I	Phase II	Phase III	Investment Participation*
Chevron U.S.A., Inc.	11	0.00000	0.00000	0.07277	0.03056
	19	0.46388	0.44274	0.39288	0.42171
	53	2.75083	2.95624	2.50776	2.76788
		3.21471	3.39898	2.97321	3.22015
Cities Service Company	26	0.73038	0.65783	2.93591	1.61462
	50	0.02632	0.02399	0.05981	0.03904
	66	0.14252	0.15473	0.02370	0.09970
	76	2.34959	2.36589	2.52494	2.43269
		3.24881	3.20244	5.54436	4.18605
Mary Daniel Conrad	15	0.02408	0.02508	0.00196	0.01537
Continental Oil Company	6	0.05157	0.03087	1.35192	0.58571
	40	0.29448	0.32197	0.44016	0.37161
	51	2.01126	2.10178	2.84880	2.41553
	58	4.16481	4.73239	1.68555	3.45272
	70	4.69790	4.50257	7.98097	5.96350
		11.22002	11.68958	14.30740	12.78907
Herman R. Crile, Sr., Trustee of Herman R. Crile, Sr.	15	0.03613	0.03762	0.00294	0.02305
John P. Cusack, Jr.	55	0.56276	0.60802	0.06241	0.37886
	56	0.57333	0.63029	0.02671	0.37679
	64	0.02416	0.02197	0.00103	0.01318
	65	0.02655	0.02605	0.00117	0.01560
		1.18680	1.28633	0.09132	0.78443
John Patrick Cusack, Jr., Trustee under John Patrick Cusack Testamentary Trust	64	0.01610	0.01465	0.00069	0.00878
	65	0.01770	0.01736	0.00078	0.01039
		0.03380	0.03201	0.00147	0.01917

EXHIBIT E (CONT'D)

Working Interest Owner	Tract Nos.	Unit Participation Phase I	Phase II	Phase III	Investment Participation*
Mary Frances Cusack	64	0.06441	0.05860	0.00275	0.03514
	65	0.07081	0.06945	0.00311	0.04159
		0.13522	0.12805	0.00586	0.07673
Michael F. Cusack	55	0.56276	0.60802	0.06241	0.37886
	56	0.57333	0.63029	0.02671	0.37678
	64	0.02416	0.02197	0.00103	0.01318
	65	0.02655	0.02604	0.00117	0.01560
		1.18680	1.28632	0.09132	0.78442
Del-Lea, Inc.	13	0.08746	0.08048	0.03529	0.06150
	60A	0.00000	0.00000	0.00003	0.00001
	60B	0.02346	0.02005	0.00119	0.01213
		0.11092	0.10053	0.03651	0.07364
J. N. Dunlavey	10A	0.00194	0.00171	0.00168	0.00169
Russell G. Estes d/b/a Estes Engineering Co.	5	0.00335	0.00211	0.01236	0.00641
Exxon Corporation	43	0.66554	0.49553	0.98320	0.70035
	47	3.37645	3.25911	6.10957	4.45630
	48	0.59298	0.59347	0.42645	0.52332
	50	0.07896	0.07199	0.17944	0.11711
		4.71393	4.42010	7.69866	5.79708
First National Bank of Casper, Trustee, Tate Trusts	32	0.11976	0.11163	0.05221	0.08667
The First National Bank of Fort Worth, Agent for William S. Spradling	32	0.01996	0.01861	0.00870	0.01445
The First National Bank of Fort Worth, Trustee for Verda Spradling, Account No. 3211	32	0.01996	0.01861	0.00870	0.01445

EXHIBIT E (CONT'D)

Working Interest Owner	Tract Nos.	Unit Participation Phase I	Phase II	Phase III	Investment Participation*
First National Bank of Lea County, Trustee for Cecil H. Sweet and Imo Sweet Trust	17	0.02662	0.02300	0.13047	0.06814
	20	0.00082	0.00000	0.04338	0.01822
	33A	0.14618	0.13607	0.45033	0.26806
	33B	0.09081	0.08239	0.16981	0.11911
		0.26443	0.24146	0.79399	0.47353
First Roswell Company	10A	0.00388	0.00341	0.00335	0.00339
C. C. Forbes	32	0.06068	0.05656	0.02645	0.04391
Ilamae Forbes	32	0.05908	0.05507	0.02575	0.04276
Getty Oil Company	1	0.04166	0.03449	0.13978	0.07871
	10A	0.01034	0.00910	0.00894	0.00903
	10B	0.00000	0.00000	0.00504	0.00212
	12	0.02525	0.02093	0.10735	0.05723
	18	0.00853	0.00013	0.19617	0.08247
	25	0.38428	0.34282	1.37055	0.77447
	30	0.16818	0.16349	0.35766	0.24505
	39	0.03247	0.02415	0.17221	0.08633
	45	3.64803	3.75614	2.83435	3.36899
	52	0.87710	0.86847	1.23597	1.02282
	62	1.15101	1.17464	0.11411	0.72922
	63	1.15287	1.17515	0.31108	0.81224
	77	1.22093	1.17282	0.70944	0.97820
		8.72065	8.74233	7.56265	8.24688
Gulf Oil Corporation	3	0.03122	0.02643	0.08361	0.05045
	9	0.26552	0.20781	1.29435	0.66416
	16	0.17539	0.16097	0.17130	0.16531
	28	1.55912	1.44073	2.98865	2.09086
	67	2.17917	2.11608	3.40765	2.65854
	73	2.09767	1.86731	3.47646	2.54315
	74	3.40184	3.62040	3.75733	3.67791
	83	0.00000	0.00000	0.04756	0.01998
		9.70993	9.43973	15.22691	11.87036

EXHIBIT E (CONT'D)

Working Interest Owner	Tract Nos.	Unit Participation Phase I	Phase II	Phase III	Investment Participation*
Kenneth Noel Headley	14	0.02166	0.02216	0.00227	0.01381
	15	0.03612	0.03761	0.00294	0.02306
		0.05778	0.05977	0.00521	0.03687
Peter Hurd	15	0.02408	0.02508	0.00196	0.01537
Ruby Wanda Conrad Judson	15	0.00482	0.00502	0.00039	0.00307
Landreth Interests	69	0.45231	0.44224	0.61170	0.51341
George P. Laflin	10A	0.00194	0.00171	0.00168	0.00169
M. Ralph Lowe, Inc.	60A	0.00000	0.00000	0.00005	0.00002
	60B	0.03128	0.02674	0.00159	0.01617
		0.03128	0.02674	0.00164	0.01619
Marathon Oil Company	46	1.83355	1.86777	1.98935	1.91883
	75A	0.32452	0.37746	1.04791	0.65905
	75B	0.47836	0.47356	1.00267	0.69578
		2.63643	2.71879	4.03993	3.27366
Marshall & Winston, Inc.	60A	0.00000	0.00000	0.00003	0.00001
Kathryn Louise Conrad McCarthy	15	0.00482	0.00502	0.00039	0.00307
Kenneth D. McPeters	10A	0.00291	0.00256	0.00251	0.00254
	60A	0.00000	0.00000	0.00001	0.00001
	60B	0.00585	0.00501	0.00030	0.00303
		0.00876	0.00757	0.00282	0.00558
Robert G. McPherson	82	0.04340	0.04096	0.04481	0.04258
Mobil Oil Corporation	80	0.92642	0.82805	0.67264	0.76278
Morance	10A	0.00388	0.00341	0.00335	0.00339
	60A	0.00000	0.00000	0.00004	0.00002
	60B	0.02933	0.02507	0.00149	0.01517
		0.03321	0.02848	0.00488	0.01858

EXHIBIT E (CONT'D)

Working Interest Owner	Tract Nos.	Unit Participation Phase I	Phase II	Phase III	Investment Participation*
Robert Martin Moran	10A	0.01164	0.01024	0.01005	0.01016
	60A	0.00000	0.00000	0.00034	0.00001
	60B	0.02346	0.02005	0.00119	0.01213
		0.03510	0.03029	0.01128	0.02230
G. D. Morris	32	0.03992	0.03721	0.01740	0.02889
Nathlyn Ione Conrad Murdoch	15	0.00482	0.00502	0.00039	0.00307
Richard L. Noble	32	0.48543	0.45249	0.21160	0.35132
Samuel Roberts Noble Foundation, Inc.	32	0.91817	0.85585	0.40024	0.66449
Linda B. Parrish and Linda Ann Parrish Richardson, Co-Trustees under the will of M. C. Parrish, Jr.	60A	0.00000	0.00000	0.00002	0.00001
	60B	0.01173	0.01003	0.00060	0.00607
		0.01173	0.01003	0.00062	0.00608
Portales National Bank	32	0.05988	0.05582	0.02610	0.04334
John Roring	32	0.11976	0.11163	0.05221	0.08667
Frances I. Conrad Rose	15	0.00482	0.00502	0.00039	0.00307
Samedan Oil Corporation	32	1.20719	1.12526	0.52622	0.87367
	41	0.07122	0.06099	0.26713	0.14757
	55	1.09176	1.17956	0.12107	0.73500
	56	1.11227	1.22276	0.05182	0.73096
	64	0.21472	0.19532	0.00916	0.11713
	65	0.23603	0.23150	0.01038	0.13863
	66	2.00419	2.17591	0.33331	1.40202
		5.93738	6.19130	1.31909	4.14498
SEA Properties, Ltd.	32	0.02396	0.02233	0.01044	0.01733
	55	0.03377	0.03648	0.00374	0.02273
	56	0.03440	0.03781	0.00161	0.02261
		0.09213	0.09662	0.01579	0.06267

EXHIBIT E (CONT'D)

Working Interest Owner	Tract Nos.	Unit Participation Phase I	Phase II	Phase III	Investment Participation*
Shell Oil Company	7	0.33855	0.28554	2.37454	1.16292
	24	2.13208	2.18100	0.93009	1.65562
	27	4.99981	4.72987	3.68081	4.28926
	29	0.71513	0.61650	1.11779	0.82704
	34	0.02065	0.00990	0.23908	0.10616
	57	2.91562	2.97071	3.07756	3.01559
	59	6.45317	6.70337	0.33242	4.02757
	61A	1.19303	1.22347	0.09076	0.74773
	61B	1.06871	1.06806	0.01963	0.62772
	68	0.96616	0.84228	2.48452	1.53202
	72	0.91041	0.83110	2.56349	1.55870
	79	2.40938	2.30652	1.96469	2.16295
		24.12270	23.76832	18.87538	21.71328
Howell Spear	10A	0.00049	0.00042	0.00042	0.00043
Ellie Sims Spear	10A	0.00049	0.00042	0.00042	0.00043
E. C. Sullivan	32	0.05988	0.05582	0.02610	0.04334
Sun Oil Company	78	0.22719	0.19658	0.43429	0.29642
Bill Sweet	21	0.02651	0.02300	0.08569	0.04933
	22	0.00000	0.00000	0.09207	0.03867
		0.02651	0.02300	0.17776	0.08800
Texaco, Inc.	42	3.15134	3.09110	1.16515	2.28220
Texas Pacific Oil Company, Inc.	4	0.11473	0.10166	0.29162	0.18144
	31	4.47471	4.52936	2.18451	3.54452
	35	0.09228	0.07279	0.34319	0.18636
		4.68172	4.70381	2.81932	3.91232

EXHIBIT E (CONT'D)

Working Interest Owner	Tract Nos.	Unit Participation Phase I	Phase II	Phase III	Investment Participation*
Bettye Conrad Treadaway	15	0.00482	0.00502	0.00039	0.00307
Two States Oil Company	14	0.06498	0.06649	0.00682	0.04143
Ward Investment Corporation	37	0.01299	0.01069	0.03881	0.02250
Loyd Whitley	10A	0.00194	0.00171	0.00168	0.00169
Hattie C. Williams	66	0.13360	0.14505	0.02222	0.09346
A. T. Williamson	10A	0.00194	0.00171	0.00168	0.00169
The Wiser Oil Company	14	0.08663	0.08865	0.00910	0.05523
	15	0.19267	0.20062	0.01567	0.12295
	38	0.00209	0.00000	0.08529	0.03582
		0.28139	0.28927	0.11006	0.21400
Yates Petroleum Corporation	37	0.03246	0.02674	0.09703	0.05626
S. P. Yates	37	0.01623	0.01337	0.04851	0.02813
Dr. Henry Yeager, Jr. in care of Trust Oil Department Trust Services, First National Bank in Dallas	15	0.01567	0.01632	0.00127	0.01000
Ruth Anne Yeager	15	0.01166	0.01214	0.00095	0.00744
Ruth Peeler Yeager, Henry Yeager, Jr., & First National Bank in Dallas, Joint Trustees of Ruth Anne Yeager Trust No. 2	15	0.00401	0.00418	0.00033	0.00256

EXHIBIT E (CONT'D)

Working Interest Owner	Tract Nos.	Unit Participation Phase I	Phase II	Phase III	Investment Participation*
Mrs. Ruth Peeler Yeager in care of Trust Oil Department Trust Services, First National Bank in Dallas	15	0.01682	0.01751	0.00137	0.01074
W. A. Yeager	5	0.01257	0.00793	0.04633	0.02406
		100.00000	100.00000	100.00000	100.00000

* Applicable only to investment costs incurred prior to the Investment Readjustment Date

EXHIBIT F

Attached to and made a part of UNIT OPERATING AGREEMENT
North Hobbs (Grayburg-San Andres) Unit
Lea County, New Mexico

ACCOUNTING PROCEDURE
JOINT OPERATIONS

I. GENERAL PROVISIONS

1. Definitions

"Joint Property" shall mean the real and personal property subject to the agreement to which this Accounting Procedure is attached.

"Joint Operations" shall mean all operations necessary or proper for the development, operation, protection and maintenance of the Joint Property.

"Joint Account" shall mean the account showing the charges paid and credits received in the conduct of the Joint Operations and which are to be shared by the Parties.

"Operator" shall mean the party designated to conduct the Joint Operations.

"Non-Operators" shall mean the parties to this agreement other than the Operator.

"Parties" shall mean Operator and Non-Operators.

"First Level Supervisors" shall mean those employees whose primary function in Joint Operations is the direct supervision of other employees and/or contract labor directly employed on the Joint Property in a field operating capacity.

"Technical Employees" shall mean those employees having special and specific engineering, geological or other professional skills, and whose primary function in Joint Operations is the handling of specific operating conditions and problems for the benefit of the Joint Property.

"Personal Expenses" shall mean travel and other reasonable reimbursable expenses of Operator's employees.

"Material" shall mean personal property, equipment or supplies acquired or held for use on the Joint Property.

"Controllable Material" shall mean Material which at the time is so classified in the Material Classification Manual as most recently recommended by the Council of Petroleum Accountants Societies of North America.

2. Statement and Billings

Operator shall bill Non-Operators on or before the last day of each month for their proportionate share of the Joint Account for the preceding month. Such bills will be accompanied by statements which identify the authority for expenditure, lease or facility, and all charges and credits, summarized by appropriate classifications of investment and expense except that items of Controllable Material and unusual charges and credits shall be separately identified and fully described in detail.

3. Advances and Payments by Non-Operators

Unless otherwise provided for in the agreement, the Operator may require the Non-Operators to advance their share of estimated cash outlay for the succeeding month's operation. Operator shall adjust each monthly billing to reflect advances received from the Non-Operators.

Each Non-Operator shall pay its proportion of all bills within fifteen (15) days after receipt. If payment is not made within such time, the unpaid balance shall bear interest monthly at the rate of twelve percent (12%) per annum or the maximum contract rate permitted by the applicable usury laws in the state in which the Joint Property is located, whichever is the lesser, plus attorney's fees, court costs, and other costs in connection with the collection of unpaid amounts.

4. Adjustments

Payment of any such bills shall not prejudice the right of any Non-Operator to protest or question the correctness thereof; provided, however, all bills and statements rendered to Non-Operators by Operator during any calendar year shall conclusively be presumed to be true and correct after twenty-four (24) months following the end of any such calendar year, unless within the said twenty-four (24) month period a Non-Operator takes written exception thereto and makes claim on Operator for adjustment. No adjustment favorable to Operator shall be made unless it is made within the same prescribed period. The provisions of this paragraph shall not prevent adjustments resulting from a physical inventory of Controllable Material as provided for in Section V.

5. Audits

A Non-Operator, upon notice in writing to Operator and all other Non-Operators, shall have the right to audit Operator's accounts and records relating to the Joint Account for any calendar year within the twenty-four (24) month period following the end of such calendar year; provided, however, the making of an audit shall not extend the time for the taking of written exception to and the adjustments of accounts as provided for in Paragraph 4 of this Section I. Where there are two or more Non-Operators, the Non-Operators shall make every reasonable effort to conduct joint or simultaneous audits in a manner which will result in a minimum of inconvenience to the Operator. Operator shall bear no portion of the Non-Operators' audit cost incurred under this paragraph unless agreed to by the Operator.

6. Approval by Non-Operators

Where an approval or other agreement of the Parties or Non-Operators is expressly required under other sections of this Accounting Procedure and if the agreement to which this Accounting Procedure is attached contains no contrary provisions in regard thereto, Operator shall notify all Non-Operators of the Operator's proposal, and the agreement or approval of a majority in interest of the Non-Operators shall be controlling on all Non-Operators.

II. DIRECT CHARGES

Operator shall charge the Joint Account with the following items:

1. **Rentals and Royalties**

   Lease rentals and royalties paid by Operator for the Joint Operations.

2. **Labor**

   A. (1) Salaries and wages of Operator's field employees directly employed on the Joint Property in the conduct of Joint Operations and related expenses.

   (2) Salaries of First Level Supervisors in the field.

   (3) Salaries and wages of Technical Employees directly employed on the Joint Property if such charges are excluded from the Overhead rates.

   B. Operator's cost of holiday, vacation, sickness and disability benefits and other customary allowances paid to employees whose salaries and wages are chargeable to the Joint Account under Paragraph 2A of this Section II. Such costs under this Paragraph 2B may be charged on a "when and as paid basis" or by "percentage assessment" on the amount of salaries and wages chargeable to the Joint Account under Paragraph 2A of this Section II. If percentage assessment is used, the rate shall be based on the Operator's cost experience.

   C. Expenditures or contributions made pursuant to assessments imposed by governmental authority which are applicable to Operator's costs chargeable to the Joint Account under Paragraphs 2A and 2B of this Section II.

   D. Personal Expenses of those employees whose salaries and wages are chargeable to the Joint Account under Paragraph 2A of this Section II.

3. **Employee Benefits**

   Operator's current costs of established plans for employees' group life insurance, hospitalization, pension, retirement, stock purchase, thrift, bonus, and other benefit plans of a like nature, applicable to Operator's labor cost chargeable to the Joint Account under Paragraphs 2A and 2B of this Section II shall be Operator's actual cost not to exceed twenty per cent (20%), or percent most recently recommended by the Council of Petroleum Accountants Societies of North America.

4. **Material**

   Material purchased or furnished by Operator for use on the Joint Property as provided under Section IV. Only such Material shall be purchased for or transferred to the Joint Property as may be required for immediate use and is reasonably practical and consistent with efficient and economical operations. The accumulation of surplus stocks shall be avoided.

5. **Transportation**

   Transportation of employees and Material necessary for the Joint Operations but subject to the following limitations:

   A. If Material is moved to the Joint Property from the Operator's warehouse or other properties, no charge shall be made to the Joint Account for a distance greater than the distance from the nearest reliable supply store, recognized barge terminal, or railway receiving point where like material is normally available, unless agreed to by the Parties.

   B. If surplus Material is moved to Operator's warehouse or other storage point, no charge shall be made to the Joint Account for a distance greater than the distance to the nearest reliable supply store, recognized barge terminal, or railway receiving point unless agreed to by the Parties. No charge shall be made to the Joint Account for moving Material to other properties belonging to Operator, unless agreed to by the Parties.

   C. In the application of Subparagraphs A and B above, there shall be no equalization of actual gross trucking cost of $200 or less excluding accessorial charges.

6. **Services**

   The cost of contract services, equipment and utilities provided by outside sources, except services excluded by Paragraph 9 of Section II and Paragraph 1. ii of Section III. The cost of professional consultant services and contract services of technical personnel directly engaged on the Joint Property if such charges are excluded from the Overhead rates. The cost of professional consultant services or contract services of technical personnel not directly engaged on the Joint Property shall not be charged to the Joint Account unless previously agreed to by the Parties.

7. **Equipment and Facilities Furnished by Operator**

   A. Operator shall charge the Joint Account for use of Operator owned equipment and facilities at rates commensurate with costs of ownership and operation. Such rates shall include costs of maintenance, repairs, other operating expense, insurance, taxes, depreciation, and interest on investment not to exceed eight per cent (8%) per annum. Such rates shall not exceed average commercial rates currently prevailing in the immediate area of the Joint Property.

   B. In lieu of charges in Paragraph 7A above, Operator may elect to use average commercial rates prevailing in the immediate area of the Joint Property less 20%. For automotive equipment, Operator may elect to use rates published by the Petroleum *Motor Transport* Association.

8. **Damages and Losses to Joint Property**

   All costs or expenses necessary for the repair or replacement of Joint Property made necessary because of damages or losses incurred by fire, flood, storm, theft, accident, or other cause, except those resulting from Operator's gross negligence or *willful* misconduct. Operator shall furnish Non-Operator written notice of damages or losses incurred as soon as practicable after a report thereof has been received by Operator.

9. **Legal Expense**

   Expense of handling, investigating and settling litigation or claims, discharging of liens, payment of judgments and amounts paid for settlement of claims incurred in or resulting from operations under the agreement or necessary to protect or recover the Joint Property, except that no charge for services of Operator's legal staff or fees or expense of outside attorneys shall be made unless previously agreed to by the Parties. All other legal expense is considered to be covered by the overhead provisions of Section III unless otherwise agreed to by the Parties, except as provided in Section I. Paragraph 3.

10. Taxes

All taxes of every kind and nature assessed or levied upon or in connection with the Joint Property, the operation thereof, or the production therefrom, and which taxes have been paid by the Operator for the benefit of the Parties.

11. Insurance

Net premiums paid for insurance required to be carried for the Joint Operations for the protection of the Parties. In the event Joint Operations are conducted in a state in which Operator may act as self-insurer for Workman's Compensation and/or Employers Liability under the respective state's laws, Operator may, at its election, include the risk under its self-insurance program and in that event, Operator shall include a charge at Operator's cost not to exceed manual rates.

12. Other Expenditures

Any other expenditure not covered or dealt with in the foregoing provisions of this Section II, or in Section III, and which is incurred by the Operator in the necessary and proper conduct of the Joint Operations.

III. OVERHEAD

1. Overhead - Drilling and Producing Operations

i. As compensation for administrative, supervision, office services and warehousing costs, Operator shall charge drilling and producing operations on either:

(X) Fixed Rate Basis, Paragraph 1A, or
( ) Percentage Basis, Paragraph 1B.

Unless otherwise agreed to by the Parties, such charge shall be in lieu of costs and expenses of all offices and salaries or wages plus applicable burdens and expenses of all personnel, except those directly chargeable under Paragraph 2A, Section II. The cost and expense of services from outside sources in connection with matters of taxation, traffic, accounting or matters before or involving governmental agencies shall be considered as included in the Overhead rates provided for in the above selected Paragraph of this Section III unless such cost and expense are agreed to by the Parties as a direct charge to the Joint Account.

ii. The salaries, wages and Personal Expenses of Technical Employees and/or the cost of professional consultant services and contract services of technical personnel directly employed on the Joint Property shall (X) shall not ( ) be covered by the Overhead rates.

A. Overhead - Fixed Rate Basis

(1) Operator shall charge the Joint Account at the following rates per well per month:

Drilling Well Rate $ 2311
Producing Well Rate $ 165

(2) Application of Overhead - Fixed Rate Basis shall be as follows:

(a) Drilling Well Rate

[1] Charges for onshore drilling wells shall begin on the date the well is spudded and terminate on the date the drilling or completion rig is released, whichever is later, except that no charge shall be made during suspension of drilling operations for fifteen (15) or more consecutive days.

[2] Charges for offshore drilling wells shall begin on the date when drilling or completion equipment arrives on location and terminate on the date the drilling or completion equipment moves off location or rig is released, whichever occurs first, except that no charge shall be made during suspension of drilling operations for fifteen (15) or more consecutive days

[3] Charges for wells undergoing any type of workover or recompletion for a period of five (5) consecutive days or more shall be made at the drilling well rate. Such charges shall be applied for the period from date workover operations, with rig, commence through date of rig release, except that no charge shall be made during suspension of operations for fifteen (15) or more consecutive days.

(b) Producing Well Rates

[1] An active well either produced or injected into for any portion of the month shall be considered as a one-well charge for the entire month.

[2] Each active completion in a multi-completed well in which production is not commingled down hole shall be considered as a one-well charge providing each completion is considered a separate well by the governing regulatory authority.

[3] An inactive gas well shut in because of overproduction or failure of purchaser to take the production shall be considered as a one-well charge providing the gas well is directly connected to a permanent sales outlet.

[4] A one-well charge may be made for the month in which plugging and abandonment operations are completed on any well.

[5] All other inactive wells (including but not limited to inactive wells covered by unit allowable, lease allowable, transferred allowable, etc.) shall not qualify for an overhead charge.

(3) The well rates shall be adjusted as of the first day of April* ~~each year following the effective date of the agreement to which this Accounting Procedure is attached~~. The adjustment shall be computed by multiplying the rate currently in use by the percentage increase or decrease in the average weekly earnings of Crude Petroleum and Gas Production Workers for the last calendar year compared to the calendar year preceding as shown by the index of average weekly earnings of Crude Petroleum and Gas Fields Production Workers as published by the United States Department of Labor, Bureau of Labor Statistics, or the equivalent Canadian index as published by Statistics Canada, as applicable. The adjusted rates shall be the rates currently in use, plus or minus the computed adjustment.

* of the year 1978 and each year thereafter.

B. Overhead - Percentage Basis

(1) Operator shall charge the Joint Account at the following rates:

(a) Development

_____ Percent (__ %) of the cost of Development of the Joint Property exclusive of costs provided under Paragraph 9 of Section II and all salvage credits.

(b) Operating

_____ Percent (__ %) of the cost of Operating the Joint Property exclusive of costs provided under Paragraphs 1 and 9 of Section II, all salvage credits, the value of injected substances purchased for secondary recovery and all taxes and assessments which are levied, assessed and paid upon the mineral interest in and to the Joint Property.

(2) Application of Overhead - Percentage Basis shall be as follows:
For the purpose of determining charges on a percentage basis under Paragraph 1B of this Section III, development shall include all costs in connection with drilling, redrilling, deepening or any remedial operations on any or all wells involving the use of drilling crew and equipment; also, preliminary expenditures necessary in preparation for drilling and expenditures incurred in abandoning when the well is not completed as a producer, and original cost of construction or installation of fixed assets, the expansion of fixed assets and any other project clearly discernible as a fixed asset, except Major Construction as defined in Paragraph 2 of this Section III. All other costs shall be considered as Operating.

2. Overhead - Major Construction

To compensate Operator for overhead costs incurred in the construction and installation of fixed assets, the expansion of fixed assets, and any other project clearly discernible as a fixed asset required for the development and operation of the Joint Property, Operator shall either negotiate a rate prior to the beginning of construction, or shall charge the Joint Account for Overhead based on the following rates for any Major Construction project in excess of $ 25,000 :

A. 3 % of total costs if such costs are more than $ 25,000 but less than $ 100,000 ; plus

B. 3 % of total costs in excess of $ 100,000 but less than $1,000,000; plus

C. 2 % of total costs in excess of $1,000,000.

Total cost shall mean the gross cost of any one project. For the purpose of this paragraph, the component parts of a single project shall not be treated separately and the cost of drilling and workover wells shall be excluded.

3. Amendment of Rates

The Overhead rates provided for in this Section III may be amended from time to time only by mutual agreement between the Parties hereto if, in practice, the rates are found to be insufficient or excessive.

IV. PRICING OF JOINT ACCOUNT MATERIAL PURCHASES, TRANSFERS AND DISPOSITIONS

Operator is responsible for Joint Account Material and shall make proper and timely charges and credits for all material movements affecting the Joint Property. Operator shall provide all Material for use on the Joint Property; however, at Operator's option, such Material may be supplied by the Non-Operator. Operator shall make timely disposition of idle and/or surplus Material, such disposal being made either through sale to Operator or Non-Operator, division in kind, or sale to outsiders. Operator may purchase, but shall be under no obligation to purchase, interest of Non-Operators in surplus condition A or B Material. The disposal of surplus Controllable Material not purchased by the Operator shall be agreed to by the Parties.

1. Purchases

Material purchased shall be charged at the price paid by Operator after deduction of all discounts received. In case of Material found to be defective or returned to vendor for any other reason, credit shall be passed to the Joint Account when adjustment has been received by the Operator.

2. Transfers and Dispositions

Material furnished to the Joint Property and Material transferred from the Joint Property or disposed of by the Operator, unless otherwise agreed to by the Parties, shall be priced on the following basis exclusive of cash discounts:

A. New Material (Condition A)

(1) Tubular goods, except line pipe, shall be priced at the current new price in effect on date of movement on a maximum carload or barge load weight basis, regardless of quantity transferred, equalized to the lowest published price f.o.b. railway receiving point or recognized barge terminal nearest the Joint Property where such Material is normally available.

(2) Line Pipe

(a) Movement of less than 30,000 pounds shall be priced at the current new price, in effect at date of movement, as listed by a reliable supply store nearest the Joint Property where such Material is normally available.

(b) Movement of 30,000 pounds or more shall be priced under provisions of tubular goods pricing in Paragraph 2A (1) of this Section IV.

(3) Other Material shall be priced at the current new price, in effect at date of movement, as listed by a reliable supply store or f.o.b. railway receiving point nearest the Joint Property where such Material is normally available.

B. Good Used Material (Condition B)

Material in sound and serviceable condition and suitable for reuse without reconditioning:

(1) Material moved to the Joint Property

(a) At seventy-five percent (75%) of current new price, as determined by Paragraph 2A of this Section IV.

(2) Material moved from the Joint Property

(a) At seventy-five percent (75%) of current new price, as determined by Paragraph 2A of this Section IV, if Material was originally charged to the Joint Account as new Material, or

(b) at sixty-five percent (65%) of current new price, as determined by Paragraph 2A of this Section IV, if Material was originally charged to the Joint Account as good used Material at seventy-five percent (75%) of current new price.

The cost of reconditioning, if any, shall be absorbed by the transferring property.

C. Other Used Material (Condition C and D)

(1) Condition C

Material which is not in sound and serviceable condition and not suitable for its original function until after reconditioning shall be priced at fifty percent (50%) of current new price as determined by Paragraph 2A of this Section IV. The cost of reconditioning shall be charged to the receiving property, provided Condition C value plus cost of reconditioning does not exceed Condition B value.

(2) Condition D

All other Material, including junk, shall be priced at a value commensurate with its use or at prevailing prices. Material no longer suitable for its original purpose but usable for some other purpose, shall be priced on a basis comparable with that of items normally used for such other purposes. Operator may dispose of Condition D Material under procedures normally utilized by the Operator without prior approval of Non-Operators.

D. Obsolete Material

Material which is serviceable and usable for its original function but condition and/or value of such Material is not equivalent to that which would justify a price as provided above may be specially priced as agreed to by the Parties. Such price should result in the Joint Account being charged with the value of the service rendered by such Material.

E. Pricing Conditions

(1) Loading and unloading costs may be charged to the Joint Account at the rate of fifteen cents (15¢) per hundred weight on all tubular goods movements, in lieu of loading and unloading costs sustained, when actual hauling cost of such tubular goods are equalized under provisions of Paragraph 3 of Section II.

(2) Material involving erection costs shall be charged at applicable percentage of the current knocked-down price of new Material.

3. Premium Prices

Whenever Material is not readily obtainable at published or listed prices because of national emergencies, strikes or other unusual causes over which the Operator has no control, the Operator may charge the Joint Account for the required Material at the Operator's actual cost incurred in providing such Material, in making it suitable for use, and in moving it to the Joint Property; provided notice in writing is furnished to Non-Operators of the proposed charge prior to billing Non-Operators for such Material. Each Non-Operator shall have the right, by so electing and notifying Operator within ten days after receiving notice from Operator, to furnish in kind all or part of his share of such Material suitable for use and acceptable to Operator.

4. Warranty of Material Furnished by Operator

Operator does not warrant the Material furnished. In case of defective Material, credit shall not be passed to the Joint Account until adjustment has been received by Operator from the manufacturers or their agents.

V. INVENTORIES

The Operator shall maintain detailed records of Controllable Material.

1. Periodic Inventories, Notice and Representation

At reasonable intervals, Inventories shall be taken by Operator of the Joint Account Controllable Material. Written notice of intention to take inventory shall be given by Operator at least thirty (30) days before any inventory is to begin so that Non-Operators may be represented when any inventory is taken. Failure of Non-Operators to be represented at an inventory shall bind Non-Operators to accept the inventory taken by Operator.

2. Reconciliation and Adjustment of Inventories

Reconciliation of a physical inventory with the Joint Account shall be made, and a list of overages and shortages shall be furnished to the Non-Operators within six months following the taking of the inventory. Inventory adjustments shall be made by Operator with the Joint Account for overages and shortages, but Operator shall be held accountable only for shortages due to lack of reasonable diligence.

3. Special Inventories

Special Inventories may be taken whenever there is any sale or change of interest in the Joint Property. It shall be the duty of the party selling to notify all other Parties as quickly as possible after the transfer of interest takes place. In such cases, both the seller and the purchaser shall be governed by such inventory.

4. Expense of Conducting Periodic Inventories

The expense of conducting periodic Inventories shall not be charged to the Joint Account unless agreed to by the Parties.

EXHIBIT G
ATTACHED TO UNIT OPERATING AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

INSURANCE PROVISIONS

Unit Operator shall carry the following insurance with respect to Unit Operations:

(1) Public liability and property damage insurance with limits of $100,000.00 for injuries to or death of one person and $300,000.00 for injuries or deaths in one accident, and $100,000.00 for property damage in one accident.

(2) Automobile public liability and property damage insurance with limits of $100,000.00 for injuries to or death of one person and $300,000.00 for injuries or deaths in one accident, and $100,000.00 for property damage in one accident.

All insurance coverage required hereby shall be carried at the joint expense and for the benefit of the Working Interest Owners. Premiums for automobile public liability and property damage insurance on Unit Operator's fully owned equipment shall not be charged directly to the joint account, but will be covered by the flat rate charge assessed for the use of such equipment. Unit Operator will not carry fire, windstorm or explosion insurance covering Unit Operations or Unit Equipment.

Contractors and sub-contractors will be required to carry insurance of the same types as hereinabove specified and in such amounts as deemed necessary by Unit Operator.

If under the laws of the State in which operations are conducted Operator is authorized to be a self-insurer as to workmen's compensation and/or employers' liability, Operator may elect to be a self-insurer under such laws and in such event Operator shall charge to the joint account, in lieu of any premiums for such insurance, a premium equivalent limited to amounts determined by applying manual insurance rates to the payroll.

If the parties hereto or any of them shall insure their respective risks beyond the specific limits of insurance required hereunder to be carried by the Unit Operator, the benefits of such insurance shall inure to the parties procuring and maintaining the same, respectively, and the cost of such insurance shall be borne by such parties, respectively, without reimbursement one from the other and without entering into any accounting hereunder.

EXHIBIT H

ATTACHED TO UNIT OPERATING AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT
LEA COUNTY, NEW MEXICO

INDEMNITY AGREEMENT

WHEREAS, Section 14(c) of an agreement entitled "Unit Agreement, North Hobbs (Grayburg-San Andres) Unit, Lea County, New Mexico," dated July 1, 1978, provides that under certain circumstances and conditions therein stated a Tract that fails to qualify under Section 14(a) or Section 14(b) may be qualified under said Section 14(c) if the requisite Working Interest Owners in the Tract as specified in said Section 14(c) request the qualification of the Tract and execute and deliver, or obligate themselves to execute and deliver, an indemnity agreement; and

WHEREAS, Tract _____, described in the Unit Agreement is such a Tract; and

WHEREAS, the undersigned are owners of Working Interest in such Tract and have become parties to the Unit Agreement and the Unit Operating Agreement and desire the qualification of the Tract under said Section 14(c):

NOW THEREFORE, in consideration of and conditioned upon said Tract meeting the other requirements of said Section 14(c) of the Unit Agreement and its being qualified under said Section 14(c), the undersigned hereby request the qualification of said Tract under said Section 14(c) and agree, together with other owners of Working Interest in the Tract who execute and deliver, or who obligate themselves to execute and deliver, like indemnity agreements, to indemnify and hold harmless all other Working Interest Owners in the Unit Area against all claims and demands required by said Section 14(c) to be the subject of such indemnity. Any liability arising hereunder shall be borne by the undersigned and other Working Interest Owners in the Tract who are committed to like indemnity agreements in the proportion that the Working Interest of each in the Tract bears to the total Working Interest therein of all the owners of Working Interest in the Tract committed to such indemnity agreement.

This indemnity shall become void with respect to all claims and demands based upon occurrences subsequent to any time that conditions are such that said Tract would be qualified under the provisions of said Unit Agreement without this indemnity.

This agreement shall be binding upon and inure to the benefit of the heirs, devisees, legal representatives, successors, and assigns of the respective parties initially bound or benefited by the provisions hereof.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date opposite its signature.

_____ _____

_____ _____

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MINUTES OF ENGINEERING SUBCOMMITTEE MEETING
NORTH HOBBS UNIT PROPOSED
AUGUST 29, 1973

A meeting of the Engineering Subcommittee of the proposed North Hobbs Unit was held in Midland, Texas, on August 29, 1973. The attendance list is attached.

The meeting was called to order at 8:15 a.m. by Mr. Martin A. Thieme, representing Shell Oil Company. Mr. Thieme noted that the meeting would be of an organizational and planning nature. It was the unanimous opinion of those present that secondary oil potential exists in the proposed North Hobbs Unit and that the subcommittee would proceed to fulfill the charges given by the Working Interest Owners in their July 31, 1973, meeting.

Mr. Thieme noted that AMOCO has sent the subcommittee most of the data pertaining to the North Area. The individual well logs will be forthcoming.

Mr. S. B. Pontious, discussed differences in log Øh between his findings and those presented in the March 1972 field-wide study. With no objections, the subcommittee directed Shell as expediter to review all the geological x-sections received from AMOCO and report the results at the next meeting. Shell was further directed to re-evaluate the existing logs with special emphasis on recent logs and report their findings.

The subcommittee will meet in approximately six weeks to determine if more log data are required and, if necessary, recommend a key logging program to the Working Interest Owners.

Mr. W. R. Greene discussed the results of several workovers involving Zone I of the San Andres. He demonstrated that higher water cuts were found in Zone I than depicted in the field-wide study and that the Shell State B-1 (Section 33) tested 100% water.

All companies were requested to send the following information to the chairman of the Engineering Subcommittee at their earliest convenience:

1. Logs run since January 1, 1971, and not previously sent to AMOCO

2. Information on current perforated intervals not previously sent to AMOCO

There being no further business, the meeting was adjourned at 11:30 a.m.

MAT:NM

Attachments

ATTENDANCE LIST
ENGINEERING SUBCOMMITTEE MEETING
NORTH HOBBS UNIT
AUGUST 29, 1973

Name	Company
R. R. Denham	Amoco
Nelson Robertson	Arco
C. F. Dwyer	Chevron
E. C. Warren	Chevron
E. H. Lowrey	Cities Service
C. C. Woodward	Continental
W. E. Nolan	Exxon
J. M. Clayton	Exxon
Bert Marier	Getty
J. E. Eakin	Getty
C. L. Robertson	Gulf
D. E. Zlomke	Marathon
Leon Veeder	Samedan
M. A. Thieme	Shell
S. B. Pontious	Shell
W. R. Greene	Shell
F. E. Coupal	Shell
Frank McAtee	Skelly
Ken Barnett	Sun
Chuck Price	Sun
J. M. Roberts	Texaco
Gerald Bell	TPOC
Russ Meyers	TPOC

NORTH HOBBS UNIT
ENGINEERING SUBCOMMITTEE
ADDRESSEE LIST

AMERADA HESS CORPORATION
ATTN: MR. L. J. CRANDAL
P. O. DRAWER 817
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HOUSTON, TX 77002

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ATTN: MR. C. W. BYRON
P. O. BOX 147
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PENROSE PRODUCTION COMPANY
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CITIES SERVICE OIL COMPANY
ATTN: MR. E. H. LOWREY
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MIDLAND, TX 79701

CONTINENTAL OIL COMPANY
ATTN: MR. L. P. THOMPSON
P. O. BOX 460
HOBBS, NM 88240

DEL-LEA, INC.
P. O. BOX 1889
HOBBS, NM 88240

GRACKLE OIL COMPANY
P. O. BOX 2038
HOBBS, NM 88240

GETTY OIL COMPANY
ATTN: MR. R. J. STARRAK
P. O. BOX 1231
MIDLAND, TX 79701

GULF OIL COMPANY - U. S.
ATTN: MR. F. W. MORAN, JR.
P. O. DRAWER 1150
MIDLAND, TX 79701

EXXON COMPANY - U. S. A. (2)
ATTN: JOINT INTEREST ENGINEERING
SUPERVISOR
P. O. BOX 1600
MIDLAND, TX 79701

MARATHON OIL COMPANY
ATTN: DISTRICT ENGINEER
P. O. BOX 522
MIDLAND, TX 79701

MINERALS, INC.
P. O. BOX 1320
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MOBIL OIL CORPORATION
ATTN: MR. TED GRIFFITH
P. O. BOX 633
MIDLAND, TX 79701

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MR. J. H. MORRIS AS AGENT
1615 FIRST NATIONAL BUILDING
TULSA, OK 74103

POLARIS PRODUCTION CORPORATION
P. O. BOX 1703
MIDLAND, TX 79701

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ARDMORE, OK 73401

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ATTN: MR. FRANK D. McATEE
EXP. AND PROD. DEPT.
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MIDLAND, TX 79701

SKELLY OIL COMPANY
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P. O. BOX 1315
MIDLAND, TX 79701

MR. ROBERT L. SUMMERS
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SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THORNTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS &
MR. JACK ANDREWS
P. O. BOX 1861
MIDLAND, TX 79701

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO INC.
ATTN: DISTRICT SUPERINTENDENT
P. O. BOX 728
HOBBS, NM 88240

TEXACO INC.
ATTN: MR. V. F. DULLNIG
P. O. BOX 3109
MIDLAND, TX 79701

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. T. J. WALLER
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MIDLAND, TX 79701

TEXAS PACIFIC OIL CO., INC.
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1700 ONE MAIN PLACE
DALLAS, TX 75250

THE WISER OIL COMPANY
ATTN: MR. BILL LARSEN
110 GIHLS TOWER EAST
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YATES PETROLEUM CORPORATION
ATTN: MR. E. M. MAHFOOD
207 SOUTH FOURTH
ARTESIA, NM 88210

MINUTES OF ENGINEERING SUBCOMMITTEE MEETING
NORTH HOBBS UNIT PROPOSED
NOVEMBER 26, 1973

A meeting of the Engineering Subcommittee of the proposed North Hobbs Unit was held in Midland, Texas on November 26, 1973. The attendance list is attached.

The meeting was called to order at 10:00 A.M. by Mr. Martin A. Thieme, representing Shell Oil Company. Mr. Thieme noted that the purpose of the meeting was to discuss the method and results of the petrophysical study and the geological study as completed to date, to determine if more log data were required and, if necessary, recommend a key logging program to the Working Interest Owners.

Mr. S. B. Pontious presented a summary of the petrophysical study as detailed in the attachment to the November 15, 1973 letter to the engineering subcommittee. Mr. Pontious discussed the plats of each zone which showed both the geographical areas where better quality logs gave good petrophysical control and the hashered areas where the existing poorer quality logs might require additional log data. It was moved by Shell and seconded by Skelly that the subcommittee accept the petrophysical study and preliminary results as presented. The motion was passed with the voting recorded as follows:

Vote	Companies
Yes	Chevron, Cities Service, Continental, Getty, Samedan, Shell, Skelly, Sun and Texaco
Pass	Amerada, Exxon and TPOC

Mr. F. E. Coupal presented a summary of the geological study as completed to date. East-West cross-sections have been constructed through every well to show the structural and stratigraphic distribution of the major porous beds. Mr. Coupal reported that it is evident from detailed correlation that each zone in the San Andres has one or more relatively high porosity beds that may behave as "thief" zones to water injection. Zone III seems to have the lowest range in permeability and also has a more effective upper seal (sandy break) from the more permeable upper zones. It may be difficult to isolate Zone II from the highly permeable interval at the base of Zone I. In addition, Zone I appears to have other individual porous beds that overlie and are poorly connected with the water drive interval. It appears in Section 31, at least, that the low water-cut production from Zone I in some of these wells may be from one of these "isolated" beds. Mr. Coupal further reported that the Grayburg sand units can be correlated over most of the field with not more than three or four of the sands appearing to have sufficiently continuous permeability to be floodable. However, adequate data is lacking to quantitatively determine lateral continuity, or even satisfactory net pay values. A review of the Grayburg core analyses from seventeen wells in the North area indicated with reasonable certainty that for a minimum permeability of 0.2 md., a cut-off porosity of not less

than 11 percent should be used for the sands. This would require a reduction of approximately one half of the Grayburg "net pay" values as reported by the previous engineering subcommittee for the field wide study.

After much discussion, the subcommittee determined that there were three alternatives for establishing ϕh in the hashered areas of poor petrophysical control.

Alternative No. 1: Recommend a key logging program to the Working Interest Owners which would involve approximately twelve to fifteen wells.

Alternative No. 2: By utilizing the existing logs establish "net h" values in the areas of poor petrophysical control and extrapolate average porosity from offsetting areas of good petrophysical control to determine ϕh in areas of poor control.

Alternative No. 3: Determine the ratios of the ϕh values in the areas of good control to the ϕh values reported by the previous engineering subcommittee for the field wide study in the same areas. Apply these ratios to the ϕh values in the areas of poor control reported by the previous engineering subcommittee.

It was moved by Shell and seconded by Samedan that the subcommittee attempt to determine the ϕh values in the hashered areas of poor log control by a method other than a key logging program at this time. The motion passed with all companies present voting YES.

The subcommittee instructed Shell to determine the ϕh values under Alternatives Nos. 2 and 3 and report the results at the next subcommittee meeting to be held in February. There being no further business, the meeting was adjourned at 2:00 P.M.

MAT:BB

Attachment

ATTENDANCE LIST
ENGINEERING SUBCOMMITTEE MEETING
NORTH HOBBS UNIT
NOVEMBER 26, 1973

NAME	COMPANY
M. A. Thieme	Shell
S. B. Pontious	Shell
F. E. Coupal	Shell
R. W. Harchler	Texaco
J. E. Eakin	Getty
Peter Michelson	Getty
J. L. Hutchison	Gulf
Dale Nichols	Skelly
Clay Warren	Chevron
W. S. McCuen	Samedan
W. E. Nolan	Exxon
N. K. Reynolds	Exxon
Ken Barnett	Sun
Nelson Robertson	ARCO
C. C. Woodward	Continental
Vincent Foster	Texas Pacific Oil Co.
Reginald C. Keyes	Texas Pacific Oil Co.
A. M. Omar	Amerada Hess
F. A. Bowling	Amerada Hess
E. H. Lowrey	Cities Service
R. E. Dejmal	Mobil

MINUTES OF ENGINEERING SUBCOMMITTEE MEETING
NORTH HOBBS UNIT PROPOSED
APRIL 10-11, 197-

A meeting of the Engineering Subcommittee of the proposed North Hobbs Unit was held in Midland, Texas on April 10-11, 1974. The attendance list is attached.

The meeting was called to order at 9:30 a.m. by Mr. Martin A. Thieme, representing Shell Oil Company. Mr. Thieme noted that the purpose of the meeting was to discuss in detail the results of the geological and petrophysical re-evaluations, to construct Øh maps by zone, to construct water-cut maps by zone, and to construct a zonal completion status map.

Mr. F. E. Coupal discussed the completed geological study in detail; a summary of which was mailed to each member of the subcommittee on March 7, 1974.

The meeting was then turned over to Mr. S. B. Pontious for a discussion of the log analyses. A poll was taken which showed that only 5 of the 13 companies present were prepared to discuss and validate the log analyses on their leases. The chairman reminded the subcommittee that they were requested to be prepared to discuss in detail those items enclosed in the letter dated March 7, 1974 calling this meeting. The chairman then asked the subcommittee what more he or Shell could do to assist them in being prepared for future subcommittee meetings. The consensus of opinion was that Shell could not have done more to assist the members and that the problem was with individual company manpower allocations, etc. It was noted that the 5 companies that had reviewed the log analysis were in agreement with the resulting Øh calculations on their wells. Each company present was given a copy of the log analysis detail on their wells. The subcommittee decided unanimously that each company would check and validate their Øh values by zone by Friday, April 19, 1974, using the method approved by the subcommittee.

A discussion arose concerning the method of contouring the Øh maps. Three companies favored computerized contouring (Getty, TPOC and Skelly) while the other companies favored hand contouring. Skelly volunteered their services for computer contouring. The subcommittee then directed Skelly and/or Shell to contour the Øh maps by computer with payment of any expenses having to be authorized by the Working Interest Owners and that Shell should proceed to refine the existing preliminary Øh maps by hand using the work done by the subcommittee in the meeting. The results will be presented and finalized by the subcommittee at the next meeting which could then be changed only by new log data. Several companies indicated that new logs were forthcoming.

The well-zone completion status map as of January, 1974 was constructed using the available data. Water cuts calculated from the October, November, and December 1973 State Reports were used to initiate the construction of zonal water cut maps. Several anomalous areas developed in water cut trend. The subcommittee decided that each company should be requested to provide two

representative well tests (oil, water, and gas) on each of their wells. The first test being the most recent test just prior to January 1, 1974 and the second test being the most recent test after January 1, 1974. Shell was directed by the subcommittee to refine the water-cut maps by zone using the new well test data and present the results at the next meeting where the subcommittee will finalize the maps. Shell was further directed to construct preliminary GOR maps by zone to be finalized by the subcommittee at the next meeting.

There being no further business the meeting was adjourned at 3:30 p.m.

MAT:BJT

Attachment

ATTENDANCE LIST
ENGINEERING SUBCOMMITTEE MEETING
NORTH HOBBS UNIT
APRIL 10-11, 1974

Name	Company
M. A. Thieme	Shell
R. W. Phillips	Shell
S. B. Pontious	Shell
F. E. Coupal	Shell
H. Leon Veeder	Samedan
Nelson Robertson	Atlantic Richfield
Peter Michelson	Getty
Joe R. Paradiso	Getty
Frank D. McAtee	Skelly
Dale Nichols	Skelly
Fred Hensley	Skelly
Ralph R. Denham	Amoco
Gerald Bell	TPOC
Clay Warren	Chevron
C. D. Stenberg	Gulf
E. R. Green	Amerada Hess
E. D. Wallace	Texaco
N. K. Reynolds	Exxon
W. E. Nolan	Exxon
C. C. Woodward	Continental

ENGINEERING SUBCOMMITTEE
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AMOCO PRODUCTION COMPANY
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ATLANTIC RICHFIELD COMPANY
ATTN: C. R. LEGGETT
P. O. BOX 1610
MIDLAND, TX 79701

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

PENROSE PRODUCTION COMPANY
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1605 COMMERCE BUILDING
FORT WORTH, TX 76102

PETCO LEWIS CORP.
ATTN. MR. JOHN B. SOMERS
1600 BROADWAY
SUITE 1400
DENVER COLORADO
80202

MR. CHARLES B. READ
READ & STEVENS, INC.
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ROSWELL, NM 88201

CHEVRON OIL COMPANY
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CITIES SERVICE OIL COMPANY
ATTN: MR. E. H. LOWREY
P. O. BOX 1919
MIDLAND, TX 79701

CONTINENTAL OIL COMPANY
ATTN: MR. R. E. McWILLIAMS
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DEL-LEA, INC.
P. O. BOX 1889
HOBBS, NM 88240

GRACKLE OIL COMPANY
P. O. BOX 2038
HOBBS, NM 88240

GETTY OIL COMPANY
ATTN: MR. R. L. WHITE
P. O. BOX 1231
MIDLAND, TX 79701

GULF OIL COMPANY - U. S.
ATTN: MR. F. W. MORAN, JR.
P. O. DRAWER 1150
MIDLAND, TX 79701

EXXON COMPANY - U. S. A. (2)
ATTN: JOINT INTEREST ENGINEERING
SUPERVISOR
P. O. BOX 1600
MIDLAND, TX 79701

MARATHON OIL COMPANY
ATTN: DISTRICT ENGINEER
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MIDLAND, TX 79701

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HOBBS, NM 88240

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MORANCO
MR. R. M. MORAN
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midland, Texas 79701

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MINUTES OF ENGINEERING SUBCOMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
SEPTEMBER 11-12, 1974

A meeting of the Engineering Subcommittee of the proposed North Hobbs Unit was held in Houston, Texas on September 11-12, 1974. The attendance list is attached.

The meeting was called to order at 9:30 a.m. by Mr. Martin A. Thieme, representing Shell Oil Company. Mr. Thieme noted that the purpose of the meeting was to construct and finalize the Øh maps by zone, the water-cut maps by zone, the GOR maps by zone and to discuss various methods of determining remaining oil production by 40-acre tracts in Zone I San Andres.

While discussing the construction of the Øh maps, several companies stated that they would be logging wells in the near future and that these logs would be available for inclusion in the Øh map construction. The following tabulation shows the location of the wells these companies will log and the approximate time that the logs will be available to the subcommittee.

Company	Well Location	Timing
Continental	State A-29 #1 (J)	1 week
Skelly	Section 17 (M)	2 weeks
Amerada	Section 30	4 weeks
Amerada	Section 18	4 weeks
Getty	Section 19	by year end
Getty	Section 29	by year end
TPOC	Section 24 (P) State G-1	3 weeks
Cities Service	Section 31 (B) Fowler #2	by year end

After discussing the relative merits of hand contoured Øh maps and computer contoured Øh maps, the subcommittee decided to combine the hand and computer contoured maps to the finalized Øh map for each zone. It was moved by AMOCO, seconded by Continental and unanimously approved by all companies present that the engineering subcommittee recommend to the working interest Owners that a cut-off date of January 1, 1975 be established for all well logging data and well test information that is to be considered by the engineering subcommittee in completing the charges given by the Working Interest Owners and that the subcommittee proceed with its work using the best available data. It was resolved that the engineering subcommittee would proceed with its work observing the January 1, 1975 cut-off date unless directed otherwise by the Working Interest Owners.

It was further moved by AMOCO, seconded by Continental and approved that the subcommittee would in constructing the finalized Øh maps use the hand contoured Øh maps as a base and make appropriate revisions as judged necessary from the computer contoured Øh maps. The voting is recorded as follows:

YES Skelly, AMOCO, Amerada, Continental, Exxon, Cities Service, Samedan, TPOC, and Shell
NO Chevron and Getty

It was moved by Skelly and seconded by Cities Service to delete the 0.7 Øh data point in Section 31 (B) on the San Andres Zone II Øh map. The motion failed with the voting recorded as follows:

YES	Skelly, Amerada, Continental, Getty, and Cities Service
NO	Chevron, Exxon, Samedan, TPOC, and Shell
PASS	AMOCO

It was moved by Shell and seconded by Chevron to retain the 0.7 Øh data point in Section 31 (B) on the San Andres Zone II Øh map and that the subcommittee effectively tighten the contour interval on this 40 acre tract and minimize its affect on the surrounding acreage. The motion passed with the voting recorded as follows:

YES	Chevron, Skelly, Continental, Getty, Exxon, Samedan, TPOC, and Shell
NO	Amerada
PASS	AMOCO and Cities Service

(It was noted that Cities Service intends to re-log this well by year end.)

The subcommittee constructed the San Andres Øh maps by zone and approved each map as finalized subject to change only by new log data secured by the subcommittee by the cut-off date of January 1, 1975. The subcommittee approval of the finalized San Andres Øh maps by zone is recorded as follows:

	San Andres Øh Map			
Company	Zone I	Zone II	Zone III$_U$	Zone III$_L$
Chevron	Yes	Yes	Yes	Yes
Skelly	Yes	Yes	Yes	Yes
AMOCO	Pass	Yes	Yes	Yes
Amerada	Yes	Yes	Yes	Yes
Continental	Yes	Yes	Yes	Yes
Getty	Yes	Yes	Yes	Yes
Exxon	Yes	Yes	Yes	Yes
Cities Service	Yes	Pass	Yes	Yes
Samedan	Yes	Yes	Yes	Yes
TPOC	Yes	Pass	Yes	Yes
Shell	Yes	Yes	Yes	Yes

As directed by the subcommittee in its April 10-11, 1974 meeting, Shell had refined the San Andres water-cut maps by zone and presented these maps for finalization by the subcommittee along with a discussion of how they were constructed. Shell noted that the preliminary San Andres GOR maps by zone had also been constructed as directed by the subcommittee in its April, 1974 meeting. Due to the hour, the subcommittee decided to defer finalization of the water-cut and GOR maps until its next meeting to be held the first week in November, 1974.

Further subcommittee work was then discussed in detail. The general consensus of opinion was that current company work loads did not permit individual subcommittee members sufficient time to do significant subcommittee work outside of subcommittee meetings and that the work would best be done in future meetings. In view of these comments, it was moved by AMOCO and seconded by Cities Service that further subcommittee work on the water-cut and GOR maps be done in

subcommittee meetings and that no additional data tabulations or maps be mailed out to subcommittee members. The motion passed with the voting recorded as follows:

YES	Chevron, Skelly, AMOCO, Amerada, Getty, Cities Service, TPOC and Shell
NO	Continental, Exxon and Samedan

Shell led a brief discussion concerning techniques for determining remaining oil production by 40-acre tracts in San Andres Zone I. Various suggestions were made by subcommittee members with no decisions being made. Due to the late hour, further discussion on Zone I was defered to the next meeting.

There being no further business the meeting was adjourned at 4:00 p.m.

MAT:PEE

Attachments

ATTENDANCE LIST
ENGINEERING SUBCOMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
SEPTEMBER 11-12, 1974

Name	Company
M. A. Thieme	Shell
F. E. Coupal	Shell
Steve Pontious	Shell
Hank Swartz	Shell
J. C. Solari	Chevron
Frank McAtee	Skelly
Freddie J. Hensley	Skelly
Ralph R. Denham	AMOCO
Ralph Green	Amerada
C. C. Woodward	Continental
J. E. Eakin	Getty
A. H. Pokky	Getty
John M. Clayton	Exxon
W. E. Nolan	Exxon
Ed Lowrey	Cities Service
H. Leon Veeder	Samedan
Allen Wicke	TPOC
Russ Meyers	TPOC

NORTH HOBBS UNIT
ENGINEERING SUBCOMMITTEE
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September 20, 1974

Subject: Minutes of Engineering Subcommittee
Proposed North Hobbs Unit
Lea County, New Mexico

The Engineering Subcommittee
North Hobbs Unit
(Addressee List Attached)

Gentlemen:

Attached are the minutes of the North Hobbs Engineering Subcommittee meeting held in Houston, Texas on September 11-12, 1974. Although we did not accomplish all of the items that were set forth on our agenda, we did have a productive and successful meeting. The next subcommittee meeting will be scheduled during the first week of November, 1974.

As a result of reassignments Mr. H. J. Swartz has become the chairman of the Engineering Subcommittee. Please change your mailing lists accordingly.

Yours very truly,

H. J. Swartz
for M. A. Thieme
Chairman Engineering Subcommittee
Proposed North Hobbs Unit

MAT:PEE

Attachments

Minutes of Engineering Subcommittee Meeting
Proposed North Hobbs Unit
November 6-7, 1974

A meeting of the Engineering Subcommittee of the proposed North Hobbs Unit was held in Houston, Texas on November 6-7, 1974. The attendance list is attached.

The meeting was called to order at 8:45 a.m. by Mr. H. J. Swartz, representing Shell Oil Company. It was noted that the main purpose of the meeting was to construct water cut and GOR maps for each San Andres zone. Production and completion statistics have been updated and recorded by Shell as follows: 1) Individual well data sheets (zonal completion history and Øh, BHP surveys, monthly production history, well tests and overall assessment of current well status), 2) Updated cross sections, 3) Well status map (current completion zone and whether or not suspicion of behind pipe communication) and 4) State-witnessed "GOR" test sheets (water and gas data posted on appropriate zonal map). While preparing and collecting this data the special problem of frequent behind pipe communication became evident. Most of these wells were initially completed, during the 1930's, as open hole Grayburg - San Andres Zone I producers. Approximately fifteen years later the wells were frequently deepened to Zone III, a liner set and perforated completions made in the lower zones. In many cases the perforated completion interval has been changed several times and been subjected to several stimulation attempts with acid treatments.

Mr. R. W. Phillips presented some examples of Shell's experience with behind pipe communication problems on the McKinley A, McKinley B, Rice and State A leases. Based on the results of production tests, temperature surveys and radioactive tracer logs, Mr. Phillips believes that the water production problems experienced in these wells resulted because of the inability to isolate the production from high permeability in the Zone I San Andres reservoir. Instances of both successful and unsuccessful attempts to eliminate high water producing rates from Zone I were reported. It was concluded that behind pipe communication with Zone I is quite common throughout the field and is generally characterized by high water producing rates.

Those present decided to use the production data from the State-witnessed Annual "GOR" tests, taken during the third quarter of 1974, as the main control points. The completion status and production data posted on the zonal maps were verified and the necessary changes made. If a completion interval included a portion of a dense zone, only the productive zone was posted on the maps. The subcommittee then attempted to construct water cut contour lines for each of the four San Andres zones. The Zone I production performance appears to be indicative of edge water encroachment and a reasonable water cut map was constructed. However, the water cuts from the other zonal completions were erratic and difficult to fit to an edge water concept. It was pointed out that the subsea depth of 614 feet, that is often erroneously

referred to as an original oil-water contact, is actually the depth at which the first water production was obtained in the discovery well. This depth is an arbitrary one which has been used to define productive limits but is not intended to infer an original or current water level. Overlays of the water cut maps that had been prepared for Zones II, III_U and III_L were superimposed on the Zone I water cut map to demonstrate that the control points matched and therefore appeared to be indicative of communication problems. The consensus was that the water source was most likely the lower portion of Zone I. However, there still was disagreement over what degree of water invasion, if any, has occurred in the other zones.

A motion was made by Amerada and seconded by Skelly that all of the current water production be considered to be coming from Zone I and that a water cut map should be prepared for only this reservoir with the lower zones assumed to have no quantifiable water influx. The voting is recorded as follows:

YES: Amerada, Arco, Cities Service, Getty, Samedan, Skelly, TPOC, and Shell

NO: Continental and Exxon

A motion was made by Amerada and seconded by Continental to approve the water cut map for Zone I, as drawn, with the condition that revisions would be made as necessary to correct for new data resulting from future remedial efforts completed prior to the cutoff date of January 1, 1975. The motion was approved unanimously. A copy of this approved water cut map is attached. It is requested that each representative carefully review the completion status depicted on this map and advise Mr. H. J. Swartz, Shell (713-220-1022), of any errors.

The Committee members were advised that Shell, on the behalf of all operators, has requested the Field Permanent Bottom Hole Pressure Committee to confine the selection of key wells to twenty-four flowing producers that are completed in only one zone. Hopefully two or three surveys in each zone can be obtained. It was also requested that the shut in time be increased from 24 to 48 hours. It is believed that these changes will greatly improve the quality of the data that will be obtained during the next annual survey in April, 1975.

Construction of GOR maps for San Andres Zones II, III_U and III_L were commenced but not completed due to lack of time. These maps should be finalized at the next engineering committee meeting which will be held in Midland on December 5, 1974.

Mr. Paul Gratkowski, Shell, presented a review of the method used by the previous engineering committee to determine primary and secondary reserves by tracts. These calculations are based on the water cut, GOR and pore volume maps in conjunction with a material balance prediction of solution gas drive efficiency and a prediction of waterflood recoveries. Secondary reserves were based on a Stiles approach applied to an 80-acre five-spot

flood pattern. A decision on what changes and adjustments should be made on these techniques will be decided on at the December meeting. Also at this meeting it will be necessary to decide on a method for predicting the remaining primary reserves by tract for Zone I. Mr. H. J. Swartz, Shell, presented an example calculation which incorporated three arithmetically-weighted factors: distance from the 100 per cent water cut line, water cut and oil production rate. The engineering representatives were asked to consider what weighting should be assigned to a Zone I well that is also completed in other zones. It was requested that everyone prepare a recommended procedure for the apportionment of remaining Zone I reserves and submit it to Shell prior to December 5th if unable to attend the meeting.

Messrs. F. E. Coupal and S. B. Pontious reviewed the results of a study of the basal Grayburg net pay development. (Most of this data was sent to each member of the Engineering Subcommittee on March 7, 1974). The new data presented by Messrs. Coupal and Pontious are: 1) A tabulation of the total net pay determinations by well and 2) a total net pay isopach of this basal Grayburg sand reservoir. A copy of each of these items is attached. The separation between gas cap and oil column thicknesses will be done at a later date. It was their considered opinion that it will not be possible to sufficiently quantify the porosity variations to justify the construction of porosity - feet maps. Therefore the recommendation is to apply an average porosity to the net pay maps.

The meeting was adjourned at 3:30 p.m. on Thursday, November 7, 1974.

Attachments

Attendance List
Engineering Subcommittee Meeting
Proposed North Hobbs Unit
November 6-7, 1974

Name	Company	Location
Ralph Green	Amerada	Seminole
Nelson Robertson	Arco	Midland
Don Barrett	Cities Service	Midland
C. C. Woodward	Continental	Hobbs
J. M. Clayton	Exxon	Midland
W. E. Nolan	Exxon	Midland
Jim Eakin	Getty	Midland
Arne H. Pokky	Getty	Midland
H. Leon Veeder	Samedan	Ardmore
Fred Hensley	Skelly	Midland
Frank McAtee	Skelly	Midland
Allen Wicke	TPOC	Midland
Frank Coupal	Shell	Houston
R. W. Phillips	Shell	Houston
Steve Pontious	Shell	Houston
Paul Szatkowski	Shell	Houston
Hank Swartz	Shell	Houston

NORTH HOBBS UNIT
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'ESTERN UNITED LIFE BUILDING
.DLAND, TX 79701

NORTH HOBBS BASAL GRAYBURG
NET FEET OF PAY TABLE

T18S, R37E

SECTION	WELL	NET h		ANALYSIS
13	Shell Rice #3	40'	x	SNP
	Shell Rice #4	24'		Core
14	TPOC V #1	36'	x	Core
	TPOC V #2	40'		GRN
	Getty B #2	26'	x	GRN
23	TPOC V #3	25'		GRN
	TPOC V #4	20'	x	Core
	TPOC V #5	49'		GRN
	TPOC V #6	22'		GRN
	Shell F #2	48'		GRN
	Shell F #3	39'	x	GRN
	Gato Shipp #1	29'	x	GRN
	Yates Shell #1	38'		Core
24	Gulf Graham #2	28'	x	GRN
	Gulf Graham #4	32'	x	Acoustic
	Gulf Graham #5	25'		Acoustic
	Gulf Graham #6	16'		Acoustic
	Samedan C #2	23'		GRN
	TPOC G #4	21'		SNP
25	Exxon A #2	42'		GRN
	Exxon A #6	34'		Core
	Exxon A #7	43'	x	Core
26	Cactus Pan Am St. #1	12'		Core
	Skelly E #1	27'		GRN
36	Gulf Holt #1	31'	x	Core

T18S, R38E

17	Moran St. 17 #1	18'	x	Core-Acoustic
18	Amerada Hardin B #5	21'		GRN
	Moran Hardin B #1	10'		Core
	Gulf Hardin #3	15'		Core
19	Shell McKinley A #4	31'	x	GRN
	Shell McKinley A #6	30'	x	GRN
	Shell McKinley A #10	16'		Acoustic
	Shell McKinley A #11	29'		SNP
	Cities Service Hardin #3	45'	x	GRN
	Getty Hardin #4	41'		GRN

SECTION	WELL	NET h	ANALYSIS
20	Shell McKinley B #2	25'	Acoustic
	Shell McKinley B #4	23'	SNP
	Skelly McKinley #1	32'	CNL
	Moran St. 20 #1	8' x	Core-Acoustic
2[illegible]	Shell Sanger #[illegible]	10' x	SNP
28	Arco Grimes #2A	13'	GRN
	Arco Grimes #3	21'	GRN
	Arco Grimes #4	16'	GRN
	Shell Grimes #9	29'	SNP
	Shell Grimes #10	21'	SNP
	Shell Grimes #11	10'	SNP
29	Amerada B #2	16' x	SNP
	Chevron I #5	43'	SNP
	Chevron I #6	40'	SNP
	Continental A-29 #1	41' x	SNP
	Continental A-29 #7	25'	Core
	Continental A-29 #8	16'	SNP
	Exxon Bowers #7	21'	Core
	Exxon Bowers #28	26'	Acoustic
	Exxon Bowers #33	18'	SNP
	Exxon Bowers #35	24'	Acoustic
	Getty Grimes #6	20'	Acoustic
30	Exxon Bowers #8	31'	GRN
	Getty McKinley #8	23'	Acoustic
	Getty McKinley #10	23'	SNP
	Getty McKinley #11	22'	Acoustic
	Marathon St. 30 #1	24' x	GRN
31	Cities Service Fowler #2	38'	FDC
	Cities Service Fowler #9	36'	FDC
	Shell Berry #2	29'	SNP
	Shell Berry #3	25' x	GRN
32	Amerada A #5	38'	SNP
	Gulf Grimes #9	43' x	Acoustic
	Gulf Grimes #16	35'	Acoustic
	Marathon St. 32 #9	30'	Acoustic
	Shell St. A # 6	35'	Acoustic
	Shell St. A #7	34'	Acoustic
33	Amoco St. G #6	21'	Acoustic
	Continental A-33 #12	42'	SNP
	Gulf Grimes #7	28'	SNP
	Shell St. B #5	36'	Acoustic
	Shell St. B #6	15'	Acoustic
34	Skelly Turner #1	29'	CNL
	Moran Hobbs #1	8'	Core

x Net h extrapolated

R38E

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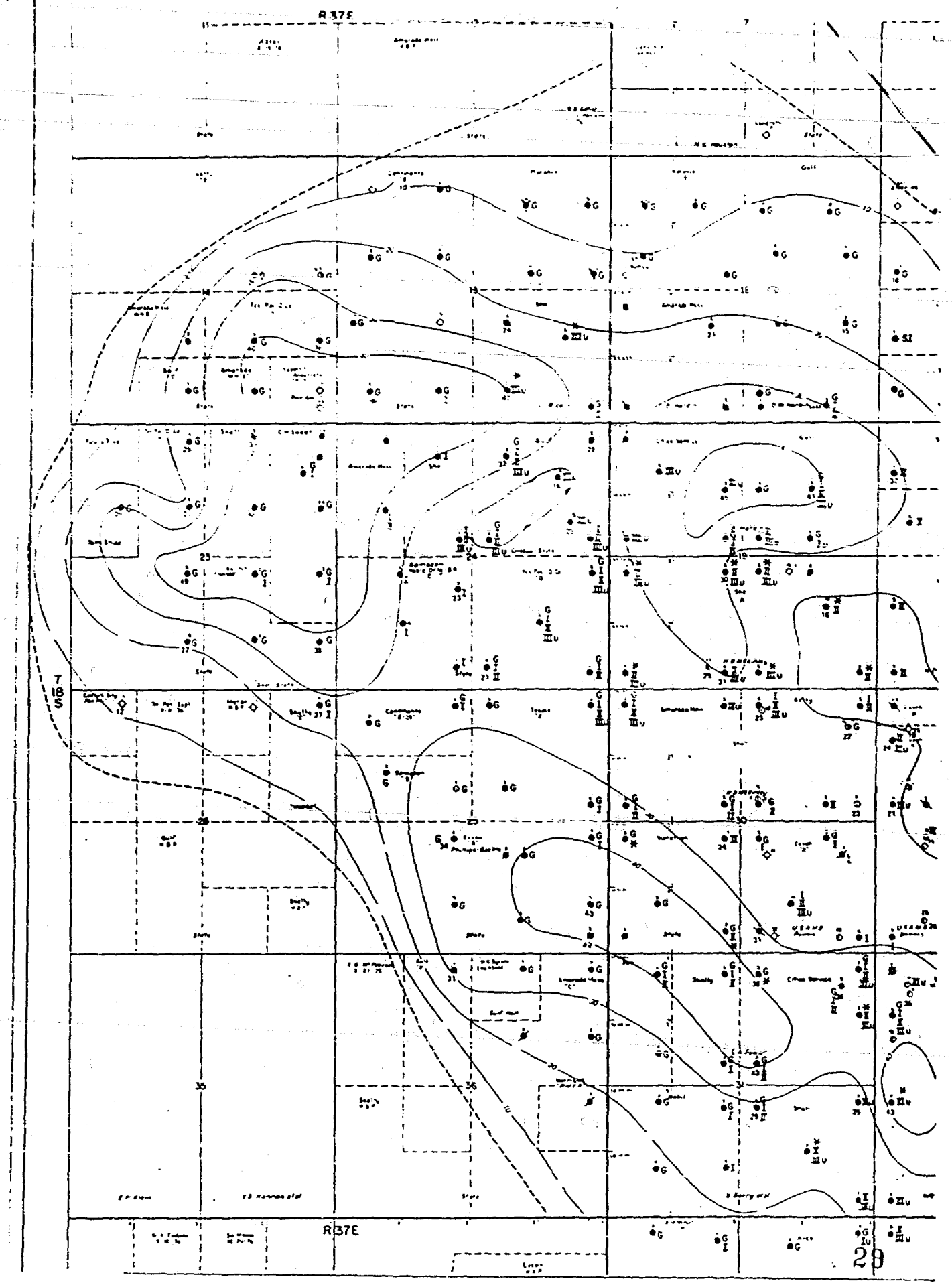
R38E

28

SHELL OIL COMPANY | WESTERN E & P REGION | PRODUCTION DEPARTMENT
WESTERN DIVISION

HOBBS FIELD
BASAL GRAYBURG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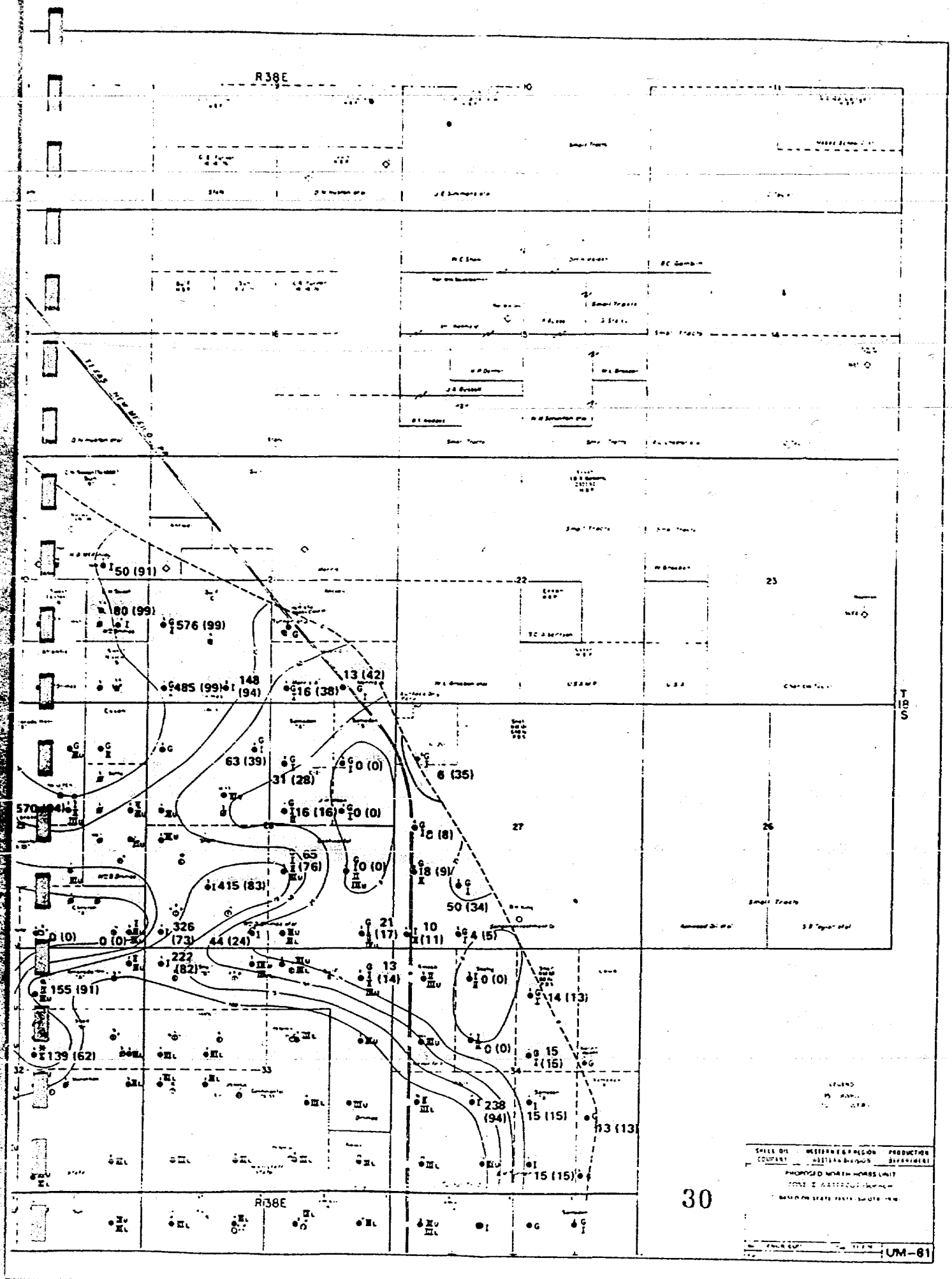
T 18 S
R 37 E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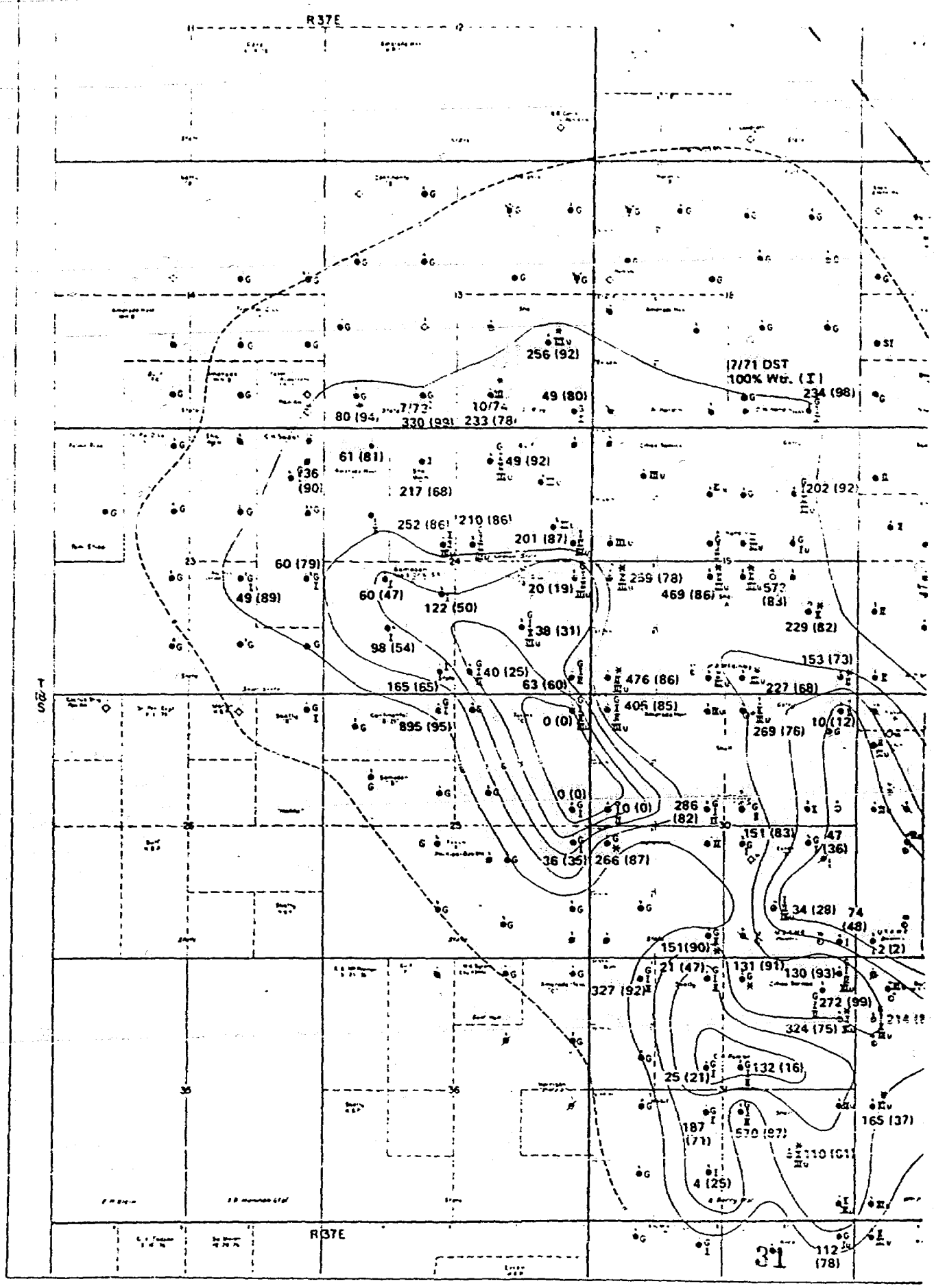
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Minutes of Engineering Subcommittee Meeting
Proposed North Hobbs Unit
December 5, 1974

The meeting was called to order at 8:45 a. m. by Mr. H. J. Swartz. It was noted that the main purpose of the session was to construct and approve GOR maps for each San Andres zone. There was a discussion of the method of approach (using the State-witnessed GOR tests taken during the third quarter of this year as the main control points) and of the use of these maps for reserve determinations. It was unanimously agreed that a GOR map was not needed for Zone I inasmuch as it is anticipated that the remaining reserves from that reservoir can be recovered by continued water influx. A uniform current gas saturation will be assumed. All known corrections to well completion status were made. Unanimous approval was obtained for the GOR maps that were constructed for San Andres Zones II, III_U and III_L. These maps will be updated and finalized at the next Engineering Committee meeting.

A discussion followed on the technique to be used for calculating remaining primary and secondary San Andres reserves by tracts. It was agreed that a similar method to that used by the previous engineering committee would be preferable and that Shell should prepare the required predictive performance curves (based on material balance and waterflood recovery calculations). The results of these studies will be presented at a future meeting in order to obtain final committee approval before calculating tract reserves.

The need for obtaining BHP buildup surveys on selected wells were discussed. These wells are those which are flowing and which are effectively completed in only one zone. Very few wells meet these prerequisite and it was recommended that surveys be taken as near to year-end as possible in the following wells: Amerada Hess McKinley 3, III_U in Section 30(C); Continental State A-33 No. 1, III_L in Section 33 (M); Exxon Bowers A Federal No. 10, III_U in Section 29 (L); Getty McKinley No. 2, II in Section 30 (H); Gulf Grimes B-1, III_U in Section 33 (I); and Gulf Grimes A-5, III_U in Section 32 (M). It was also agreed that the Engineering Subcommittee would recommend to the Working Interest Owners that an adjustment be made to any production parameter that incurred a production loss because of these BHP surveys. In addition it is requested that each operator furnish Shell with a copy of all BHP build up data with sufficient information to make a Horner-type interpretation.

The subject of ~~procedure for apportioning by 40-acre tracts the Zone I reserves were then discussed in detail.~~ Potential factors considered were: ~~distance from the 100 percent water cut line, oil production rate, water cut, current recoverable oil in place and areal sweep efficiencies.~~ In addition, Mr. Leon Veeder, Samedan Oil Corporation, presented hypothetical calculations that predicted recoveries based on assigning different areal sweep efficiencies (between 65 and 95 percent), depending on the water cut. ~~It was unanimously agreed that a "correct" solution to this complex problem of future oil migration must consider the effect of different oil rates, porosity feet,~~

well spacing and strength of the aquifer. Simplifying assumptions could include the simultaneous opening of the entire Zone 1 productive interval in each well bore and uniform permeability, swept zone residual oil and current formation volume factor. It appeared to those present that this "correct" solution would best be done by the use of a reservoir simulation model. Shell volunteered to investigate this possibility and prepare an estimated cost for this type of study.

The question of completion intervals in Zone I affecting the production performance was discussed. Some of the representatives felt that additional work should be done to determine if various correlatable members in Zone I appeared to contain the bulk of the water. Shell volunteered to make a cursory review of the data and present the findings at the next engineering committee meeting. At that time the Engineering Committee will determine the feasibility of further study to better define the Zone I water influx.

The meeting was adjourned at 4:30 p. m.

ATTENDANCE LIST

Engineering Subcommittee Meeting
Proposed North Hobbs Unit
December 5, 1974

Name	Company	Location
E. R. Green	Amerada Hess	Seminole
Grant B. Miller	Amerada Hess	Seminole
A. M. Omar	Amerada Hess	Seminole
Nelson Robertson	Atlantic Richfield	Midland
J. C. Solari	Chevron	Midland
Don Barrett	Cities Service	Midland
C. C. Woodward	Continental	Hobbs
J. E. Eakin	Getty	Midland
Joe R. Paradiso	Getty	Midland
Fernando Cardeñosa	Gulf	Midland
W. E. Nolan	Exxon	Midland
Leon Veeder	Samedan	Ardmore
Fred Hensley	Skelly	Midland
Frank D. McAtee	Skelly	Midland
Allen Wicke	TPOC	Midland
W. R. Larsen	Wiser	Midland
F. E. Coupal	Shell	Houston
H. J. Swartz	Shell	Houston

MINUTES OF THE ENGINEERING SUBCOMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
JANUARY 22-23, 1975

The meeting was called to order at 8:45 a.m. by Mr. H. J. Swartz. Eleven companies, which operate 70 percent of the current producers, were represented (attendance list attached). The main purpose of this meeting was to finalize the porosity-feet, water cut and GOR maps for each of the four San Andres zones and to develop an approach for apportioning the San Andres Zone I reserves.

The first order of business was the finalization of the porosity-feet maps. Since the construction of the maps at the engineering subcommittee meeting of September 11-12, 1974, Shell has received 13 usable new logs. In addition, top of zone correlation changes in three wells required adjustments to the individual zonal values and a core analysis was obtained on Sweet McKinley B 1-A-G, Section 20 (I). Also, it is necessary to differentiate the Zone I porosity-feet between original gas and oil columns. All of the San Andres zonal porosity-feet maps were finalized and approved unanimously. Attached are copies of these maps and a tabulation summarizing all of the petrophysical interpretatons by wells. The original oil and gas in place in the San Andres for each lease will be determined by using the grid technique (ten-acre blocks) at the next engineering subcommittee meeting.

Grayburg net oil, net gas pay and total net pay isopach maps have been prepared by Shell. Copies of these are attached and we request that each representative review these in detail and be prepared to finalize these at the next meeting. Individual well porosity determinations cannot be made because of the lack of petrophysical data.

At the December 5 subcommittee meeting, Shell had volunteered to make a cursory review of the occurrence of net pay development with respect to completion intervals in order to determine if further study was warranted to better define San Andres Zone I water influx. The results of such a geological review were presented by Mr. F. E. Coupal. He has constructed a map with a schematic representation for each well of the vertical location of the net pay, streaks of higher than average porosity development (and presumably higher permeability), dense streaks separating pay zones, and the thickness of the argillaceous zone which separates Zone I and Zone II net pay. The location of the completion intervals was then superimposed on the pay development and attempts were made to explain anomalous water cut performance between offsetting wells. ~~It was concluded that this reservoir could not be subdivided into correlatable and extensive subzones~~. Also presented was an isopachous map of the thickness of the argillaceous zone separating Zone I and Zone II net pay. It was the consensus of the subcommittee that there is more areal separation existing between the zones than previously believed to be present.

The subcommittee then directed their attention to the finalization of the water cut maps. These maps will be used to determine the volumes of each reservoir that have been swept by natural water influx in order to ascertain tract and total reserves. The current completion status has been reviewed and many changes made. Each company representative should carefully examine the zones shown to be open to production for his wells and advise me (713-220-1022) of any disagreements. Some of these changes in completion status helped explain two anomalous areas on the Zone I water cut map drawn by the subcommittee on November 7. Firstly, the zero contour

ne in Sections 25 and 30 could be eliminated because two of the clean wells, exaco State C 1 and 2, were determined to be completed in the Grayburg only and therefore did not constitute control points. In addition, although Amerada Hess McKinley 4 is currently a clean producer from upper Zone I, production prior to ebruary 1973, was at a high water cut when all of Zone I was produced. This portion of the map was adjusted accordingly. Similarily, Mobil Berry 2, is also a Grayburg only producer and not a control point. Significant changes were also made round the Chevron lease located in Section 29. A southern offset to the Chevron ease, Amerada State A-1, was worked over in December 1974 to open the entire Zone I section to production with three other zones and is now producing at 76 percent ater cut. Based on this additional point and a study of Mr. Coupal's geologic eview, the contours in this area were adjusted accordingly. A copy of the finalized map is attached and was approved by everyone present except for a negative ote by the Amoco representative.

The question of whether or not water cut maps should be constructed for the other San Andres zones was re-examined. At the November subcommittee meeting water ut maps were drawn for each zone but because the control was sparse and questionable (behind pipe communication with Zone I?), it was decided to assume that all water production was from Zone I and that the other zones would be considered to be at the nitial water saturation. The voting on this motion was eight in favor and two (Continental and Exxon) opposed. This is the only significant disagreement in the subcommittee to date and consequently considerable time was devoted at this meeting to iscussing the "best" method of determining whether any significant water influx has curred in these other San Andres zones. It was concluded that whereas water has ..tered these reservoirs either by direct communication naturally (between I and II where no argillaceous separation exists) or because of mechanical failure (behind pipe communication), it is not possible to quantify the degree of influx on a lease basis. A statement was formulated at this meeting as follows: "It is apparent from the study of San Andres zonal production performance that Zone I is the major source of water production and encroachment and that only Zone I water saturation can be reasonably estimated on the areal basis; by the construction of water cut maps. Consequently, current water saturations for Zones II, III and III' will be estimated on a reservoir basis." This approach was approved by everyone present except for Amoco. These values for current water saturations will be approved at the next engineering subcommittee meeting.

The next order of business was the apportionment of Zone I primary reserves by tracts, assuming continued water influx. To date two methods for approximating these reserves have been presented but neither has been accepted. At the last meeting Shell volunteered to investigate the feasibility of using a reservoir simulation model to resolve the problem. Mr H. J. Swartz reported the results of consultation with Shell's computer experts. In summary, it appears that a "proven" Shell program could be used and a study completed within a reasonable period of time. However, because of the anomalous behavior of some wells (clean wells offset by high water cut producers), it is strongly recommended that a history match be attempted in order to match the general influx pattern and approximate the aquifer strength. It is recommended that this history match be attempted on a very coarse grid (10 by 15) and include the entire field. An arbitrary and quick allocation of production between ne I and other reservoirs would be necessary. It was therefore recommended by Shell hat the coarse grid approach be tried immediately and the results reported to the subcommittee in order to better ascertain the feasibility and costs of such an endeavor. The prediction mode would require a much more detailed grid and would require a ballot for approval by each working interest owner to share in the associated expenses. Each company representative present expressed the belief that the reservoir

simulation approach appeared to offer the only acceptable method of apportionment that is recognized at this time but that they would like to have the insight to future costs and complexity of resolution that can be obtained by a quick coarse grid run to be performed by Shell. Following a review of the preliminary results, a specific recommendation will be made to the Working Interest Owners Committee.

During the discussions on the feasibility of reservoir simulation, the question was raised concerning the variations in reservoir pressure between zones and areally within zones. Unfortunately, none of the requested historical BHP buildup data had been received before the meeting but based on the key well BHP statics and the analyses of four special buildup surveys, it can be tentatively concluded that the BHP in the proposed northern unit area is highest in Zone I, about 100 psi lower in Zone II, and another 150 psi lower in Zone III. It is again requested that each operator submit all BHP buildup data on all Grayburg-San Andres completions. The additional data should enable the construction of zonal pressure history with time and areal kh variances in conjunction with core analyses. The year 1974 BHP data received to date is summarized on an attachment.

Mr. P. J. Szatkowski then presented a detailed review of the planned method for calculating reserves. Key assumptions will include: current GOR, initial and current water saturations, relative permeability relationships, current pressure and abandonment pressure. Water cut (I) and GOR (II, IIIU, and IIIL) values will be determined by 40-acre tracts by "gridding" these maps at the next engineering sub-committee meeting. It was agreed at the December meeting to accept the relative permeability curves, initial water saturation and the abandonment pressure (100 psi) used in the Amoco report.

The GOR maps that were constructed at the December meeting were then finalized with unanimous approval. The only new data resulted from two Arco wells, Grimes 1 and 2, which are located in Section 28 and were both recently perforated in Zone II so that they are now producing from II and IIIU. This work resulted in overall lower GOR's which were consistent with the previously depicted GOR's for these zones. Copies of the finalized maps are attached. A reservoir-wide average GOR will be assigned to Zone I at a later date.

The meeting was adjourned at 3:00 p.m., Thursday, January 23, 1975.

HJS:VMS

ATTENDANCE LIST

ENGINEERING SUBCOMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
January 22-23, 1975

A. M. Omar	Amerada Hess	Seminole, Texas
Grant B. Miller	Amerada Hess	Seminole, Texas
Ralph Denham	Amoco	Houston, Texas
Nelson Robertson	Atlantic Richfield	Midland, Texas
Don Barrett	Cities Service	Midland, Texas
C. C. Woodward	Continental	Hobbs, New Mexico
John Clayton	Exxon	Midland, Texas
W. E. Nolan	Exxon	Midland, Texas
J. E. Eakin	Getty	Midland, Texas
A. H. Pokky	Getty	Midland, Texas
Leon Veeder	Samedan	Ardmore, Oklahoma
Fred Hensley	Skelly	Midland, Texas
Frank Mc Atee	Skelly	Midland, Texas
Allen Wicke	Texas Pacific	Midland, Texas
F. E. Coupal	Shell	Houston, Texas
Steve Pontious	Shell	Houston, Texas
Paul Szatkowski	Shell	Houston, Texas
Hank Swartz	Shell	Houston, Texas

#3

MINUTES OF THE TECHNICAL COMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
MARCH 5&6, 1975

The meeting was called to order at 9:15 a.m. by Mr. H. J. Swarts. Fifteen companies, which operate 87 percent of the current producers were represented during at least a portion of the two-day session. (Attendance list attached.) The main purposes of this meeting were to formulate a recommendation for determining Zone I reserves and to establish a procedure for determining San Andres zonal tract values for original oil and gas in place, average producing GOR (II, IIIU & IIIL) and average water cut (I..

At the January meetings it had been decided that Shell should make preliminary computer runs with their three-dimensional, three-phase, compressible fluid program in order to better evaluate the feasibility and costs for making an anlysis of future Zone I production by the use of reservoir simulation. The results of the preliminary efforts were discussed with the committee and are summarized as follows. The reservoir model used for these preliminary runs consisted of three non-communicating San Andres layers (I, II and III) covering the entire field with the structural location and porosity-feet values as determined by the Technical Committee. Fluid properties and relative permeability relationships were the same as those in the previous Technical Committee report. A five by ten grid was superimposed on the structure in a manner which resulted in all of the producers being located in 27 grid blocks. The wells in each grid block were summarized by completion interval and represented by one composite well, in the center of the block, containing the total zonal millidarcy-feet open to production in that grid block. An infinite and radial aquifer was placed in communication with only Zone I and input at three westerly-located points. The cumulative field production was represented as being produced at a constant rate over life. Several initial or Phase 1 runs have been made, based on the aforementioned conditions. Adjustments to the data are now being made, but in the opinion of the Shell computer experts the proposed application is feasible and Shell is willing to make the complete analysis for one set of predictive premises for a flat rate charge of $6000. This amount was determined by estimating the actual computer time needed to complete all phases of the study ($5000) and includes a $1000 estimate for contract clerical help, needed to prepare data and assemble annual production statistics for about 350 wells over a 40-year period. No charges will be made for professional or non-professional overhead nor would a charge be made for a program licensing fee. Continuation of this study, for the purposes of predicting Zone I reserves for a given set of conditions, would consist of inputting actual well production with time, and adjusting the permeabilities and various constraints until a satisfactory history match is obtained. Following this a similar history match would be obtained using a finer grid system. An analysis would then be made of future production performance for a given set of conditions. Shell would then present the Technical Committee with a report of the assumptions made and results with an interpretation of their meaning. Shell made a motion, which was seconded by Samedan, that the Technical Committee recommend to the Working Interest Owners that a computer analysis of Zone I reserves be made, for a given set of predictive conditions, on the Shell reservoir simulation program for a flat rate of $6000. The voting on this proposal was:

FOR: Amerada, Amoco, Arco, Cities Service, Continental, Getty Exxon, Samedan, Skelly, Texaco, Texas Pacific and Shell

PASS: Gulf

A ballot for sharing these costs will be mailed, under separate cover, to the operators. It was also recommended by the Technical Committee that the predictive mode of this study should be based on the premises that the current completion intervals are maintained status quo. This would serve as a base case and it is recognized that apportionments will then have to be made to the results in order to credit leases which have Zone I reserves but no current drainage points. Attached is a map which depicts the current completion status of each well in the proposed North Unit Areas as described in our records. It is imperative that each operator verify this description and notify me (713 220-1022) of any discrepancies.

The next order of business was a presentation of average zonal porosity and permeability values. Average porosity values have been obtained from both log and core analyses and are considered to be reliable inasmuch as they are generally accurately measured and represent excellent areal coverage of the proposed unit area. The average permeability values are more questionable because of the wide range in values and the limited data. Permeability values were averaged from three sources: cores, buildup pressure analyses and those used by the previous Technical Committee. The core-derived values exhibited large differences and the data were averaged both arithmetically and geometrically for all available core analyses from wells within one mile of the proposed unit area. Arbitrarily the average of these two summations (arithmetic and geometric) was used as representative of the cored values. Stratification analyses, using the Dykstra-Parsons variance approach have been made and will be used as a guide for the reservoir simulation study. Shell has measured 83 BHP buildup surveys in 24 different wells. Only 29 of these, taken in 10 wells, are representative of single zone performance. In addition three of the four buildup surveys that were requested by the Technical Committee, at year-end, were usable for permeability determinations. Since no other company has ever taken buildup surveys in the proposed unit area, the resulting averages from this source are representative of only limited portions of the reservoirs. The previous Technical Committee used zonal permeability values which were derived from cores and adjusted to fit performance. A comparison was also made, by Shell, of the initial potential tests of all wells completed by 1931. This data was recorded on a map and iso-potential lines drawn. These date can only be used in a qualatative manner but strongly indicate that the lowest productivities are in the south unit area whereas a fairway which generally follows the structural highs is located in the northern unit area and average to good productivities occur in the remainder of the wells. The resulting average permeabilities, which are summarized in the attachment, are therefore considered to be tentative. Additional insight into actual values should result from the reservoir simulation study and will be incorporated with these aforementioned values.

At the last meeting it was decided to assign reservoir average current water saturation values to the Grayburg and San Andres (II, IIIU & IIIL) and reservoir average current gas saturations to the Grayburg and Zone I.

These values were in lieu of tract determinations and would be used in calculating reserves in conjunction with relative permeability relationships. Producing data from "key wells" are being assembled but it is believed that valuable insight as to the degree of water influx into the lower San Andres will be gained from the computer analysis. In addition, similar relative permeability relationships should be used for estimating current gas and water saturations from producing gas-oil ratios and water cuts. It is therefore recommended that the determination of these average values be made at a later date.

Approval of the Grayburg net oil, net gas and total net pay isopaches maps was deferred at the request of one of the representatives in order to permit a more detailed check of the values used.

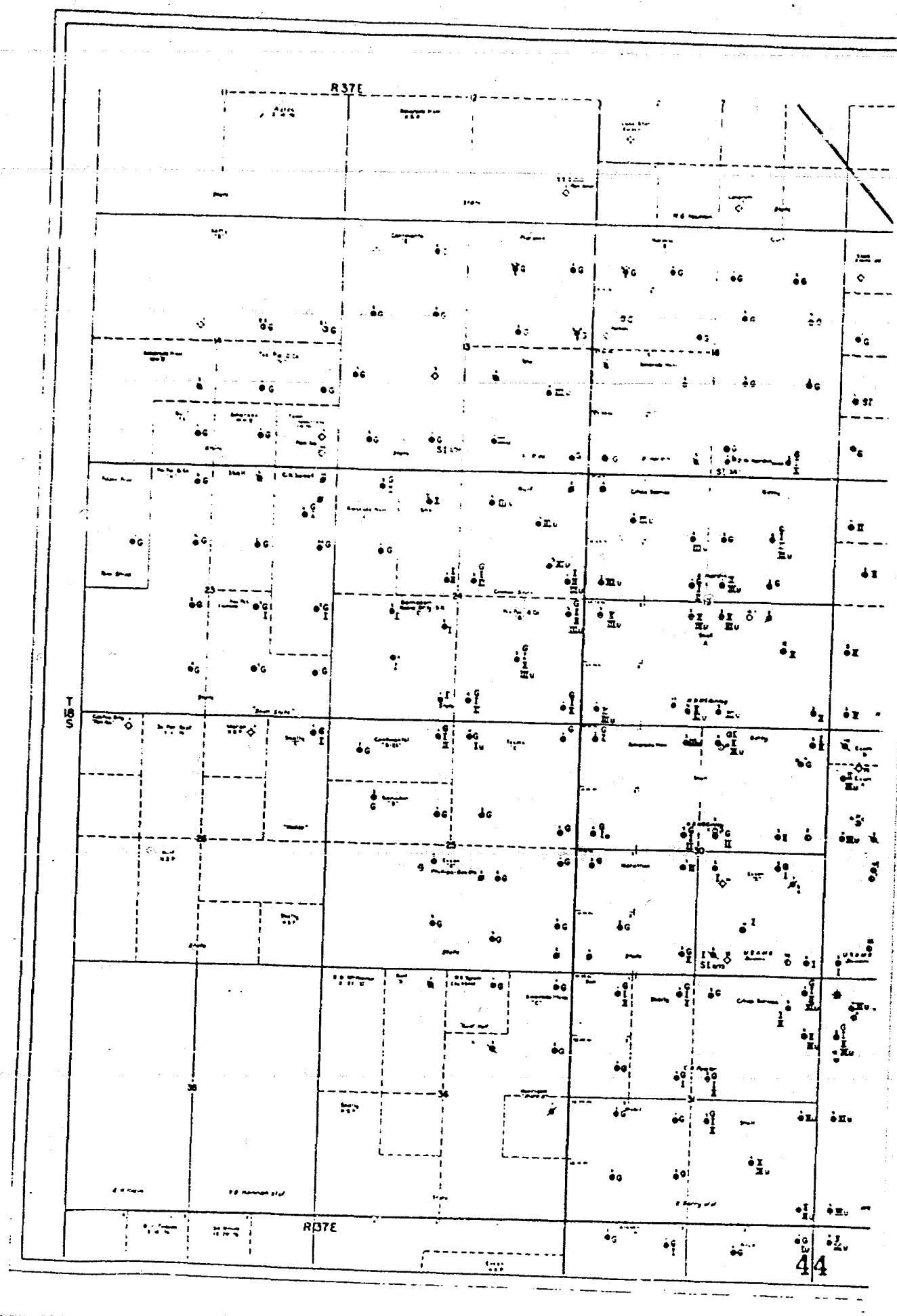
The Technical Committee then decided to determine tract values from the approved San Andres porosity-feet and Zone I water cut contour maps by using a ten-acre grid system whereas the GOR values would be based on a 40-acre grid. Values were selected for each grid block and were based on mechanical interpolation between contour lines. The determinations of tract value for original oil and gas in place, current saturations and remaining primary and secondary reserves will necessarily be made at a later date and then presented for review.

ATTENDANCE LIST
TECHNICAL COMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
MARCH 5 & 6, 1975
MIDLAND, TEXAS

NAME	COMPANY	LOCATION
Grant B. Miller	Amerada Hess	Seminole
A. M. Omar	Amerada Hess	Seminole
Paul D. Kossmann	Amoco	Houston
Bob Leggott	Atlantic Richfield	Midland
Donald D. Barrett	Cities Service	Midland
C. C. Woodward	Continental	Hobbs
J. M. Clayton	Exxon	Midland
W. E. Nolan	Exxon	Midland
J. E. Eakin	Getty	Midland
Arne H. Pokky	Getty	Midland
F. Cardeñosa	Gulf	Midland
H. Leon Veeder	Samedan	Ardmore
Chris Bosecker	Skelly	Midland
Frank McAtee	Skelly	Midland
Ben Barnett	Sun	Midland
Paul H. Davis	Texaco	Midland
Allen Wicke	Texas Pacific	Midland
John A. Yates	Yates Pet.	Artesia
F. E. Coupal	Shell	Houston
P. J. Szatkowski	Shell	Houston
H. J. Swartz	Shell	Houston

DETERMINATIONS OF AVERAGE POROSITY AND PERMEABILITY

	Gb	I	II	III
I. AVERAGE ϕ:				
A. Logs				
No. wells	-	11-	9[illegible]	8[illegible]
h - ft.	-	4097	3741	4970
ϕh	-	607.5	530.4	675.5
ϕ - %	-	14.8	14.1	13.6
B. Cores (North Area)				
No. Wells	19	10	5	5
h	295.5	212	162	10-
ϕh	41.3	31.7	20.2	12.7
ϕ	14.0	14.9	12.5	12.3
Avg. ϕ - %	14.0	14.8	14.1	13.6
II. AVERAGE k:				
A. Cores (North Area)				
Arithmetic ka h	750.8	30263	7333	6529
k	2.5	143	45	63
Geometric kg h	270.6	3375	1032	807
kg	0.9	16	6.4	7.8
Avg Ka & kg	1.7	79	26	35
B. Buildups				
No. wells (Surveys)	1 (2)	3 (6)	2 (6)	7 (18)
k	2	137	12	19
C. Previous Engr. Rept.	3.5	40	50	25
Avg. k - mds.	2.4	85	29	26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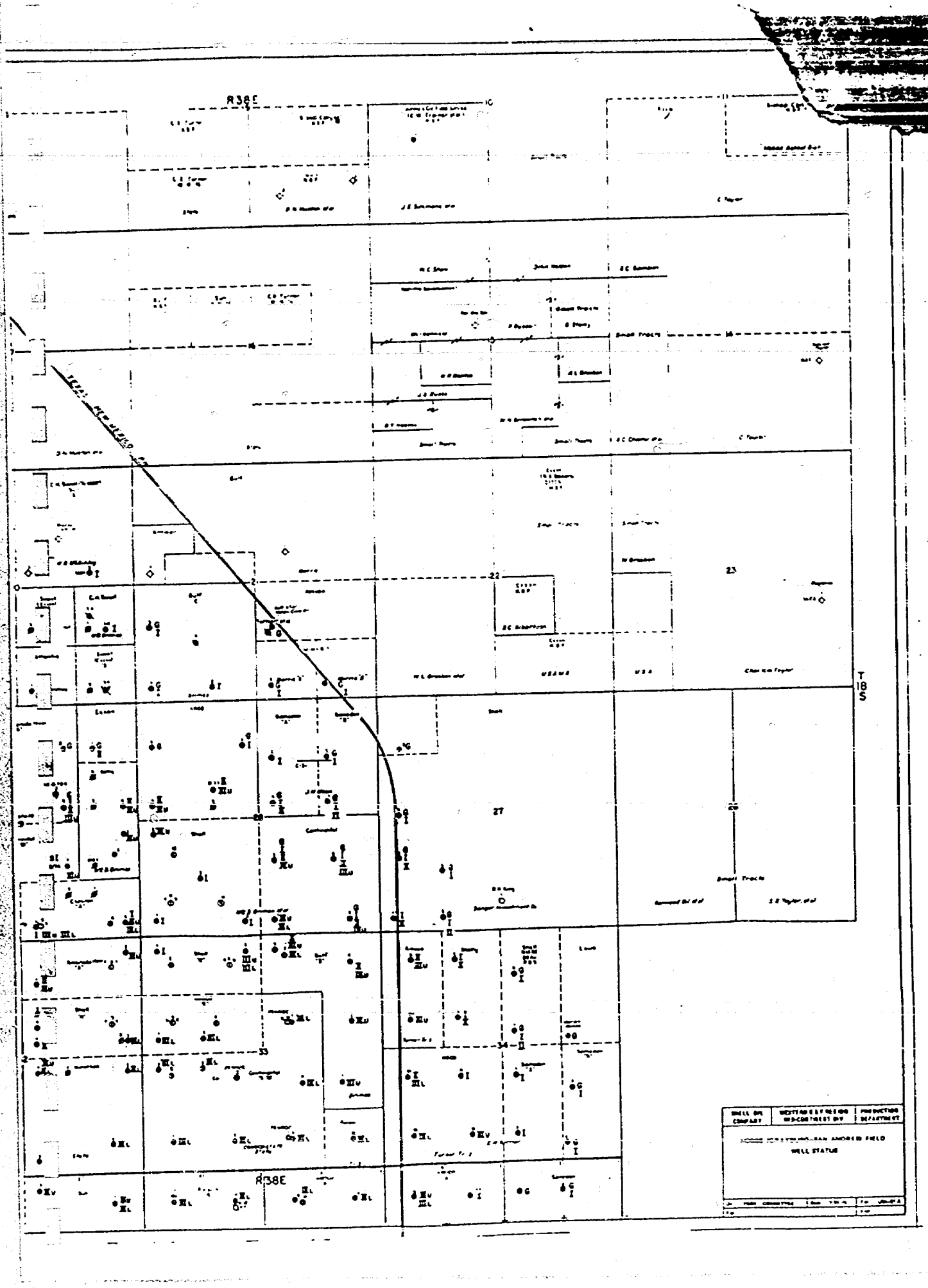
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WELL STATUS

Minutes of the Technical Committee Meeting
Proposed North Hobbs Unit
June 4, 1975

The meeting was called to order at 8:45 a.m. by Mr. H. J. Swartz. Thirteen companies, which operate 85 percent of the current producers were represented. (Attendance list is attached.) The main purposes of this meeting were to:

1) describe the reservoir simulation models and techniques that are currently being used by Shell for this unitization effort and

2) determine a method for constructing acceptable Grayburg net pay isopach maps.

Mr. W. C. Miller, supervisor of the reservoir simulation group at Shell Development Company, presented a detailed description of the reservoir simulation model being used by Shell to analyze the San Andres reservoir performance and in particular to determine Zone I reserves. The model can be briefly described as a three-phase, three-dimensional, compressible fluid reservoir simulation program. A relatively coarse grid of 150 blocks (ten by five areally with three zones vertically) is being used in the initial phase of this study. Each block contains about 500 acres and the anticlinal structure is included by digitized data on the top of Zone I porosity and the gross thicknesses for each San Andres Zone (I, II and III) for each block. Similarily, each block's zonal net pay was determined from porosity-feet isopach maps (constructed by the current Technical Committee for the North Unit area and by the previous Technical Committee for the South Unit wells) and the average porosity attributed to each zone. The initial gas-oil-contacts and water-oil contacts are 360 feet subsea and 614 feet subsea respectively. This mathematical representation contains an original oil-in-place for the San Andres of 835 million STB, which compares favorably to the 819 million STB calculated by the previous Technical Committee.

Input gas-oil relative permeabilities are the same as the rock curves previously used, but the oil-water relative permeabilities have been adjusted to reflect the Dykstra-Parsons stratification calculated from cores in the North Unit area. The aquifer is strategically located at three locations and communicated only with Zone I.

Oil production and zonal completion history have been input by well in five-year increments up to 1970, then the next three-year period and finally 1974 production. The latter is actually based on the rates reported in the State-witnessed annual gas-oil ratio tests taken in mid-1974. These tests have been judged, by the Technical Committee, to be the most reliable indicators of current conditions. Each well's oil rate is automatically allocated by the simulation program to the zones open to production during its entire history. The pertinent factors such as each zone's pressure, permeability, fluid saturation are accounted for in the calculations for each well. Zonal production rates are computed and a history match, for each well, is based on a comparison of cumulative oil, cumulative water, BHP history and current rates; with emphasis on current conditions.

Once a satisfactory history match is obtained, the predict mode will be run with the current completion intervals open. Each well's primary reserves will be computed by the simulator. A similar simulation, history match and comparable predict mode will then be made using a finer grid system in order to check the sensitivity of the results to this parameter. These results will then be presented to the Technical Committee at which time it will be determined what additional work is required to assign Zone I reserves by tract.

Following Mr. Miller's presentation, Shell requested an expression of opinion from those present as to whether or not there were any objections to the assumptions made or techniques being used or any suggestions. Mr. Joseph C. Solari, Chevron, suggested that the computed current tract saturations by zone, be compared to the water cut and GOR maps, prepared by the Technical Committee. It was also brought out that the computed ultimate recoveries should furnish additional insight into both primary and secondary recovery efficiencies and the crossflow volumes with time into the various San Andres layers. It may also be desirable to use this reservoir model as a basis for waterflood predictions

Concurrent with this major reservoir simulation effort Shell plans to investigate waterflood recoveries with the use of reservoir model work on both the Grayburg and the Zone III lower San Andres reservoirs. The Grayburg analysis will be based on a five-spot 40-acre symmetry element which is representative of the Grayburg reservoir considered to be floodable (northern and western flanks). The history match will be made by comparing current average well producing characteristics. It is intended to simulate the performance of the San Andres III Lower reservoir by modeling the entire reservoir, as described by the current Technical Committee work, and comparing the results of water injection under at least two different injection patterns. The benefits of infill drilling will also be examined with this model.

An error in the productive limits of the Zone I oil column porosity-feet map was shown to the Committee. The problem was caused by a miscorrelation of the top of the San Andres in that area and results in only a slight adjustment to the original oil-in-place values for the Gulf Hardin (Section 18 A, B and H) and Moranco State (Section 17E) leases. To date only twelve of the twenty-five operators have returned the forms for verification of tract original hydrocarbon-in-place values. A revised tabulation will be distributed as soon as all of the necessary corrections have been received. Three minor adjustments are also required to contours on the Zone I water cut map. These concern the 25 percent water cut line in the SE/4 of Section 34 (should curve north of Samedan Turner B-2) and the 50 and 75 percent water cut lines in the NE/4 of Section 30 (75% should be west of Getty McKinley 1 and the 50% bowed accordingly). It was also pointed out that Mobil Berry No. 4 (Section 31M) is currently completed in both the basal Grayburg and an upper Zone I (four net feet of pay) stringer. During the 1974 annual GOR State Test the well produced 30 BOPD plus 18BW but it is mapped, by the Technical Committee, to be completely

watered out in Zone I. Following a discussion and further review of the situation it was unanimously decided that the map is correct as drawn. If anyone knows of any descrepancies on any of the maps distributed to date, please advise me as soon as possible inasmuch as we intend to soon have these maps drafted for the Technical Committee report.

Mr. F. E. Coupal presented net pay continuity maps for each of the four San Andres reservoirs. These representations are based on determining how much of the net pay in each well zone is correlatable with the net pay development in each of the direct offsets. The net pay continuity appears to be very good and the reservoir averages are: Zone I, 94 percent; Zone II, 93 percent, Zone III_u, 90 percent; and Zone III_L 93 percent.

The current well status tabulation, furnished to each operator with our letter of May 14, 1975, should be checked carefully and returned to me as soon as possible. Particular attention should be paid to the completion interval and that the elevation shown is compatible with these measurements. Logs run in these wells have used every imaginable elevation datum and some are unique. If you have any questions about this tabulation please call either Frank Coupal (220-1333) or Hank Swartz (220-1022). Your cooperation in carefully verifying this tabulation and that of the original hydrocarbon-in-place is greatly appreciated.

Exxon Company, U.S.A. had previously expressed concern that the Grayburg net pay values selected from logged wells might include some siltstone or nonproductive rock. (See their letter dated May 2, 1975.) Mr. John M. Clayton, Exxon, summarized his work on the problem and pointed out that the production statistics on the western flanks of the proposed unit area seem to indicate that the southern wells have performed much better than the northern producers in contrast with Shell's net pay depiction which shown both areas to have similar net pay development. In summary, Exxon feels that these net pay representations should be modified. Mr. F. E. Coupal then reviewed the geologic premises used and pointed out that the nine zones at the top of the basal Grayburg are correlative across the entire field whereas the underlying wedge of net pay is more erratic in occurrence. He then distributed statistics which geographically summarized the distribution of net pay based on data from 18 cored wells. The tabulation included comparisons of cored well net pay with log-interpreted net pay and a break-out of non-permeable (less than 0.2 md) rock over 11% porosity. A tentatively revised Grayburg net pay map was presented based only on core data and a few logged wells with net pay estimates compatible with nearby cored wells. The revised map did not reflect the differences in productivity along the west flank as interpreted by Exxon. Inasmuch as no other suggestions were made, Shell voluntered to:

1) prepare Grayburg net pay isopach maps of both only the nine correlatable zones and only the underlying wedge and

2) recompile the Grayburg production statistics, in a similar fashion as that presented by Exxon, but adjusted to remove the volumes which are believed to have been produced from the San Andres reservoirs.

It was requested that Shell furnish the other operators estimates of the timing of unitization and the amounts of capital investment that will be required for secondary recovery operations. In response to this we tentatively predict the following schedule:

December 1, 1975, publish the Technical Committee report;
October 1, 1976, effective date of unitization;
and May 1, 1977, initiate water injection.

Preliminary estimates of the capital investment requirements are $12,000,000 initially and another $3,000,000 within the following two years.

HJS:BJT

ATTENDANCE LIST 6/4/75

Name	Company	Location
K. Y. Kassim	Amerada Hess	Seminole
Tom Porter	Atlantic Richfield	Midland
L. C. Soileau IV	Atlantic Richfield	Midland
Joseph C. Solari	Chevron	Midland
Clay Warren	Chevron	Midland
Don Barrett	Cities Service	Hobbs
C. C. Woodward	Continental Oil	Midland
John M. Clayton	Exxon	Midland
R. K. Gourley	Exxon	Midland
J. E. Eakin	Getty Oil Co.	Midland
A. H. Pokky	Getty Oil Co.	Midland
Fernando Cardeñosa	Gulf	Midland
C. D. Stenberg	Gulf	Ardmore
Leon Veeder	Samedan	Midland
C. F. Bosecker	Skelly Oil	Midland
Frank D. McAtee	Skelly Oil	Midland
Paul H. Davis	Texaco	Midland
Allen Wicke	TPOC	Houston
Wm. C. Miller	Shell Dev. Co.	Houston
F. E. Coupal	Shell Oil Co.	Houston
H. J. Swartz	Shell Oil Co.	

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MINUTES OF THE TECHNICAL COMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
OCTOBER 14 and 15, 1975

A meeting of the Technical Committee was held on October 14 and 15 in Midland, Texas. The major objectives of these sessions were to review net pay isopach maps of the Grayburg formation and to determine primary reserves of the Grayburg and upper stringer San Andres producers by the extrapolation of production performance. Fourteen companies, which operate 79 percent of the current producers were represented on Tuesday and eleven companies (76 percent of the wells) were represented on Wednesday. Attendance lists for both sessions are attached.

A brief review of previous Grayburg studies prepared by Shell for the Technical Committee was presented for reference. These include a report distributed on March 7, 1974 and an update which was presented at the Technical Committee meeting held on November 6, 1974. Net pay isopach maps, based on log and core data, were prepared by Shell and distributed to Committee members on February 10, 1975. Discussion of these maps are included in the minutes of the Technical Committee meetings held on March 6, 1975 and June 4, 1975. At the June meeting it was recommended that Shell prepare revised net pay isopach maps that would be based only on core and selected log data. It was also requested that the basal Grayburg horizon be subdivided into an upper interval (comprised of nine correlatable sands) and the lower ("wedge") interval. In addition it was recommended that Shell evaluate the amount of cumulative oil production attributable to the Grayburg, by wells, particularly along the northern and western flanks.

Mr. E. W. Kitchen who has replaced Mr. F. E. Coupal as Shell's Geological Engineering representative on the Technical Committee then presented the four revised net pay isopach maps (oil and gas pay maps for both basal Grayburg zones. These maps were based only on the data from cored well and selected logs (good quality logs which indicated similar net pay/gross interval thickness ratio to those calculated from "nearby" core control points). The enclosed type logs on Shell Rice 4 and Amoco State G5 show the stratigraphic intervals that were mapped. He then presented structure maps on the top of the Grayburg and the four San Andres subzones. Maps were also presented which reflected the cumulative oil production believed to be definitely from the Grayburg and an arbitrary allocation between zones where the Grayburg and San Andres production had been commingled. These determinations indicate that whereas the differences in production performance between areas is not as great as indicated by Exxon at the last meeting, it does appear that the wells along the southwestern flank, particularly those located in Sections 25, 31 and 36 have been the most prolific Grayburg producers.

Considerable discussion followed and revolved primarily about the problem of interpolating or contouring net pay values in areas of limited control. It was concluded that an attempt should be made to first construct percent net pay to gross thickness ratio contour lines for each map which could then be used in conjunction with the gross thickness of each well (determined from logs and/or structure maps) in order to develop the isopach of net pay maps. These percent net to gross ratio maps were constructed and reviewed and considerable discussion followed on the techniques used and whether or not these ratio maps should be segregated on the basis of fluid content or drawn irrespective of contacts. The Technical Committee members finally decided that the percent net to gross ratio maps are a reflection of rock quality and should be independent of fluid content. Therefore, it was recommended that Shell should construct these maps, using only the core and selected log control points applicable to each stratigraphic interval, for each of the two basal Grayburg zones. It was also agreed that Shell should submit these two percent net pay to gross thickness ratio maps to each Committee member in order to obtain approval prior to constructing the net pay oil and gas maps for each zone.

The techniques to be used for determining the remaining primary reserves were then discussed. The enclosed map shows the location of eight groups of wells that are within the proposed unit area and have remaining primary reserves. The majority of the wells are currently producing from one or more of the San Andres zones and the primary reserves for this group will be determined with the use of the reservoir simulation study which is now in progress. The remaining wells are producing from the Grayburg formation and/or the upper San Andres stringer zones. It is recommended that the primary reserves for these wells be determined by extrapolating production performance or by a similar type approximation. Individual decline curves have been prepared for 62 of these wells and each well has been categorized into one of six groups based on similar geographic location and producing characteristics. A composite production curve has also been prepared for each of the six groups and all lease production curves have been updated.

Each Committee representative present analyzed the production performance of these 62 wells, six composite group and eleven lease curves. The annual decline rate and corresponding initial rate was estimated for each of these curves. The reserves determined from these estimates will then be averaged for each curve and the results distributed to all of the Technical Committee members.

The "Well Status" tabulation has once again been revised and a corrected copy will be distributed. One of these elevation changes, to Continental State A-33 No. 4 (33 J), resulted in a redistribution of the amount of porosity-feet in the Zone I gas and oil columns and consequently contour changes to the porosity-feet maps in Zone I. These changes result in a net increase of 201 MMCF for the OGIP and a net decrease of 395,658 BO for the OOIP. Corrected sheets will be sent out to reflect these changes. These and all previous changes to the porosity-feet maps were shown to the Committee.

The need for determining current CIP, by tracts, was discussed. This parameter will be based on tract values of GOR (determined from previously constructed GOR contour maps for II, IIIU and IIIL zones and an average reservoir value for Grayburg and I) and water cut values (determined from contour map on I and estimated average reservoir values for the other zones). In addition to possible use as a parameter, these values will be used as the basis for apportioning secondary reserves to each tract.

HJW:ELP
10/24/75

ATTENDANCE LIST
TUESDAY, OCTOBER 14, 1975

NAME	COMPANY	LOCATION
Nassim Y. Nassim	Amerada Hess	Seminole, Texas
Tom Porter	Atlantic Richfield	Midland, Texas
Cris G. Rhodes	Atlantic Richfield	Midland, Texas
Don Barrett	Cities Service	Midland, Texas
Dana Burnsides	Cities Service	Midland, Texas
C. C. Woodward	Continental Oil	Hobbs, New Mexico
N. K. Reynolds	Exxon	Midland, Texas
A. H. Pokky	Getty Oil	Midland, Texas
S. D. Sutaria	Getty Oil	Midland, Texas
Fernando Cardeñosa	Gulf Energy & Min.	Midland, Texas
C. D. Stenberg	Gulf Energy & Min.	Midland, Texas
Ken McPeters	Moranco	Hobbs, New Mexico
Bill Spires	Polaris Prod.	Midland, Texas
C. F. Bosecker	Skelly Oil	Midland, Texas
Frank D. McAtee	Skelly Oil	Midland, Texas
Ken Barnett	Sun Oil	Midland, Texas
Craig Hinrichs	Texaco	Hobbs, New Mexico
Oran L. Hall	Texas Pacific	Midland, Texas
Allen Wicke	Texas Pacific	Midland, Texas
E. W. Kitchen	Shell Oil	Houston, Texas
H. J. Swartz	Shell Oil	Houston, Texas

ATTENDANCE LIST
WEDNESDAY, OCTOBER 15, 1975

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Kassim Y. Kassim	Amerada Hess	Seminole, Texas
Lou Soileau IV	Atlantic Richfield	Midland, Texas
Don Barrett	Cities Service	Midland, Texas
Dana Burnsides	Cities Service	Hobbs, New Mexico
C. C. Woodward	Continental Oil	Midland, Texas
Russell G. Estes	Estes Engr. Co.	Midland, Texas
N. K. Reynolds	Exxon	Midland, Texas
W. E. Nolan	Exxon	Midland, Texas
A. H. Pokky	Getty Oil	Midland, Texas
S. D. Sutaria	Getty Oil	Midland, Texas
Fernando Cardeñosa	Gulf Energy & Minerals	Midland, Texas
Frank D. McAtee	Skelly Oil	Midland, Texas
Allen Wicke	TPOC	Houston, Texas
H. J. Swartz	Shell Oil	

Minutes of the Technical Committee Meeting
Proposed North Hobbs Unit
January 13-14, 1976

The meeting was called to order at 9:30 AM. Fifteen companies, which operate 86 percent of the current producers, were represented (Attendance List is attached). The sole purpose of this meeting was to redetermine tract primary reserves for those wells producing from the Grayburg and/or upper San Andres stringers.

Mr. Swartz initiated the meeting with a review of work done to date for determining primary reserves. In summary, the primary reserves for the proposed North Hobbs Unit is being determined by two methods: (1) by analysis of production performance for all wells which are currently considered to be producing from the Grayburg and/or upper San Andres stringers and (2) by a reservoir simulation study (currently in progress) for all wells currently producing predominantly from the San Andres reservoir(s). There will be no overlap as each well has been placed in only one of the above categories.

A plan of attack was then developed by the Committee members. It was decided to first assign reserves to all of the applicable lease and composite groupings. Then wherever the lease production performance curve could not be used (i.e. when most of the current production on a lease is from wells completed in the San Andres reservoir); the reserves were estimated from the individual well decline curves. These curves have all been updated to include at least the production between January, 1972 and October, 1975. In many cases the November and December, 1975 production figures were also available as well as the production prior to January, 1972 for all of the one-well leases. The sum of all the wells within a group (groupings are described in prior correspondence) were then compared to the extrapolation of the applicable Composite Group curve as a check of the reserves so estimated.

All of these production performance curves were projected with a view graph and an annual decline rate (dy) and an initial 1/1/76 rate (q) was determined by those present. Complete agreement was obtained for each curve and the 1/1/76 reserves were calculated using an economic limit of one BOPD/well. These determinations are summarized on the attached tabulation and are considered to be final.

HJS:ELP

Attachments

ATTENDANCE LIST OF JANUARY 13-14, 1976
MEETING OF PROPOSED NORTH HOBBS UNIT
TECHNICAL COMMITTEE

NAME	COMPANY	LOCATION
K. Y. Kassim	Amerada Hess	Seminole
Grant Miller	Amerada Hess	Seminole
Bob Malaise	Atlantic Richfield	Midland
Tom Porter	Atlantic Richfield	Midland
Don Barrett	Cities Service	Midland
C. C. Woodward	Continental	Hobbs, NM
W. E. Nolan	Exxon	Midland
Jim Eakin	Getty	Midland
Fernando Cardeñosa	Gulf	Midland
R. E. Dejmal	Mobil	Midland
Ken McPeters	Moranco	Hobbs, NM
Boyce Perry	Samedan	Ardmore, OK
Chris Bosecker	Skelly	Midland
Ken Barnett	Sun	Midland
Oran Hall	Texas Pacific	Midland
William Larsen	Wiser	Midland
H. J. Swartz	Shell	Houston

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PROPOSED NORTH HOBBS UNIT

COMPANY	LEASE	WELL(S)	LOCATION	? 1/1/76 qo (BOPD)	dy (%)	RESERVES* (BBL)
Amerada Hess	Hardin	1,2,3,5	18K,L,M,N	0	0	0
" "	State B	3,4	29B,C	56	12	148,479
" "	State C	1,2	36A,H	25	14	55,661
" "	State C	3	36G	0	0	0
" "	State E	1	34E	7	20	9,814
" "	State WHB	1	1-C	4	14	12,111
			Subtotal	92		226,055
Amwell	Hobbs CT	1	21J	8	12	19,987
Atlantic Richfield	Grimes	1	20C	7.5	14	13,730
" "	Grimes SOC	3	28D	4.7	16	6,805
			Subtotal	12.2		20,535
Byron	Holt State	1	36E	10	10	31,179
C&C Oper.	Shipp A	1	23E	1.5	13	1,310
Chevron	State 17	1	17L	0	0	0
Continental	State B-13	2,5,7	13M,E,L	8	17	9,794
"	"	1,4,6	13N,F,C	0	0	0
	" B-25	2	25D	0	0	0
Estes	State	1	14P	**	**	14,465
Exxon	New Mex. State	1,5,6,7, 8,9	25I,O,K,P,J,N	120	15	256,032
Getty	Hardin	2	19H	7	10	20,786
"	"	3	19E	17	14	38,721
"	State B	1,2	14H,G	4	8	8,755
			Subtotal	28		68,262
Gulf	Hardin	3,4,5,6	18I,G,J			
"	"	7,8,9	N,B,A,O	23	11	50,114
"	LeaFO State	1	14N	4	9	11,611
			Subtotal	27		61,725
Marathon	State 30	9	30M	3.4	18	4,414
Mobil	Berry	2,3,4	31N,L,M	55	11	162,871
Moranco	Hobbs	1	34H	14	11	40,716
"	State T 17	1	17E	4.5	10	9,995
			Subtotal	18.5		50,711
Samedan	State B	1,2	25F,E	9	11	21,925
Shell	Rice	4	13J	11	14	24,201
"	Sanger	6	27D	11	19	17,321
"	State F	2	23G	3.5	20	4,089
"	State F	3	23B	6.4	16	11,305
			Subtotal	31.9		56,916
Skelly	Hobbs E	1	26A	5.3	17	8,423
"	State A	1	17M	3.3	10	7,968
			Subtotal	8.6		16,391
Sun	Fowler	4	31E	12.5	10	39,839
Bill Sweet	Bowers B	2	20J	3.5	10	8,661
C.E. Sweet	Grimes	1A	20I	0	0	0
"	McKinley B	2	20H	3.5	10	8,661
"	State F	2,3,4	23H,I,A	25	10	76,215
			Subtotal	28.5		84,876
Texas Pacific	State V Ac 1	1,2	14I,J	13	11	34,454
"	State V Ac 2	3,4,5,6	23C,F,K,N	14	10	34,643
			Subtotal	27		69,097
Wiser	State	1	26E	-	-	***
Yates	Shell State	1,2,3	23P,J,O	17	16	29,308
TOTALS		62	Producers	521.6		1,256,348
		1	Completing			***
		11	TA			0

Notes: * Economic Limit assumed to be one BOPD/well.

** New well with erratic production. Reserves are arithmetic average of 4 offset wells (TOPC ST. V AC-1, 2 wells; Amer. St. WHB 1, and Shell State F-3)

*** New well now being completed, will assign reserves at a later date.

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

January 20, 1976

Subject: Technical Committee Meeting
Proposed North Hobbs Unit
Lea County, New Mexico

Technical Committee
(Addressee List Attached)

Gentlemen:

Attached are the minutes of the Technical Committee meeting which was held in Midland, Texas on January 13 and 14, 19[illegible].

At this meeting the primary reserves were finalized for all wells which are currently producing from the Grayburg and/or upper San Andres stringers. This totals about 1.3 million barrels for 63 producers. Primary reserves for the remaining wells, which produce predominantly from the San Andres reservoir(s), are being determined with the use of a reservoir simulation computer program.

It would be greatly appreciated if each Company would return the ballots on the revised percent net pay to gross thickness ratio maps for the upper and lower Basal Grayburg Zones. (These were sent with letter dated December 31, 1975.) Once the volumetrics on the Grayburg are completed we will finalize a waterflood plan for this reservoir.

Yours very truly,

H. J. Swartz

H. J. Swartz, Chairman
Technical Committee

HJS:ELP

Attachment

63

MINUTES OF THE TECHNICAL COMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
MARCH 25, 1976

The meeting was called to order at 9:15 AM. Fourteen companies, which operate 79 percent of the current producers, were represented. (Attendance list is attached). The main purposes of this meeting were to: (1) finalize net pay isopachs of the Grayburg formation, (2) present the results of a Grayburg waterflood evaluation on a 40-acre symmetry element and (3) decide on a waterflood plan for the Grayburg reservoir.

Mr. E. W. Kitchen presented a brief review of the method and decisions involved in the construction of the four Grayburg net pay isopach maps. Copies of these maps were mailed to each representative with the letter calling the meeting. After a brief discussion the maps were unanimously approved as drawn. It was requested that committee members review all maps submitted to them today for accuracy of information and data since these maps will be sent for drafting in final form shortly. The tract values of original hydrocarbons-in-place will be determined from these maps by use of the "gridding" technique with a ten-acre grid. Tabulations of the tract values and copies of the gridded maps will be sent to each operator for verification.

Mr. R. J. Swartz presented the results of a reservoir simulation study of the Grayburg formation. This analysis was done with the use of a three-phase, three dimensional, compressible fluid reservoir simulation program using a 40-acre symmetry element and a 9 by 17 grid system. The reservoir volume represented was 1028 NAF with an average porosity of 14 percent, water saturation of 30 percent and average permeability of 5 millidarcies. The value of permeability was determined by trial and error by comparing recent production history and water injectivities using the Moranco waterflood experience as a guide. Pseudo relative permeability curves were constructed using a Dykstra-Parsons variance factor of 0.7 (determined from 256 core samples) and a five layer stratification.

Based on the production history of 69 wells which were producing predominantly from the Grayburg, the average producing characteristics at January 1, 1975 were estimated to be 15 BOPD per well with a GOR of 5035 cubic feet per barrel. Fractional flow equations were used in conjunction with the pseudo relative permeability curves to relate this GOR to an average gas saturation of 19 percent and an average oil saturation of 51 percent. These values represent a cumulative oil recovery of 16.23 percent of the OOIP or about 10.2 million barrels, which fits prior estimates of cumulative oil production allocated to the Grayburg. The average reservoir pressure at January 1, 1975 was estimated to be 400 psig at 400 feet subsea.

Using these initial conditions, a base case was run to establish the results to be expected for continued primary depletion as a function of time. This analysis indicates that ultimate primary recovery (to an economic limit of one BOPD per well) would be 1098 STB per NAF or 18.7 percent of the OOIP. The January 1, 1975 reserves are 14.9 STB per NAF. Assuming that water injection would be initiated in mid-1978, this base case indicated that the average oil saturation at that time would be 48.6% and the reservoir pressure would be 220 psig.

A waterflood program using a five-spot pattern resulted in an ultimate recovery efficiency of 33.1 percent. This reflects an additional 84 STB/NAF (14.4%) of secondary oil per five-spot pattern. Economic analyses were made for this case and infill drilling. The effects of pattern skewness and shutting in producers to conserve reservoir energy were also evaluated with the computer program.

The conclusions reached from this study and discussions with the Technical Committee are summarized as follows:

(1) Because of the low permeability of the Grayburg reservoir it will be necessary to use a pressurized injection system (about 1500 psig surface) and a ratio of one injector per producer (five-spot or line drive pattern).

(2) An 80-acre five-spot waterflood is economically attractive. However, a complete infill program (40-acre five spot) cannot be economically justified at this time. The flood performance is improved if high GOR-low oil rate producers are shut-in while injecting water during the 5-year fillup period.

(3) Final pattern selection and well utilization should be made after the San Andres water injection program is finalized.

At the Technical Committee meeting of December 5, 1974, special BHP buildup surveys were requested in four selected wells. It was agreed that the Technical Committee would recommend to the Working Interest Owners that an adjustment be made to any production parameter that incurred a production loss because of these BHP surveys. Several methods were discussed at this meeting and it was then decided to adjust any parameter affected by averaging each well's production for two months prior to the survey and two months afterwards and subtracting the actual production obtained during the survey month(s). The well involved and the adjustment are:

Well	Location	Date Shut-In	Hours SI	Adjustment (Bbls.)
Amerada McKinley 3	30C	1/06/75	67	240
Exxon Fed. Bow. 10	29L	12/30/74	70	200
Getty McKinley 2	30H	12/11/74	72	0
Marathon State 30-1	30K	12/02/74	67	589

It was requested that all Technical Committee representatives carefully review the "Well Status Summary" (last revised 10/15/75) mailed with our letter dated October 31, 1975, and advise H. J. Swartz (713-220-1022) whether or not the data are correct as shown.

HJW:ELP
3/29/76

ATTENDANCE LIST
THURSDAY, MARCH 25, 1976

NAME	COMPANY	LOCATION
Kassim Y. Kassim	Amerada Hess	Seminole
Paul Kossmann	Amoco	Houston
Bob Malaise	Arco	Midland
Don Barrett	Cities Service	Midland
C. C. Woodward	Continental	Hobbs
J. E. Eakin	Getty	Midland
A. H. Pokky	Getty	Midland
C. D. Stenberg	Gulf	Midland
W. E. Nolan	Exxon	Midland
N. K. Reynolds	Exxon	Midland
Loren Stiles	Exxon	Midland
Joe Janice	Morance	Hobbs
Frank D. McAtee	Skelly	Midland
Ken Barnett	Sun	Midland
Ed Wallace	Texaco	Midland
Russ Meyers	Texas Pacific	Dallas
Earl Kitchen	Shell	Houston
Hank Swartz	Shell	Houston

NORTH HOBBS UNIT
TECHNICAL COMMITTEE
ADDRESS LIST

ABO PETROLEUM CORPORATION
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SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
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ATLANTIC RICHFIELD COMPANY
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MR. W. K. BYROM
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C&C OPERATING CORP.
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CHEVRON OIL COMPANY
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CITIES SERVICE OIL COMPANY
E & P DIVISION
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CONTINENTAL OIL COMPANY
ATTN: MR. R. E. McWILLIAMS
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MR. JOHN P. CUSACK
P. O. BOX 250
ROSWELL, NM 88201

DEL LEA (ANTWEIL)
P. O. BOX 1889
HOBBS, NEW MEXICO 88240

EXXON COMPANY - U.S.A. (2)
ATTN: JOINT INTEREST ENGINEERING
SUPERVISOR
P. O. BOX 1600
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GETTY OIL COMPANY
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GETTY OIL COMPANY
ATTN: MR. E. J. MILLER
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GULF ENERGY & MINERALS CO. - U.S.
ATTN: V. M. HENDRICKS
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MARATHON OIL COMPANY
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MOBIL OIL CORPORATION
ATTN: MR. TED GRIFFITH
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MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
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PETRO-LEWIS CORPORATION
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DENVER, CO 80202

SAMEDAN OIL CORPORATION
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ARDMORE, OK 73401

SAMEDAN OIL CORPORATION
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NORTH HOBBS UNIT TECHNICAL COMMITTEE ADDRESS LIST cont'd.

SKELLY OIL COMPANY
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SKELLY OIL COMPANY
ATTN: MR. CHRIS BOSECKER
P. O. BOX 1315
MIDLAND, TX 79701

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THORNTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS &
MR. JACK ANDREWS
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MR. BILL L. SWEET
P. O. BOX 51
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C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXACO INC.
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TEXAS PACIFIC OIL CO., INC.
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TEXAS PACIFIC OIL CO., INC.
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THE WISER OIL COMPANY
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YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701

ESTES ENGINEERING CO.
306 PETROLEUM BLDG.
MIDLAND, TX 79701

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MIDLAND, TX 79701

#13

Minutes of the Technical Committee Meeting
Proposed North Hobbs Unit
October 13, 1976

The meeting was called to order at 9:00 a.m. Seventeen companies, which operate 90 percent of the current producers, were represented. (Attendance list attached). The main purpose of this meeting was to present the results of Shell's reservoir simulation study of primary recovery performance from the San Andres.

Mr. Swartz presented a brief review of the history of Technical Committee progress and emphasized the following points:

1. Attempts to form a fieldwide unit were aborted during 1973, primarily because of disagreement over the determination of remaining primary reserves.

2. Resolution of the problem of determining tract reserves (both primary and secondary) for the proposed North Unit should eliminate the last major hurdle for the Technical Committee.

3. The main complication for determining tract primary reserves is the existence of strong water influx into the upper San Andres (Zone I). This water drive is primarily from west to east and has caused an unusually large amount of oil migration and maintained the reservoir pressure and consequently the productivity of Zone I at higher levels than in the other productive intervals. This is particularly evident along the eastern flank of the proposed North Unit area.

4. Two prior methods for allocating tract primary reserves for the San Andres have been presented to the committee at meetings held on October 5, 1974 and November 7, 1974. Both were rejected and subsequent discussions led to the conclusion that the problem would best be resolved with the use of a reservoir simulation study.

5. A letter ballot, dated March 13, 1975, for a Shell computer study at a flat rate of $6000 (estimate based on computer time and outside clerical help only) was approved by 88.52 percent of the operators with only one dissenting vote.

6. Consequently Shell made a feasibility study and at a Technical Committee meeting held on June 4, 1975, Mr. W. C. Miller, section leader of the reservoir simulation group in Shell's research organization, presented a description of the mathematical model and techniques that would be used.

7. Primary reserves have already been determined by the use of production decline analysis for 62 wells which produce from the Grayburg and/or upper San Andres stringers. Please refer to the enclosed map (Figure 1) which shows those wells included in the reservoir simulation study.

8. Prior to completing the reservoir simulation study it was thought that it would be necessary for the Technical Committee to reallocate reserves to wells located in a common grid block. However, because of differences in completion zones and well model characteristics, it is believed by Shell that representative and equitable primary reserve determinations have been simulated on an individual well basis.

Mr. W. C. Miller then reviewed the premises, model description and the results of the history match. Discussion centered about the following points:

1. A 10 by 20 grid system, depicted in Figure 2 was superimposed on all completions in the field using a three-layer representation for the San Andres reservoirs (I, II and III_U/III_L).

2. All of the Technical Committee data developed to date were input for reservoir description. These include: Structure maps (fitted with curvilinear coordinates for a smooth surface as shown in Figure 3), individual well zonal porosity determinations, zonal original hydrocarbons-in-place (using the previous Engineering Committee work for the South Hobbs Unit area) and rock relative permeability curves modified to pseudo curves by stratification effects.

3. Oil production history, from initial completion to January 1, 1976, was input for every completion in the field after factoring out a minor amount attributed to the Grayburg formation on the basis of relative permeabilities and well storage differences in the completed intervals.

4. The actual well completion history (zone changes) were input in five-year intervals and the "current" (January 1, 1976) completion zones are shown in Figure 1. As previously decided by the Technical Committee, all wells producing in excess of 100 BWPD but not completed in Zone I were assumed to have behind pipe communication with that zone.

5. As previously discussed at previous sessions there are many indications of preferential flow channels. One obvious example is between two wells (29P and 28M) which although they are located about 700 feet apart and are both apparently completed in equivalent Zone I sections, one is a clean oil producer and the other makes in excess of 70 percent water cut. In view of this and other anomalous production performances it was necessary to establish flow channels (in Zone I only) in order to obtain a satisfactory history match. The transmissibilities of these flow channels were varied but it was found necessary to use a value of zero. The flow channels or barrier locations are depicted in Figure 4.

6. The quality of the history match was evaluated primarily by comparing the calculated zonal water production rates for each well to those reported to the New Mexico Conservation Commission during the year 1975. Attention was also focused on current zonal and areal reservoir pressure variations and comparisons with measured data reported at prior meetings. Figures 5 thru 10 represent both qualitative and quantitative comparisons of these data.

7. Shell believes that a good history match has been obtained, especially considering the interzonal interactions resulting from multicompletions, variations in reservoir pressure and selective completions intervals.

Following these discussions, Mr. W. C. Miller then presented the results of the prediction phase and emphasized the following points:

1. As decided by the Technical Commettee, the predict was run with each well retaining the current completion interval for the remaining life.

2. A top allowable well was assigned a January 1, 1976 bottom hole flowing pressure of 300 psi whereas the remaining wells were assumed to have 100 psi flowing bottom hole pressures. These top allowable wells are designated on Figure 11.

3. The permeability - thickness product of each well in each zone had been automatically varied throughout the history match to simulate actual performance. The last adjusted zonal kh for each well was kept constant during the predict mode.

4. The economic limit was arbitrarily selected to be 5 BOPD and/or 95 percent water cut and the prediction terminated at the end of year 2024.

5. It was assumed that those wells which contain a Grayburg completion with the main San Andres would not obtain any future primary reserves from the Grayburg because of the significant differences in permeability - thickness products and static reservoir pressures.

6. The predicted performance of each well was then summed into field, lease and operator totals which are summarized in Figures 12 thru 15 The estimated future rates were plotted on the enclosed lease production graphs. The previously estimated (by decline curve analysis) production for Grayburg and/or Upper San Andres producers has been added to the simulated predictions for the main San Andres wells where a lease contains wells in both categories.

Shell believes that the resulting predictions are reasonable and equitable projections of future performance. The economic limit was subsequently recalculated at the decontrolled stripper oil price and is 3 BOPD or 99 percent water cut, whichever is reached first. The results using the higher economic limit is labelled "Set A" whereas the recommended runs with the lower economic limit are designated as Set B. Figures 16 thru 19 are summary tables of actual and estimated primary oil performance from the San Andres reservoir for both the field and the proposed North Unit by zones and in total. Figure 20 is a summary of recent production statistics for the North Unit.

The Technical Committee members were asked to suggest variations to the simulation runs presented. None were suggested at the meeting but it was left open so that any Technical Committee representative wishing a variation in the assumptions should call the Chairman of this committee. It was requested that every one come to the next meeting on November 4, 1976, be prepared to vote on acceptance of this simulation study as the basis for tract primary reserves for those wells in the study area. Shell recommends using the San Andres primary reserves which are summarized in Set B. We feel that these represent equitable estimates and are much more representative than those obtained by methods previously suggested to the Technical Committee.

ATTENDANCE LIST
(10/13/76)

Name	Company	Location
Kassim Y. Kassim	Amerada Hess	Seminole
Paul Kossmann	Amoco	Houston
Bob Malaise	Arco	Midland
Don D. Allen	Chevron	Midland
Donald D. Barrett	Cities Service	Midland
Ken Herpole	Cities Service	Tulsa
C. L. Hearn	Cities Service	Tulsa
Arthur J. Henry	Conoco	Houston
C. C. Woodward	Conoco	Hobbs
R. G. Estes	Estes Engr.	Midland
W. E. Nolan	Exxon	Midland
Loren Stiles	Exxon	Midland
J. F. Ellebracht	Getty	Midland
Harold G. O'Dell	Getty	Houston
G. G. Bingham	GEM-U.S.	Midland
Fernando Cardeñosa	GEM-U.S.	Midland
John J. Justen	Mobil	Houston
Ken McPeters	Moranco	Hobbs
Boyce Perry	Samedan	Ardmore
Chris Bosecker	Skelly	Midland
David Williams	Skelly	Midland
Jess B. Nunnelee	Skelly	Midland
Ken Haggart	Sun	Midland
Chuck Price	Sun	Midland
G. R. Meyers	Texas Pacific	Dallas
W. E. Buck	Shell	Houston
W. C. Miller	Shell	Houston
H. J. Swartz	Shell	Houston

DATE : 03 NOV 76

FILE (NORTH HOBBS)

TENTATIVE

OPER	NO. OF WELLS USBL 7/76	NO. OF WELLS ACTV 7/76	CUM OIL 7MOS.76 PRODUCTION PROD 1-1-76	OILPRO BBLS	GASPRO MCF	ORIG OIL IN PLACE GB BBLS	SA BBLS	TOTLE BBLS	1/1/76 PRIMARY RES. # GRYBRG BBLS	SANAN BBLS
AMERADA HESS	21.0	15.0	16108886	115999	305109	6700388	44165489	50865877	226050	2415897
AMOCO	2.0	2.0	2272648	32417	37089	0	10226595	10226595	0	754786
ASTAFIL	1.0	1.0	39761	1595	26900	182819	69903	252222	19987	0
ATLANTIC	5.0	5.0	4015471	25038	192994	1427813	9252067	10679880	22535	946497
BYRON	1.0	1.0	199814	2122	4850	619012	42126	661138	31179	0
CHEVRON	5.0	4.0	3566150	40191	29137	859979	14880977	15740976	0	1397560
CITIES SER.	10.0	8.0	7578942	53754	37271	1204430	29625192	30829622	0	1135582
CONOCO	22.0	18.0	15657790	164160	475500	4495249	69785272	74280521	9794	4712941
CRC	1.0	1.0	17733	498	23	163046	0	163046	1310	0
ESTES	1.0	1.0	71473	2465	19061	701800	806352	1508152	14465	0
EXXON	16.0	15.0	14507450	101501	491722	4876291	40211047	45087338	256032	1782097
GETTY	13.0	13.0	11226411	76254	282910	2814314	29454644	32268958	68262	1890921
GULF	34.0	31.0	18935550	173799	645231	3485042	77972882	81457924	131388	3512265
MARATHON	8.0	8.0	8812011	46168	164552	1723499	29696553	31420052	4414	1290407
MOBIL	4.0	4.0	1693660	20831	88895	2766778	2399457	5166235	300685	0
MORANCO	2.0	2.0	200317	4202	14900	243777	53623	297400	50711	0
SAMEDAN	14.0	14.0	9427785	153707	298273	5291903	15843962	21135865	21925	4580147
SHELL	44.0	43.0	31749807	410445	1016711	7327212	99628921	106956133	56916	9991897
SKELLY	7.0	7.0	4975199	58392	136780	3512693	10285943	13798636	16391	1500345
SUNOIL	2.0	2.0	892087	5712	39710	1657647	1677823	3335470	39839	30578
SWEETG	1.0	1.0	821469	677	1861	565359	2558743	3124102	8661	0
SWEETC	7.0	5.0	1023568	5727	81218	2958733	4020489	6979222	84876	0
TEXACO	4.0	4.0	4383365	53844	167862	1232596	8749629	9982225	0	1238733
TEXAS PAC.	10.0	10.0	4595765	73369	113900	4052829	14021282	18074111	69097	1827551
WISER	3.0	3.0	1077122	8129	41296	698409	732619	1431028	2855	206337
YATES	3.0	3.0	417531	3268	16924	2004752	550523	2555275	29308	0
	241.0	221.0	164267765	1634254	4730679	61566390	516711613	578278003	1466680	39214541

* BASED ON DECLINE CURVE ANALYSIS
Will be updated & revised on 11/17/76

** BASED ON FIG. 15 w/ minutes of 10/13/76
meeting. Will be updated & revised !

DATE : 03 NOV 76

FILE (NORTH HOBBS)

OPER	NO. OF WELLS USBL 7/76	NO. OF WELLS ACTV 7/76	CUM OIL PROD 1-1-76	ZMOS.76 PRODUCTION OILPRO BBLS	ZMOS.76 PRODUCTION GASPRO MCF	ORIG OIL IN PLACE GB BBLS	ORIG OIL IN PLACE SA BBLS	ORIG OIL IN PLACE TOTLE BBLS	1/1/76 PRIMARY RES GRYBRG BBLS	1/1/76 PRIMARY RES SANAN BBLS
AMERADA HESS	8.71369	6.78733	9.80648	7.09798	6.44958	10.88319	8.54742	8.79609	15.41236	6.16072
AMOCO	.82988	.90498	1.38350	1.98360	.78401	.00000	1.97917	1.76846	.00000	1.92476
ANIXEIL	.41494	.45249	.02420	.09760	.56863	.29695	.01343	.04362	1.36274	.00000
ATLANTIC	2.07469	2.26244	2.44447	1.53208	4.07963	2.31914	1.79057	1.84684	1.53646	2.41364
BYROM	.41494	.45249	.12164	.12985	.10252	1.00544	.00815	.11433	2.12582	.00000
CHEVRON	2.07469	1.80995	2.17098	2.45929	.61592	1.39686	2.87994	2.72204	.00000	3.56388
CITIES SER.	4.14938	3.61991	4.61177	3.28921	.78786	1.95631	5.73341	5.33128	.00000	2.89582
CONOCO	9.12863	8.14480	9.53187	10.04495	10.05141	7.30147	13.50565	12.84512	.66777	12.01835
CAC	.41494	.45249	.01080	.02986	.00049	.26483	.00000	.02820	.08932	.00000
ESTES	.41494	.45249	.04351	.15083	.40292	1.13991	.15605	.26080	.98624	.00000
EXXON	6.63900	6.78733	8.83159	6.21085	10.39432	7.92038	7.78211	7.79683	17.45657	4.54448
GETTY	5.39419	5.88235	6.83421	4.66598	5.98033	4.57119	5.70040	5.58018	4.65418	4.82199
GULF	14.10788	14.02715	11.52725	10.63476	13.63929	5.66062	15.09021	14.08629	8.95819	8.95654
MARATHON	3.31950	3.61991	5.36442	2.82502	3.47840	2.79942	5.74722	5.43338	.30095	3.29063
MOBIL	1.65975	1.80995	1.03104	1.27465	1.87912	4.49397	.46437	.89338	20.50106	.00000
MORANCO	.82988	.90498	.12195	.25712	.31497	.39596	.01838	.05143	3.45754	.00000
SANEDAN	5.80913	6.33484	5.73928	9.40533	6.30508	8.59544	3.06631	3.65497	1.49487	11.67972
SHELL	18.25726	19.45701	19.32808	25.11513	21.49186	11.90132	19.28134	18.49563	3.88060	25.48008
SKELLY	2.90456	3.16742	3.02871	3.57301	2.89134	5.70554	1.99065	2.38616	1.11756	3.82599
SUNOIL	.82988	.90498	.54307	.34952	.83941	2.69245	.32471	.57679	2.71627	.07798
SWEETB	.41494	.45249	.50008	.04143	.03934	.91829	.49520	.54024	.59052	.00000
SWEETC	2.90456	2.26244	.62311	.35044	1.71684	4.80576	.77809	1.20690	5.78695	.00000
TEXACO	1.65975	1.80995	2.66843	3.29471	3.54837	2.00206	1.69333	1.72620	.00000	3.15886
TEXAS PAC.	4.14938	4.52489	2.79773	4.48945	2.40769	6.58286	2.71356	3.12551	4.71112	4.66039
WISER	1.24481	1.35747	.65571	.49741	.87294	1.13440	.14178	.24746	.19466	.52617
YATES	1.24481	1.35747	.25418	.19997	.35775	3.25624	.10654	.44188	1.99825	.00000
	99.99999	99.99999	99.99999	99.99999	99.99999	99.99999	99.99999	99.99999	99.99999	********

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FILE (NORTH HOBBS)

TR LO	TRACTS	NO. OF WELLS USBL 7/76	NO. OF WELLS ACTV 7/76	CUM OIL THRU 7/76 PRODUCTION PROD 1-1-76	CUM OIL THRU 7/76 PRODUCTION OIL BBLS	CUM OIL THRU 7/76 PRODUCTION GAS MCF	ORIG OIL IN PLACE GR BBLS	ORIG OIL IN PLACE SA BBLS	ORIG OIL IN PLACE TOTLE BBLS	1/1/76 PRIMARY RES, * GRYBRG BBLS	1/1/76 PRIMARY RES, ** SANAN BBLS
1	GETTY - STATE B	2.0	2.0	57421	1151	820	724124	11916	736040	8755	0
2	AMERADA HESS-STATE ANB	2.0	1.0	128605	1186	7302	1068176	143388	1211564	12100	0
3	GULF - LEA E U STATE	1.0	1.0	68537	829	2632	433169	0	433169	11611	0
4	TEXAS PACIF.-STATE V AC1	2.0	2.0	192596	2655	22747	1480992	391981	1872973	34454	0
5	ESTES EAGR. STATE	1.0	1.0	71473	2465	19061	701800	806352	1508152	14465	0
6	CONTINENTAL - STATE B 13	0.0	0.0	881281	276	2048	2560820	4708383	9269203	9708	0
7	SHELL - RICE	4.0	4.0	1688640	9815	63670	240571	12079112	12319683	20201	138810
8	AMERADA HESS - A HARDIN	4.0	.0	1819582	0	0	249531	10968245	11217776	0	0
9	GULF - DAN HARDIN	8.0	8.0	1761393	8355	77894	1633476	8078778	9712254	50114	23033
10	MONARCH - STATE T 17	1.0	1.0	70210	876	1177	209704	52506	262210	9993	0
11	CHEVRON - STATE I 17	1.0	.0	61888	0	0	326630	326254	652884	0	0
12	SHELLY - STATE A	1.0	1.0	290076	648	1167	402190	889486	1291676	7968	0
13	C&C OPER. - SHIPP A	1.0	1.0	17733	488	23	163046	0	163046	1310	0
14	TEXAS PACIF.-STATE V AC2	4.0	4.0	295240	2448	8893	1777925	60558	1838483	34643	0
15	SHELL - STATE E	2.0	2.0	125705	1119	7755	1186335	357954	1544289	15394	0
16	C H SWEET - STATE F	4.0	3.0	630440	4980	63719	2138211	2074317	4212528	76215	0
17	JOHN A YATES-SHELL STATE	3.0	3.0	417531	3268	16924	2004752	550523	2555275	29308	0
18	AMERADA HESS-STATE E	2.0	2.0	1015321	5539	19277	850138	3089937	4340075	9814	71021
19	SHELL - STATE D	2.0	2.0	1048745	18941	56271	343625	5739370	6082995	0	281776
20	GULF - GRAHAM STATE A	6.0	5.0	2930543	33453	61935	148541	15523758	15672399	0	548937
21	SAMEDAN - STATE C	4.0	4.0	3371788	64582	101468	2658046	7830550	10088096	0	1257541
22	TEXAS PACIF.-STATE G	4.0	4.0	4107929	67866	82260	793712	13568743	14362655	0	1827551
23	CITIES SERVICE - HARDIN	5.0	4.0	3414545	17290	18781	152267	15417627	15569894	0	227438
24	GETTY - BOURK HARDIN	4.0	4.0	3193992	8792	38909	1277980	8690699	9988679	59507	54573
25	SHELL - MCKINLEY A	9.0	9.0	9180071	93458	167290	1470816	22110859	23581675	0	1902601
26	SHELLY - H D MCKINLEY	1.0	1.0	604958	752	4085	480850	2243427	2724277	0	0
27	CHEVRON - H D MCKINLEY	2.0	2.0	1393169	9152	16746	533369	3466988	9000357	0	210404
28	C H SWEET - MCKINLEY B	1.0	1.0	95606	682	17499	595770	1103653	1699423	8661	0
29	SHELL - MCKINLEY B	5.0	4.0	3852726	31930	75114	1387273	6975125	8362398	0	957755
30	BILL SWEET-BOWERS B FED.	1.0	1.0	371927	677	1861	262941	1109983	1372924	8661	0
31	C H SWEET - GRIMES	2.0	1.0	293122	65	0	224752	842519	1067271	0	0
32	ATLANTIC RICH.-GRIMES	1.0	1.0	862360	1740	12774	330782	1510948	1841730	15730	0
33	BILL SWEET-BOWERS B FED.	.0	.0	649542	0	0	302418	1448760	1751178	0	0
34	GULF - A.O.GRIMES NCT C	3.0	3.0	1470827	4703	15693	796085	2410302	3206787	69663	0
35	ANTHEIL-HOBBS CONE JOANS	1.0	1.0	39761	1595	26900	182819	69403	252222	19987	0
36	WISER - MORRIS A	1.0	1.0	564431	5581	11688	162350	586505	748855	0	127186
37	WISER - MORRIS H	1.0	1.0	502714	2362	29608	90217	143787	238004	0	79151
38	SHELLY - HOBBS E	1.0	1.0	86396	1051	2817	892135	103430	995565	8423	0
39	CONTINENTAL - STATE B 25	2.0	1.0	972907	1049	0	1809803	2169415	3619218	0	80647
40	SAMEDAN - STATE B	2.0	2.0	390127	1839	8946	1211565	810075	2021640	21925	0
41	TEXACO - N.M. OD A C ST	4.0	4.0	8383365	53894	167862	1232596	8749629	9982225	0	1238733
42	EXXON - N.M. STATE A	6.0	6.0	3359302	24747	201525	3753837	4622588	8376425	256032	0
43	AMERADA - H D MCKINLEY	9.0	8.0	5137031	53641	99293	327688	11037323	11365011	0	1382064
44	GETTY - H D MCKINLEY	5.0	5.0	5293575	51798	160416	523397	14666577	15191974	0	1494213
45	MARATHON-ST.-LAND-SEC.30	4.0	4.0	3907538	27492	73356	1723099	11091318	12814817	4814	699350

TR NO	TRACTS	NO. OF WELLS USHL 7/76	NO. OF WELLS ACTV 7/76	CUM OIL PROD 1-1-76	7M09.76 PRODUCTION OIL BBLS	7M09.76 PRODUCTION GAS MCF	ORIG OIL IN PLACE GO BBLS	ORIG OIL IN PLACE SA BBLS	ORIG OIL IN PLACE TOTAL BBLS	1/1/76 PRIMARY RES, GRYBRG BBLS	1/1/76 PRIMARY RES, SAHAN BBLS
46	EXXON-ROWERS A FED.SEC30	5.0	4.0	5201565	38424	94917	162761	17589511	17752272	0	741308
47	EXXON-ROWERS A FED.COM	1.0	1.0	920202	9458	10977	483821	2379161	2822582	0	278573
48	EXXON-ROWERS A FED.SEC29	3.0	3.0	3868103	26302	126748	135194	13857479	13992673	0	744551
49	AMERADA - STATE B	4.0	4.0	4877919	25689	118794	1138788	8823266	9962054	148475	385064
50	EXXON - A D GRIMES	1.0	1.0	1158278	2570	17555	381078	1762308	2143386	0	17665
51	CONTINENTAL-STATE A 29	3.0	2.0	3738504	31067	95778	22300	14463859	14486159	0	851250
52	GETTY - A D GRIMES	2.0	2.0	2681423	14563	82770	268813	6083452	6352265	0	342135
53	CHEVRON - STATE I-29	2.0	2.0	2111093	31039	12391	0	11087735	11087735	0	1183156
54	ATLANTIC - A D GRIMES SWD	4.0	4.0	3153111	23298	180220	1097031	7741119	8838150	6805	946497
55	SAMEDAN - HUNT A	2.0	2.0	1503776	25469	52851	434884	3017707	3452771	0	944388
56	SAMEDAN - BOON B	2.0	2.0	1815290	22076	61010	295868	2014643	2310511	0	1121090
57	SHELL - GRIMES	5.0	5.0	3881866	40805	76686	129108	15217380	15346488	0	1273556
58	CONTINENTAL - A D GRIMES	4.0	4.0	2992071	44663	216937	463726	11331459	11795185	0	1914266
59	SHELL - SANGER	6.0	6.0	3637243	87195	228517	689548	3816238	4505786	17321	2725168
60	GULF - J R HOLT NCT D	2.0	.0	22926	0	0	246408	0	246408	0	0
61	BYRON - J R HOLT STATE	1.0	1.0	199814	2122	4850	619012	42126	661138	31179	0
62	AMERADA HESS - STATE C	3.0	2.0	688156	3725	14116	3066067	486845	3552912	55661	0
63	SUN - CLARA FOWLER	2.0	2.0	892087	5712	39710	1657647	1677823	3335470	39839	30578
64	SHELLY - CLARA FOWLER	2.0	2.0	2125891	22241	34757	1309010	3954625	5263635	0	589169
65	CITIES SERVICE - FOWLER	5.0	4.0	4164397	36064	18490	1052163	14207565	15259728	0	908144
66	MOBIL - MIRA HENRY	4.0	4.0	1893660	20831	88895	2766778	2399457	5166235	306685	0
67	SHELL - HENRY	8.0	8.0	3154628	46487	190456	1581215	11157369	12738584	0	924261
68	GULF - D GRIMES NCT A/2	10.0	10.0	9383389	87715	352006	193451	36454346	36647797	0	2046819
69	AMERADA HESS - STATE A	2.0	2.0	2442272	26219	46327	0	9216505	9216505	0	577348
70	SHELL - STATE A	3.0	3.0	2176145	19416	42548	0	11367022	11367022	0	337754
71	MARATHON-STATE SEC 32-18	4.0	4.0	4864473	18676	91196	0	18605235	18605235	0	591057
72	SHELL - STATE B	2.0	2.0	1565120	21261	70909	0	9920034	9920034	0	398383
73	AMOCO - STATE G	2.0	2.0	2272648	32417	37089	0	10226595	10226595	0	754786
74	GULF - A D GRIMES NCT B	8.0	8.0	3297935	18744	135071	33412	15505698	15539110	0	893076
75	CONTINENTAL - STATE A 33	7.0	7.0	7113027	86405	160776	0	35111156	35111156	0	1866778
76	SHELLY-B H TURNER 1&2	2.0	2.0	1867882	33700	93954	428508	3094975	3523483	0	911176
77	SHELL - TURNER	2.0	2.0	1474918	34018	37545	278721	884458	1183179	0	1051753
78	AMARADA - HUBBS	1.0	1.0	130107	3326	15723	34073	1117	35190	40718	0
79	SAMEDAN - TURNER A	2.0	2.0	1620616	25043	24064	535532	2431575	2967107	0	932016
80	SAMEDAN - TURNER B	2.0	2.0	1125532	14287	89534	155928	139412	295340	0	325112
81	WISER - STATE L	1.0	1.0	9977	186	0	441842	2327	444169	2855	0
		241.0	221.0	164267765	1634254	4730679	61586390	516711613	578278003	1966680	39214541

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TR NO	TRACTS	NO. OF WELLS USBL 7/76	NO. OF WELLS ACTV 7/76	CUM OIL THOS. 76 PRODUCTION PROD 1-1-76	OILPRD BBLS	GASPRD MCF	ORIG. OIL IN PLACE GR BBLS	ORIG. OIL IN PLACE SA BBLS	ORIG. OIL IN PLACE TOTLE BBLS	1/1/76 PRIMARY RES GRYBRG BBLS	1/1/76 PRIMARY RES SANAN BBLS
1	GETTY - STATE B	,82988	,90498	,03496	,07043	,01733	1,17617	,00231	,12728	,59693	,00000
2	AMERADA HESS-STATE ANN	,82986	,45249	,07829	,07257	,15435	1,73500	,02775	,20951	,82499	,00000
3	GULF - LEA-F-8-STATE	,41494	,45249	,04172	,05073	,05569	,70358	,00000	,07491	,79165	,00000
4	TEXAS PACIF.-STATE V ACI	,82988	,90498	,11725	,16246	,48084	2,40552	,07586	,32389	2,30911	,00000
5	ESTES ENGR. STATE	,41494	,45249	,04351	,15083	,40292	1,11991	,15605	,26080	,98624	,00000
6	CONTINENTAL - STATE-B-13	2,48963	1,80995	,61214	,05972	,04247	4,15717	1,29848	1,60283	,66777	,00000
7	SHELL - RICE	1,65975	1,80995	1,02798	,60058	1,34590	,39075	2,33769	2,13041	1,65005	,35398
8	AMERADA HESS - B HARDIN	1,65975	,00000	1,10769	,00000	,00000	,40530	2,12270	1,93986	,00000	,00000
9	GULF - DAN HARDIN	3,31950	3,61991	1,07227	,51124	1,64657	2,65319	1,56350	1,67951	3,41683	,05976
10	MONARCH - STATE T 17	,41494	,45249	,04274	,05360	,02488	,30061	,01016	,04534	,68133	,00000
11	CHEVRON - STATE I 17	,41494	,00000	,03768	,00000	,00000	,53053	,06314	,11290	,00000	,00000
12	SKELLY - STATE A	,41494	,45249	,17659	,03965	,02467	,65326	,17214	,22331	,59327	,00000
13	C&C OPER. - SHIPP A	,41494	,45249	,01080	,02986	,00049	,26483	,00000	,02820	,08932	,00000
14	TEXAS PACIF.-STATE V ACP	1,65975	1,80995	,17973	,17427	,18799	2,88782	,01172	,31792	2,36200	,00000
15	SHELL - STATE F	,82988	,90498	,07652	,06847	,16393	1,92692	,06928	,26705	1,00958	,00000
16	C H SWEET - STATE F	1,65975	1,35747	,38647	,30473	1,30693	3,47302	,40145	,72846	5,19643	,00000
17	JOHN A YATES-SHELL STATE	1,24481	1,35747	,25418	,19997	,35775	3,25624	,10654	,40188	1,99825	,00000
18	AMERADA HESS-STATE E	,82988	,90498	,61809	,33893	,40749	1,38085	,67541	,75052	,66913	,18213
19	SHELL - STATE D	,82988	,90498	,63844	1,15900	1,18949	,55814	1,11075	1,05192	,00000	,71855
20	GULF - GRAHAM STATE A	2,48963	2,26244	1,78800	2,04699	1,30922	,20143	3,00434	2,71018	,00000	1,39983
21	SAMEDAN - STATE C	1,65975	1,80995	2,05259	3,95177	2,14489	4,31683	1,43805	1,74475	,00000	3,20682
22	TEXAS PACIF.-STATE G	1,65975	1,80995	2,50075	4,15272	1,73886	1,28952	2,62598	2,48369	,00000	4,66039
23	CITIES SERVICE - HARDIN	2,07469	1,80995	2,07865	1,05798	,39700	,20732	2,98380	2,69246	,00000	,57998
24	GETTY - BOURNE-HARDIN	1,65975	1,80995	1,94938	,53092	,82238	2,10826	1,68192	1,72731	4,05726	,13917
25	SHELL - MCKINLEY A	3,73448	4,07240	5,59091	5,71869	3,53522	2,38899	4,27915	4,07791	,00000	4,85198
26	SKELLY - H D MCKINLEY	,41494	,45249	,36827	,04601	,08635	,78103	,43417	,47110	,00000	,00000
27	CHEVRON - H D MCKINLEY	,82988	,90498	,84411	,56001	,35399	,86633	,67097	,69177	,00000	,54675
28	C H SWEET - MCKINLEY A	,41494	,45249	,05820	,04173	,36990	,96769	,21359	,29388	,59052	,00000
29	SHELL - MCKINLEY B	2,07469	1,80995	2,34539	1,95380	1,58781	2,25330	1,34991	1,44609	,00000	2,44235
30	BILL SWEET-ROGERS H-FED.	,41494	,45249	,22602	,04183	,03934	,42709	,21482	,23702	,59052	,00000
31	C H SWEET - GRIMES	,82988	,45249	,17844	,00398	,00000	,36506	,16305	,18456	,00000	,00000
32	ATLANTIC RICH.-GRIMES	,41494	,45249	,52497	,10647	,27002	,53728	,29242	,31849	1,07249	,00000
33	BILL SWEET-ROGERS H-FED.	,00000	,00000	,27366	,00000	,00000	,09121	,28038	,30283	,00000	,00000
34	GULF - W.D.GRIMES NCT C	1,24481	1,35747	,89538	,28778	,33173	1,29370	,46647	,55454	4,74971	,00000
35	ANTWELL-HOBBS CONS TOWNS	,41494	,45249	,02420	,09760	,56863	,29695	,01303	,04362	1,36270	,00000
36	AISEN-MORRIS A	,41494	,45249	,34360	,34150	,20707	,26370	,11351	,12950	,00000	,32433
37	AISEN-MORRIS B	,41494	,45249	,39603	,14453	,62587	,15303	,02783	,04116	,00000	,20188
38	SKELLY - HOBBS E	,41494	,45249	,05259	,06431	,05955	1,68906	,02002	,17216	,57029	,00000
39	CONTINENTAL - STATE B-25	,82988	,45249	,59227	,06419	,00000	2,35486	,01985	,62586	,00000	,20566
40	SAMEDAN - STATE B	,82988	,90498	,23709	,11253	,18911	1,96790	,15678	,34960	1,49487	,00000
41	TEXACO - N.H. OO B C ST	1,65975	1,80995	2,66843	3,29471	3,54837	2,00206	1,69333	1,72620	,00000	3,15886
42	EXXON - N.H. STATE A	2,48963	2,71493	2,08502	1,51427	5,10550	6,09722	,89462	1,48851	17,45657	,00000
43	AMERADA - H D MCKINLEY	1,65975	1,80995	3,12723	3,28229	2,09892	,53225	2,13607	1,96532	,00000	3,52437
44	GETTY - H D MCKINLEY	2,07469	2,26244	3,22253	3,16952	3,39097	,85013	2,83883	2,62711	,00000	3,81035
45	MARATHON-ST. LAND SEC. 30	1,65975	1,80995	2,40311	1,68224	1,55060	2,79942	2,14652	2,21603	,30095	1,78339

DATE : 03 NOV 76
PAGE NO. 2

TR NO	TRACTS	NO. OF WELLS USHL 7/76	NO. OF WELLS ACTV 7/76	CUM OIL THDS.76 PRODUCTION PROD 1-1-76	CUM OIL THDS.76 PRODUCTION OILPRD BBLS	CUM OIL THDS.76 PRODUCTION GASPRD MCF	ORIG OIL IN PLACE GR BBLS	ORIG OIL IN PLACE SA BBLS	ORIG OIL IN PLACE TOTLE BBLS	1/1/76 PRIMARY RES GRYBRG BBLS	1/1/76 PRIMARY RES SANAN BBLS
46	EXXON-BUWERS A FED.SEC30	2.07869	1.80995	3.16652	2.35116	2.00641	.26437	3.40413	3.06985	.00000	1.89039
47	EXXON-BUWERS A FED COM	.41494	.45249	.56018	.57873	.23204	.72023	.06004	.08810	.00000	.71038
48	EXXON-BUWERS A FED.SEC29	1.24481	1.35747	2.35475	1.60942	2.67928	.21959	2.68186	2.41971	.00000	1.89866
49	AMERADA - STATE B	1.65975	1.80995	2.96949	1.57191	2.51114	1.80969	1.70758	1.72271	10.12320	.98198
50	EXXON - A D GRIMES	.41494	.45249	.70512	.15226	.37109	.61897	.39106	.37065	.00000	.04505
51	CONTINENTAL-STATE A 29	1.24481	.90498	2.27586	1.90099	2.02461	.03622	2.79921	2.50505	.00000	2.17075
52	GETTY - W D GRIMES	.82988	.90498	1.63235	.69111	1.74964	.43662	1.17734	1.09848	.00000	.87247
53	CHEVRON - STATE I 29	.82988	.90498	1.26515	1.09926	.26191	.00000	2.19583	1.91737	.00000	3.01719
54	ATLANTIC - A D GRIMES SOC	1.65975	1.80995	1.91949	1.42560	3.80960	1.78187	1.49815	1.52836	.46397	2.41364
55	SAMEDAN - HORN A	.82988	.90498	.91544	1.55912	1.11720	.70503	.58402	.59691	.00000	2.00826
56	SAMEDAN - HORN B	.82988	.90498	.86200	1.35083	1.28967	.88057	.38990	.39955	.00000	2.85886
57	SHELL - GRIMES	2.07869	2.26244	2.33878	2.86400	1.62104	.20971	2.94504	2.65383	.00000	3.24766
58	CONTINENTAL - W D GRIMES	1.65975	1.80995	1.82146	2.73293	4.58575	.75321	2.19299	2.03971	.00000	4.88152
59	SHELL - SANGER	2.48963	2.71493	2.21422	5.33586	4.83053	1.12001	.73856	.77917	1.18097	6.94938
60	GULF - J R HOLT ACT D	.82988	.00000	.01396	.00000	.00000	.40023	.00000	.04261	.00000	.00000
61	HYRON - J R HOLT STATE	.41494	.45249	.12164	.12985	.10252	1.00544	.00815	.11433	2.12582	.00000
62	AMERADA HESS - STATE C	1.24481	.90498	.81892	.22793	.29839	4.98010	.09422	.61440	3.79503	.00000
63	SUN - CLARA FOWLER	.82988	.90498	.54307	.34952	.83941	2.69245	.32471	.57679	2.71627	.07798
64	SKELLY - CLARA FOWLER	.82988	.90498	1.29516	1.36093	.73471	2.12618	.76534	.91023	.00000	1.50242
65	CITIES SERVICE - FOWLER	2.07869	1.80995	2.53513	2.23123	.39085	1.70899	2.74961	2.63882	.00000	2.31584
66	MOBIL - NORA BERRY	1.65975	1.80995	1.03104	1.27465	1.87912	4.49397	.06037	.89338	20.50106	.00000
67	SHELL - BERRY	1.65975	1.80995	1.92042	2.84458	4.02598	2.56831	2.15930	2.20285	.00000	2.35693
68	GULF - D GRIMES NCT A/2	4.14938	4.52489	5.21225	5.36728	7.48092	.31422	7.05507	6.33740	.00000	5.21954
69	AMERADA HESS - STATE A	.82988	.90498	1.48676	1.60434	.97929	.00000	1.78368	1.59376	.00000	1.47228
70	SHELL - STATE A	1.24481	1.35747	1.32475	1.18806	.89941	.00000	2.19988	1.96567	.00000	.86130
71	MARATHON-STATE SEC 32-18	1.65975	1.80995	2.96131	1.14278	1.92776	.00000	3.60070	3.21735	.00000	1.50724
72	SHELL - STATE B	.82988	.90498	.95279	1.30096	1.49892	.00000	1.92061	1.71614	.00000	1.01591
73	AMOCO - STATE G	.82988	.90498	1.38350	1.98360	.78401	.00000	1.97917	1.76846	.00000	1.92476
74	GULF - W D GRIMES NCT B	1.65975	1.80995	2.00766	2.37075	2.85521	.05427	3.00084	2.68713	.00000	2.27741
75	CONTINENTAL - STATE A 33	2.90456	3.16742	4.33014	5.28712	3.39858	.00000	6.79512	6.07167	.00000	4.76042
76	SKELLY-H H TURNER 182	.82988	.90498	1.13710	2.06210	1.98606	.69601	.59898	.60931	.00000	2.32357
77	SHELL - TURNER	.82988	.90498	.89787	2.08156	.79365	.88520	.17117	.29460	.00000	2.68205
78	MORANCO - HOBBS	.41494	.45249	.07920	.20352	.29009	.05534	.00022	.00609	2.77620	.00000
79	SAMEDAN - TURNER A	.82988	.90498	.98657	1.55686	.51714	.86984	.47059	.51309	.00000	2.37671
80	SAMEDAN - TURNER B	.82988	.90498	.68518	.87022	1.09708	.25327	.02698	.05107	.00000	.82906
81	WISER - STATE L	.41494	.45249	.00607	.01138	.00000	.71767	.00045	.07681	.19466	.00000
		99.99998	99.99998	99.99998	99.99998	99.99998	99.99997	99.99998	99.99998	99.99999	*********

MINUTES OF THE TECHNICAL COMMITTEE
PROPOSED NORTH HOBBS UNIT
NOVEMBER 4, 1976

The meeting was called to order at 8:15 a.m. Thirteen companies, which operate 82 percent of the number of current producers, were represented. (Attendance list attached). The main purpose of this meeting was to vote on the acceptance of Shell's reservoir simulation study as the basis for the determination of primary reserves from the main San Andres reservoirs.

After considerable discussion and vote taking it was decided to take the following course of action:

1. Accept Shell's reservoir simulation approach as the best method for determining primary reserves from the main San Andres reservoirs.

2. Approve the techniques and mathematical descriptions used by Shell and as presented to the Technical Committee at the October 13, 1976 meeting by Mr. W. C. Miller of Shell Development. (Skelly registered the only no vote based on the results obtained for their Turner lease relative to offsetting tracts.)

3. Approve the approach that the primary reserves parameter for those wells included in the reservoir simulation study would be based on the assumption that the current completion status (shown in Figure 1 attached to minutes of October 13, 1976 meeting) would be constant over the remaining life.

4. Update the reservoir simulation history match to include the first eight months of 1976 oil production. The determination of each well's permeability thickness (kh) should be based on the last twelve months of history. (Wells that have been shut in during July and August 1976 due to overproduction of gas would use the prior ten months (9/75 to 6/76) as the base for determining kh. These wells are: Arco Grimes SOC 1 and 2 (28E&F), Conoco Grimes 1, 2 and 4 (28O, P and I) and Conoco State A-29-3 (29K).)

5. Rectify an apparent discrepancy between actual production and computed production for the Getty Hardin Lease in Section 19.

6. Move the two Skelly Turner wells (34C and F) from grid block 12, 2 to grid block 12,1 in order to obtain a better match and representation.

7. Use an economic limit of 3 BOPD or 99 percent water cut and all production stopped on December 31, 2024.

Shell agreed to make the preceding changes and distribute the results of this analysis to all Technical Committee members (in approximately one week). Shell pointed out to the Committee representatives that this would be the final simulation run under the agreement set forth in the letter dated March 13, 1975 about the computer analysis for this field.

It was decided to reconvene in two weeks (November 17 and 18) to cover the agenda scheduled for this meeting.

In response to several requests for information on other participation parameters determined to date, a tabulation of ten parameters was distributed and a copy is enclosed with these minutes. Also a summary of a conservative economic analysis of a unitized waterflood was shown; a copy of that summary is also attached.

HJS:ELP

Attachments

ATTENDANCE LIST *
(11/4/76)

Name	Company	Location
K. Y. Kassim	Amerada Hess	Seminole
Paul D. Kossmann	Amoco	Houston
Donald D. Barrett	Cities Services	Midland
Arthur J. Henry	Conoco	Houston
W. E. Nolan	Exxon	Midland
N. K. Reynolds	Exxon	Midland
J. E. Eakin	Getty	Midland
Harold O'Dell	Getty	Houston
G. G. Bingham	GEM US	Midland
R. E. Dejmal	Mobil	Houston
Boyce Perry	Samedan	Ardmore
Chris F. Bosecker	Skelly	Midland
Jess B. Nunnelee	Skelly	Midland
C. R. Price	Sun	Midland
G. R. Meyers	Texas Pacific	Dallas
W. C. Miller	Shell	Houston
H. J. Swartz	Shell	Houston

* Chevron not in attendance but sent telegram approving reservoir simulation study.

NORTH HOBBS UNIT
TECHNICAL COMMITTEE
ADDRESS LIST

ABO PETROLEUM CORPORATION
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AMERADA HESS CORPORATION
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AMOCO PRODUCTION COMPANY
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ATLANTIC RICHFIELD COMPANY
ATTN: MR. J. L. TWEED
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MR. W. K. BYROM
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CONTINENTAL OIL COMPANY (2)
ATTN: MR. R. E. McWILLIAMS
P. O. BOX 460
HOBBS, NM 88240

MR. JOHN P. CUSACK
P. O. BOX 250
ROSWELL, NM 88201

DEL LEA (ANTWEIL)
P. O. BOX 1889
HOBBS, NEW MEXICO 88240

EXXON COMPANY - U.S.A. (2)
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GETTY OIL COMPANY (2)
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GETTY OIL COMPANY
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ATTN: MR. J. M. THACKER
DISTRICT OPERATIONS MANAGER
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GULF ENERGY & MINERALS CO. - U.S.
ATTN: MR. V. M. HENDRICKS
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MARATHON OIL COMPANY
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MOBIL OIL CORPORATION
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3 GREENWAY PLAZA EAST, SUITE 800
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MORANCO
MR. R. M. MORAN
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SAMEDAN OIL CORPORATION
ATTN: MR. BOYCE PERRY
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ARDMORE, OK 73401

SAMEDAN OIL CORPORATION
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SKELLY OIL COMPANY
ATTN: MR. FRANK D. McATEE
EXP. AND PROD. DEPT.
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SKELLY OIL COMPANY
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SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THORNTON
12850 HILLCREST ROAD
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SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS &
MR. CHARLES DICKSON
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MR. BILL L. SWEET
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C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
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HOBBS, NM 88240

TEXACO INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXACO INC.
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TEXAS PACIFIC OIL CO., INC. (2)
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TEXAS PACIFIC OIL CO., INC.
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THE WISER OIL COMPANY
110 GIHLS TOWER EAST
MIDLAND, TX 79701

ESTES ENGINEERING CO.
306 PETROLEUM BLDG.
MIDLAND, TX 79701

W. D. ANDERSON & SONS
P. O. BOX 136
MIDLAND, TX 79701

PRELIMINARY ECONOMIC ANALYSIS
PROPOSED NORTH HOBBS UNIT

ASSUMPTIONS:

1. ADDITIONAL OIL BY WATERFLOODING IS 30 MMB OR ABOUT 7% OF THE OOIP IN GB, II, III_U, III_L ZONES. (THE SECONDARY OIL RECOVERY OF 30 MMB IS EQUIVALENT TO A SECONDARY TO PRIMARY ULTIMATE RATIO OF 0.28 FOR THESE ZONES.) THE WATERFLOOD LIFE IS 35 YEARS.

2. CAPITAL INVESTMENT IS $16,000,000 INITIALLY AND $4,000,000 TWO YEARS LATER.

3. A CRUDE OIL PRICE OF $5.911 PER BARREL IS USED THROUGHOUT. THERE IS NO ESCALATION FOR OPERATING COSTS. THE OPERATING COSTS USED FOR THE WATERFLOOD ARE 44% HIGHER THAN THE EQUIVALENT FOR PRIMARY OPERATIONS TO PROVIDE FOR AN INCREASED AMOUNT OF WORKOVERS AND WATER COSTS (PURCHASING AND HANDLING).

RESULTS:

1. THE ADDITIONAL OCI (UNDISCOUNTED AND BEFORE FIT) IS $3.80 PER BARREL OF OIL. THE ADDITIONAL OCI (DISCOUNTED AT 10% AND BEFORE FIT) IS $1.75 PER BARREL OF OIL. THE AVERAGE ANNUAL EARNING POWER (BEFORE FIT) IS 33% AND THE PAYOUT OF THE CAPITAL INVESTMENT IS 4.1 YEARS. THE UNDISCOUNTED PROFIT IS $94 MILLION OR 470% OF THE REQUIRED CAPITAL INVESTMENT.

NOTE: THIS IS AN INTENTIONALLY CONSERVATIVE PROFITABILITY TO DEMONSTRATE AN ECONOMICALLY ATTRACTIVE PROSPECT EVEN WITH LOW OIL RECOVERIES AND HIGH COSTS.

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

November 8, 1976

Subject: Technical Committee Meeting
Proposed North Hobbs Unit
Lea County, New Mexico

Technical Committee
Proposed North Hobbs Unit
(Addressee List Attached)

A two-day meeting of the Technical Committee is called for Wednesday and Thursday, November 17 and 18, 1976, at 8:00 a.m. in Conference Room 19109, Entex Building, 1200 Milam Street, Houston, Texas.

The agenda for this meeting is:

1. Vote on approval of Shell's reservoir simulation study for determining San Andres primary reserves by tracts. (See attached minutes).

2. Review primary reserve determinations made from decline curve analyses of wells producing from the Grayburg and/or upper San Andres stringers. (See Minutes of January 13 and 14, 1976, Technical Committee meeting). The production performance curves have been updated and there are some wells that have not yet been analyzed.

3. Discuss the procedure to be adopted for allocating secondary reserves to tracts.

4. Other business.

This agenda is the same as scheduled for the Technical Committee meeting held on November 4, 1976. Attached are the minutes of that session which show that only the first agenda item was discussed in detail. Whereas there is agreement with the assumptions and techniques used by Shell in their reservoir simulation study, sufficient modifications to the October 18, 1976 analysis (summarized in Figures 14 and 15 of the enclosures sent with the minutes of the October 13, 1976 meeting) were approved by the Technical Committee to justify an additional run. The results of this final run will be distributed to all Technical Committee representatives as soon as available (in approximately one week). We request that each Company representative attending the November 17 and 18, 1976 meeting be prepared to vote on the acceptance of the forthcoming computer analysis as the basis for the primary reserves unitization parameter.

Technical Committee
Proposed North Hobbs Unit

Shell Oil Company now feels that they have fulfilled the intent and requirements set forth in our letter dated March 13, 1975 discussing the computer analysis for this field.

Yours very truly,

H. J. Swartz

H. J. Swartz, Chairman

HJS:ELP

#15

MINUTES OF TECHNICAL COMMITTEE MEETING
PROPOSED NORTH HOBBS UNIT
NOVEMBER 17 AND 18, 1976

The meeting was initiated with a brief review of the agenda and in particular the modifications that had been made to the Shell reservoir simulation study of the San Andres reservoirs primary performance. These changes had been requested by the Technical Committee at the November 4, 1976, meeting, are outlined in the minutes, and were at the time intended as the final computer run. The results of this analysis were transmitted to all members with letter dated November 10, 1976.

Shell moved that the results of the reservoir simulation study, summary of equity transmitted to all Operators on November 10, 1976, be used for the San Andres (main zones) tract primary reserve parameter. This motion was seconded by Amoco and the results of the vote were:

FOR (11) : Amerada, Amoco, Chevron (by telegram), Exxon, Getty, Gulf, Mobil, Samedan, Sun, Texas Pacific and Shell.

OPPOSED (3): Cities Service, Conoco and Skelly

The reasons for these objections were discussed and the respective positions are appended as follows: Cities Service (Attachment No. 1), Continental (Attachment No. 2) and Skelly (Attachment No. 3). Shell's response to each of the exceptions is noted at the end of each attachment.

A motion was made by Skelly that their two Turner wells (located in Section 34C and F) be assigned a Zone I primary reserve value of 540,000 barrels each (rather than the 319,000 and 321,000 barrel determination made by the last Shell computer run). All other wells would retain the assigned values shown in this final analysis. Samedan seconded the motion and the resulting vote was as follows:

FOR (2) : Getty and Skelly.

OPPOSED (11): Amerada, Amoco, Cities Service, Continental, Exxon, Gulf Mobil, Samedan, Sun, Texas Pacific and Shell.

A motion was then made by Shell that the Zone I primary oil reserves determined for the two Skelly Turner wells and three directly offsetting wells: Shell Sanger 2(27N), 514,000 barrels; Shell Turner 2(34B), 352,000 barrels; and Shell Turner 1(34G) 576,000 barrels; be arithmetically averaged and the resulting value (approximately 416,400 barrels) be assigned to each of these five wells. No other reserve values would be changed from those determined in the final run. Amoco seconded this motion and the results of the vote were:

FOR (7) : Amerada, Amoco, Gulf, Mobil, Sun, Texas Pacific and Shell

Opposed (4): Cities Service, Conoco, Exxon and Skelly

PASS (2) : Getty and Samedan

Getty requested the inclusion of their comments in the minutes. (See Attachment 4). Mr. W. E. Nolan stated Exxon's preference that no arbitrary adjustments affecting the tract reserve determinations be made.

After additional discussions about alternative proposals to resolve the disagreements (none were finalized as motions), it was decided by the Chairman of the Technical Committee that the results of the "final" Shell reservoir simulation study (first motion) would be submitted to the Working Interest Owners as the San Andres (main zones) primary reserve parameter. This decision was based on the observation that no constructive alternatives had been recommended and whereas it was a controversial determination it had received the most support from the representatives. Furthermore, based on current and prior discussions it appeared that all of the objections were directly related to equity and the disagreements could therefore best be resolved by the Working Interest Owners. The Technical Committee should now continue with their assigned task to determine the economic feasibility of unitized Supplemental Recovery operations and the development of additional parameters. Meanwhile Shell will continue to search for an alternative solution to the primary reserves parameter that would be acceptable to everyone.

The next agenda item was to review primary reserve determinations made from decline curve analyses of those wells producing from the Grayburg and/or upper San Andres stringers. (See minutes of January 13 and 14, 1976, Technical Committee meeting.) The production performance of these wells had been updated to include an additional ten months of history and there were several wells that had not previously been analyzed. Viewgraphs of each updated production performance graph marked with the previously determined initial oil rate (at 1/1/76) and the annual decline rate assigned were shown and reviewed for any necessary adjustments. The results of these evaluations are tabulated in Attachment No. 5. As noted in this summary, twelve revisions were made. Also, seven graphs were classified as erratic performance requiring further analysis and one new lease was added. This tabulation of course represents the current analysis and replaces the summary previously transmitted with the minutes of the January 13 and 14, 1976 Technical Committee meeting.

A description of the problems involved with determining the tract secondary reserve potential for the Grayburg reservoir were presented. The meeting was then adjourned for the day. The Thursday meeting began with a quick review of the results of Shell's reservoir simulation study of the Grayburg waterflood potential. These results had been presented and accepted at the

Technical Committee meeting held on March 25, 1976. That presentation included only the results expected from a five-spot waterflood pattern of the Grayburg formation using the average reservoir characteristics found along the northern and western flanks of the field. Those areas are currently developed by 67 Grayburg wells which can conveniently be converted to an 80-acre five-spot waterflood pattern. Because of the low permeability of the Grayburg net pay it will be necessary to use a pressurized water injection system with an expected surface injection pressure of about 1500 psig. Because of this fact and the small casing sizes it appears impractical to either simultaneously or dually inject water into both the Grayburg and San Andres in the same wellbore. Herein lies the problem. The availability of "Grayburg only" wells will permit the secondary recovery development of about one-half of the original-oil-in-place. The remaining potential is underlain and developed by more prolific San Andres producers. In light of past history it is doubtful that high pressure water injection could be mechanically confined to the Grayburg in most of these wells.

It was decided by the Technical Committee that Shell should make the following determinations:

(1) Quantify the volume of Grayburg reservoir that can be affected by an 80-acre five-spot waterflood pattern with currently available wells. This volume should include the expected encroachment of water beyond the normal well pattern in accordance with a 1955 report by Caudle et al. (See Page 57 of the AIME Monograph Volume 3 by Forrest F. Craig, Jr.)

(2) Evaluate the economic feasibility of drilling Grayburg water injectors but utilizing existing producers for drainage points in the reservoir volume not encompassed in Item 1. This evaluation would also be based on an 80-acre five-spot pattern, upper tier oil price, constant revenue and costs, before federal income taxes, and values discounted at 10 percent and undiscounted. It will be assumed that water injection would be initiated in mid-1979 and the reservoir pressure at that time in this area would be 400 psig.

These determinations should establish what volumes of the Grayburg reservoir can economically be exploited with a waterflood.

Considerable discussion then ensued on the best method to be used in determining the San Andres waterflood potential. Shell had planned to make a reservoir simulation study by modelling the Zone III_L reservoir in its entirety in the northern unit area. Average oil saturations at the start of water injection were to be determined for each floodable zone (II, III_U and III_L) from the recently completed San Andres primary performance simulation study by Shell.

Waterflood recovery would then be evaluated for several cases with different location and number of injectors and producers. However, in view of the previously described controversies about that primary performance simulation study (see Attachments 1, 2, 3 and 4) it was decided that it would be preferable to evaluate the secondary recovery potential of the San Andres by analogy with existing waterfloods in similar reservoirs the West Texas - New Mexico area. Consequently, each representative was requested to supply the Chairman with data on this type of project. However, in order to avoid duplication of effort and incomplete data, Shell will send out a letter requesting specific data from the operator of specific selected projects. Shell will then summarize and average these data and the Technical Committee will then determine the San Andres secondary reserves volumes to be used for the North Hobbs Unit by applying a recovery factor to the OOIP (Zones II, III_L and III_L) for each tract.

It was requested by the Committee that Shell review the computed saturations and reservoir pressures in the latest simulation run to ascertain that significant differences do not exist between grid blocks during mid-1979. Subsequent to the meeting, it was established by Shell that the pressure gradient existing between grid blocks in the North Unit Area averaged 21 psi in Zone II and 16 psi in Zone III and that the saturation differences were not significant for these floodable San Andres zones. The average reservoir pressure in both zones is 580 psig at mid-1979. Shell will continue to design a waterflood plan and present a recommendation to the Technical Committee.

It was estimated that the next meeting would be held in mid-January and be relative to the aforementioned waterflood analyses.

HJS:ELP
11/30/76

ATTENDANCE LIST*

(November 17 & 18, 1976)

Name	Company	Location
K. Y. Kassim	Amerada Hess	Seminole
Paul D. Kossman	Amoco	Houston
Don Barrett	Cities Service	Midland
Arthur J. Henry	Conoco	Houston
C. C. Woodward	Continental	Hobbs
W. E. Nolan	Exxon	Midland
N. K. Reynolds	Exxon	Midland
J. E. Eakin	Getty	Midland
Harold O'Dell	Getty	Houston
G. G. Bingham	GEM-US	Midland
R. E. Dejmal	Mobil	Houston
Boyce Perry	Samedan	Ardmore
Chris Bosecker	Skelly	Midland
Jess Nunnelee	Skelly	Midland
Chuck Price	Sun	Midland
Oran L. Hall	Texas Pacific	Midland
G. R. Meyers	Texas Pacific	Dallas
Wm. C. Miller**	Shell	Houston
W. E. Buck**	Shell	Houston
P. L. Bondor**	Shell	Houston
H. J. Swartz	Shell	Houston

* Chevron not in attendance but sent telegram approving reservoir simulation study.

** In attendance 11/17/76 only.

NORTH HOBBS UNIT
TECHNICAL COMMITTEE
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HOBBS, NM 88240

MR. JOHN P. CUSACK
P. O. BOX 250
ROSWELL, NM 88201

DEL LEA (ANTWEIL)
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HOBBS, NEW MEXICO 88240

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GETTY OIL COMPANY
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DISTRICT OPERATIONS MANAGER
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GULF ENERGY & MINERALS CO. - U.S.
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MR. R. M. MORAN
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THE WISER OIL COMPANY
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ESTES ENGINEERING CO.
306 PETROLEUM BLDG.
MIDLAND, TX 79701

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MIDLAND, TX 79701

ATTACHMENT NO. 1

OBJECTION BY CITIES SERVICE OIL COMPANY

Cities Service Oil Company believes that the computed San Andres primary reserves for their B. Hardin lease (NW/4 Section 19) are too low and do not properly reflect the remaining value of this lease. This contention is based on the observation that this tract has higher equity values (percent in the proposed North Hobs Unit) in the following parameters: useable wells 2.075%, active wells 1.810%, cumulative oil production (to 1/1/76) 2.079%, current oil production (1st 7 mos. 1976) 1.058%, San Andres OOIP 2.984% whereas the computed primary reserves are equivalent to only 0.693% of the unit total.

SHEL OIL COMPANY RESPONSE TO CITIES SERVICE OIL COMPANY'S OBJECTION

It is recognized that there is a considerable range in the many parameters -- that is the very reason for developing them. The history match for the 4 wells on this lease is quite adequate. One well is now at the economic limit applied to all wells in the simulation (3 BOPD) and is not credited with any reserves. The remaining wells average only 26 B/D oil production by solution gas drive in Zone 3. The predicted reserve of 86,000 barrels per well gives a reserve to production ratio of a reasonable 9.1 years.

ATTACHMENT NO. 2

OBJECTION BY CONTINENTAL OIL COMPANY

Continental Oil Company objects to the use of an arbitrary time cutoff in the reservoir simulation study for determining San Andres primary reserves, which in effect produces some wells to the economic limit while many others are producing at rates above the economic limit at the cutoff date. Continental believes each well should be carried to the economic limit and thereby credited with reserves in a manner consistent with every other well.

SHELL OIL COMPANY'S RESPONSE TO CONTINENTAL OIL COMPANY OBJECTION

Continental Oil Company raises a valid point when they suggest that all wells should be treated alike and be allowed to produce until they reach an economic limit of ? BOPD or 99 percent water cut. However if this is done for this study some of the well lives would probably be extended an additional 50 years or a total future life of about 100 years. Shell feels that it is not realistic to expect this type of well service. The cutoff time chosen (2025.0) is arbitrary and was based on several factors such as: now is mid-point in life, recovery efficiencies are already high, discounted values after 50 years are extremely low, and reservoir pressure at 2025.0 in the depletion drive reservoirs are very low (251 psi in Zone II and 170 psi in Zone III).

ATTACHMENT NO. 5

OBJECTION BY SKELLY OIL COMPANY

Skelly Oil Company does not approve the techniques and mathematical descriptions used for the determination of the San Andres Zone 1 primary reserve parameter. Skelly believes that its B.H. Turner Lease, which has two flowing 80 BOPD and 0 BWPD wells, is not being treated justly. The following is an illustration of this stated inequity using only the comparison of second row San Andres Zone 1 producers:

Operator	Lease & Well No.	Cur. Prod. Rate*	% Wtr. Cut	Zone 1 Rem. Prim. Resr.*
Samedan	Moon "A" #2	64 BOPD & 19 BWPD	23%	475,000 Bbls.
Samedan	Moon "B" #1	67 BOPD & 0 BWPD	0%	656.000 Bbls.
Shell	Sanger #3	80 BOPD & 7 BWPD	8%	638.000 Bbls.
Shell	Sanger #1	80 BOPD & 10 BWPD	11%	513,000 Bbls.
Skelly	Turner #2	80 BOPD & 0 BWPD	0%	319.000 Bbls.
Skelly	Turner #1	80 BOPD & 0 BWPD	0%	320,000 Bbls.
Samedan	Turner"A"#1	50 BOPD & 19 BWPD	28%	460,000 Bbls.
Samedan	Turner"A"#2	57 BOPD & 19 BWPD	25%	495,000 Bbls.
Other Operator's Average Well		66 BOPD & 12 BWPD	15%	540,000 Bbls.
Skelly's Average Well		80 BOPD & 0 BWPD	0%	320,000 Bbls.

Note: The two Seklly wells are the only 80 BOPD, zero water cut, flowing, Zone 1 wells in this portion of the field.
*Based on Aug. Prod. Figures & Shell's Run "C" on the simulator.

A previous indication of this inequity for the Skelly Turner wells was noted in the committee after review of stimulator run "B" which allocated only 403,000 BBLS. per well for Zone 1 remaining primary reserves. At that time the committee agreed to move the two Skelly Turner wells to another grid block in order to obtain better representation of the Skelly Wells. (See Item No. 6 in the minutes of the November 4, 1976 Technical Committee Meeting which was prepared by Shell).

SHELL OIL COMPANY'S RESPONSE TO SKELLY OIL COMPANY OBJECTION

The migration of oil in Zone I has been clearly established as being controlled by edge water encroachment which is from the southwest in the vicinity of the Skelly Turner lease. This natural water influx negates structural advantages and places a premimum on distance from the watered out area, placing the Skelly lease at an unfavorable geographical location. Also the Skelly wells should not be compared to the two Samedan Moon wells which are located 6000 and 4500 feet from the nearest Skelly producer and are affected by different migration characteristics.

It should be noted that Skelly Turner 1 is no longer a top allowable producer. During the first eight months of 1976 this well has produced 88,295 MCF of gas or an overproduction of 19,973 MCF. The well will have to be shut in for 71 days to makeup for the excessive gas and Skelly has advised us that this well also overproduced the gas allowable during September. Clearly a top allowable oil producer, even if it is pumped because it makes some water production, is more desirable than a clean flowing oil well that is GOR penalized. Furthermore, if an adjacent lease is producing water it is indicative that the clean wells will soon produce water if they are opened to production in correlatable zones.

ATTACHMENT NO. 4

COMMENTS BY GETTY OIL COMPANY

Getty Oil Company requests the following comments be included in the minutes of the Technical Committee Meeting of the proposed North Hobbs, Lea County, New Mexico for consideration by the working interest owners' management representatives:

Getty Oil Company believes that numerical reservoir simulation is one of the most valuable tools available in the petroleum industry today for prediction of reservoir behavior. We use this tool often. We recognize both advantages and disadvantages of the tool. We believe that overall Shell Oil has done a good job in the numerical reservoir simulation of the proposed unit. However, some local discrepancies, such as in the area of the Skelly Turner lease, do exist and are not to be unexpected in this particular simulation for the following reasons:

(1) Although a three-dimensional model was used, there are only three layers in the vertical dimension; each representing a completely separate lithologic zone. This is offset to a degree by the use of pseudo relative permeabilities to represent stratification in each of the zones.

(2) A large areal grid size was used. In the majority of the cases, not only are there no grid blocks between wells, there is more than one well in most grids.

(3) Actual data shows that in some cases there are high water producers adjacent to low water or clean producers. Many no-flow boundaries were used during the history match to account for these occurrences.

(4) History matching does not present a unique solution. Even though the simulator accurately performs the calculations of the applicable physical phenomena, the simulator user inputs his own judgement decisions as to modifications of the original input so that computed and actual past performance are as close as practicable.

In summary, Getty Oil Company believes that overall the Shell Oil numerical reservoir simulation provides the best estimates of remaining primary recovery by tracts or wells and fluid saturations for determination of distributions to waterflood recovery. However, for the above stated reasons, the subject simulation results should be tempered by other available data in order to avoid obvious errors such as, but not necessarily restricted to, the area of the Skelly Turner lease.

SHELL OIL COMPANY'S RESPONSE TO GETTY OIL COMPANY COMMENTS

Shell appreciates Getty's concurrence that overall, the simulation provides the best estimates of remaining primary recovery by tracts or wells. As we have emphasized in Committee Meetings, for determination of primary reserves under the conditions which prevail at Hobbs, adequate detail is provided by the model described by Getty under their points 1 to 4. The key features of Hobbs' performance are represented by the use of three distinct zones, 127-acre grid blocks, and flow channels in Zone I (whose boundaries are represented mathematically as no-flow interfaces between certain grid blocks). As Shell stated in these meetings, for other objectives, e.g., to evaluate supplemental recovery by pattern waterflooding, smaller grid blocks would be required. Finally, it is not apparent that there are errors in the area of the Skelly Turner lease. Certainly, the history match obtained on the two Skelly wells and on the offset wells is quite adequate.

Well	Operator		Production Rates Oil B/D	Gas MCF/D	Water B/D	Completion Zones
34C	Skelly	Calc.	79	73	21	1,2
		Actual*	79	85	0	
34F	Skelly	Calc.	80	74	21	1,2
		Actual*	80	310!	0	
34B	Shell	Calc.	80	47	21	1
		Actual*	80	93	13	
34G	Shell	Calc.	80	236	29	1,2
		Actual*	80	87	16	
27N	Shell	Calc.	80	56	21	1,2
		Actual*	80	215	7	

* Arithmetic average of last 12 months of production available (Sept. 1975 thru Aug. 1976).

One possible exception is in the comparison of some calculated and reported gas rates. The simulation does not reflect either the gas rate in Shell's 27N or even higher gas rate in Skelly's 34F (which subjects the latter well to shut-down in the latter part of 1976). Although the net effect upon predicted reserves is somewhat favorable to the Skelly well, we believe that such very localized regions of higher than average gas saturations have only a second order.

Finally, with regard to water rates, on the basis of an examination of the well records of all the wells producing from the several zones in the field, there is little significant distinction between wells making 20 B/D water or less (in this case, between 0 B/D water and 16 B/D).

RESERVES OF WELLS PRODUCING FROM GRAYBURG &/OR UPPER SAN ANDRES STRINGERS
PROPOSED NORTH HOBBS UNIT
(REVISED 11/12/76)

COMPANY	LEASE	WELL(S)	LOCATION	@ 1/1/77 qo (BOPD)	dy (%)	RESERVES* (BBLS)	
Amerada Hess	Hardin	1,2,3,5	16K,L,M,N	0	0	0	
" "	State B	3,4	29B,C	34	12	148,475	
" "	State C	1,2	36A,H	20	14	43,561	R
" "	State C	3	36G	0	0	0	
" "	State E	1	24E	7	20	9,814	U
" "	State WNB	1	14O	6	14	12,100	U
			Subtotal	67		213,950	
Amwell	Hobbs CT	1	21J	8	12	19,987	
Atlantic Richfield	Grimes	1	20C	8.2	14	17,424	R
" "	Grimes SOC	3	28D	4.7	19	6,805	
			Subtotal	12.9		24,229	
Byron	Holt State	1	36E	11.5	10	36,375	R
C&C Oper.	Shipp A	1	23E	2.3	13	3,407	R
Chevron	State 17	1	17L	0	0	0	
Continental	State B-13	2,5,7	13N,E,L	8	17	9,794	
"	"	1,4,6	13N,F,C	***	***	***	
"	" B-25	2	25C	***	***	***	
Estes	State	1	14P	**	**	22,162	R
Exxon	New Mex. State	1,5,6,7, 8,9	25I,O,K,P,J,N	120	15	256,032	
Getty	Hardin	2	19E	7	10	20,788	
"	"	3	19B	17	14	38,721	
"	State B	1,2	14H,G	5	5	13,132	R
			Subtotal	29		72,639	
Gulf	Grimes C	1,2,3	21,L,M,N	23	8	87,549	R
"	Hardin	3,4,5,6	18I,G,J				
"	"	7,8,9	H,B,A,O	25	11	68,907	R
"	LeaFD State	1	16N	4	9	11,611	
			Subtotal	56		168,067	
Marathon	State 30	9	30M	3.4	18	4,414	U
Mobil	Berry	2,3,4,1	31N,L,M,K	105	10	349,894	R
Moranco	Hobbs	1	34B	15	11	43,850	R
"	State T 17	1	17E	4.5	12	9,993	
			Subtotal	19.5		53,843	
Samedan	State B	1,2	25F,E	9	11	21,925	
Shell	Rice	4	13J	11	14	24,201	U
"	Sanger	6	27D	11	19	17,321	
"	State F	2	23G	2.9	16	3,978	R
"	State F	3	23B	2.0	16	2,093	R
			Subtotal	26.9		47,593	
Skelly	Hobbs Z	1	26A	5.3	17	8,423	
"	State A	1	17M	3.3	10	7,968	
			Subtotal	8.6		16,391	
Sun	Fowler	4	31E	12.5	10	39,839	
Bill Sweat	Bowers B	2	20J	3.5	10	8,661	
C.E. Sweat	Grimes	1A	20I	0	0	0	
"	McKinley B	2	20H	3.5	10	8,661	
"	State F	2,3,4	23M,I,A	25	10	76,215	U
			Subtotal	28.5		84,876	
Texas Pacific	State V Ac 1	1,2	14I,J	13	11	34,454	
"	State V Ac 2	3,4,5,6	23C,F,K,N	14	10	34,643	
			Subtotal	27		69,097	
Wiser	State	1	26B	1	-	204	U
Yates	Shell State	1,2,3	23P,J,O	17	16	29,308	
TOTALS		62	Producers	596.6		1,542,687	
		4	Recompleting				
		2	TA			0	

Notes: * Economic limit assumed to be one BOPD/well.

** New well with erratic production. Reserves are arithmetic average of 4 offset wells (TOPC ST. V AC-1, 2 wells; Amer. St. WNB 1, and Shell State F-3)

*** Add wells recently recompleted; will assign reserves at a later date.

R Revision to prior estimate.
U May change. Update later and review.

#1.

Minutes of the Technical Committee Meeting
Proposed North Hobbs Unit
January 13, 197-

Thirteen companies, which operate 92 percent of the current producers, were represented. (Attendance list is attached). The main purpose of this meeting was to finalize the tract secondary reserves for the unit.

Discussion was initiated with a brief review of the reservoir simulation study by Shell of the Grayburg waterflood potential. These results had been previously presented to the Technical Committee at a meeting held on March 25, 1976. The main conclusions are:

(1) Because of the low permeability it is necessary to use a pressurized water injection system (1500 psig surface) and a five-spot waterflood pattern.

(2) Primary ultimate recovery efficiency is 18.7 percent and secondary recovery efficiency is 14.4 percent for a symmetrical closed five-spot pattern.

(3) An 80-acre five-spot pattern waterflood, using existing wells, is economically attractive but will have a long life (43 years) and a relatively low response. A complete infill drilling program to obtain 40-acre five-spot patterns cannot be economically justified.

The questions that needed to be resolved at this meeting are:

(1) What reserves should be assigned to the unit to discount the recovery efficiency of 14.4 percent for idealized conditions by the factors of well availability, non-symmetrical five-spots and incomplete patterns? and (2) On what basis should the unit secondary reserves be assigned to each tract?

A study was presented by Shell to show the expected encroachment of injected fluids beyond the normal well pattern (based on studies by Caudle et al, Petroleum Transactions, AIME (1955) 204, 79-85) and reduced sweep efficiencies due to incomplete patterns (based on results published by Craig, AIME Monograph, Volume 3, Chapter 5). The application of these techniques was approved by the Committee and resulted in unit secondary oil reserves of 6,560,000 barrels for a recovery efficiency of 10.6 percent of the OOIP. This is equivalent to a secondary reserve to primary ultimate ratio of 0.57 and requires the drilling of one injector at location 29D. It was decided by the Committee that this volume of secondary reserves should be apportioned to each tract on the basis of the tract OOIP.

It was pointed out that apparently the 320-acre Moranco Rice (Section 13) and Hardin (Sec. 18) leases were experiencing favorable response to Grayburg water injection. The October 1976 oil production from the Hardin tract is 1211 barrels (3 producers) which is the highest production level since 1963. In addition, the GOR has significantly decreased to 2695 cubic feet per barrel oil. Waterflood response from the Rice lease is not as pronounced but still encouraging. Water injection was started in August 1971, but has not been continuous.

At the last Technical Committee meeting it had been decided that San Andres secondary reserves should be determined by analogy with existing San Andres waterfloods in the vicinity that exhibited similar reservoir characteristics. Performance data on 8 such projects were reviewed and averaged a total recovery efficiency of 35 percent with a secondary to primary ratio of 0.85. It was noted that the volumetrically weighted permeability for these projects was 11 millidarcies whereas only two of the projects had average permeabilities as high as the North Hobbs Unit average for Zones II, III_L and III_U (28 millidarcies) and the ultimate recovery efficiency for those two floods are predicted to be 39.4 and 46.4 percent. Their secondary to primary ultimate recovery ratios are 0.43 and 0.66.

A Shell reservoir simulation study of the Zone III_L resulted in a primary recovery efficiency of 24 percent and a secondary recovery efficiency of 20 percent. The ultimate recovery efficiency is 44 percent and a secondary to primary ratio of 0.82. This study assumed a residual oil saturation of 35 percent in the swept zone and the final average saturation of 39 percent is equivalent to a sweep efficiency of 89 percent. It was pointed out that the San Andres Zone III_L is probably the most amenable to waterflooding because of the localized area and shape of the reservoir development.

Based on the foregoing, the Technical Committee determined that the ultimate oil recovery efficiency for the San Andres Zones II, III_U and III_L will be 40 percent. This should result in a secondary reserve for these zones of 48,640,000 barrels of oil. These recoveries are equivalent to an average residual oil saturation of 41.4 percent with a sweep efficiency of 85.1 percent. The ultimate recoveries for each zone in the proposed unit area are summarized in the attached tabulation. The Technical Committee also decided that the secondary reserves for the San Andres should be allocated to each tract on the basis original oil in place for each of the three zones.

Discussion then revolved about the scheduling of future work required for the Technical Committee to complete the charges by the Working Interest Owners. The following tentative schedule was developed: (1) determine the economics of waterflooding of both the Grayburg and San Andres reservoirs, (2) finalize the Grayburg primary reserves, by decline curve analysis, as soon as the production statistics are available through December 1976, and (3) prepare the Technical Committee report (tentatively scheduled for April 1977).

Attachments

ATTENDANCE LIST

Proposed North Hobbs Unit Technical Committee Meeting
Houston, Texas, January 13, 1977

NAME	COMPANY	LOCATION
Nassim Y. Nassin	Amerada Hess	Seminole
Ralph R. Denham	Amoco	Houston
Don Barrett	Cities Service	Midland
Arthur J. Henry	Conoco	Houston
W. E. Nolan	Exxon	Midland
J. E. Eckin	Getty	Midland
Royce Walker	Gulf	Midland
R. E. Dejmal	Mobil	Houston
Boyce Perry	Samedan	Ardmore
Chris Bosecker	Skelly	Midland
Chuck Price	Sun	Midland
Oran L. Hall	Texas Pacific	Midland
Hank Swartz	Shell	Houston

PROPOSED NORTH HOBBS UNIT
OOIP AND EXPECTED RECOVERIES (STB)
(Estimate of 1/13/77)

ZONE	OOIP	PRIMARY RECOVERY			SECONDARY RECOVERY	
		Cumulative Oil @ 9/1/76	Primary Res. 9/1/76	Ultimate Oil Recovery	RESERVES	Second Primar
Grayburg	61,566,390	10,100,000 (16.4%)	1,400,000 (2.3%)	11,500,000 (18.7%)	6,560,000 (10.7%)	0.5
S.A. I	171,623,081	82,480,292 (48.1%)	21,672,007 (12.6%)	104,152,299 (60.7%)	0	0
S.A. II	149,974,258	34,124,188 (22.8%)	7,807,152 (5.2%)	41,931,340 (28.0%)	18,000,000 (12.0%)	0.43
S.A. III_U	155,394,214	31,397,380 (20.2%)	6,307,708 (4.1%)	37,705,088 (24.3%)	24,400,000 (15.7%)	0.65
S.A. III_L	39,720,060	8,025,433 (20.2%)	1,612,303 (4.1%)	9,637,736 (24.3%)	6,240,000 (15.7%)	0.65
Subtotal S.A. II, III_U, III_L	345,088,532	73,547,001 (21.3%)	15,727,163 (4.6%)	89,274,164 (25.9%)	48,640,000 (14.1%)	0.54
UNIT TOTALS	578,278,003	166,127,293 (28.7%)	38,799,170 (6.7%)	204,926,463 (35.4%)	55,200,000 (9.6%)	0.27

Minutes of the Technical Committee Meeting
Proposed North Hobbs Unit
March 2, 1977

Twelve companies, which operate 83 percent of the current producers, were represented. (Attendance list is attached.) The main objectives of this meeting were to finalize the primary reserve determinations and to review the capital investment requirements and economics of waterflood operations.

The first agenda item was to finalize tract primary reserves for wells producing from the upper San Andres stringers and/or the Grayburg reservoirs. The last estimates had been made on November 11, 1976 and were based on production through August 31, 1976. The production performance graphs have now been updated to include the results through December 31, 1976. The oil reserves for the proposed North Unit area (as of January 1, 1977) were determined to be 1,485,275 barrels and are summarized by tracts on an attachment.

The next agenda item was to determine the method to be used to allocate the oil production from the last four months of 1976 in order to update tract primary reserves computed for wells producing from the main San Andres reservoirs. These reserves have been determined (as of September 1, 1976) with the use of a reservoir simulation program. (Please refer to the minutes of the Technical Committee meeting held on November 17 and 18, 1976.) Two alternatives were considered: 1) Use of computer program predict mode to estimate the zonal allocation of actual production for the last four months of 1976 on a unit basis and determine the tract zonal reserves by applying the same tract percentages previously determined or 2) use the computer program predict mode to estimate the zonal allocation of actual production for the last four months of 1976 on a tract basis and determine the tract zonal reserves by subtracting those values from the previously determined tract reserves (as of September 1, 1976). The latter method was selected; this may result in a slight change in the ratio of tract reserves to unit reserves that were previously furnished to you. Copies of the revised tract values will be mailed to you as soon as available.

A discussion was then initiated about an alternative solution to the computed reserves for the Getty (Skelly) Turner lease located in Section 34. The problem is described in the minutes of the Technical Committee meetings held on November 4, 1976, and November 17 and 18, 1976. The following motion was made by Samedan and seconded by Shell: The Technical Committee accepts the remaining primary oil reserves for the main San Andres zones as determined by the reservoir simulation run of November 8, 1976 (summary of equities transmitted to all Operators with letter dated November 10, 1976) except for a manual adjustment to the zone I primary oil reserves for five direct offset wells (Getty-Skelly Turner 1 (34F) and 2 (34C), Shell Turner 1 (34G) and 2 (34B) and Shell Sanger 2 (27N)) to correct an anomaly in misalignment of the simulator grid in that zone. The remaining zone I primary oil reserves (as of September 1, 1976) for each of those five wells is 416,437 barrels. The results of the vote were:

FOR (10): Amerada, Amoco, Exxon, Getty, Gulf, Mobil, Samedan, Sun, Texas Pacific and Shell
OPPOSED (1): Continental
PASS (1): Cities Service

The primary reserve parameter will therefore reflect this adjustment.

The next agenda item was a review of the economics of secondary recovery operations for this unit. A total capital investment of $24,600,000 will be required to waterflood the Grayburg and San Andres Zones II$_L$, III$_L$, and III$_U$ reservoirs. This amount includes $11,000,000 for centralized production facilities with fourteen satellite stations, $7,000,000 for the injection system and $600,000 for the source water gathering system. The Grayburg flood design is based on an 80 - acre five - spot pattern consisting of 40 injectors and 44 producers. One injector will be drilled. The expected waterflood recovery of 7.6 million barrels (6.6 secondary and 1.0 primary) should be produced in 36 years with a peak production rate of 1298 barrels of oil per day reached after 10 years of water injection. The San Andres flood design is based on a modified nine - spot injection pattern with an approximate spacing of 160 acres and consisting of 27-1/2 injectors (60 well zones) and 116 producers (192 well zones). Five unit producers and 14-1/2 unit injectors will be drilled which includes five (2-1/2 unit) injectors drilled along the common boundary with the Amoco-operated South Hobbs Unit. The expected waterflood recovery of 61.9 million barrels (48.6 secondary and 13.3 primary) should be obtained in 35 years with the peak oil production rate of 9280 barrels of oil per day occurring 8 years after the start of water injection and remaining flat for seven years. The oil and water production rates and volumes and water injection requirements are based on reservoir simulation studies on both the Grayburg and San Andres Zone III$_L$ which have been previously reported. Copies of detailed cost estimates (captial and operating costs) and production functions were handed out to all in attendance and are available on request to those not attending.

The differential profitability analysis for the combined Grayburg - San Andres secondary oil additions of 55.2 million barrels yeild an undeferred before tax profit of $334 million (1359 percent) and a before tax profit, discounted at 10 percent, of $80 million (350 percent) based on constant dollars. Payout occurs in 6 years and the before tax earning power is 28 percent.

Attendance List
Technical Committee Meeting of March 2, 197[illegible]

Name	Company	Location
K. Y. Kassim	Amerada Hess	Seminole
Paul Rossman	Amoco	Houston
Don Barrett	Cities Service	Midland
C. C. Woodward	Continental	Hobbs
W. E. Nolan	Exxon	Midland
J. E. Eakin	Getty	Midland
C. F. Bosecker	Getty	Midland
R. D. Walker	Gulf	Midland
R. E. Dejmal	Mobil	Houston
Boyce Perry	Samedan	Ardmore
Chuck Price	Sun	Midland
Oran L. Hall	Texas Pacific	Midland
Hank Swartz	Shell	Houston

#17

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

March 8, 1977

Subject: Technical Committe Meeting
Proposed North Hobbs Unit
Lea County, New Mexico

Technical Committee
(Addressee List Attached)

Attached are the minutes of the Technical Committee meeting held in Houston on March 2, 1977.

At this session the Technical Committee updated the primary oil reserve determinations to include production through December 31, 1976. In addition it was agreed to make a manual adjustment to the reserves calculated with the reservoir simulation program for five offsetting wells in Section 27 and 34. The Technical Committee also reviewed the estimates of capital investments requirements and the economics of waterflood operations.

This will probably be the final meeting of the Technical Committee prior to the publication of the Report in April. Attached is copy of the Well Status tabulation which has been updated to reflect the conditions as of January 1, 1977. It would be appreciated if each operator would again review this summary and advise me of any errors.

Yours very truly,

H. J. Swartz

H. J. Swartz, Chairman

HJS:SA

Attachments

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SHELL OIL COMPANY
PETROLEUM BUILDING
P.O. BOX 1509
MIDLAND, TEXAS 79701

July 20, 1973

Subject: North Hobbs Unit Proposed
Hobbs Field
Lea County, New Mexico

ALL OPERATORS

At the meeting of the Working Interest Owners of the proposed Hobbs (Grayburg-San Andres) Unit held July 12, 1973, it was agreed that efforts would be made to form two Units in the Hobbs Field for purposes of secondary recovery operations instead of one field wide unit previously attempted. It was further agreed that the Hobbs Field would be divided along the Township line between Townships 18S and 19S, R37-38E. Amoco Production Company will be the Unit Expeditor of the area to the south of such line and Shell Oil Company the Unit Expeditor of the area to the north.

A meeting of all Operators of properties to the north of the above stated dividing line is called for 1:30 p.m., July 31, 1973, in the Texas Electric Service Company Reddy Room, 124 North Colorado, Midland, Texas.

The agenda for the meeting will be as follows:

1. Confirm the interest of all Operators of properties to proceed with efforts to unitize and waterflood the properties of the Hobbs Field to the north of the Township line between Townships 18S and 19S, R37 and 38E, Lea County, New Mexico.

2. Discuss plans for further unitization efforts.

3. Organize an Engineering Sub-committee.

4. Develop a charge to the Engineering Sub-committee.

5. Any other business.

This meeting call is being sent only to the Operators of leases, as a list of Working Interest Owners is not as yet available. It is asked that each Operator invite the Working Interest Owners in their properties to attend the meeting if they so desire.

Yours very truly,

W. E. Buck

for Jack L. Mahaffey
Production Manager
Mid-Continent Division

WEB:NO

MINUTES OF OPERATORS MEETING
NORTH HOBBS UNIT PROPOSED
JULY 31, 1973

A meeting of the Operators of the North Hobbs Unit (Proposed) was held July 31, 1973, in Midland, Texas. Representatives attending the meeting are shown on the attached attendance list.

Mr. Buck (Shell) opened the meeting by restating the decisions reached by the Working Interest Owners of the proposed Hobbs (Grayburg-San Andres) Unit at the Operators Committee meeting of July 12, 1973. He pointed out that the purpose of the present meeting was to go further with the above decisions in determining the interest of the Operators in proceeding with unitization and secondary recovery efforts for the area of the Hobbs Field north of the township line between Townships 18S and 19S, R37-38E.

Mr. Buck then asked for comments and discussion concerning such unitization efforts. With the exception of Gulf and without motion, all representatives present agreed to proceed and to participate in an effort to form a North Hobbs Unit with Shell acting as Unit Expeditor. Mr. F. W. Moran (Gulf) then stated that while not opposing unitization, Gulf was concerned that such efforts were somewhat premature and therefore would not actively participate at this time. He further advised that Gulf would cooperate in supplying data and would from time to time review their position for possible change.

With this confirmation of interest, plans for further unitization efforts were discussed. Mr. Buck explained that a complete list of Working Interest Owners had not as yet been developed and asked that if an Operator wished the names of any non-operators be added to the mailing list to please so advise. He also stated that arrangements were being made to obtain all pertinent data from the files maintained by Amoco for the field-wide unitization effort. Mr. Buck submitted a schedule of fixed pre-unit expenses and said a ballot would be submitted for approval.

As a first step toward unitization and waterflooding, the organizing of a Technical Committee and the charge to such Committee was discussed. In answer to Mr. Buck's inquiry the following named companies advised that they would have representatives on the Technical Committee: Exxon, Skelly, Marathon, Continental, Amoco, Cities Service, Texas Pacific, Texaco, Amerada, Getty, Sun, and Chevron.

Mr. Buck then introduced Mr. M. A. Thieme (Shell) who would serve as chairman of the Technical Committee. Mr. Thieme then outlined briefly his plans for the Technical Committee. He advised that it would be the intent of the Committee to use as much data as possible from the study proposed by the Hobbs Unit. However, because of the complexity of the reservoir behavior in the north part of the field, he believed the Technical Committee should make a more detailed study in some instances. Mr. Thieme then submitted a suggested charge for the Technical Committee. After some discussion and modification, the following charge to the Technical Committee was approved by all present:

PROPOSED NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT

WORKING INTEREST OWNERS' CHARGE TO THE TECHNICAL COMMITTEE

A. Construct an acceptable base map.

B. Define the vertical interval to be unitized.

C. Recommend a Unit Area or areas.

D. Determine feasibility of waterflooding the Grayburg.

1. Construct Grayburg net pay map and (net Øh, if possible).
2. Determine floodable net acre-feet.
3. Determine secondary oil potential.

E. Determine feasibility of waterflooding the San Andres.

1. Review Øh maps.
2. Review GOR and water-cut maps.
3. Construct continuous pay maps by zone.
4. Determine remaining primary production.
5. Establish secondary oil potential by zones.

F. Tabulate the following parameters by tract, by zones, and by Working Interest Owners:

1. Current oil and gas production rate and value for the most recent representative period.
2. Cumulative oil production.
3. Usable completions.
4. Active producing wells.
5. Total acres.
6. Original oil in place.
7. Floodable net acre-feet.
8. Remaining Primary Reserves.
9. Ultimate Primary Oil.
10. Secondary reserves.
11. Any other parameter considered appropriate by the Engineering Subcommittee.

G. Develop recommended plans of depletion including economic comparisons versus continued primary operations.

It was agreed that every effort would be made to obtain general agreement of the Technical Committee on all items. If such agreement could not be reached, it was decided that the Technical Committee would bring such matter to the attention of the Operators Committee for direction or decision. It was further agreed that decisions reached by vote of Technical Committee would be fully recorded in minutes of meetings.

Through further discussion, the opinion was expressed that although it was scheduled for the Technical Committee to complete the charge by July 1974, such Committee should not be bound by this date if it became apparent that additional time would be required to complete an acceptable study. In this regard, Mr. G. R. Meyers (Texas Pacific) pointed out that one of the significant matters to be resolved is the problem of migration and that it might be necessary for Operators to spend money to help delineate and resolve the problem in certain areas of the field.

Mr. Thieme then advised that he would call the first meeting of the Technical Committee during the last part of August.

There being no further business, the meeting was adjourned.

W. E. Buck
Chairman, Operators Committee

ATTENDANCE LIST
OPERATORS COMMITTEE MEETING
NORTH HOBBS UNIT
JULY 31, 1973

Name	Company
V. T. Lyon	Conoco
Chas. F. Dwyer, Jr.	Chevron
J. C. Solari	Chevron
Ken McPeters	Moran Co.
William S. McEven	Samedan
J. E. Eakin	Getty
Bill Larsen	Wiser
S. R. Denton	Amoco
F. W. Moran, Jr.	Gulf
G. R. Meyers	Texas Pacific
Gerald Bell	Texas Pacific
F. A. Bowling	Amerada Hess
R. A. Dawson	Texaco
E. R. Frazier	Mobil
W. E. Nolan	Exxon
J. M. Shepherd	Exxon
G. A. Naert	Marathon
Frank D. McAtee	Skelly
E. H. Lowrey	Cities Service
Jack Andrews	Sun
W. E. Buck	Shell
M. A. Thieme	Shell
Jim E. Greve	Shell
Steve Pontius	Shell
George A. Teer	Shell

BALLOT

Unitization Expense
North Hobbs Unit
Lea County, New Mexico

The undersigned hereby approves the following listed flat rate unitization expenses and agrees to pay a share of such expense; the share being determined by the method stated below:

1.	Drafting, reporduction, assembling and distribution of Engineering Sub-Committee Report and Tabulations such rate not to include special computer studies or laboratory analysis.	$900.00
2.	Printing and assembling Unit Agreements.	$500.00
3.	Appearance before regulatory bodies to obtain approval of the project.	$600.00
4.	Postage, telephone, telegraph and normal and usual expenses of securing joinder. Does not include expenses of personal contacts if travel required exceeds 100 mile radius from Midland, Texas.	$1,000.00
	Total	$3,000.00
5.	Filing and recording fees and associated travel expenses will be considered Unit Expense and charged to the joint account.	

With the formation of the Proposed North Hobbs Unit, all above stated expense items will be shared on the basis of Unit Participation (Phase I). If the Unit does not become effective, then the expense items which have been incurred will be apportioned on the basis of oil produced during the period January 1, 1973 to July 1, 1973. It is understood that any Working Interest Owner may withdraw at any time by giving the Unit Expeditor written notice of such withdrawal, and by paying his share of expenses incurred prior to withdrawal. The withdrawing Owners share shall be determined on the basis of the production period stated above.

Company_____

Representative_____

Date_____

NORTH HOBBS UNIT
LEA COUNTY, NEW MEXICO

1. Operators Committee

Company_____

Representative_____

Mailing Address_____

_____

_____

_____

2. Technical Committee

Company_____

Representative_____

Mailing Address_____

_____

_____

_____

Return to:

Shell Oil Company
P. O. Box 1509
Midland, Texas 79701
Attention Mr. W. E. Buck

ADDRESSEE LIST
NORTH HOBBS UNIT
WORKING INTEREST OWNERS

AMERADA HESS CORPORATION
ATT: MR. J. C. BLACKWOOD
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
~~ATTN: MR. L. J. CRANDAL~~ Technical Comm.
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77001

ATLANTIC RICHFIELD COMPANY
ATTN: MR. A. J. BROWN (2)
P. O. BOX 1610
MIDLAND, TX 79701

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

PENROSE PRODUCTION COMPANY
ATTN: MR. H. S. WINSTON
1605 COMMERCE BUILDING
FORT WORTH, TX 76102

MR. CHARLES B. READ
READ & STEVENS, INC.
BOX 2126
ROSWELL, NM 88201

CHEVRON OIL COMPANY
ATTN: MR. R. M. DICHARRY
P. O. BOX 1660
MIDLAND, TX 79701

CITIES SERVICE OIL COMPANY
ATTN: MR. SAM J. MATTHEWS
P. O. BOX 4906
MIDLAND, TX 79701

CONTINENTIAL OIL COMPANY
ATTN: L. P. THOMPSON
P. O. BOX 460
HOBBS, NM 88240

DEL-LEA, INC.
P. O. BOX 1889
HOBBS, NM 88240

GRACKLE OIL COMPANY
P. O. BOX 2038
HOBBS, NM 88240

GETTY OIL COMPANY R.L. White
ATTN: ~~MR. R. J. STARRAK~~
P. O. BOX 1231
MIDLAND, TX 79702

GULF OIL COMPANY - U. S.
ATTN: MR. H. E. BRAUNIG, JR.
P. O. DRAWER 1150
MIDLAND, TX 79701

EXXON COMPANY - U. S. A.
ATTN: MR. D. V. EMERY
P. O. BOX 1600
MIDLAND, TX 79701

MARATHON OIL COMPANY
ATTN: MR. G. A. NAERT
P. O. BOX 522
MIDLAND, TX 79701

MINERALS, INC.
P. O. BOX 1320
HOBBS, NM 88240

MOBIL OIL CORPORATION
ATTN: MR. JOHN D. HOWARD
P. O. BOX 633
MIDLAND, TX 79701

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MR. J. H. MORRIS AS AGENT
1615 FIRST NATIONAL BUILDING
TULSA, OK 74103

POLARIS PRODUCTION CORPORATION
P. O. BOX 1703
MIDLAND, TX 79701

SAMEDAN OIL CORPORATION
ATTN: MR. H. LEON VEEDER
P. O. BOX 909
ARDMORE, OK 73401

SAMEDAN OIL CORPORATION
ATTN: MR. M. G. MARTIN
2207 WILCO BUILDING
MIDLAND, TX 79701

SKELLY OIL COMPANY
ATTN: MR. C. J. LOVE
P. O. BOX 1351
MIDLAND, TX 79701

MR. ROBERT L. SUMMERS
P. O. BOX 860
HOBBS, NM 88240

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THORNTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS &
MR. JACK ANDREWS
P. O. BOX 1861
MIDLAND, TX 79701

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO, INC.
ATTN: DIVISION UNIT. ENGINEER
P. O. BOX 3109
MIDLAND, TX 79701

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
1700 ONE MAIN PLACE
DALLAS, TX 75250

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. R. J. WOMACK
P. O. BOX 4067
MIDLAND, TX 79701

THE WISER OIL COMPANY
ATTN: MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

YATES PETROLEUM CORPORATION
ATTN: MR. E. M. MAHFOOD
207 SOUTH FOURTH
ARTESIA, NM 88210

John P Cosa Jr
P.O Box 250
Roswell, NM 88201

Yeager & Associates
Western United Bldg
Midland, Texas 79701

SHELL OIL COMPANY

PETROLEUM BUILDING
P.O. BOX 1509
MIDLAND, TEXAS 79701

August 13, 1973

Subject: North Hobbs Unit (Proposed)
Hobbs Field
Lea County, New Mexico

ALL OPERATORS
(Mailing List Attached)

Attached are the minutes of the North Hobbs Unit (Proposed) Operators Committee meeting held July 31, 1973, in Midland, Texas.

Also attached for your consideration is a ballot pertaining to fixed pre-unitization expenses as discussed in the meeting of July 31, 1973. Please indicate your approval by signing and returning one copy to Shell Oil Company, P. O. Box 1509, Midland, Texas 79701.

We would also appreciate you advising us of your representatives on the Operators and Technical Committees, by completing and returning one copy of the attached forms.

Yours very truly,

O R MacDonald

Jack L. Mahaffey
Production Manager
Mid-Continent Division

WEB:NO

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

September 26, 1974

Subject: Proposed North Hobbs Unit
Hobbs Field
Lea County, New Mexico

TO: ALL WORKING INTEREST OWNERS - PROPOSED NORTH HOBBS UNIT
(MAILING LIST ATTACHED)

As noted from the minutes of the meeting of September 11, 1974, the North Hobbs Engineering Subcommittee has submitted for the decision of the Working Interest Owners the following recommendation:

> "A cut-off date of January 1, 1975 be established for all well logging data and well test information that is to be considered by the Subcommittee in completing the charges given by the Working Interest Owners."

In order for the Engineering Subcommittee to bring certain facets of their work to a conclusion and to proceed with their charge, it is essential that a cut-off date be established. Therefore, the recommendation of the Subcommittee is hereby submitted for your consideration. Please indicate your decision in the space provide below and return one copy to Shell Oil Company, P. O. Box 991, Houston, Texas 77001, Attention Mr. W. E. Buck.

Yours very truly,

W. J. Conrad

WEB:BDH

In Absence of Jack L. Mahaffey
Division Production Manager
Mid-Continent Division

APPROVED_____ COMPANY_____

DISAPPROVED_____ REPRESENTATIVE_____

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABE PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. J. C. BLACKWOOD
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. L. J. CRANDAL
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

ATLANTIC RICHFIELD COMPANY
ATTN: MR. A. J. BROWN (2)
P. O. BOX 1610
MIDLAND, TX 79701

T. J. BERRY
RT. 4
WILLS POINT, TX 75169

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

MARY DANIEL CONRAD
4308 AVONDALE
DALLAS, TX 75219

CHEVRON OIL COMPANY
ATTN: MR. C. F. DWYER
P. O. BOX 1660
MIDLAND, TX 79701

CITIES SERVICE OIL COMPANY
ATTN: MR. SAM J. MATTHEWS
P. O. BOX 4906
MIDLAND, TX 79701

CONTINENTAL OIL COMPANY
ATTN: L. P. THOMPSON
P. O. BOX 460
HOBBS, NM 88240

HERMAN R. CRILE
BOX 864
ROSWELL, NM 88201

JOHN P. CUSACK, JR.
3815 McCART STREET
FORT WORTH, TX 76110

MICHAEL F. CUSACK
3815 McCART STREET
FORT WORTH, TX 76110

DEL-LEA, INC.
P. O. BOX 1889
HOBBS, NM 88240

J. N. DUNLAVY
P. O. BOX 837
ROSWELL, NM 88201

EXXON COMPANY - U. S. A.
ATTN: JOINT INTEREST MANAGER
P. O. BOX 1600
MIDLAND, TX 79701

FIRST ROSWELL COMPANY
P. O. BOX 1180
ROSWELL, NM 88201

GETTY OIL COMPANY
ATTN: MR. R. J. STARRAK
P. O. BOX 1231
MIDLAND, TX 79701

E. P. GOLDEN
C/O MILDRED G. TURNER
P. O. BOX 835
ROSWELL, NM 88201

GRACKLE OIL COMPANY
P. O. BOX 2038
HOBBS, NM 88240

GULF OIL COMPANY - U. S.
ATTN: MR. J. L. PIKE
P. O. DRAWER 1150
MIDLAND, TX 79701

KENNETH NOEL HEADLEY
P. O. BOX 2163
ROSWELL, NM 88201

PETER HURD
SAN PATRICIO, NM 88348

B. J. JERNIGAN
P. O. BOX 993
MIDLAND, TX 79701

RUBY WANDA CONRAD JUDSON
7 JOSEPHINE COURT
NORTHPORT, LONG ISLAND
NEW YORK, NY 11768

LYNN KINCAID
217 E. VEGA DR.
HOBBS, NM 88240

GEORGE P. LAFLIN
P. O. BOX 21386
SALT LAKE, UT 84121

M. RALPH LOWE
C/O A. W. MOURSUND
P. O. BOX 125
JOHNSON CITY, TX 78636

MARATHON OIL COMPANY
ATTN: MR. G. A. NAERT
P. O. BOX 522
MIDLAND, TX 79701

KATHRYN LOUISE CONRAD McCARTHY
4435 SAN GABRIEL
DALLAS, TX 75229

J. S. McGANNON
P. O. BOX 1651
SANTA FE, NM 87501

K. D. McPETERS
P. O. BOX 1860
HOBBS, NM 88240

MINERALS, INC.
P. O. BOX 1320
HOBBS, NM 88240

MOBIL OIL CORPORATION
ATTN: MR. JOHN D. HOWARD
P. O. BOX 633
MIDLAND, TX 79701

WAYNE MOORE
403 N. MARINEFIELD
MIDLAND, TX 79701

J. E. MORAN
FIRST NATIONAL BANK - MIDLAND
TRUSTEE FOR F. E. MORAN
TRUST #1 (NO. 323)
P. O. BOX 1599
MIDLAND, TX 79701

R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MR. J. H. MORRIS AS AGENT
1615 FIRST NATIONAL BUILDING
TULSA, OK 74103

NATHLYN IONE CONRAD MURDOCH
4132 DEEP VALLEY DRIVE
DALLAS, TX 75234

LINDA B. & BEN F. PARRISH
C/O DANA T. RICHARDSON, JR.

LINDA B. & BEN F. PARRISH
C/O DANA T. RICHARDSON, JR.
NUMBER ONE POST OAK PLACE
4615 POST OAK PLACE DRIVE
SUITE 240
HOUSTON, TX 77027

M. C. PARRISH ESTATE
C/O DANA T. RICHARDSON, JR.
NUMBER ONE POST OAK PLACE
4615 POST OAK PLACE DRIVE
SUITE 240
HOUSTON, TX 77027

PENROC OIL CORPORATION
ATTN: MR. S. J. TALLEY
P. O. BOX 831
MIDLAND, TX 79701

PENROSE PRODUCTION COMPANY
ATTN: MR. H. S. WINSTON
1605 COMMERCE BUILDING
FORT WORTH, TX 76102

POLARIS PRODUCTION CORPORATION
P. O. BOX 1703
MIDLAND, TX 79701

MR. CHARLES B. READ
READ & STEVENS, INC.
BOX 2126
ROSWELL, NM 88201

FRANCES I. CONRAD ROSE
BOX 20234
DALLAS, TX 75220

SAMEDAN OIL CORPORATION
ATTN: MR. M. G. MARTIN
2207 WILCO BUILDING
MIDLAND, TX 79701

SAMEDAN OIL CORPORATION
ATTN: MR. H. LEON VEEDER
P. O. BOX 909
ARDMORE, OK 73401

SKELLY OIL COMPANY
ATTN: MR. C. J. LOVE
P. O. BOX 1351
MIDLAND, TX 79701

SKELLY OIL COMPANY
ATTN: FRANK D. McAFEE
P. O. BOX 1351
MIDLAND, TX 79701

HOWELL SPEAR
P. O. BOX 1684
MIDLAND, TX 79701

MR. ROBERT L. SUMMERS
P. O. BOX 860
HOBBS, NM 88240

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THRONTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS &
MR. JACK ANDREWS
P. O. BOX 1861
MIDLAND, TX 79701

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO, INC.
ATTN: ASSISTANT DIVISION MANAGER
P. O. BOX 3109
MIDLAND, TX 79701

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
1700 ONE MAIN PLACE
DALLAS, TX 75250

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. R. J. WOMACK
P. O. BOX 4067
MIDLAND, TX 79701

TEXAS PACIFIC OIL COMPANY
P. O. BOX 4067
MIDLAND, TX 79701

BETTYE CONRAD TREADAWAY
5215 HAVENWOODS
HOUSTON, TX 77066

TWO STATES OIL COMPANY
1910 EMPIRE LIFE BLDG.
DALLAS, TX 75201

LOYD WHITLEY
701 W. GEORGE APT. 99
MIDLAND, TX 79701

A. T. WILLIAMSON
1630 HARVARD CT.
HOBBS, NM 88240

THE WISER OIL COMPANY
ATTN: MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

YATES PETROLEUM CORPORATION
ATTN: MR. E. M. MAHFOOD
207 SOUTH FOURTH
ARTESIA, NM 88210

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701
(PRIMARY TERM ENDS OCTOBER, 1975)

13

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P. O. BOX 6031
DALLAS, TX 75222

RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

March 13, 1975

Subject: Computer Analysis
Proposed North Hobbs Unit
Hobbs Field
Lea County, New Mexico

OPERATORS - NORTH HOBBS UNIT
(Mailing List Attached)

The Technical Committee of the North Hobbs Unit has recommended that a computer analysis of the San Andres Reservoir be made. The primary objective of such study is to estimate the Zone I primary reserves that would be recovered, by areas, under the conditions of continued water influx and with the current completion status kept constant. The results will serve as a base case for Zone I primary reserves. Future recoveries can then be allocated by the Technical Committee to respective tracts. In addition, the results of such analysis will provide a more complete understanding of the performance of other zones within the San Andres formation.

Shell has agreed to make such an analysis using their three-phase, three-dimensional, compressible fluid reservoir simulation program. Shell's charge for such work shall be $6,000. This flat charge is Shell's estimate of actual computer running time and the associated contract clerical assistance required to assemble data. Shell shall make no charge for technical and non-technical efforts nor for a program licensing fee. A copy of the input data, results obtained, and an explanation of the calculations will be made available to all Operators. The cost of such study ($6,000) will be shared in the manner stated on the attached ballot.

The Technical Committee feels this study is essential to the completion of the charge made by the Operators Committee. Please indicate your decision on the attached ballot and return one signed copy to Shell Oil Company, P. O. Box 991, Houston, Texas 77001, Attention Mr. W. E. Buck.

Yours very truly,

Jack L. Mahaffey
Division Production Manager
Mid-Continent Division

WEB:JFM

Attachment

BALLOT

Unitization Expense
North Hobbs Unit
Lea County, New Mexico
March 13, 1975

The undersigned hereby approves the following listed flat rate charge for a special computer analysis of the San Andres Formation, which is to be made by Shell, and agrees to pay a share of such expense; the share being determined by the method stated below:

1.	Computer Usage Charge	$ 5,000.00
2.	Associated Contract Clerical Costs	$ 1,000.00
	Total	$ 6,000.00

With the formation of the Proposed North Hobbs Unit, all above stated expense items shall be shared on the basis of Unit Participation (Phase I). If the Unit does not become effective, then the expense items which have been incurred will be apportioned on the basis of oil produced during the period January 1, 1973 to July 1, 1973.

Company_____

Representative_____

Date_____

RETURN TO:

Shell Oil Company
Attn. Mr. W. E. Buck
P. O. Box 991
Houston, Texas 77001

BALLOT

Unitization Expense
North Hobbs Unit
Lea County, New Mexico
March 13, 1975

The undersigned hereby approves the following listed flat rate charge for a special computer analysis of the San Andres Formation, which is to be made by Shell, and agrees to pay a share of such expense; the share being determined by the method stated below:

1.	Computer Usage Charge	$ 5,000.00
2.	Associated Contract Clerical Costs	$ 1,000.00
	Total	$ 6,000.00

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Company_____

Representative_____

Date_____

RETURN TO:

Shell Oil Company
Attn. Mr. W. E. Buck
P. O. Box 991
Houston, Texas 77001

NORTH HOBBS UNIT
OPERATORS ADDRESSEE LIST

AMERADA HESS CORPORATION
ATTN. MR. J. C. BLACKWOOD
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN. BRUCK A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

ATLANTIC RICHFIELD COMPANY
ATTN. MR. A. J. BROWN (2)
P. O. BOX 1610
MIDLAND, TX 79701

MR. W. K. BYROM
ATTN. MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

PENROSE PRODUCTION COMPANY
ATTN. MR. H. S. WINSTON
1605 COMMERCE BUILDING
FORT WORTH, TX 76102

MR. CHARLES B. READ
READ & STEVENS, INC.
P. O. BOX 2126
ROSWELL, NM 88201

CHEVRON OIL COMPANY
ATTN. MR. C. F. DWYER
P. O. BOX 1660
MIDLAND, TX 79701

CITIES SERVICE OIL COMPANY
ATTN. MR. SAM J. MATTHEWS
P. O. BOX 4906
MIDLAND, TX 79701

CONTINENTAL OIL COMPANY
ATTN. MR. L. P. THOMPSON
P. O. BOX 460
HOBBS, NM 88240

MR. JOHN P. CUSUCK
P. O. BOX 250
ROSWELL, NM 88201

DEL-LEA, INC.
P. O. BOX 1889
HOBBS, NM 88240

EXXON COMPANY, U.S.A.
ATTN. JOINT INTEREST MGR
P. O. BOX 1600
MIDLAND, TX 79701

GETTY OIL COMPANY
ATTN. MR. R. J. STARRAK
P. O. BOX 1231
MIDLAND, TX 79701

GULF OIL COMPANY, U.S.A.
ATTN. MR. J. L. PIKE
P. O. DRAWER 1150
MIDLAND, TX 79701

MARATHON OIL COMPANY
ATTN. G. A. NAERT
P. O. BOX 522
MIDLAND, TX 79701

MINERALS, INC.
P. O. BOX 1320
HOBBS, NM 88240

MOBIL OIL CORPORATION
ATTN. MR. JOHN D. HOWARD
P. O. BOX 633
MIDLAND, TX 79701

MORANCO
ATTN. MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MR. J. H. MORRIS, AGENT
1615 FIRST NATIONAL BLDG.
TULSA, OK 74103

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MIDLAND, TX 79701

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ATTN. MR. H. LEON VEEDER
P. O. BOX 909
ARDMORE, OK 73401

SAMEDAN OIL CORPORATION
ATTN. MR. M. G. MARTIN
2207 WILCO BUILDING
MIDLAND, TX 79701

SKELLY OIL COMPANY
ATTN. MR. C. J. LOVE
P. O. BOX 1351
MIDLAND, TX 79701

SKELLY OIL COMPANY
ATTN. MR. FRANK D. McATEE
P. O. BOX 1351
MIDLAND, TX 79701

MR. ROBERT L. SUMMERS
P. O. BOX 860
HOBBS, NM 88240

SUN OIL COMPANY (DELAWARE)
ATTN. MR. JOE W. THORNTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN. MR. R. K. BEGGS &
MR. JACK ANDREWS
P. O. BOX 1861
MIDLAND, TX 79701

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN. MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO, INC.
ATTN. ASST. DIV. MANAGER
P. O. BOX 3109
MIDLAND, TX 79701

TEXACO, INC.
ATTN. DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXAS PACIFIC OIL CO., INC.
ATTN. MR. L. B. CARRUTH
1700 ONE MAIN PLACE
DALLAS, TX 75250

TEXAS PACIFIC OIL CO., INC.
ATTN. MR. R. J. WOMACK
P. O. BOX 4067
MIDLAND, TX 79701

THE WISER OIL COMPANY
ATTN. MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

YATES PETROLEUM CORP.
ATTN. E. M. MAHFOOD
207 SOUTH FOURTH
ARTESIA, NM 88210

YEAGO & ARMSTRONG
WESTERN UNITED BLDG.
MIDLAND, TX 79701

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

April 15, 1977

Subject: Proposed North Hobbs Unit
Hobbs Field
Lea County, New Mexico

ALL WORKING INTEREST OWNERS - PROPOSED NORTH HOBBS UNIT
(Mailing List Attached).

A meeting of the Working Interest Owners of the proposed North Hobbs Unit is called for 10:00 a.m., May 26, 1977, in the Texas Electric Service Company Reddy Room, 124 North Colorado Street, Midland, Texas.

The agenda for the meeting will be as follows:

1. Formal presentation of the report titled "Waterflood Feasibility and Unitization Parameters", as prepared by the Technical Committee.

2. Consideration of the Report as completing the charge to the Technical Committee.

3. Acceptance of the Report as a basis for Unitization negotiations.

4. Develop a course of action for further unitization efforts.

5. Any other business.

Efforts to unitize and to waterflood the northern part of the Hobbs Field were initiated in July, 1973, when the Operators' Committee charged the Technical Committee to develop a feasibility and parameter study of the area considered for unitization. Due to the different reservoir characteristics evident in the various zones of the Grayburg-San Andres reservoir, it was necessary for the Technical Committe to undertake methods of evaluation not normally required for unitization efforts. Considerable time and expense has been expended in developing the study. With the submittal of the Report to the Working Interest Owners, it appears that a critical point has been reached. All Working Interest Owners are therefore urged to be represented at the called meeting. It is also urged that all representatives attend the meeting prepared to commit their company with regard to the Report and to a course of action for further unitization efforts.

Copies of the Waterflood Feasibility and Unitization Parameters Report for the North Hobbs Unit are transmitted with this call to meeting to all Operators and participants of the Technical Committee as noted on the attached mailing list. Copies will be furnished any other Working Interest Owner upon request.

Yours very truly,

W. E. Buck
Chairman, Working Interest Owners' Committee

WEB:DTW

Attachments

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

*ABO PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

*AMERADA HESS CORPORATION
ATTN: MR. J. C. BLACKWOOD
P. O. BOX 2040
TULSA, OK 74102

*AMERADA HESS CORPORATION
ATTN: MR. L. J. CRANDAL
P. O. DRAWER 817
SEMINOLE, TX 79360

*AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

W. D. ANDERSON & SONS
P. O. BOX 136
MIDLAND, TX 79702

*ATLANTIC RICHFIELD COMPANY
ATTN: MR. G. THANE AKINS
P. O. BOX 1610
MIDLAND, TX 79702

T. J. BERRY
RT. 4
WILLS POINT, TX 75169

*MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

MARY DANIEL CONRAD
4308 AVONDALE
DALLAS, TX 75219

*C&C OPERATING CORP.
P. O. BOX 1829
HOBBS, NM 88240

*CHEVRON OIL COMPANY
ATTN: MR. C. F. DWYER
P. O. BOX 1660
MIDLAND, TX 79702

*CITIES SERVICE OIL COMPANY
ATTN: MR. SAM J. MATTHEWS
P. O. BOX 4906
MIDLAND, TX 79702

*CITIES SERVICE OIL COMPANY
E&P DIVISION
P. O. BOX 1919
MIDLAND, TX 79702

*CONTINENTAL OIL COMPANY (2)
ATTN: L. P. THOMPSON
P. O. BOX 460
HOBBS, NM 88240

HERMAN R. CRILE
BOX 864
ROSWELL, NM 88201

*JOHN P. CUSACK
P. O. BOX 250
ROSWELL, NM 88201

JOHN P. CUSACK, JR.
3815 McCART STREET
FORT WORTH, TX 76110

MICHAEL F. CUSACK
3815 McCART STREET
FORT WORTH, TX 76110

*DEL-LEA, INC. (ANTWEIL)
P. O. BOX 1889
HOBBS, NM 88240

J. N. DUNLAVY
P. O. BOX 837
ROSWELL, NM 88201

*ESTES ENGINEERING CO.
306 PETROLEUM BUILDING
MIDLAND, TX 79702

*EXXON COMPANY - U. S. A. (2)
ATTN: JOINT INTEREST MANAGER
P. O. BOX 1600
MIDLAND, TX 79702

FIRST ROSWELL COMPANY
P. O. BOX 1180
ROSWELL, NM 88201

*GETTY OIL COMPANY
ATTN: MR. R. J. STARRAK
P. O. BOX 1231
MIDLAND, TX 79702

*GETTY OIL COMPANY
P. O. BOX 1351
MIDLAND, TX 79702

*GETTY OIL COMPANY
P. O. BOX 1315
MIDLAND, TX 79702

E. P. GOLDEN
C/O MILDRED G. TURNER
P. O. BOX 835
ROSWELL, NM 88201

*GULF ENERGY & MINERALS CO.-U.S. (2)
ATTN: R. F. WARD, JR.
DISTRICT OPERATIONS MANAGER
P. O. BOX 1150
MIDLAND, TX 79702

KENNETH NOEL HEADLEY
P. O. BOX 2163
ROSWELL, NM 88201

PETER HURD
SAN PATRICIO, NM 88348

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ATTN: MR. G. A. NAERT
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MIDLAND, TX 79702

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HOBBS, NM 88240

*MOBIL OIL CORPORATION
3 GREENWAY PLAZA EAST
SUITE 800
HOUSTON, TX 77046

WAYNE MOORE
403 N. MARINEFIELD
MIDLAND, TX 79701

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FIRST NATIONAL BANK - MIDLAND
TRUSTEE FOR F. E. MORAN
TRUST #1 (NO. 323)
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*MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
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ARDMORE, OK 73401

HOWELL SPEAR
P. O. BOX 1684
MIDLAND, TX 79701

*SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THRONTON
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DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS
P. O. BOX 1861
MIDLAND, TX 79702

*MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

*C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

*TEXACO, INC.
ATTN: ASSISTANT DIVISION MANAGER
P. O. BOX 3109
MIDLAND, TX 79702

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

*TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
1700 ONE MAIN PLACE
DALLAS, TX 75250

*TEXAS PACIFIC OIL CO., INC.
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HOUSTON, TX 77066

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1910 EMPIRE LIFE BLDG.
DALLAS, TX 75201

LOYD WHITLEY
701 W. GEORGE APT. 99
MIDLAND, TX 79701

A. T. WILLIAMSON
1630 HARVARD CT.
HOBBS, NM 88240

*THE WISER OIL COMPANY
ATTN: MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

*THE WISER OIL COMPANY
ATTN: MR. C. P. LaRUE
P. O. BOX 192
SISTERVILLE, WV 26175

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701
(PRIMARY TERM ENDS OCTOBER, 1975)

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P. O. BOX 6031
DALLAS, TX 75222

RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

*Copy of Technical Report Enclosed

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

April 25, 1975

Subject: Computer Analysis
Proposed North Hobbs Unit
Hobbs Field
Lea County, New Mexico

OPERATORS - NORTH HOBBS UNIT
(Mailing List Attached)

The proposal for a special computer analysis of the San Andres formation of the North Hobbs Unit has received 88.5% approval of the participating operators with only one recorded dissension. With such response, Shell feels it is in order to proceed with the reservoir simulation study. Pending unitization, Shell will bear the costs to be allocated to the dissenting and non-responding parties.

Yours very truly,

Jack L. Mahaffey
Division Production Manager
Mid-Continent Division

WEB:JFM

NORTH HOBBS UNIT
OPERATORS
ADDRESSEE LIST

AMERADA HESS CORP.
ATTN. J. C. BLACKWOOD
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORP.
ATTN. MR. L. J. CRANDAL
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION CO.
ATTN. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

ATLANTIC RICHFIELD COMPANY
ATTN. MR. A. J. BROWN (2)
P. O. BOX 1610
MIDLAND, TX 79701

MR. W. K. BYROM
ATTN. MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

CHEVRON OIL COMPANY
ATTN. MR. C. F. DWYER
P. O. BOX 1660
MIDLAND, TX 79701

CITIES SERVICE OIL COMPANY
ATTN. MR. SAM J. MATTHEWS
P. O. BOX 4906
MIDLAND, TX 79701

CONTINENTAL OIL COMPANY
ATTN. L. P. THOMPSON
P. O. BOX 460
HOBBS, NM 88240

JOHN P. CUSACK
P. O. BOX 250
ROSWELL, NM 88201

DEL-LEA, INC.
P. O. BOX 1889
HOBBS, NM 88240

EXXON COMPANY - U.S.A.
ATTN. JOINT INTEREST MGR.
P. O. BOX 1600
MIDLAND, TX 79701

GETTY OIL COMPANY
ATTN. MR. R. J. STARRAK
P. O. BOX 1231
MIDLAND, TX 79701

GULF OIL COMPANY - U.S.
ATTN. MR. J. L. PIKE
P. O. DRAWER 1150
MIDLAND, TX 79701

MARATHON OIL COMPANY
ATTN. MR. G. A. NAERT
P. O. BOX 522
MIDLAND, TX 79701

MINERALS, INC.
P. O. BOX 1320
HOBBS, NM 88240

MOBIL OIL CORPORATION
ATTN. MR. JOHN D. HOWARD
P. O. BOX 633
MIDLAND, TX 79701

MORANCO
ATTN. MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MR. J. H. MORRIS,
AS AGENT
1615 1ST NAT'L BLDG.
TULSA, OK 74103

PETRO-LEWIS CORP.
ATTN. MR. JOHN B. SOMERS
1600 BROADWAY
DENVER, CO 80202

POLARIS PRODUCTION CORP.
P. O. BOX 1703
MIDLAND, TX 79701

SAMEDAN OIL CORPORATION
ATTN. MR. H. LEON VEEDER
P. O. BOX 909
ARDMORE, OK 73401

SAMEDAN OIL CORPORATION
ATTN. MR. M. G. MARTIN
2207 WILCO BUILDING
MIDLAND, TX 79701

SKELLY OIL COMPANY
ATTN. MR. C. J. LOVE
P. O. BOX 1351
MIDLAND, TX 79701

SKELLY OIL COMPANY
ATTN. FRANK D. McAFEE
P. O. BOX 1351
MIDLAND, TX 79701

MR. ROBERT L. SUMMERS
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SUN OIL COMPANY (DELAWARE)
ATTN. JOE W. THORNTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN. MR. R. K. BEGGS &
MR. JACK ANDREWS
P. O. BOX 1861
MIDLAND, TX 79701

NORTH HOBBS UNIT - OPERATORS ADDRESSEE LIST

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

C. H. SWEET OIL CO.
ATTN. MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO, INC.
ATTN. DISTRICT ENGR.
P. O. BOX 728
HOBBS, NM 88240

TEXACO, INC.
ATTN. ASST. DIV. MANAGER
P. O. BOX 3109
MIDLAND, TX 79701

TEXAS PACIFIC OIL CO., INC.
ATTN. MR. L. B. CARRUTH
1700 ONE MAIN PLACE
DALLAS, TX 75250

TEXAS PACIFIC OIL CO., INC.
ATTN. MR. R. J. WOMACK
P. O. BOX 4067
MIDLAND, TX 79701

THE WISER OIL COMPANY
ATTN. MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

YATES PETROLEUM CORP.
ATTN. MR. E. M. MAHFOOD
207 SOUTH FOURTH
ARTESIA, NM 88210

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BLDG.
MIDLAND, TX 79701

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

May 11, 1977

Subject: Unitization Parameters
Proposed North Hobbs Unit
Hobbs (Grayburg - San Andres) Field
Lea County, New Mexico

All Working Interest Owners
(Addressee List Attached)

Please be advised that the Unitization Parameter Tables (Nos. 21 to 24), which were included in the Technical Committee Report, are being corrected. Revised copies will be distributed at the Working Interest Owners meeting on May 26, 1977 and also transmitted with the minutes of that session.

The following corrections and additions are being made:

1. Working Interest Ownership

   a. Tract No. 50 - Exxon 50%, Cities Service 25%, and Continental 25%

   b. Tract No. 69 - Amoco 75.43501% and Landreth 24.56499%

   c. Tract No. 75 - Marathon 50% and Atlantic Richfield 50%

2. Oil and Gas Production - Year 1976

The prior tabulation was based on the Monthly Statistical Reports. The Annual Report is now available and reflects the following corrections: oil decreased by 207 barrels and gas increased by 7037 MCF. These changes effect the following parameters: Cumulative Oil (Tables 21 A & B), Year 1976 Oil and Gas (Tables 21 A & B) and Ultimate Oil Recovery (Tables 23 A & B). (No corrections were made to oil production during the last four months of 1976 and consequently the Primary Oil Reserves are not affected.)

3. Productive Acres (Tables 22 A & B)

The tabulation included in the Report was based on the productive acres in the Basal Grayburg Upper Zone oil column and omitted the 2174 acres which lie entirely within the gas cap in that particular zone.

4. Gas Reserves

Continental has requested the addition of a parameter for remaining gas reserves. Therefore, such numbers will be added to the revised tables. This parameter will be calculated in the following manner:

a. Grayburg and/or upper San Andres Stringers - The oil reserves listed on Table 14 will be multiplied by the corresponding average GOR for the year 1976, and

b. San Andres (Main Zones) - The "updated" gas reserves will be calculated in a similar manner as shown for the oil reserves in Table 15; that is, the computed 9/1/76 gas reserves (previously furnished to the Technical Committee) will be updated to 1/1/77 values by subtracting the ensuing actual production.

It is requested that any other discrepancies noted be called to the attention of either Mr. W. E. Buck (713-220-1331) or Mr. H. J. Swartz (713-220-1022).

Yours very truly,

W. E. Buck, Chairman
Working Interest Owners' Committee

HJS:jmn

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
YATES BUILDINC
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. R. W. MULLINS
MANAGER - JOINT VENTURE OPERATIONS - U.S.
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. L. J. CRANDAL
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

W. D. ANDERSON & SONS
P. O. BOX 136
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ATLANTIC RICHFIELD COMPANY
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T. J. BERRY
RT. 4
WILLS POINT, TX 75169

MR. W. K. BYROM
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MARY DANIEL CONRAD
4308 AVONDALE
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C&C OPERATING CORP.
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CHEVRON OIL COMPANY
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CITIES SERVICE OIL COMPANY
ATTN: MR. SAM J. MATTHEWS
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CITIES SERVICE OIL COMPANY
E&P DIVISION
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CONTINENTAL OIL COMPANY (2)
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HERMAN R. CRILE
BOX 864
ROSWELL, NM 88201

JOHN P. CUSACK
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ROSWELL, NM 88201

JOHN P. CUSACK, JR.
3815 McCART STREET
FORT WORTH, TX 76110

MICHAEL F. CUSACK
3815 McCART STREET
FORT WORTH, TX 76110

DEL-LEA, INC. (ANTWEIL)
P. O. BOX 1889
HOBBS, NM 88240

J. N. DUNLAVY
P. O. BOX 837
ROSWELL, NM 88201

ESTES ENGINEERING CO.
306 PETROLEUM BUILDING
MIDLAND, TX 79702

EXXON COMPANY - U. S. A. (2)
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FIRST NATIONAL BANK OF CASPER
ESTATE OF M. E. TOLE
P. O. BOX 40
CASPER, WY 82601

FIRST NATIONAL BANK OF FORT WORTH
ESTATE OF SMITH SPRALDING
P. O. BOX 2546
FORT WORTH, TX 76101

FIRST ROSWELL COMPANY
P. O. BOX 1180
ROSWELL, NM 88201

C. C. FORBES
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ILAMAE FORBES
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GETTY OIL COMPANY (2)
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SAN PATRICIO, NM 88348

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FT. WORTH, TX 76102

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TRUST #1 (NO. 323)
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R. M. MORAN
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HOBBS, NM 88240

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

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McALLEN, TX 78501

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SUITE 240
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M. C. PARRISH ESTATE
C/O DANA T. RICHARDSON, JR.
NUMBER ONE POST OAK PLACE
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PORTALES, NM 88130

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SAMEDAN OIL CORPORATION
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MIDLAND, TX 79701

SUN OIL COMPANY (DELAWARE)
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12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS
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MR. BILL L. SWEET
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HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO, INC.
ATTN: ASSISTANT DIVISION MANAGER
P. O. BOX 3109
MIDLAND, TX 79702

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
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TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
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DALLAS, TX 75250

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. R. J. WOMACK
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MIDLAND, TX 79702

BETTYE CONRAD TREADAWAY
5215 HAVENWOODS
HOUSTON, TX 77066

TWO STATES OIL COMPANY
1910 EMPIRE LIFE BLDG.
DALLAS, TX 75201

LOYD WHITLEY
701 W. GEORGE APT. 99
MIDLAND, TX 79701

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P. O. BOX 3187
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THE WISER OIL COMPANY
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110 GIHLS TOWER EAST
MIDLAND, TX 79701

THE WISER OIL COMPANY
ATTN: MR. C. P. LaRUE
P. O. BOX 192
SISTERVILLE, WV 26175

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701
(PRIMARY TERM ENDS OCTOBER, 1975)

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P. O. BOX 6031
DALLAS, TX 75222

RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

June 3, 1977

Subject: Minutes - Working Interest Owners Meeting
Proposed North Hobbs Unit
Lea County, New Mexico

WORKING INTEREST OWNERS - (Mailing List Attached)

A meeting of the Working Interest Owners of the proposed North Hobbs Unit was held May 26, 1977, in Midland, Texas. Representatives attending the meeting are shown on the attached attendance list.

Mr. Buck (Shell) opened the meeting by advising that 90.7 percent of the Working Interest Owners (based on 1976 oil production) were represented at the meeting. He further advised that because of the importance of the meeting, every effort had been made to notify all Working Interest Owners of the meeting. All parties were asked to notify Mr. Buck of any corrections or additions that should be made to the mailing list.

Mr. Buck summarized the previous efforts of unitization in the Hobbs Field. He stated that Amoco initiated an effort in 1970 to form a field wide unit. A feasibility study was completed in March, 1972, and participation negotiations were started. However, it became apparent that agreement could not be reached and in July, 1973, it was decided to divide the Hobbs Field into two parts for unitization and water flooding purposes.

Amoco undertook unitization of the south part of the field and formed the South Hobbs Unit January 1, 1975. Shell acted as Unit Expeditor for the Northern portion of the field. A Technical committee was organized and at a meeting of the Working Interest Owners of the proposed North Hobbs Unit, held July 31, 1973, charged the Technical Committee to develop a waterflood feasibility and unitization parameter study. The Technical Committee has met repeatedly since such date and now have completed and are prepared to submit a report of their study. Mr. Buck pointed out that the attendence and participation of the parties in the Technical Committee was outstanding.

Mr. Buck then turned the meeting over to Mr. H. J. Swartz (Shell), Chairman of the Technical Committee for formal presentation of the "Waterflood Feasibility and Unitization Parameter Report" as prepared by the Technical Committee.

Mr. Swartz started by expressing his appreciation for the excellant cooperation of all parties in the work of the Technical Committee. He stated that the committee held 25 work sessions and that, on the average, 13 operators were represented at each session. He further advised that 22 of the 26 operators had been represented at at least one of the sessions. Mr. Swartz pointed out that it was the aim of the group to reach mutual agreement on all points of the study whenever possible rather than the agreement of only a majority. With only a few exceptions, the group was able to attain this aim.

Mr. Swartz then proceeded to present a summary of the committees work. Salient points of the study were presented with the assistance of projected slides. Several questions were asked and discussed during the presentation. At the end of the presentation Mr. Swartz handed out revised parameter tables which included corrections of production data and ownership. In addition the revised tables included a gas reserve parameter as requested by Continental Oil Company. Copies of revised tables are enclosed with these minutes.

Mr. Buck then asked that the second item of the agenda, completion of the charge of the Working Interest Owners, be considered. After some discussion, Sun Oil Company's representative moved that the report titled "Waterflood Feasibility and Unitization Parameters for the North Hobbs (Grayburg - San Andres) Unit" be accepted as completion of the charge of the Working Interest Owners to the Technical Committee. The motion was seconded by the representative of Amoco Production Company. The motion was passed by the affirmative vote of all present with the qualifications of Continental Oil Company and Exxon Company that their approvals did not include the Gas Reserve Parameter submitted at the meeting as they had not had sufficient time to review such parameter. Marathon Oil Company, passed on the vote at the meeting but advised the chairman of their affirmative vote following the meeting.

Mr. Buck then asked that the third item of the agenda, acceptance of the report as a basis of unitization negotiations, be considered. After discussion, during which Mr. G. R. Meyers, Texas Pacific Oil Company, Inc., expressed concern over some of the relationships, the representative of Amoco Production Company moved that the report be accepted as a basis of unitization negotiations. The motion was seconded by Mobil Oil Company's representative. The motion was approved by the affimative vote of 76.6 percent (1976 production). No negative votes were cast. The affirmative vote of Exxon Company was qualified as to the Gas Reserve Parameter the same as for the previous motion. Continental Oil Company, Russel Estes, and Texas Pacific Oil Company, Inc., passed on the vote on the motion. Mr. Buck asked, and such parties agreed, that he be advised of a decisive vote on the motion at as early a date as possible.

Although a formal vote was not taken, all parties agreed on the basis of the response to the motions to move forward with unitization efforts. After some discussion, it was agreed that a meeting would be called during the first half of July for the purpose of negotiating participation.

In the discussion that followed, some parties expressed concern as to the handling of FEA classified "Stripper" and "Upper Tier" oil after unitization. Mr. Buck advised that it was Shell's general feeling that consideration should be given to parties contributing properties with the more favorable pricing classifications. He further advised that in other unitization efforts provisions had been included in the Unit Agreement rather than in participation negotiations to afford certain considerations to the contributing parties. Upon request, Mr. Buck agreed to include with the minutes of the meeting a provision prepared by Shell for inclusion in other Unit agreements. Such provision is attached hereto. Mr. Buck pointed out that although Shell is in agreement with the general principle of the provision, the submittal of the provision at this time should not be taken as a final Shell proposal in this regard. Shell would want the opportunity to review the problem after participation has been established before making a firm proposal.

Mr. Don Hunter, of Sipes, Williamson & Aycook, Inc., submitted a written proposal on behalf of Moranco for a cooperative waterflood agreement between the North Hobbs Unit and the adjoining Moranco Rice-Hardin Waterflood Unit and the sale of source water from the Moranco water supply system. Mr. Hunter was advised that his proposal would be included in the minutes of the meeting and given consideration by the Working Interest Owners at the appropriate time. The written proposal is included as an attachment to these minutes.

With regard to the water source, Mr. Buck advised that Shell has been negotiating with the city of Hobbs for the purchase of industrial process effluent from its industrial water treatment plant. A draft agreement has been prepared and submitted to the City of Hobbs. At the appropriate time, a negotiated agreement will be submitted to the Working Interest Owners for their consideration.

There being no further business, the meeting was adjourned.

W. E. Buck
Chairman, Working Interest Owners Committee

WEB:GLW

Attachments

NORTH HOBBS UNIT
MAY 26, 1977
ATTENDANCE LIST

NAME	COMPANY	LOCATION
W. E. Buck	Shell Oil Co.	Houston, Tx
R. W. Mullins	Amerada-Hess Corp.	Tulsa, Ok
J. B. Campbell	Exxon Company	Midland, Tx
W. E. Nolan	Exxon Company	Midland, Tx
Joe Paradiso	Marathon Oil Company	Midland, Tx
L. A. Carr	Mobil Oil Corp.	Houston, Tx
H. A. Seidel, Jr.	Sun Producing Company	Dallas, Tx
J. L. Relph	Cities Service Oil Company	Midland, Tx
Don Hunter	Sipes Williamson & Aycock (Rep. Moranco)	Midland, Tx
Don Barrett	Cities Service Oil Company	Midland, Tx
S. R. Denton	Amoco Producing Company	Houston, Tx
Bill Larsen	Wiser Oil Company	Midland, Tx
Boyce Perry	Samedan Oil Company	Ardmore, Ok
Jack Cusack	--Self--	Biswell, NM
W. A. Yeager	Yeager & Armstrong	Midland, Tx
Russell G. Estes	Estes Engineering	Midland, Tx
W. A. Goudeau	Chevron USA, Inc.	Midland, Tx
D. D. Allen	Chevron USS, Inc.	Midland, Tx
J. E. Eakin	Getty Oil Co.	Midland, Tx
C. F. Bosecker	Getty Oil Co.	Midland, Tx
J. D. Mussett	Gulf Energy & Minerals Co.-U.S.A.	Midland, Tx
Don Bolt	Continental Oil Company	Hobbs, NM
C. C. Woodward	Continental Oil Company	Hobbs, NM
R. O. Walker	Gulf Energy & Minerals Co.-U.S.A.	Midland, Tx
V. T. Lyon	Continental Oil Company	Hobbs, NM
Vance M. Hendricks	Gulf	Midland, Tx
Ken McPeters	Moranco	Hobbs, NM
Bob Moran	Moranco	Hobbs, NM
Paul Thompson	Continental Oil Company	Hobbs, NM
Joe Thornton	Sun Oil Company	Dallas, Tx
G. R. Meyers	Texas Pacific Oil Co., Inc.	Dallas, Tx
J. D. Waggoner	Texas Pacific Oil Co., Inc.	Dallas, Tx
Thane Akins	Atlantic Richfield Company	Midland, Tx
George Nathman	Atlantic Richfield Company	Midland, Tx
H. J. Swartz	Shell Oil Company	Houston, Tx

FEA PRICING

It is anticipated, at the effective date of unitization, crude oil produced, saved and sold from the _____ Unit will be subject to the rules and regulations of the Federal Energy Administration. Such rules provide for the classification of crude oil for pricing purposes as (1) Stripper Well Crude Oil, (2) Old Oil and (3) Upper Tier Crude Oil.

Under the rules and regulations of the Federal Energy Administration as of October 1976, a unit certification is allowed each month to include in the Upper Tier Crude Oil portion thereof, a constant number of barrels described by FEA Regulations as Imputed Upper Tier Crude Oil. The unit certification is further allowed each month to include in the Stripper Well Crude Oil portion thereof, a constant number of barrels described by FEA Regulations as Imputed Stripper Well Crude Oil.

In view of the above, and not withstanding the provisions of Section _____, crude oil produced, saved and sold shall be allocated as follows:

1. Stripper Well Crude Oil - The first oil produced, saved and sold each month up to a quantity equal to the Unit's Imputed Stripper Well Crude Oil shall be allocated to Tracts contributing Imputed Stripper Well Crude Oil to the Unit certification in proportion to their contributions of such Imputed Stripper Well Crude Oil. Should any Tract in any month be allocated out of Unit production in accordance with its Tract Participation as set forth in this Agreement, a total number of barrels of oil that is less than the Imputed Stripper Well Crude Oil that such Tract has contributed to the Unit certification, then such Tract's allocation of

Imputed Stripper Well Crude Oil shall be reduced by the amount that the Imputed Stripper Crude Oil exceeds the amount of oil to be allocated in accordance with its Tract Participation. The amount in excess of its Tract Participation shall be termed Excess Imputed Stripper Well Crude Oil. The total Excess Imputed Stripper Well Crude Oil of all Tracts shall be allocated to all Tracts, including Tracts which have not contributed Imputed Stripper Well Crude Oil to the Unit certification, in proportion to the quantities that the Unit production allocated a Tract by its Tract Participation exceeds the quantity Imputed Stripper Well Crude Oil allocated such tract.

2. Imputed Upper Tier Crude Oil - Oil produced, saved, and sold each month from the Unit after a quantity of oil equal to the Imputed Stripper Well Crude Oil is produced, saved and sold, up to a quantity equal to the Imputed Upper Tier Crude Oil, shall be allocated to those Tracts contributing Imputed Upper Tier Crude Oil to the Unit certification in proportion to their contributions of such Imputed Upper Tier Crude Oil. Should any Tract in any month be allocated out of Unit production in accordance with its Tract Participation, as set forth in this agreement, a total number of barrels that is less than the sum of its Imputed Stripper Well Crude Oil, its Excess Imputed Stripper Well Crude Oil as provided in Paragraph 1 of this Article, and its allocated Imputed Upper Tier Crude Oil, then such Tract's allocation of Imputed Upper Tier Crude Oil shall be reduced by the quantity

that the sum of the Tract's Imputed Stripper Well Crude Oil, its Excess Imputed Stripper Crude Oil and its allocated Imputed Upper Tier Crude Oil exceeds the total quantity of oil to be allocated in accordance with its Tract Participation. The amount in excess of its Tract Participation shall be termed Excess Imputed Upper Tier Crude Oil. The total Excess Imputed Upper Tier Crude Oil of all Tracts shall be allocated to all Tracts including Tracts which have not contributed Imputed Stripper Well Crude Oil and/or Imputed Upper Tier Crude Oil to the Unit certification, in proportion to the quantities that each Tract's allocation of Unit production by its Tract Participation exceeds the sum of the Imputed Stripper Well Crude, Excess Imputed Stripper Well Crude Oil and Imputed Upper Tier Crude Oil allocated such Tract.

3. Upper Tier Crude Oil and Old Oil shall each be allocated to each Tract in proportion to the quantities that each Tract's allocation of Unit Production, in accordance with its Participation, exceeds the sum of the allocated Imputed Stripper Well Crude Oil, Excess Imputed Stripper Well Crude Oil, Imputed Upper Tier Crude Oil and Excess Imputed Upper Tier Crude Oil.

This provision shall remain in effect only so long as necessary for the unit to comply with applicable laws, rules, and regulations of appropriate governmental authorities. Should such laws, rules, and regulations hereafter change substantially so as to alter the basis for a certification of unit production as set forth above, then in such event a method of allocating the certification among the unit ownership shall be implemented by the Unit Operator which as nearly as possible achieves the stated intention

hereof. In any event this provision will automatically terminate in its entirety _____. This provision is deemed supplementary to the other provisions of this Agreement and the provisions of the Unit Operating Agreement so that nothing contained herein shall alter the terms of such agreements, including but not limited to the portions thereof dealing with tract participation, and allocation of unit production, and the allocation of investment and operating costs.

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

June 8, 1977

Subject: Working Interest Owners Meeting
Proposed North Hobbs Unit
Lea County, New Mexico

TO: WORKING INTEREST OWNERS (MAILING LIST ATTACHED)

A meeting of the Working Interest Owners of the proposed North Hobbs Unit is called for 10:00 A.M. July 12, 1977 in the Texas Electric Service Company Reddy Room, 124 North Colorado Street, Midland, Texas.

The agenda for the meeting will be as follows:

1. Negotiation of a participation formula.

2. Any other business.

W. E. Buck
Chairman, Working Interest Owner's Committee

WEB:MJH

Attachment

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

June 29, 1977

Subject: Proposed North Hobbs Unit
Lea County, New Mexico

TO: ALL WORKING INTEREST OWNERS (MAILING LIST ATTACHED)

By letter of June 8, 1977, a meeting of the Working Interest Owners of the proposed North Hobbs Unit was called for July 12, 1977 for the purpose of negotiating unit participation. Realizing the difficulty in evaluating a participation formula when proposed for the first time at a meeting, Shell hereby submits to all Working Interest Owners the participation formula that will be proposed by Shell at such meeting. It is hoped that this early submittal will allow all Parties, especially those basing their decisions on present worth values, the opportunity to complete an evaluation and to make a decisive response at the meeting.

PARTICIPATION FORMULA TO BE PROPOSED BY SHELL OIL COMPANY

Oil Allocation

Phase I - 100 percent oil production for year 1976. Phase I to be in effect until either the oil production from the unit totals 11,670,070 barrels from the effective date of unitization or for a period of 5 years after the effective date of unitization, whichever occurs first. Limiting production is based on Unit becoming effective January 1, 1979 and is the amount of oil estimated by Technical Committee to be produced during first five years of unitized operations. Estimated annual production is shown on attached table.

Phase II -100 percent Primary Oil Reserves (1/1/77). Phase II to be in effect from the end of Phase I to the time the Unit oil production totals the estimated remaining primary reserve of 38,071,683 barrels from January 1, 1977.

Phase III - 100 percent Secondary Oil Reserve to be in effect after the termination of Phase II.

Gas Allocation

Phase I - 100 percent gas production for year 1976. Phase I gas to be same period as Phase I oil.

Phase II- 100 percent Primary Gas Reserve (1/1/77). Phase II gas to be same period as Phase II oil.

Phase III-Allocation to be same as oil and for same period as Phase III oil.

Expense Allocation

1) Operating and Overhead Expense

All such expenses to be allocated on phase-in-effect basis and based on Oil Allocation only.

2) Capital Expenditures

a) All costs of investment nature associated with injection station, injection lines, water source, drilling and equipping injection wells, and conversion expenses be charged initially on the Phase III Oil Allocation basis. From Tables 17, 18 and 19 of Technical Committee Report, such estimated costs would be: Injection System - $7,000,000; Source, $600,000; Drill Injectors, $2,325,000; Equip converted injectors, $988,000; and, Conversion Expense, $1,002,500.

b) All other costs of a capital expenditure type, including tank battery consolidation costs, be allocated initially on the basis of Phase II oil allocation and adjusted to Phase III oil allocation at the termination of Phase II.

3) Inventory

Inventory value to be allocated initially on the basis of Phase II oil allocation and adjusted to Phase III oil allocation at the termination of Phase II.

Yours very truly,

R. L. Howard
Division Production Manager
Mid-Continent Division

WEB:mjh

Attachment

PROPOSED NORTH HOBBS UNIT
PRODUCTION FUNCTION FOR UNITIZED OPERATIONS(1)

Year	Production Bbls. Oil	Year	Production Bbls. Oil
1977	2553339	2000	2123223
1978	2409459	2001	1900155
		2002	1700522
1979	2118643 (2)	2003	1521863
1980	2069097	2004	1361974
1981	2268486	2005	1218884
1982	2487088	2006	1090826
1983	2726756	2007	976223
1984	2989519	2008	873659
1985	3277603	2009	781872
1986	3593449		
1987	4205186	2010	699727
1988	4506869	2011	626213
1989	4435333 (3)	2012	560422
		2013	501544
1990	4364932	2014	448852
1991	4295649	2015	142151
1992	4227466	2016	134073
1993	4160364	2017	126455
1994	4094329	2018	119270
1995	3698530	2019	112493
1996	3309958	2020	106101
1997	2962209	2021	100072
1998	2650996	2022	94385
1999	2372479	2023	89022
		2024	83963
		Totals	93,271,683

Notes: (1) Includes all production from unitized area which consists of W.F. production from Gb, II, III_u and III_L zones and continued primary from Zone I.

(2) Effective date of unit 1/1/79. Water injection commences 7/1/79.

(3) Equivalent primary oil reserves volume (38,071,683 @ 1/1/77 or 33,108,885 @ 1/1/79) will be produced during 1989.

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. R. W. MULLINS
MANAGER - JOINT VENTURE OPERATIONS - U.S.
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. L. J. CRANDAL
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
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HOUSTON, TX 77002

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ATLANTIC RICHFIELD COMPANY
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T. J. BERRY
RT. 4
WILLS POINT, TX 75169

MR. W. K. BYROM
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HOBBS, NM 88240

MARY DANIEL CONRAD
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CHEVRON OIL COMPANY
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E&P DIVISION
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MICHAEL F. CUSACK
3815 McCART STREET
FORT WORTH, TX 76110

DEL-LEA, INC. (ANTWEIL)
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J. N. DUNLAVY
P. O. BOX 837
ROSWELL, NM 88201

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306 PETROLEUM BUILDING
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FIRST NATIONAL BANK OF FORT WORTH
ESTATE OF SMITH SPRALDING
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SAMEDAN OIL CORPORATION
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12850 HILLCREST ROAD
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SUN OIL COMPANY (DELAWARE)
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MR. BILL L. SWEET
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HOBBS, NM 88240

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TRUSTEE FOR CECIL H. SWEET AND
IMA EMMETTA SWEET TRUST
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HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
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HOBBS, NM 88240

TEXACO, INC.
ATTN: ASSISTANT DIVISION MANAGER
P. O. BOX 3109
MIDLAND, TX 79702

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
1700 ONE MAIN PLACE
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TEXAS PACIFIC OIL CO., INC.
ATTN: MR. R. J. WOMACK
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5215 HAVENWOODS
HOUSTON, TX 77066

TWO STATES OIL COMPANY
1910 EMPIRE LIFE BLDG.
DALLAS, TX 75201

LOYD WHITLEY
701 W. GEORGE APT. 99
MIDLAND, TX 79701

HATTIE C. WILLIAMS
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LUBBOCK, TX 79410

A. T. WILLIAMSON
1630 HARVARD CT.
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THE WISER OIL COMPANY
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110 GIHLS TOWER EAST
MIDLAND, TX 79701

THE WISER OIL COMPANY
ATTN: MR. C. P. LaRUE
P. O. BOX 192
SISTERVILLE, WV 26175

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701
(PRIMARY TERM ENDS OCTOBER, 1975)

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P. O. BOX 6031
DALLAS, TX 75222

RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

July 19, 1977

Subject: Minutes - Working Interest Owners Meeting
Proposed North Hobbs Unit
Lea County, New Mexico

TO: WORKING INTEREST OWNERS (MAILING LIST ATTACHED)

A meeting of the Working Interest Owners of the proposed North Hobbs Unit was held July 12, 1977, in Midland, Texas. Representatives attending the meeting are shown on the attached attendance list.

Mr. Buck opened the meeting by asking if there were any corrections or additions to the published minutes of the May 26, 1977 meeting. No corrections were submitted and the minutes stand as written.

Mr. Buck then pointed out that at the previous meeting Exxon, Continental Texas Pacific, and Russel Estes, passed on the vote regarding acceptance of the parameter table as a basis for participation negotiations and asked if any of the parties had any change to make in their vote. Exxon changed their vote to yes. Continental sustained the pass vote, stating they were concerned with the shut-in status of some wells during the production period. Texas Pacific retained their pass vote. Estes was not present during the discussion.

Mr. Buck then stated that it was the purpose of the meeting to negotiate a participation formula for Unitization. Before any formula was submitted, Mr. Shepherd, suggested that oil and gas allocation(s) be considered separately from expense allocation(s). After some discussion it was agreed that participation formulas could be proposed with or with out expense considerations.

Mr. Buck then formally proposed the formula previously submitted in writing by Shell. A total of 12 formulas were submitted and considered by the Working Interest Owners. Details of each formula and the resulting vote are shown by attachments hereto.

Prior to submitting Formula No. 12, Mr. Shepherd, Exxon, presented a graph showing the projected performance of the project under unitized operations. He pointed out that under such conditions, an amount of oil equal to the estimated primary reserve would be recovered in less than 1/3 of the time required by non-unitized operations. He also pointed out that with certain formulas, as much as 50 percent of the secondary oil could be produced before secondary parameters become effective. He felt these points should be considered in the development of a participation formula.

As sufficient agreement was not reached on a formula to proceed with other unitization matters, it was agreed to again attempt participation negotiations after all parties had had time to review the negotiations to date.

There being no further business, the meeting was adjourned.

W.E. Buck
Chairman, Working Interest
Owners Committee

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
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AMERADA HESS CORPORATION
ATTN: MR. R. W. MULLINS
MANAGER - JOINT VENTURE OPERATIONS - U.S.
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TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. GEORGE GARRETT
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
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MARY DANIEL CONRAD
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FIRST NATIONAL BANK TRUSTEE M. E. TATE
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ESTATE OF SMITH SPRALDING
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TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
1700 ONE MAIN PLACE
DALLAS, TX 75250

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. R. J. WOMACK
P. O. BOX 4067
MIDLAND, TX 79702

BETTYE CONRAD TREADAWAY
5215 HAVENWOODS
HOUSTON, TX 77066

TWO STATES OIL COMPANY
1910 EMPIRE LIFE BLDG.
DALLAS, TX 75201

LOYD WHITLEY
701 W. GEORGE APT. 99
MIDLAND, TX 79701

HATTIE C. WILLIAMS
P. O. BOX 3187
LUBBOCK, TX 79410

A. T. WILLIAMSON
1630 HARVARD CT.
HOBBS, NM 88240

THE WISER OIL COMPANY
ATTN: MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

THE WISER OIL COMPANY
ATTN: MR. C. P. LaRUE
P. O. BOX 192
SISTERVILLE, WV 26175

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701
(PRIMARY TERM ENDS OCTOBER, 1975)

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P. O. BOX 6031
DALLAS, TX 75222

RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

Formula No. 1 (Shell)

Oil Allocation

Phase I - 100% Oil Production year 1976 - to be in effect until 11,670, 070 bbls of oil produced after effective date of Unit or 5 years whichever occurs first.

Phase II - 100% Primary Oil Reserve (1/1/77) - to become effective at end of Phase I and to be in effect until production for area equals 38,071,683 bbls from January 1, 1977.

Phase III - 100% Secondary Oil Reserve - to become effective at termination of Phase II.

Gas Allocation

Phase I - 100% Gas Production for year 1976 - Phase I gas to be same period as Phase I Oil.

Phase II - 100% Primary Gas Reserve - Phase II gas to be same period as Phase II Oil.

Phase III - Gas allocation to be same as Oil allocation.

Operating Expenses

Allocation to be on phase-in-effect and based on Oil Allocation only.

Capital Expenditures

(a) All costs of investment nature associated with injection injection station, injection lines, water source, drilling equiping injection wells and conversion expense be charged initially on Phase III Oil Allocation.

(b) All other costs of a capital expenditure type, including tank battery consolidation costs, be allocated initially on Phase II Oil Allocation and adjusted to Phase III Oil Allocation at termination of Phase II.

Inventory

Inventory value to be allocated initially on basis of Phase II. Oil Allocation and adjusted to Phase III Oil Allocation at termination of Phase II.

Formula No. 1 (Shell)

Voting Results (Based on Oil Allocation Only)

Company	Working Interest - %			
	Phase I	Phase II	Phase III	Vote
Amerada	6.82433	6.50263	8.60241	Yes
Amoco	1.51264	1.35806	1.87842	No
Atlantic	1.96877	3.18766	3.27302	Pass
Chevron	2.47763	3.39898	2.97321	Yes
Cities Service	3.43427	3.20244	5.54436	No
Continental	9.37738	11.71357	14.36721	No
J.P. Cusack (15, 16, 17)	1.78236	2.73271	0.18997	No
Estes (Tract 5)	0.00832	0.00211	0.01236	Yes
Exxon	5.85371	4.39610	7.63885	No
Getty	8.63387	8.74235	7.55887	No
Gulf	10.79961	9.44655	15.23438	Yes
M. Ralph Lowe, Inc.	0.04944	0.02674	0.00164	Pass
Marathon	2.30702	2.71879	4.03993	Pass
Mobil	1.31991	0.82805	0.67264	Yes
Moran (19, 22, 31, 35, 39, 40, 44, 53, 64, 66)	0.15723	0.08743	0.03431	No
Samedan (48, 49)	4.99574	6.28791	1.33490	No
Shell	25.54027	23.76832	18.87539	Yes
Sun	0.34962	0.19658	0.43429	No
Texaco	3.39231	3.09110	1.16515	No
Texas Pacific	4.59331	4.70381	2.81932	No
Wiser Oil (Tract 14 & 15, 38)	0.24987	0.28928	0.11005	No
J.A. Yates	0.22148	0.10695	0.38811	Yes
Yes	47.19155	Yes 44.05359	Yes 46.75850	
No	44.33231	No 46.80134	No 43.07570	
Pass	4.32523	Pass 5.93319	Pass 7.31459	
Total	95.84909	Total 96.78812	Total 97.14879	

Formula No. 2 (Samedan) Oil and Gas Allocation only - Expense Allocation not considered.

Phase I - To be in effect until 38,071,683 bbls of oil produced from area after January 1, 1977.

4% Grayburg Primary Oil Reserve 1/1/77
56% San Andres Zone I Primary Oil Reserve 1/1/77
20% San Andres Zone II Primary Oil Reserve 1/1/77
20% San Andres Zone III Primary Oil Reserve 1/1/77

Phase II - To be effective at termination of Phase I.

15% Remaining Primary Oil Reserve 1/1/77
85% Secondary Oil Reserve 1/1/77

Voting Results

Company	Working Interest % Phase I	Working Interest % Phase II	Vote
Amerada	6.50815	8.28744	No
Amoco	1.34769	1.80037	No
Atlantic	3.18583	3.26022	Yes
Chevron	3.40581	3.03708	Yes
Cities Service	3.19707	5.19307	No
Continental	11.64751	13.96916	No
J. P. Cusack (15, 16, 17)	2.74114	0.57138	Yes
Estes	0.00217	0.01082	No
Exxon	4.40407	7.15244	No
Getty	8.74745	7.73639	No
Gulf	9.41771	14.36621	No
M. Ralph Lowe, Inc.	0.02741	0.00540	No
Marathon	2.71070	3.84176	Pass
Mobil	0.84900	0.69595	No
Moran (19, 22, 31, 35, 39, 40, 44, 53, 64, 66)	0.08966	0.04228	No
Samedan (48, 49)	6.30597	2.07785	Yes
Shell	23.77159	19.60933	Yes
Sun	0.19889	0.39863	No
Texaco	3.09609	1.45404	No
Texas Pacific	4.71393	3.10199	Yes
Wiser (Tract 14, 15, 38)	0.29025	0.13693	Pass
Yates	0.10966	0.34594	No
Yes	44.12427	31.65785	
No	49.64253	61.45814	
Pass	3.00095	3.97869	
TOTAL	96.76775	97.09468	

Formula No. 3 (Amerada) Oil and Gas Allocation only - Expense Allocation not included.

Oil

Phase I - To be effective until 38, 071, 683 bbls of oil produced from area after January 1, 1977.
- 1/3 Cumulative Oil Production 1/1/77
- 1/3 Oil Production Year 1976
- 1/3 Remaining Primary Oil Reserve 1/1/77

Phase II - 100% Secondary Oil Reserve

Gas

Phase I - To be same term as Phase I oil
- 100% Remaining Gas Reserve 1/1/77

Phase II - Same as oil allocation.

Voting Results - Based on oil allocation only.

Company	Working Interest % Phase I	Working Interest % Phase II	Vote
Amerada	7.59346	8.60241	Yes
Amoco	1.30733	1.87842	Yes
Atlantic	3.01644	3.27302	Pass
Chevron	2.68416	2.97321	No
Cities Service	3.82167	5.54436	Yes
Continental	10.26443	14.36721	No
Cusack (15, 16, 17)	1.89037	0.18997	No
Estes	0.00441	0.01236	No
Exxon	6.22854	7.63885	Yes
Getty	9.17771	7.55887	Yes
Gulf	10.58952	15.23438	Yes
Ralph Lowe	0.03216	0.00164	Pass
Marathon	2.96131	4.03993	Pass
Mobil	1.06123	0.67264	Pass
Moran (19, 22, 31, 35, 44, 53, 64, 66)	0.10753	0.03431	No
Samedan (48, 49)	4.84186	1.33490	No
Shell	22.91260	18.87539	No
Sun	0.36203	0.43429	No
Texaco	3.05454	1.16515	No
Texas Pacific	4.04139	2.81932	No
Wiser (14, 15, 38)	0.28957	0.11005	Pass
Yates	0.19402	0.38811	Yes
Yes	38.91225	46.84540	
No	50.16332	42.20611	
Pass	7.36071	8.09728	
TOTAL	96.43628	97.14879	

Formula No. 4 (Shell)

Same as Formula No. 1 (Shell) but for Oil and Gas.
Allocation only - Expense allocation not included.

Voting Results (Based on Oil Allocation Only)

Company	Working Interest - %			
	Phase I	Phase II	Phase III	Vote
Amerada	6.82433	6.50263	8.60241	Yes
Amoco	1.51264	1.35806	1.87842	Yes
Atlantic	1.96877	3.18766	3.27302	Pass
Chevron	2.47763	3.39898	2.97321	Yes
Cities Service	3.43427	3.20244	5.54436	No
Continental	9.37738	11.71357	14.36721	No
J.P. Cusack (15, 16, 17)	1.78236	2.73271	0.18997	Pass
Estes (Tract 5)	0.00832	0.00211	0.01236	Yes
Exxon	5.85371	4.39610	7.63885	Pass
Getty	8.63387	8.74235	7.55887	No
Gulf	10.79961	9.44655	15.23438	Yes
M. Ralph Lowe, Inc.	0.04944	0.02674	0.00164	Pass
Marathon	2.30702	2.71879	4.03993	Pass
Mobil	1.31991	0.82805	0.67264	Yes
Moran (19, 22, 31, 35, 39, 40, 44, 53, 64, 66)	0.15723	0.08743	0.03431	No
Samedan (48, 49)	4.99574	6.28791	1.33490	No
Shell	25.54027	23.76832	18.87539	Yes
Sun	0.34962	0.19658	0.43429	No
Texaco	3.39231	3.09110	1.16515	No
Texas Pacific	4.59331	4.70381	2.81932	Yes
Wiser Oil (Tract 14 & 15, 38)	0.24987	0.28928	0.11005	No
J.A. Yates	0.22148	0.10695	0.38811	Yes
Yes	53.29750	Yes 50.11546	Yes 51.45624	
No	30.59029	No 33.61066	No 30.54914	
Pass	11.96130	Pass 13.06200	Pass 15.14341	
Total	95.84909	Total 96.78812	Total 97.14879	

Formula No. 5 (Texaco) Oil and Gas Allocation only - Expense Allocation not included.

Phase I - 100% Oil Production Year 1976 - to be in effect until 11,670,070 bbls oil produced after unit becomes effective.

Phase II - 100% Primary Oil Reserve 1/1/77 - to be effective of termination at Phase I and to remain until 38,071,683 bbls of oil produced from area after January 1, 1977.

Phase III 50% Secondary Oil Reserve
50% Ultimate Primary Oil Recovery

Voting Results	Working Interest %			Vote
	Phase I	Phase II	Phase III	
Amerada	6.82433	6.50263	8.75411	Yes
Amoco	1.51264	1.35806	1.49334	No
Atlantic	1.96877	3.18766	3.51753	Pass
Chevron	2.47763	3.39898	2.68810	No
Cities Service	3.43427	3.20244	5.03546	No
Continental	9.37738	11.71357	12.22159	No
Cusack (15, 16, 17)	1.78236	2.73271	0.81938	Yes
Estes (Tract 5)	0.00822	0.00211	0.00752	No
Exxon	5.85371	4.39610	7.66244	Pass
Getty	8.63387	8.74235	8.72670	Yes
Gulf	10.79961	9.44655	13.18583	No
Ralph Lowe, Inc.	-	-	-	-
Marathon	2.30702	2.71879	3.84331	Pass
Mobil	-	-	-	-
Moran (19, 22, 31, 35, 44, 53, 64, 66)	0.15723	0.08743	0.05698	No
Samedan	4.99574	6.28791	2.57120	Pass
Shell	25.54027	23.76832	19.55534	Yes
Sun	0.34962	0.19658	0.45522	No
Texaco	3.39231	3.09110	1.96085	Yes
Texas Pacific	4.59331	4.70381	2.99744	Yes
Wiser (Tract 14, 15, 38)	0.24987	0.28928	0.21606	Pass
Yates	0.22148	0.10695	0.30726	No
Yes	50.76645	49.54092	42.81382	
No	28.33818	29.51267	35.45130	
Pass	15.37511	16.87974	17.81054	
TOTAL	94.47974	95.93333	96.07566	

Formula No. 6 (Atlantic) Oil and Gas Allocation - Expense Allocation not included.

Oil - (In effect until 38,071,683 BO prod. after 1/1/77.)

Phase I -
- 2% Grayburg Primary Oil Reserve 1/1/77
- 28% San Andres Zone I Primary Oil Reserve 1/1/77
- 10% San Andres Zone II Primary Oil Reserve 1/1/77
- 10% San Andres Zone III Primary Oil Reserve 1/1/77
- 16.66% Cumulative Oil production 1/1/77
- 16.67% Oil Production Year 1976
- 16.67% Remaining Primary Oil Reserve 1/1/77

Phase II -
- 7.5% Primary Oil Reserve 1/1/77
- 92.5% Secondary Oil Reserve

Gas

Phase I -
- 50% Primary Gas Reserve 1/1/77
- 2% Grayburg Primary Oil Reserve 1/1/77
- 28% San Andres Zone I Primary Oil Reserve 1/1/77
- 10% San Andres Zone II Primary Oil Reserve 1/1/77
- 10% San Andres Zone III Primary Oil Reserve 1/1/77

Phase II - Same as Oil Allocation

Voting Results - (Based on Oil Allocation)

Company	Working Interest % Phase I	Working Interest % Phase II	Vote
Amerada	7.050805	8.44493	Yes
Amoco	1.327510	1.83939	No
Atlantic	3.101135	3.26662	Yes
Chevron	3.044985	3.00514	Yes
Cities Service	3.509370	5.36872	No
Continental	10.955970	14.16819	No
Cusack (15, 16, 17)	2.315755	0.38068	No
Estes	0.003290	0.01159	No
Exxon	5.316305	7.39564	No
Getty	8.962580	7.64763	No
Gulf	10.003615	14.80029	No
Moran (19, 22, 31, 35, 44, 53, 64, 66)	0.098595	0.03829	No
Samedan (48, 49)	5.573915	1.70638	Pass
Shell	23.342095	19.24236	Pass
Sun	0.280460	0.41646	No
Texaco	3.075315	1.30960	No
Texas Pacific	4.377660	2.96066	No
Wiser (Tracts 14, 15, 38)	0.289910	0.12349	Pass
Yates	0.151840	0.36702	Pass
	Yes 13.196925	Yes 14.71669	
	No 50.226425	No 56.33714	
	Pass 29.357760	Pass 21.43925	
TOTAL	92.78110	92.49308	

Formula No. 7 (Texas Pacific) Oil and Gas Allocation only - Expense Allocation not included.

Oil Allocation

Phase I - To be in effect until 11,670,070 bbls oil produced from area after date of unitization.

60% - Oil Production Year 1976
40% - Primary Oil Reserve 1/1/77

Phase II - To be in effect from termination of Phase I unit 38,071,683 bbls of oil produced from area after 1/1/77.

40% - Oil Production Year 1976
60% - Primary Oil Reserve 1/1/77

Phase III - To be in effect at termination of Phase II

80% - Secondary Oil Reserve
20% - Ultimate Primary Oil Recovery

Gas Allocation

Phase I - To be same as Oil Phase I 100% Gas Production 1976

Phase II - To be same as Oil Phase II 100% Primary Gas Reserve (1/1/77).

Phase III - To be same as Oil Phase III Gas Allocation to be same as Oil Allocation.

Voting Results - (Oil Allocation only)

Company	Working Interest %			Vote
	Phase I	Phase II	Phase III	
Amerada	6.69565	6.63131	8.66309	Yes
Amoco	1.45081	1.41989	1.72439	No
Atlantic	2.45633	2.70010	3.37083	No
Chevron	2.84617	3.03044	2.85917	No
Cites Service	3.34154	3.29517	5.34080	No
Continental	10.31186	10.77909	13.50896	No
Cusack (15, 16, 17)	2.16250	2.35257	0.44173	No
Estes (Tract 5)	0.00584	0.00459	0.01042	No
Exxon	5.27067	4.97914	7.64829	No
Getty	8.67726	8.69896	8.02600	No
Gulf	10.25839	9.98777	14.41496	No
Samedan (48, 49)	5.51261	5.77104	1.82942	Pass
Shell	24.83149	24.47710	19.14737	Yes
Sun	0.28840	0.25780	0.44266	No
Texaco	3.27183	3.21158	1.48343	No
Texas Pacific	4.63751	4.65961	2.89057	Yes
Wiser (Tract 14, 15, 38)	0.26563	0.27352	0.15246	No
Yates	0.17567	0.15276	0.35577	Pass
	Yes 35.16465	Yes 35.76802	Yes 30.70103	
	No 50.60723	No 50.99062	No 59.42410	
	Pass 5.68829	Pass 5.92380	Pass 2.18519	
TOTAL	92.46017	92.68244	92.31032	

Formula No. 8 (Chevron) - Single Phase - Expense allocation not included.

45% - Primary Oil Reserve 1/1/77
45% - Secondary Oil Reserve
10% - Primary Gas Reserve 1/1/77

Voting Results

Company	Working Interest %	Vote
Amerada	7.54901	Pass
Amoco	1.73734	Yes
Atlantic	3.22274	Yes
Chevron	3.04459	Yes
Cities Service	4.22608	No
Continental	13.75089	No
Cusack (15, 16, 17)	1.39272	Pass
Estes (Tract 5)	0.00716	No
Exxon	5.90707	No
Getty	8.20666	No
Gulf	12.62912	No
Samedan (48,49)	3.59565	Pass
Shell	21.10105	No
Sun	0.30288	No
Texaco	2.01379	No
Texas Pacific	3.61015	No
Wiser (Tract 14, 15, 38)	0.18381	No
Yates	0.24127	No
Yes	8.00467	
No	72.17993	
Pass	12.53738	
Total	92.72198	

Formula No. 9 (Getty) - Oil and Gas Allocation - Expense Allocation not included.

Phase I - to be in effect until 38,071,683 bbls of all produced from area after January 1, 1977.

Phase II - to be effective at termination of Phase I

25% Ultimate Primary Oil Recovery
75% Secondary Oil Reserve

Voting Results

Company	Working Interest % Phase I	Working Interest % Phase II	Vote
Amerada	7.64187	8.67826	Yes
Amoco	1.75852	1.68588	Yes
Atlantic	3.36800	3.39528	Yes
Chevron	2.52430	2.83066	No
Cities Service	3.54302	5.28991	No
Continental	13.97816	13.29440	No
Cusack (16,17,18)	1.65220	0.50467	No
Estes (Tract 5)	0.00376	0.00994	No
Exxon	5.66512	7.65065	No
Getty	9.11591	8.14278	Yes
Gulf	11.93682	14.21011	No
Samedan (48,49)	3.91637	1.95305	No
Shell	21.03893	10.21537	No
Sun	0.28754	0.44476	No
Texaco	2.27745	1.56300	No
Texas Pacific	3.37557	2.90838	No
Wiser	0.21749	0.16306	No
Yates	0.17276	0.34768	Yes
Yes	22.05706	22.24988	
No	70.41673	70.03796	
Pass	0	0	
Total	92.47379	92.28784	

Formula No. 10 (Continental) - Expense Allocation not included.

Oil

Phase I - To be in effect until 38,071,683 bbls oil produced from area after January 1, 1977.
- 100% Remaining Primary Oil Reserve (1/1/77).

Phase II - To be in effect at termination at Phase I.
- 100% Secondary Oil Reserve

Gas

Phase I - To be in effect for same period as Phase I Oil.
- 100% Remaining Primary Gas (1/1/77).

Voting Results - Based on oil allocation only.

Company	Working Interest % Phase I	Working Interest % Phase II	Vote
Amerada	6.50263	8.60241	Yes
Amoco	1.35806	1.87842	Yes
Atlantic	3.18766	3.27302	Yes
Chevron	3.39898	2.97321	Yes
Cities Service	3.20244	5.54436	No
Continental	11.71357	14.36721	Yes
Cusack (15, 16, 17)	2.73271	0.18997	Yes
Estes (Tract 5)	0.00211	0.01236	Pass
Exxon	4.39610	7.63885	No
Getty	8.74235	7.55887	No
Gulf	9.44655	15.23438	Yes
Samedan (48, 49)	6.28791	1.33490	Yes
Shell	23.76832	18.87539	No
Sun	0.19658	0.43429	No
Texaco	3.09110	1.16515	No
Texas Pacific	4.70381	2.81932	Yes
Wiser	0.28928	0.11005	No
Yates	0.10695	0.38811	Pass
Yes	49.331880	50.672840	
No	43.686170	41.326960	
Pass	0.109060	0.400470	
TOTAL	93.12711	92.40027	

Formula No. 11 (Texas Pacific) - Oil and Gas Allocation Only - Expense allocation not included.

Oil

Phase I - to be in effect until 38,071,683 barrels of oil produced from area after January 1, 1977.

- 50% Oil Production year 1976
- 50% Remaining Primary Oil Reswrve 1/1/77

Phase II - to be in effect at termination of Phase I
- 100% Secondary Oil Reserve

Gas

Phase I - to be in effect during Phase I Oil
- 50% Gas Production year 1976
- 50% Gas Reserve (1/1/77)

Phase II - to be in effect during Phase II Oil
- same as Phase II oil

Voting Results - based on Oil Allocation only

Company	Working Interest % Phase I	Phase II	Vote
Amerada	6.66348	8.60241	Yes
Amoco	1.43535	1.87842	Yes
Atlantic	2.57821	3.27302	No
Chevron	2.93830	2.97321	No
Cities Service	3.31835	5.54436	No
Continental	10.54547	14.36721	No
Cusack (15,16,17)	2.25753	0.18997	No
Estes (Tract 5)	0.00521	0.01236	Yes
Exxon	5.12490	7.63885	Pass
Getty	8.68811	7.55887	No
Gulf	10.12308	15.23438	Yes
Samedan (48,46)	5.64182	1.33490	No
Shell	24.65429	18.87539	Pass
Sun	0.27310	0.43429	No
Texaco	3.24170	1.16515	No
Texas Pacific	4.64856	2.81932	Yes
Wiser	0.26957	0.11005	Pass
Yates	0.16421	0.38811	Yes
Yes	23.03989	Yes 28.93500	
No	39.48259	No 36.84098	
Pass	30.04876	Pass 26.62429	
Total	92.57124	Total 92.40027	

Formula No. 12 (Exxon) Oil and Gas Allocation only - Expense Allocation not included.

Oil

Phase I - To be in effect until 11,670,070 barrel of oil produced from area after date of unitization.
- 75% Oil Production Year 1976
- 25% Remaining Primary Oil Reserve (1/1/77)

Phase II - To be in effect at termination of Phase I and until 38,071,683 bbls of oil produced from area after January 1, 1977.

II
- 75% Remaining Primary Oil Reserve (1/1/77)
- 100% Secondary Oil Reserve

Gas

Phase I - To be in effect during Phase I oil
- 75% Gas Production Year 1976
- 25% Remaining Gas Reserve (1/1/77)

Phase II - To be in effect during Phase II oil.
- 75% Remaining Gas Reserve
- 25% Gas Production Year 1976

Phase III - To be in effect during Phase III oil some as Phase III oil allocation.

Voting Results - Based on oil allocation only.

Company	Working Interest %			Vote
	Phase I	Phase II	Phase III	
Amerada	6.74390	6.58305	8.60241	Yes
Amoco	1.47399	1.39670	1.87842	Yes
Atlantic	2.27349	2.88294	3.27302	No
Chevron	2.70797	3.16864	2.97321	Yes
Cities Service	3.37631	3.26040	5.54436	No
Continental	9.96143	11.12952	14.36721	No
Cusack (15, 16, 17)	2.01995	2.49512	0.18997	No
Estes (Tract 5)	0.00677	0.00366	0.01236	Yes
Exxon	5.48931	4.76050	7.63885	Yes
Getty	8.66099	8.71523	7.55887	No
Gulf	10.46134	9.78481	15.23438	Yes
Samedan (48, 49)	5.31878	5.96487	1.33490	Pass
Shell	25.09728	24.21131	18.87539	Yes
Sun	0.31136	0.23484	0.43429	No
Texaco	3.31701	3.16640	1.16515	No
Texas Pacific	4.62093	4.67618	2.81932	Yes
Wiser	0.25972	0.27943	0.11005	Pass
Yates	0.19285	0.13558	0.38811	Yes
Yes	56.79434	54.72043	58.42245	
No	29.92054	31.88445	32.53287	
Pass	5.57850	6.24430	1.44495	
TOTAL	92.29338	92.84918	92.40027	

ATTENDANCE LIST

WORKING INTEREST OWNER'S MEETING

NORTH HOBBS UNIT

JULY 12, 1977

COMPANY	NAME	LOCATION
Amerada-Hess Corp.	Gerald Hill	Tulsa, Ok
Amerada-Hess Corp.	Kussim T. Kassim	Seminole, Tx
Amerada-Hess Corp.	R.W. Mullins	Tulsa, Ok
Amoco Producing Company	Steve Denton	Houston, Tx
Atlantic Richfield Company	Thane Akins	Midland, Tx
Atlantic Richfield Company	George Nathman	Midland, Tx
Chevron USA, Inc.	W.A. Goudeau	Midland, Tx
Chevron USS, Inc.	D.D. Allen	Midland, Tx
Cities Service Oil Company	Don Barrett	Midland, Tx
Continental Oil Company	V.T. Lyon	Hobbs, NM
Curry Engineering - J.P. Cusack	Max E. Curry	Midland, Tx
Exxon Company	W.E. Nolan	Midland, Tx
Exxon Company	J.M. Shepherd	Midland, Tx
Getty Oil Company	J.E. Eakin	Midland, Tx
Getty Oil Company	O.V. Stuckey	Midland, Tx
Gulf	Vance M. Hendricks	Midland, Tx
Gulf Energy & Minerals Co. U.S.A.	J.D. Mussett	Midland, Tx
Gulf Energy & Minerals Co. U.S.A.	R.O. Walker	Midland, Tx
John A. Yates	Eddie Matford	Anteria, NM
M. Ralph Lowe, Inc.	Jack D. Semon	Midland, Tx
Marathon Oil Company	G.H. Naert	Midland, Tx
Mobil Oil Corporation	L.A. Carr	Houston, Tx
Moranco	Ken McPeters	Hobbs, NM
Samedan Oil Company	Boyce Perry	Ardmore, OK
Jack Crusack	Jack Cusack	Biswell, NM
Shell Oil Company	W.E. Buck	Houston, Tx
Shell Oil Company	H.J. Swartz	Houston, Tx
Sipes Williamson & Aycock (Rep. Moranco)	Don Hunter	Midland, Tx
Sun Producing Company	Joe Martin	Midland, Tx
Sun Producing Company	Herb Seidel, Jr.	Dallas, Tx
Sun Producing Company	Joe Thornton	Dallas, Tx
Sun Producing Company	Wanda Vance	Dallas, Tx
Texaco, Inc.	H.E. Harper	Hobbs, NM
Texaco, Inc.	Morris Todd	Midland, Tx
Texas Pacific Oil Co., Inc.	G.R. Meyers	Dallas, Tx
Texas Pacific Oil Co., Inc.	J.D. Waggoner	Dallas, Tx
Wiser Oil Company	William R. Larsen	Midland, Tx

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

July 21, 1977

Subject: Formula No. 12 - Correction
Minutes Working Interest Owners Meeting
Proposed North Hobbs Unit
Lea County, New Mexico

To Working Interest Owners

Formula No. 12 as stated in the minutes of the Working Interest Owners Meeting of July 12, 1977 was in error. Attached is a corrected statement of such formula.

W. E. Buck
Chairman, Working Interest Owner
Committee

WEB:CLM

Attachment

Formula No. 12 (Exxon) Oil and Gas Allocation only - Expense Allocation not included.

Oil

Phase I - To be in effect until 11,670,070 barrell of oil produced from area after date of unitization.
- 75% Oil Production Year 1976
- 25% Remaining Primary Oil Reserve (1/1/77)

Phase II - To be in effect at termination of Phase I and until 38,071,683 bbls of oil produced from area after January 1, 1977.
- 75% Remaining Primary Oil Reserve (1/1/77)
- 25% Oil Production year 1976

Phase III - to be in effect at termination of Phase II
- 100% secondary oil reserve

Gas

Phase I - To be in effect during Phase I oil
- 75% Gas Production Year 1976
- 25% Remaining Gas Reserve (1/1/77)

Phase II - To be in effect during Phase II oil
- 75% Remaining Gas Reserve
- 25% Gas Production Year 1976

Phase III - To be in effect during Phase III oil and same as Phase III oil allocation.

Voting Results - Based on oil allocation only.

Company	Working Interest %			Vote
	Phase I	Phase II	Phase III	
Amerada	6.74390	6.58305	8.60241	Yes
Amoco	1.47399	1.39670	1.87842	Yes
Atlantic	2.27349	2.88294	3.27302	No
Chevron	2.70797	3.16864	2.97321	Yes
Cities Service	3.37631	3.26040	5.54436	No
Continental	9.96143	11.12952	14.36721	No
Cusack (15, 16, 17)	2.01995	2.49512	0.18997	No
Estes (Tract 5)	0.00677	0.00366	0.01236	Yes
Exxon	5.48931	4.76050	7.63885	Yes
Getty	8.66099	8.71523	7.55887	No
Gulf	10.46134	9.78481	15.23438	Yes
Samedan (48,49)	5.31878	5.96487	1.33490	Pass
Shell	25.09728	24.21131	18.87539	Yes
Sun	0.31136	0.23484	0.43429	No
Texaco	3.31701	3.16640	1.16515	No
Texas Pacific	4.62093	4.67618	2.81932	Yes
Wiser	0.25972	0.27943	0.11005	Pass
Yates	0.19285	0.13558	0.38811	Yes
Yes	56.79434	54.72043	58.42245	
No	29.92054	31.88445	32.53287	
Pass	5.57850	6.24430	1.44495	
TOTAL	92.29338	92.84918	92.40027	

Mr. Buck

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

Subject: Proposed North Hobbs Unit
Hobbs Field
Lea County, New Mexico

ALL WORKING INTEREST OWNERS - PROPOSED NORTH HOBBS UNIT
(MAILING LIST ATTACHED)

A meeting of the Working Interest Owners of the proposed North Hobbs Unit is called for 10:00 a.m., September 20, 1977 in the First National Room, First National Bank Building, Midland, Texas.

The agenda for the meeting will be as follows:

1. Negotiation of a participation formula for unitization.

2. Any other business.

W E Buck

W. E. Buck
Chairman, Working Interest Owners Committee

WEB:CLM

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. R. W. MULLINS
MANAGER - JOINT VENTURE OPERATIONS - U.S.
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. L. J. CRANDAL
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

W. D. ANDERSON & SONS
P. O. BOX 136
MIDLAND, TX 79702

ATLANTIC RICHFIELD COMPANY
ATTN: MR. G. THANE AKINS
P. O. BOX 1610
MIDLAND, TX 79702

T. J. BERRY
RT. 4
WILLS POINT, TX 75169

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

MARY DANIEL CONRAD
4308 AVONDALE
DALLAS, TX 75219

C&C OPERATING CORP.
P. O. BOX 1829
HOBBS, NM 88240

CHEVRON OIL COMPANY
ATTN: MR. C. F. DWYER
P. O. BOX 1660
MIDLAND, TX 79702

CITIES SERVICE OIL COMPANY
E&P DIVISION
P. O. BOX 1919
MIDLAND, TX 79702

CONTINENTAL OIL COMPANY (2)
ATTN: L. P. THOMPSON
P. O. BOX 460
HOBBS, NM 88240

HERMAN R. CRILE
BOX 864
ROSWELL, NM 88201

JOHN P. CUSACK
P. O. BOX 250
ROSWELL, NM 88201

JOHN P. CUSACK, JR.
3815 McCART STREET
FORT WORTH, TX 76110

MICHAEL F. CUSACK
3815 McCART STREET
FORT WORTH, TX 76110

DEL-LEA, INC. (ANTWEIL)
P. O. BOX 1889
HOBBS, NM 88240

J. N. DUNLAVY
P. O. BOX 837
ROSWELL, NM 88201

ESTES ENGINEERING CO.
306 PETROLEUM BUILDING
MIDLAND, TX 79702

EXXON COMPANY - U. S. A. (2)
ATTN: JOINT INTEREST MANAGER
P. O. BOX 1600
MIDLAND, TX 79702

FIRST NATIONAL BANK OF CASPER
ESTATE OF M. E. TOLE
P. O. BOX 40
CASPER, WY 82601

FIRST NATIONAL BANK OF FORT WORTH
ESTATE OF SMITH SPRALDING
P. O. BOX 2546
FORT WORTH, TX 76101

FIRST ROSWELL COMPANY
P. O. BOX 1180
ROSWELL, NM 88201

C. C. FORBES
P. O. BOX 843
TULSA, OK 74101

ILAMAE FORBES
P. O. BOX 843
TULSA, OK 74101

GETTY OIL COMPANY (2)
ATTN: MR. A. B. CARY
P. O. BOX 1231
MIDLAND, TX 79702

E. P. GOLDEN
C/O MILDRED G. TURNER
P. O. BOX 835
ROSWELL, NM 88201

GULF ENERGY & MINERALS CO.-U.S. (2)
ATTN: R. F. WARD, JR.
DISTRICT OPERATIONS MANAGER
P. O. BOX 1150
MIDLAND, TX 79702

KENNETH NOEL HEADLEY
P. O. BOX 2163
ROSWELL, NM 88201

PETER HURD
SAN PATRICIO, NM 88348

B. J. JERNIGAN
P. O. BOX 993
MIDLAND, TX 79701

RUBY WANDA CONRAD JUDSON
7 JOSEPHINE COURT
NORTHPORT, LONG ISLAND
NEW YORK, NY 11768

A. A. KEMNITZ
P. O. BOX 729
HOBBS, NM 88240

LYNN KINCAID
217 E. VEGA DR.
HOBBS, NM 88240

GEORGE P. LAFLIN
815 METRO BANK BUILDING
DENVER, CO 80202

MR. GEORGE H. LANDRETH
8123 BOEDEKER CIRCLE
DALLAS, TX 75225

MR. W. A. LANDRETH
908 CONTINENTAL NATIONAL BANK B
FT. WORTH, TX 76102

M. RALPH LOWE
C/O A. W. MOURSUND
P. O. BOX 125
JOHNSON CITY, TX 78636

MARATHON OIL COMPANY
ATTN: MR. G. A. NAERT
P. O. BOX 522
MIDLAND, TX 79702

KATHRYN LOUISE CONRAD McCARTHY
4435 SAN GABRIEL
DALLAS, TX 75229

J. S. McGANNON
P. O. BOX 1651
SANTA FE, NM 87501

K. D. McPETERS
P. O. BOX 1860
HOBBS, NM 88240

MOBIL OIL CORPORATION
3 GREENWAY PLAZA EAST
SUITE 800
HOUSTON, TX 77046

WAYNE MOORE
403 N. MARINEFIELD
MIDLAND, TX 79701

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J. E. MORAN
FIRST NATIONAL BANK - MIDLAND
TRUSTEE FOR F. E. MORAN
TRUST #1 (NO. 323)
P. O. BOX 1599
MIDLAND, TX 79701

R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

G. D. MORRIS
2901 W. HWY 83, BOX 154
McALLEN, TX 78501

MR. J. H. MORRIS AS AGENT
1615 FIRST NATIONAL BUILDING
TULSA, OK 74103

NATHLYN IONE CONRAD MURDOCH
4132 DEEP VALLEY DRIVE
DALLAS, TX 75234

RICHARD L. NOBLE
P. O. BOX 67605
CENTURY CITY
LOS ANGELES, CA 90067

LINDA B. & BEN F. PARRISH
C/O DANA T. RICHARDSON, JR.
NUMBER ONE POST OAK PLACE
4615 POST OAK PLACE DRIVE
SUITE 240
HOUSTON, TX 77027

M. C. PARRISH ESTATE
C/O DANA T. RICHARDSON, JR.
NUMBER ONE POST OAK PLACE
4615 POST OAK PLACE DRIVE
SUITE 240
HOUSTON, TX 77027

PORTALES NATIONAL BANK
PORTALES, NM 88130

JOHN RORING
1710 WILSHIRE BOULEVARD
OKLAHOMA CITY, OK 73116

FRANCES I. CONRAD ROSE
BOX 20234
DALLAS, TX 75220

SAMEDAN OIL CORPORATION
ATTN: MR. M. G. MARTIN
2207 WILCO BUILDING
MIDLAND, TX 79702

SAMEDAN OIL CORPORATION
ATTN: MR. BOYCE BERRY
P. O. BOX 909
ARDMORE, OK 73401

HOWELL SPEAR
P. O. BOX 1684
MIDLAND, TX 79701

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THRONTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS
P. O. BOX 1861
MIDLAND, TX 79702

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

FIRST NATIONAL BANK OF LEA COUN
TRUSTEE FOR CECIL H. SWEET AND
IMA EMMETTA SWEET TRUST
P. O. BOX 70
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO, INC.
ATTN: ASSISTANT DIVISION MANAG
P. O. BOX 3109
MIDLAND, TX 79702

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
1700 ONE MAIN PLACE
DALLAS, TX 75250

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. R. J. WOMACK
P. O. BOX 4067
MIDLAND, TX 79702

BETTYE CONRAD TREADAWAY
5215 HAVENWOODS
HOUSTON, TX 77066

TWO STATES OIL COMPANY
1910 EMPIRE LIFE BLDG.
DALLAS, TX 75201

LOYD WHITLEY
701 W. GEORGE APT. 99
MIDLAND, TX 79701

HATTIE C. WILLIAMS
P. O. BOX 3187
LUBBOCK, TX 79410

A. T. WILLIAMSON
1630 HARVARD CT.
HOBBS, NM 88240

THE WISER OIL COMPANY
ATTN: MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

THE WISER OIL COMPANY
ATTN: MR. C. P. LaRUE
P. O. BOX 192
SISTERVILLE, WV 26175

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701
(PRIMARY TERM ENDS OCTOBER, 1975)

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P. O. BOX 6031
DALLAS, TX 75222

RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

August 29, 1977

Subject: Proposed North Hobbs Unit
Lea County, New Mexico

TO: ALL WORKING INTEREST OWNERS - PROPOSED NORTH HOBBS UNIT
(MAILING LIST ATTACHED)

Prior to the meeting of the Working Interest Owners of the proposed North Hobbs Unit of July 12, 1977, Shell submitted a participation formula that was to be formally submitted at the called meeting. The purpose of the early submittal was to allow all Parties the opportunity to complete an evaluation of the formula and to make a decisive response at the meeting. Although the proposed formula did not receive sufficient acceptance to proceed with other unitization matters, we feel the response of the Parties justifies a repeat of the procedure. Shell will, therefore, formally submit the following stated participation formula for the consideration of the Working Interest Owners at the meeting called for September 20, 1977.

Oil Allocation

Phase I - Allocation to be based on two parameters, the proportion of each to be determined as stated below. Parameter "A" to be Oil Production for year 1976 and Parameter "B" to be Remaining Primary Oil Reserves (1/1/77). Phase I to be in effect for a period of 5 years from the effective date of unitization. During the term of Phase I, oil shall be allocated to Tracts in the following manner:

First Year - The first 6500 barrels of oil per day, averaged for a calendar month, produced, saved, and sold from the Unit shall be allocated to Tracts based on Parameter "A". All oil produced, saved, and sold in excess of 6500 barrels per day averaged for a calendar month shall be allocated on the basis of Parameter "B".

Second Year - The first 5200 barrels of oil per day, averaged for a calendar month, produced, saved, and sold from the Unit shall be allocated to Tracts based on Parameter "A". All oil produced, saved, and sold in excess of 5200 barrels per day, averaged for a calendar month, shall be allocated on the basis of Parameter "B".

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Third Year - The first 3900 barrels of oil per day, averaged for a calendar month, produced, saved, and sold from the Unit shall be allocated to Tracts based on the Parameter "A". All oil produced, saved, and sold in excess of 3900 barrels per day, averaged for a calendar month, shall be allocated on the basis of Parameter "B".

Fourth Year - The first 2600 barrels of oil per day, averaged for a calendar month, and produced, saved, and sold from the Unit shall be allocated to Tracts based on Parameter "A". All oil produced, saved, and sold in excess of 2600 barrels per day, averaged for a calendar month, shall be allocated on the basis of Parameter "B".

Fifth Year - The first 1300 barrels of oil per day, averaged for a calendar month, produced, saved, and sold from the Unit shall be allocated to Tracts based on Parameter "A". All oil produced, saved, and sold in excess of 1300 barrels per day, averaged for a calendar month, shall be allocated on the basis of Parameter "B".

Phase II - 100 percent Remaining Primary Oil Reserves (1/1/77). Phase II to be in effect from the end of Phase I to the time the oil production from the Unit Area totals the estimated Remaining Primary Oil Reserve of 38,071,683 barrels from January 1, 1977.

Phase III - 100 percent Secondary Oil Reserve. Phase III to be in effect after the termination of Phase II.

Gas Allocation

Phase I - 100 percent Gas Production for Year 1976. Phase I gas to be same period as Phase I oil.

Phase II - 100 percent Primary Gas Reserve (1/1/77). Phase II gas to be same period as Phase II oil.

Phase III - Allocation to be same as oil and for same period as Phase III oil.

The limiting average of daily production of 6500 barrels as used during the first year of Phase 1 is the projected daily production of the Unit Area for the year 1979. It will be noted from the attached production function forecast for unitized operations that the unit production would start to exceed the limiting production during the second year of unitized operations.

R. L. Howard

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WEB:CLM

PROPOSED NORTH HOBBS UNIT
PRODUCTION FUNCTION FOR UNITIZED OPERATIONS(1)

Year	Production Bbls. Oil	Year	Production Bbls. Oil
1977	2553339	2000	2123223
1978	2409459	2001	1900155
		2002	1700522
1979	2118643 (2)	2003	1521863
1980	2069097	2004	1361974
1981	2268486	2005	1218884
1982	2487088	2006	1090826
1983	2726756	2007	976223
1984	2989519	2008	873659
1985	3277603	2009	781872
1986	3593449		
1987	4205186	2010	699727
1988	4506869	2011	626213
1989	4435333 (3)	2012	560422
		2013	501544
1990	4364932	2014	448852
1991	4295649	2015	142151
1992	4227466	2016	134073
1993	4160364	2017	126455
1994	4094329	2018	119270
1995	3698530	2019	112493
1996	3309958	2020	106101
1997	2962209	2021	100072
1998	2650996	2022	94385
1999	2372479	2023	89022
		2024	83963
		Totals	93,271,683

Notes: (1) Includes all production from unitized area which consists of W.F. production from Gb, II, III_u and III_L zones and continued primary from Zone I.

(2) Effective date of unit 1/1/79. Water injection commences 7/1/79.

(3) Equivalent primary oil reserves volume (38,071,683 @ 1/1/77 or 33,108,885 @ 1/1/79) will be produced during 1989.

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. R. W. MULLINS
MANAGER - JOINT VENTURE OPERATIONS - U.S.
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. L. J. CRANDAL
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

W. D. ANDERSON & SONS
P. O. BOX 136
MIDLAND, TX 79702

ATLANTIC RICHFIELD COMPANY
ATTN: MR. G. THANE AKINS
P. O. BOX 1610
MIDLAND, TX 79702

T. J. BERRY
RT. 4
WILLS POINT, TX 75169

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

MARY DANIEL CONRAD
4309 AVONDALE
DALLAS, TX 75219

C&C OPERATING CORP.
P. O. BOX 1829
HOBBS, NM 88240

CHEVRON OIL COMPANY
ATTN: MR. C. F. DWYER
P. O. BOX 1660
MIDLAND, TX 79702

CITIES SERVICE OIL COMPANY
E&P DIVISION
P. O. BOX 1919
MIDLAND, TX 79702

CONTINENTAL OIL COMPANY (2)
ATTN: L. P. THOMPSON
P. O. BOX 460
HOBBS, NM 88240

HERMAN R. CRILE
BOX 864
ROSWELL, NM 88201

JOHN P. CUSACK
P. O. BOX 250
ROSWELL, NM 88201

JOHN P. CUSACK, JR.
3815 McCART STREET
FORT WORTH, TX 76110

MICHAEL F. CUSACK
3815 McCART STREET
FORT WORTH, TX 76110

DEL-LEA, INC. (ANTWEIL)
P. O. BOX 1889
HOBBS, NM 88240

J. N. DUNLAVY
P. O. BOX 837
ROSWELL, NM 88201

ESTES ENGINEERING CO.
306 PETROLEUM BUILDING
MIDLAND, TX 79702

EXXON COMPANY - U. S. A. (2)
ATTN: JOINT INTEREST MANAGER
P. O. BOX 1600
MIDLAND, TX 79702

FIRST NATIONAL BANK OF CASPER
ESTATE OF M. E. TOLE
P. O. BOX 40
CASPER, WY 82601

FIRST NATIONAL BANK OF FORT WORTH
ESTATE OF SMITH SPRALDING
P. O. BOX 2546
FORT WORTH, TX 76101

FIRST ROSWELL COMPANY
P. O. BOX 1180
ROSWELL, NM 88201

C. C. FORBES
P. O. BOX 843
TULSA, OK 74101

ILAHAE FORBES
P. O. BOX 843
TULSA, OK 74101

GETTY OIL COMPANY (2)
ATTN: MR. A. B. CARY
P. O. BOX 1231
MIDLAND, TX 79702

E. P. GOLDEN
C/O MILDRED G. TURNER
P. O. BOX 835
ROSWELL, NM 88201

GULF ENERGY & MINERALS CO.-U.S. (2)
ATTN: R. F. WARD, JR.
DISTRICT OPERATIONS MANAGER
P. O. BOX 1150
MIDLAND, TX 79702

KENNETH NOEL HEADLEY
P. O. BOX 2163
ROSWELL, NM 88201

PETER HURD
SAN PATRICIO, NM 88348

B. J. JERNIGAN
P. O. BOX 993
MIDLAND, TX 79701

RUBY WANDA CONRAD JUDSON
7 JOSEPHINE COURT
NORTHPORT, LONG ISLAND
NEW YORK, NY 11768

A. A. KEMNITZ
P. O. BOX 729
HOBBS, NM 88240

LYNN KINCAID
217 E. VEGA DR.
HOBBS, NM 88240

GEORGE P. LAFLIN
815 METRO BANK BUILDING
DENVER, CO 80202

MR. GEORGE H. LANDRETH
8123 BOEDEKER CIRCLE
DALLAS, TX 75225

MR. W. A. LANDRETH
908 CONTINENTAL NATIONAL BANK I
FT. WORTH, TX 76102

M. RALPH LOWE
C/O A. W. MOURSUND
P. O. BOX 125
JOHNSON CITY, TX 78636

MARATHON OIL COMPANY
ATTN: MR. G. A. NAERT
P. O. BOX 522
MIDLAND, TX 79702

KATHRYN LOUISE CONRAD McCARTHY
4435 SAN GABRIEL
DALLAS, TX 75229

J. S. McGANNON
P. O. BOX 1651
SANTA FE, NM 87501

K. D. McPETERS
P. O. BOX 1860
HOBBS, NM 88240

MOBIL OIL CORPORATION
3 GREENWAY PLAZA EAST
SUITE 800
HOUSTON, TX 77046

WAYNE MOORE
403 N. MARINEFIELD
MIDLAND, TX 79701

J. E. MORAN
FIRST NATIONAL BANK - MIDLAND
TRUSTEE FOR F. E. MORAN
TRUST #1 (NO. 323)
P. O. BOX 1599
MIDLAND, TX 79701

R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

G. D. MORRIS
2901 W. HWY 83, BOX 154
McALLEN, TX 78501

MR. J. H. MORRIS AS AGENT
1615 FIRST NATIONAL BUILDING
TULSA, OK 74103

NATHLYN IONE CONRAD MURDOCH
4132 DEEP VALLEY DRIVE
DALLAS, TX 75234

RICHARD L. NOBLE
P. O. BOX 67605
CENTURY CITY
LOS ANGELES, CA 90067

LINDA B. & BEN F. PARRISH
C/O DANA T. RICHARDSON, JR.
NUMBER ONE POST OAK PLACE
4615 POST OAK PLACE DRIVE
SUITE 240
HOUSTON, TX 77027

M. C. PARRISH ESTATE
C/O DANA T. RICHARDSON, JR.
NUMBER ONE POST OAK PLACE
4615 POST OAK PLACE DRIVE
SUITE 240
HOUSTON, TX 77027

PORTALES NATIONAL BANK
PORTALES, NM 88130

JOHN RORING
1710 WILSHIRE BOULEVARD
OKLAHOMA CITY, OK 73116

FRANCES I. CONRAD ROSE
BOX 20234
DALLAS, TX 75220

SAMEDAN OIL CORPORATION
ATTN: MR. M. G. MARTIN
2207 WILCO BUILDING
MIDLAND, TX 79702

SAMEDAN OIL CORPORATION
ATTN: MR. BOYCE BERRY
P. O. BOX 909
ARDMORE, OK 73401

HOWELL SPEAR
P. O. BOX 1684
MIDLAND, TX 79701

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THRONTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS
P. O. BOX 1861
MIDLAND, TX 79702

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

FIRST NATIONAL BANK OF LEA COUNT
TRUSTEE FOR CECIL H. SWEET AND
IMA EMMETTA SWEET TRUST
P. O. BOX 70
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO, INC.
ATTN: ASSISTANT DIVISION MANAGEI
P. O. BOX 3109
MIDLAND, TX 79702

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
1700 ONE MAIN PLACE
DALLAS, TX 75250

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. R. J. WOMACK
P. O. BOX 4067
MIDLAND, TX 79702

BETTYE CONRAD TREADAWAY
5215 HAVENWOODS
HOUSTON, TX 77066

TWO STATES OIL COMPANY
1910 EMPIRE LIFE BLDG.
DALLAS, TX 75201

LOYD WHITLEY
701 W. GEORGE APT. 99
MIDLAND, TX 79701

HATTIE C. WILLIAMS
P. O. BOX 3187
LUBBOCK, TX 79410

A. T. WILLIAMSON
1630 HARVARD CT.
HOBBS, NM 88240

THE WISER OIL COMPANY
ATTN: MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

THE WISER OIL COMPANY
ATTN: MR. C. P. LaRUE
P. O. BOX 192
SISTERVILLE, WV 26175

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701
(PRIMARY TERM ENDS OCTOBER, 1975)

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P. O. BOX 6031
DALLAS, TX 75222

RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

EXXON COMPANY, U.S.A.
POST OFFICE BOX 1600 · MIDLAND, TEXAS 79701

PRODUCTION DEPARTMENT
MIDCONTINENT DIVISION

J. M. SHEPHERD
JOINT INTEREST MANAGER

September 1, 1977

RE: North Hobbs (Grayburg-San Andres)
Proposed Unit
Lea County, New Mexico

2 WEB
10

Shell Oil Company
P. O. Box 991
Houston, Texas 77001

Attention: Mr. W. E. Buck

Gentlemen:

A review of the Shell minutes for the May 26 and July 12, 1977, meetings of the working interest owners in the proposed subject unit reflect that (1) the technical report titled "Waterflood Feasibility and Unitization Parameters for the North Hobbs (Grayburg-San Andres) Unit" has been basically accepted by the working interest owners, and (2) that most of these owners have appeared willing to use, along with an initial period of "current production", the "primary" and "secondary" reserves in the negotiation proceedings thus far. However, no resolution has been made as to the timing of distribution of these "primary" and "secondary" reserves in the formulas considered. The Shell formula presented for consideration in its August 29, 1977 letter likewise does not address this timing factor.

The attached graph "Performance Forecast - Proposed North Hobbs Unit" shows a consolidation for all zones of the "primary" and "secondary" reserves included in the technical report and assumes unitization will be effective January 1, 1979. This chart was shown by Exxon and discussed at the last meeting. The included table gives the technical committee data from which the graph is constructed. As indicated, the committee forecasts secondary oil will be first recovered after some 6.4 million barrels have been produced, followed then by varying ratios of primary and secondary oil production for the life of the project. Exxon believes this projection should be considered in the development of a participation formula for the proposed unit and to such end will introduce the following formula at the called September 20 working interest owner's meeting.

A DIVISION OF EXXON CORPORATION

	Oil Reserve	
	Primary MMB	Secondary MMB
Phase 1 for 6.4 MMB after 1-1-79		
100% Current Oil Production	6.4	
Phase 2 for the next 26.7 MMB (Cumulative 33.1 MMB)		
44.6% Primary Reserves	11.9	
55.4% Secondary Reserves		14.8
Phase 3 for remainder (Estimated 55.2 MMB)		
26.8% Primary Reserves	14.8	
73.2% Secondary Reserves		40.4
Total Primary and Secondary	33.1	55.2

During Phase I and Phase II gas parameters would be substituted in the above formula for allocation of gas production.

Very truly yours,

J. M. Shepherd

JMS:dp

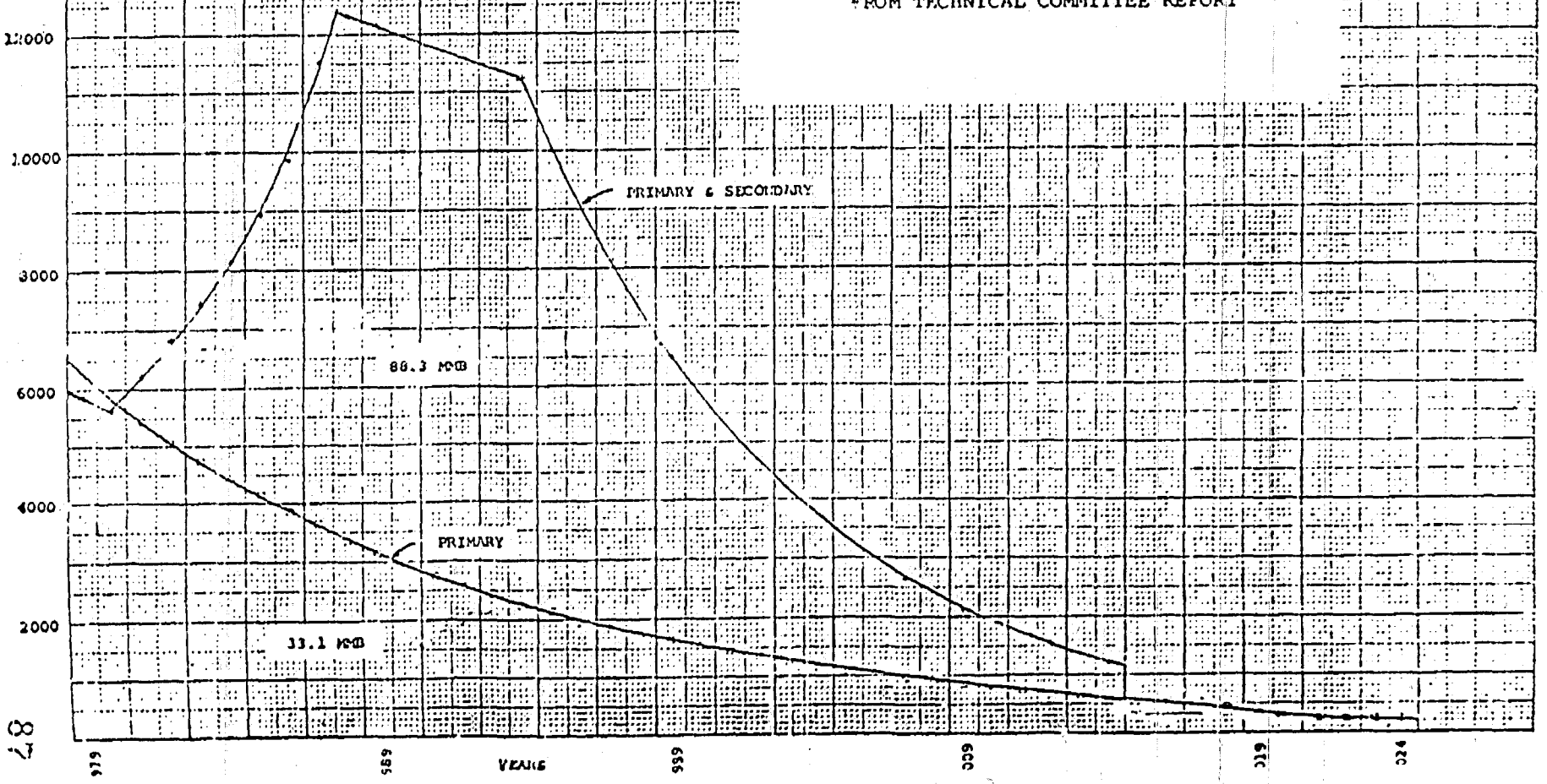
cc: Working Interest Owners

PERFORMANCE FORECAST
PROPOSED
NORTH HOBBS UNIT
COMBINED GRAYBURG-SAN ANDRES PRODUCTION FORECAST
FROM TECHNICAL COMMITTEE REPORT

PROJECT	YEAR CALENDAR	PRIMARY OIL MB ANNUAL	PRIMARY OIL MB CUMULATIVE	TOTAL OIL MB ANNUAL	TOTAL OIL MB CUMULATIVE	SECONDARY OIL MB ANNUAL	SECONDARY OIL MB CUMULATIV
1	1979	2291.200	2291.2	2118.6	2118.6	-172.6	-172.6
2	1980	2136.700	4427.9	2069.1	4187.7	-67.6	-240.2
3	1981	1993.400	6421.3	2268.5	6456.2	275.1	34.9
4	1982	1860.400	8281.7	2487.1	8943.3	626.7	661.6
5	1983	1737.000	10018.7	2726.8	11670.1	989.8	1651.4
6	1984	1622.200	11640.9	2989.5	14659.6	1367.3	3018.7
7	1985	1515.600	13156.5	3277.6	17937.2	1762.0	4780.7
8	1986	1416.300	14572.8	3593.4	21530.6	2177.1	6957.8
9	1987	1323.900	15896.7	4205.2	25735.8	2881.3	9839.1
10	1988	1237.800	17134.5	4506.9	30242.7	3269.1	13108.2
11	1989	1157.600	18292.1	4435.3	34678.0	3277.7	16385.9
12	1990	1082.800	19374.9	4364.9	39042.9	3282.1	19668.0
13	1991	1013.000	20387.9	4295.6	43338.5	3282.6	22950.6
14	1992	947.900	21335.8	4227.5	47566.0	3279.8	26230.1
15	1993	887.100	22222.9	4160.4	51726.4	3273.3	29503.4
16	1994	830.300	23053.2	4094.3	55820.7	3264.0	32767.4
17	1995	777.300	23830.5	3698.5	59519.2	2921.2	35688.6
18	1996	727.800	24558.3	3310.0	62829.2	2582.2	38270.8
19	1997	681.500	25239.8	2962.2	65791.4	2280.7	40551.5
20	1998	637.300	25877.1	2651.0	68442.4	2013.7	42565.2
21	1999	590.400	26467.5	2372.5	70814.9	1782.1	44347.3
22	2000	553.600	27021.1	2123.2	72938.1	1569.6	45916.9
23	2001	519.000	27540.1	1900.2	74838.3	1381.2	47298.1
24	2002	486.600	28026.7	1700.5	76538.8	1213.9	48512.0
25	2003	456.300	28483.0	1521.9	78060.6	1065.6	49577.6
26	2004	427.800	28910.8	1362.0	79422.6	934.2	50511.8
27	2005	401.100	29311.8	1218.9	80641.5	817.8	51329.6
28	2006	376.100	29687.9	1090.8	81732.3	714.7	52044.3
29	2007	352.700	30040.6	976.2	82708.4	623.5	52667.8
30	2008	330.700	30371.3	873.7	83582.1	543.0	53210.8
31	2009	310.000	30681.3	781.9	84364.0	471.9	53682.7
32	2010	290.700	30972.0	699.7	85063.7	409.0	54091.7
33	2011	272.600	31244.6	626.2	85689.9	353.6	54445.3
34	2012	255.600	31500.2	560.4	86250.3	304.8	54750.1
35	2013	239.600	31739.8	501.5	86751.8	261.9	55012.0
36	2014	224.700	31964.5	448.9	87200.6	224.2	55236.2
37	2015	178.500	32143.0	142.9	87343.5	-35.6	55200.
38	2016	134.100	32277.1	134.1	87477.6		
39	2017	126.500	32403.6	126.5	87604.1		
40	2018	119.300	32522.9	119.3	87723.3		
41	2019	112.500	32635.4	112.5	87835.8		
42	2020	106.100	32741.5	106.1	87941.9		
43	2021	100.100	32841.6	100.1	88041.9		
44	2022	94.400	32936.0	94.1	88136.0		
45	2023	89.000	33025.0	89.0	88225.0		
46	2024	84.000	33109.0	84.0	88309.0		

PERFORMANCE FORECAST
PROPOSED
NORTH HOBBS UNIT
LEA COUNTY - NEW MEXICO

COMBINED GRAYBURG-SAN ANDRES
PRODUCTION FORECAST
FROM TECHNICAL COMMITTEE REPORT



SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

September 23, 1977

Subject: Minutes - Working Interest Owners' Meeting
Proposed North Hobbs Unit
Lea County, New Mexico

TO: WORKING INTEREST OWNERS (MAILING LIST ATTACHED)

A meeting of the Working Interest Owners of the proposed North Hobbs Unit was held September 20, 1977 in Midland, Texas. Representatives attending the meeting are shown on the attached attendance list.

Mr. Buck opened the meeting by advising that Mr. H. J. Swartz, Shell representative on and Chairman of the Technical Committee, had been given a new assignment and would be replaced by Mr. W. R. Lancaster. Mr. Buck then stated that the purpose of the meeting was to negotiate a participation formula for unitization. It was pointed out that participation formulas had been submitted by letter by Shell and Exxon prior to the meeting, and these formulas would be considered first.

A total of 5 formulas were submitted and considered by the Working Interest Owners. Details of each formula and the resulting votes are shown by attachments hereto.

Prior to consideration of Formula No. 14 (Exxon), Mr. Buck stated that it was Shell's feeling that the Shell formula (13) and the Exxon formula (14) offered two different approaches to unitization. He pointed out that Shell's formula offered certain benefits for the remaining primary reserve; whereas, the Exxon formula did not appear to provide appreciable benefits to the primary reserve. Mr. Shepherd, Exxon, again pointed out that the projected performance of the unit indicated that a major portion of the secondary oil would be recovered prior to recovery of the estimated primary reserve and felt that the formula submitted by Exxon recognized this and took it into account.

Before considering Formula No. 16 (Texas-Pacific), Mr. Lyons (Continental) questioned whether the 1976 Oil Production parameter reflected the relationship existing among individual properties. He further advised that Continental believed such parameter, if used, should be given only minimum weight.

As shown by the voting results, Formula No. 17 (Continental) received in excess of 80 percent approval of the Working Interest Owners in attendance. It was therefore agreed to submit Formula No. 17 for a ballot vote to all Working interest Owners.

Formula No. 17, as proposed by Continental, applied only to the allocation of oil and gas production. A brief discussion then followed as to the method of allocating expenses. Although a method of allocation was not formally submitted or voted on, it was generally agreed that a ballot vote would be submitted on the following method of allocating expenses.

Operating & Overhead Expenses

All Operating, Maintenance and Overhead expenses to be borne by Working Interest Owners in proportion to their phase-in-effect Unit Oil Participation.

Capital Expenditures and Inventory

All expenditures of a capital nature and the inventoried value of personal property to be borne initially on the basis of the Phase II Oil Participation and adjusted to Phase III Oil Participation at the termination of Phase II.

Shell, as Unit Expeditor, agreed to submit for ballot vote, Participation Formula No. 17 and the above-stated method of allocating costs.

It was agreed, without vote, that Shell would proceed to develop drafts of the Unit and Unit Operating Agreements for submittal to all Working Interest Owners.

There being no further business, the meeting was adjourned.

Attached for your convenience is a tabulation of gas participation under Formula No. 17.

W. E. Buck
Chairman, Working Interest
Owners' Committee

WEB:MJH

Attachments

Formula No. 13 (Shell, Oil and Gas Allocation only - Expense Allocation not included.

Oil Allocation

Phase I - Allocation to be based on two parameters, the proportion of each to be determined as stated below. Parameter "A" to be Oil Production for year 1976 and Parameter "B" to be Remaining Primary Oil Reserves (1/1/77). Phase I to be in effect for a period of 5 years from the effective date of unitization. During the term of Phase I, oil shall be allocated to Tracts in the following manner:

First Year - The first 6500 barrels of oil per day, averaged for a calendar month, produced, saved, and sold from the Unit shall be allocated to Tracts based on Parameter "A". All oil produced, saved, and sold in excess of 6500 barrels per day averaged for a calendar month, shall be allocated on the basis of Parameter "B".

Second Year- The first 5200 barrels of oil per day, averaged for a calendar month, produced, saved, and sold from the Unit shall be allocated to Tracts based on Parameter "A". All oil produced, saved, and sold in excess of 5200 barrels per day, averaged for a calendar month, shall be allocated on the basis of Parameter "B".

Third Year- The first 3900 barrels of oil per day, averaged for a calendar month, produced, saved, and sold from the Unit shall be allocated to Tracts based on the Parameter "A". All oil produced, saved, and sold in excess of 3900 barrels per day, averaged for a calendar month, shall be allocated on the basis of Parameter "B".

Fourth Year- The first 2600 barrels of oil per day, averaged for a calendar month, and produced, saved, and sold from the Unit shall be allocated to Tracts based on Parameter "A". All oil produced, saved, and sold in excess of 2600 barrels per day, averaged for a calendar month, shall be allocated on the basis of Parameter "B"

Fifth Year- The first 1300 barrels of oil per day, averaged for a calendar month, produced, saved, and sold from the Unit shall be allocated to Tracts based on Parameter "A". All oil produced, saved, and sold in excess of 1300 barrels per day, averaged for a calendar month, shall be allocated on the basis of Parameter "B".

Oil Allocation

Phase II - 100 percent Remaining Primary Oil Reserves (1/1/77). Phase II to be in effect from the end of Phase I to the time the oil production from the Unit Area totals the estimated Remaining Primary Oil Reserve of 38,071,683 barrels from January 1, 1977.

Phase III - 100 percent Secondary Oil Reserve. Phase III to be in effect after the termination of Phase II.

Gas Allocation

Phase I - 100 percent Gas Production for Year 1976. Phase I gas to be same period as Phase I oil.

Phase II - 100 percent Primary Gas Reserve (1/1/77). Phase II gas to be same period as Phase II oil.

Phase III - Allocation to be same as oil and for same period as Phase II oil.

Voting Results - Based on oil allocation only.

Company	Working Interest % Phase I Weighted	Phase II	Phase III	Vote
Amerada Hess Corp.	6.69179	6.50263	8.60241	Pass
Amoco Production Co.	1.44895	1.35806	1.87842	Pass
Atlantic Richfield Co.	2.47095	3.18766	3.27302	Yes
Chevron Oil Co.	2.85723	3.39898	2.97321	Yes
Cities Service Oil Co.	3,33876	3.20244	5.54436	No
Continental Oil Co.	10.33989	11.71357	14.36721	No
Cusack, J. P.(WIO 15, 16, 17)	2.17390	2.73271	0.18997	Yes
Estes, Russell G. (Tract 5)	0.09211	0.03382	0.19769	Yes
Exxon Company - U.S.A.	5.25317	4.39610	7.63885	No
Getty Oil Co.	8.67856	8.74235	7.55887	No
Gulf Energy & Minerals	10.24215	9.44655	15.23438	Yes
Moranco (WIO 19, 22, 31, 35, 39, 40, 44, 53, 64, 66)	0.12847	0.08743	0.03431	No
Samedan Oil Corp. (WIO 48, 49	5.52811	6.28791	1.33490	Yes
Shell Oil Co.	24.81023	23.76832	18.87539	Yes
Sun Oil Co. (Delaware)	0.28657	0.19658	0.43429	No
Texaco Inc.	3.26821	3.09110	1.16515	Yes
Texas Pacific Oil Co., Inc.	4.63884	4.70381	2.81932	Yes
Yes	56.08173	56.65086	46.06303	
No	28.02542	28.33847	35.57789	
Pass	8.14074	7.86069	10.48083	
total	92.24789	92.85002	92.12175	

Formula No. 14 (Exxon) Oil and Gas Allocation only - Expense Allocation not included.

Oil Allocation

Phase I - 100% 1976 Oil Production. To be in effect until 6,400,000 barrels of oil product from Unit Area after effective date of unitization (Est. 1/1/79).

Phase II- 44.6% Remaining Primary Reserves 1/1/77 plus 55.4% Secondary Reserves to be in effect at the termination of Phase I and until 26,700,000 barrels of oil have been produced from the Unit Area after termination of Phase I.

Phase III-26.8% Remaining Primary Reserves 1/1/77 plus 73.2% Secondary Reserves to be in effect from the termination of Phase II until termination of the Unit.

Gas Allocation

Phase I - 100% 1976 Gas Production. Effective period to be same as Phase I oil above.

Phase II- 44.6% Remaining Gas Reserves 1/1/77 plus 55.4% Secondary Oil Reserve. Effective period to be same as Phase II oil above.

Phase III-Same as Phase III oil allocation.

Voting Results - Based on oil allocation only.

Company	Working Interest % Phase I	Phase II	Phase III	Vote
Amerada Hess Corp.	6.82433	7.66591	8.03967	Yes
Amoco Production Co.	1.51264	1.64634	1.73896	Yes
Atlantic Richfield Co.	1.96877	3.23495	3.25014	Yes
Chevron Oil Co.	2.47763	3.16310	3.08732	Yes
Getties Service Oil Co.	3.42437	4.49986	4.91673	Pass
Continental Oil Co.	9.37738	13.18369	13.65603	No
Isack, J. P.(WIO 15, 16, 17)	1.78236	1.32403	.87142	No
Exxon Company-U.S.A.	5.85371	6.19258	6.76979	Yes
Getty, Russell G. (Tract 5)	0.13296	.12460	.15377	Yes
Getty Oil Company	8.63387	8.08670	7.87604	Yes
Gulf Energy & Minerals	10.79961	12.65301	13.68324	No
Marathon Co (WIO 19, 22, 31, 35, 39, 40, 44, 53, 64, 66)	.15723	.05800	..04855	No
Medallion Oil Corp. (WIO 48 & 49)	4.99574	3.54394	2.66231	No
Mobil Oil Co.	25.54027	21.05764	20.18669	No
Mobil Oil Co. (Delaware)	.34962	.32827	.37058	No
Texaco Inc.	3.39231	2.02412	1.68130	Yes
Texas Pacific Oil Co., Inc.	4.59331	3.65980	3.32436	No
Yes	30.79622	32.13830	32.59699	
No	57.59552	55.80838	54.80318	
Pass	3.43427	4.49986	4.91673	
Total	91.82601	92.44654	92.31690	

Formula No. 15 (Exxon 11 and Gas Allocation only - Expense Allocation not includ

Oil Allocation

Phase I - 100% 1976 Oil Production. To be in effect until 6,400,000 barrels of oil produced from Unit Area after effective date of unitization (Est. 1/1/79).

Phase II- 1/3 1976 Oil Production
1/3 Remaining Primary Oil Reserve
1/3 Secondary Reserve
To be in effect at termination of Phase I and until 26,700,000 barrels of oil have been produced from Unit Area after termination of Phase I.

Phase III- 26.8% Remaining Primary Oil Reserves 1/1/77 plus 73.2% seconda Reserves - to be in effect from termination of Phase II until termination of Unit.

Gas Allocation

Phase I - 100% 1976 Gas Production - effective period to be same as Phase I oil above.

Phase II- 1/3 1976 Gas Production
1/3 Primary Gas Reserve (1/1/77)
1/3 Secondary Oil Reserve
Effective period to be same as Phase II oil above.

Phase III- Same as Phase III oil allocation.

Voting Results - Based on oil allocation only.

Company	Working Interest %			Vote
	Phase I	Phase II	Phase III	
Amerada Hess Corp.	6.82433	7.30979	8.03967	Pass
Amoco Production Co.	1.51264	1.58304	1.73896	Yes
Atlantic Richfield Co.	1.96877	2.80982	3.25014	No
Chevron Oil Co.	2.47763	2.94994	3.08732	Yes
Cities Service Oil Co.	3.43427	4.06036	4.91673	Pass
Continental Oil Co.	9.37738	11.81939	13.65603	No
Cusack, J. P.(WIO 15, 16, 17)	1.78236	1.56835	0.87142	No
Estes, Russell G. (Tract 5)	0.13296	0.11905	0.15377	Pass
Exxon Company-U.S.A.	5.85371	5.96289	6.76979	Yes
Getty Oil Company	8.63387	8.31170	7.87604	Yes
Gulf Energy & Minerals	10.79961	11.82685	13.68324	No
Moranco (WIO 19, 22, 31, 35, 39, 40, 44, 53, 64, 66)	0.15723	0.10167	0.04855	No
Samedan Oil Corp. (WIO 48 & 49)	4.99574	4.20618	2.66231	No
Shell Oil Co.	25.54027	22.72799	20.13669	No
Sun Oil Co. (Delaware)	.34962	0.32683	0.37058	No
Texaco Inc.	3.39231	2.54952	1.68130	Yes
Texas Pacific Oil Co., Inc.	4.59331	4.03881	3.32436	No
Yes	21.87016	21.35709	21.15341	
No	59.56429	59.42589	58.05332	93
Pass	10.39156	11.48820	13.11017	
Total	91.82601	92.27118	92.31690	

Formula No. 16 (Texas-Pacific) Oil and Gas Allocation Only -
Expense Allocation not included.

Oil Allocation

Phase I - 20% 1976 Oil Production
- 80% Remaining Primary Oil Reserve (1/1/77)
To be in effect until 38,071,683 barrels of oil are produced from Unit Area after January 1, 1977.

Phase II- 100% Secondary Oil Reserve
To be in effect from termination of Phase I until termination of Unit.

Gas Allocation

Phase I - 20% 1976 Gas Production
80% Remaining Gas Reserve 1/1/77
Effective Period to be same as Phase I oil.

Phase II- Same as Phase II oil.

Voting Results - Based on oil allocation only.

Company	Working Interest % Phase I	Working Interest % Phase II	Vote
Amerada Hess Corp.	6.56697	8.60241	Yes
Amoco Production Co.	1.38898	1.87842	Yes
Atlantic Richfield Co.	2.94388	3.27302	Yes
Chevron Oil Co.	3.21471	2.97321	Yes
Cities Service Oil Co.	3.24881	5.54436	No
Continental Oil Co.	11.24633	14.36721	No
Cusack, J. P.(WIO 15, 16, 17)	2.54264	0.18997	Yes
Estes, Russell G. (Tract 5)			
Exxon Company-U.S.A.	4.68762	7.63885	No
Getty Oil Company	8.72065	7.55887	Yes
Gulf Energy & Minerals	9.71716	15.23438	Yes
Moranco (WIO 19, 22, 31, 35, 39, 40, 44, 53, 64, 66)	0.10139	0.03431	No
Samedan Oil Corp. (WIO 48 & 49)	6.02948	1.33490	Pass
Shell Oil Co.	24.12271	18.87539	Pass
Sun Oil Co. (Delaware)	0.22719	0.43429	No
Texaco Inc.	3.15134	1.16515	Yes
Texas Pacific Oil Co., Inc.	4.68171	2.81932	Yes
Yes	42.92804	43.69475	
No	19.51134	28.01902	
Pass	30.15219	20.21029	
Total	92.59157	91.92406	

Formula No. 17 (Continental) Oil & Gas Allocation Only - Expense location not included.

Oil Allocation

PHASE I - 20% 1976 Oil Production plus 80% Remaining imary Oil Reserve (1/1/77) - to be in effect until t: total oil production from the Unit totals 4,000,000 : rels of oil after the effective date of unitization.

Phase II - 100% Primary Oil Reserve (1/1/77) - to bec effective at the end of Phase I and to be in effect : il production from the Unit Area equals 38,071,683 barre: of oil after January 1, 1977.

Phase III- 100% Secondary Oil Reserve - to become effe tive at termination of Phase II and to remain in ef.ect until termination of the Unit.

Gas Allocation

Phase I - 20% 1976 Gas Production plus 80% Remaining Primary Gas Reserves (1/1/77). Phase I gas to be the same period as Phase I oil.

Phase II- 100% Primary Gas Reserve (1/1/77) - Phase II gas to be the same period as Phase II oil.

Phase III- Gas allocation to be the same as oil allocation.

Voting Results - Based on oil allocation only.

Company	Working Interest %			Vote
	Phase I	Phase II	Phase III	
Amerada Hess Corp.	6.56697	6.50263	8.60241	Yes
Amoco Production Co.	1.38898	1.35806	1.87842	Yes
Atlantic Richfield Co.	2.94388	3.18766	3.27302	Yes
Chevron Oil Co.	3.21471	3.39898	2.97321	Yes
Cities Service Oil Co.	3.24881	3.20244	5.54436	Yes
Continental Oil Co.	11.24633	11.71357	14.36721	Yes
Cusack, J. P.(WIO 15, 16, 17)	2.54264	2.73271	0.18997	Yes
Exxon Company-U.S.A.	4.68762	4.39610	7.63885	No
Getty Oil Company	8.72065	8.74235	7.55887	Yes
Gulf Energy & Minerals	9.71716	9.44655	15.23438	Yes
Moranco (WIO 19, 22, 31, 35, 39, 40, 44, 53, 64, 66)	0.10139	0.08743	0.03431	No
Samedan Oil Corp. (WIO 48 & 49)	6.02948	6.28791	1.33490	Yes
Shell Oil Co.	24.12271	23.76832	18.87539	Yes
Sun Oil Co. (Delaware)	0.22719	0.19658	0.43429	No
Texaco Inc.	3.15134	3.09110	1.16515	Yes
Texas Pacific Oil Co., Inc.	4.68171	4.70381	2.81932	Yes
Yes	87.57537	88.13609	83.81661	
No	5.01620	4.68011	8.10745	
Pass	-	-	-	
Total	92.59157	92.81620	91.92406	

NORTH HOBBS UNIT

GAS PARTICIPATION - PHASE I AND PHASE II

FORMULA NO. 17

WIO NO.	WORKING INTEREST OWNER	PHASE I PCT	PHASE II PCT
1	AMERADA HESS CORP.	7.29779	7.51740
2	AMOCO PRODUCTION CO.	2.36758	2.30928
3	ANDERSON ADA A	.01947	.01215
4	ANDERSON EST., WARREN D	.01947	.01215
5	ANDERSON, W D AND SONS	.03895	.02431
6	ARMSTRONG, J M	.03895	.02431
7	ATLANTIC RICHFIELD CO.	3.30150	3.15439
8	BYROM W K	.05021	.04715
9	C&C OPERATING CO.	.00021	.00013
10	CHEVRON OIL COMPANY	1.54140	1.77100
11	CITIES SERVICE OIL CO.	2.53402	2.30017
12	CONRAD MARY DANIEL	.00649	.00405
13	CONTINENTAL OIL CO.	17.34810	20.14537
14	CRILE, HERMAN R.	.00973	.00607
15	CUSACK, J. P.	.10632	.04006
16	CUSACK,JR.,J. P.	.42374	.36754
17	CUSACK,MICHAEL F.	.42374	.36754
18	DEL-LEA, INC. (ANTWEIL)	.46849	.42617
19	DUNLAVEY, J.N.	.00113	.00099
20	ESTES, RUSSELL S	.01038	.00648
21	EXXON COMPANY - U.S.A.	5.83179	4.91338
22	FIRST ROSWELL COMPANY	.00226	.00198
23	FORBES C. C.	.01811	.01302
24	FORBES, ILAMAE	.01763	.01267
25	GETTY OIL COMPANY	8.80166	8.71113
26	GULF ENERGY & MINERALS	14.95717	15.22697
27	HEADLEY, KENNETH NOEL	.02757	.00935
28	HURD, PETER	.00649	.00405
29	JUDSON,RUBY WANDA CONPA	.00130	.00081
30	KEMNITZ, A. A.	.27397	.19695
31	LAFLIN, GEORGE P.	.00113	.00099
32	LOWE, M. RALPH	.05243	.04453
33	MARATHON OIL COMPANY	3.93490	3.07184
34	MCCARTHY,KATHRYN L. C.	.00130	.00081
35	MCPETERS, K. D.	.01151	.00982
36	MCPHERON, MARGARAT M.	.01507	.01415
37	MCPHERON, ROBERT L.	.00752	.00707
38	MOBIL OIL CORP.	1.33618	1.18726
39	MORANCO	.05142	.04373
40	MORAN, P. M.	.04610	.03932
41	MORRIS, G. D.	.01191	.00856
42	MURDOCH,NATHLYN I.CONRA	.00130	.00081
43	NOBLE, RICHARD L.	.14485	.10413
44	PARRISH, M.C. ESTATE	.01967	.01671
45	PORTALES NATIONAL BANK	.01786	.01284
46	PORING JOHN	.03574	.02569
47	ROSE, FRANCIS I. CONRAD	.00130	.00081
48	SAMEDAN OIL CORP.	1.95294	1.62664
49	SEA PROPERTIES, LTD.	.03257	.02719
50	SHELL OIL COMPANY	19.92181	19.11379
51	1ST NATL BANK/FT.WORTH	.01191	.00856
52	SPEAR HOWELL	.00056	.00049
53	SULLIVAN,E.C.	.01786	.01284
54	SUN OIL CO.(DELAWARE)	.32052	.18989
55	SWEET, BILL L.	.03649	.02383
56	SWEET, C.H. OIL CO.	1.32518	1.20287
57	1ST NATL BANK OF CROSB	.03574	.02569
58	TEXACO, INC.	1.54441	.98477
59	TEXAS PACIFIC OIL CO.IN	3.30510	2.84744
60	TREADAWAY, BETTYE CONPA	.00130	.00081
61	TWO STATES OIL CO.	.05352	.00654
62	WALLACE,COLLEEN MCPHERO	.00752	.00707
63	WHITLEY, LOYD	.00113	.00099
64	WILLIAMS,HATTIE C.	.03282	.03295
65	WILLIAMSON, A.T.	.00113	.00099
66	WISER OIL COMPANY, THE	.13385	.04111
67	YATES, JOHN A	.22612	.13492
68	YEAGER & ARMSTRONG	.03895	.02431
69	YEAGER JR.DR.HENRY	.00422	.00243
70	YEAGER RUTH ANNE	.00214	.00134
71	YEAGER RUTH HENRY	.00108	.00067
72	YEAGER RUTH PEELER	.00453	.00283

ATTENDANCE LIST

WORKING INTEREST OWNERS' MEETING

NORTH HOBBS UNIT

SEPTEMBER 20, 1977

COMPANY	NAME	LOCATION
Amerada-Hess Corp.	R. W. Mullins	Tulsa, Ok.
Amerada-Hess Corp.	Cliff Richard	Tulsa, Ok.
Amoco Production Company	S. R. Denton	Houston, Tx.
Atlantic Richfield Company	Thane Akins	Midland, Tx.
Atlantic Richfield Company	George Nathman	Midland, Tx.
Chevron USA, Inc.	W. A. Goudeau	Midland, Tx.
Chevron USA, Inc.	D. D. Allen	Midland, Tx.
Cities Service Oil Company	Mike S. Mabry	Midland, Tx.
Cities Service Company	Don Barrett	Midland, Tx.
Continental Oil Company	V. T. Lyon	Hobbs, N.M.
Cusack Inc.	John P. Cusack	Roswell, N.M.
Cusack Inc.	Max E. Curry	Midland, Tx.
Estes Engineering Co.	Russell G. Estes	Midland, Tx.
Exxon Company	J. M. Shepherd	Midland, Tx.
Exxon Company	J. K. Lytle	Midland, Tx.
Getty Oil Company	O. V. Stuckey	Midland, Tx.
Gulf Oil Company	J. D. Mussett	Midland, Tx.
Gulf Oil Company	R. D. Walker	Midland, Tx.
Moranco	Ken McPeters	Hobbs, N.M.
Samedan Oil Company	Boyce Perry	Ardmore, Ok.
Shell Oil Company	W. E. Buck	Houston, Tx.
Shell Oil Company	J. F. Miner	Midland, Tx.
Shell Oil Company	P. L. Bondor	Houston, Tx.
Shell Oil Company	Wm. R. Lancaster	Houston, Tx.
Sun Production Company	Darlynne Hayden	Hobbs, N.M.
Sun Production Company	H. A. Seidel, Jr.	Dallas, Tx.
Texaco Inc.	Morris Todd	Midland, Tx.
Texaco Inc.	Bob Anthony	Hobbs, N. M.
Texas Pacific Oil	J. D. Waggoner	Dallas, Tx.
Texas Pacific Oil	Russ Meyers	Dallas, Tx.

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

SEPTEMBER 23, 1977

Subject: Proposed Participation Formula
North Hobbs Unit
Lea County, New Mexico

TO: ALL WORKING INTEREST OWNERS (MAILING LIST ATTACHED)

At the Working Interest Owners Meeting of the proposed North Hobbs Unit of September 20, 1977, it was agreed to submit for ballot vote the Participation Formula No. 17 and a method of allocating costs. In accordance with such agreement, the ballots are hereby submitted for the two items in reference. Please indicate your decision on these matters in the spaces provided and return one copy of each to Shell Oil Company, Box 991, Houston, Texas 77001, attention W. E. Buck.

Enclosed for your convenience is a self-addressed, stamped envelope.

WEBuck

WEB:MJH

W. E. Buck
Chairman, Working Interest
Owners Committee

Attachments

PROPOSED NORTH HOBBS UNIT

PARTICIPATION FORMULA NO. 17 (CONTINENTAL)

Oil Allocation

Phase I - 20% 1976 Oil Production plus 80% Remaining Primary Oil Reserve (1/1/77) - to be in effect until the total oil production from the Unit totals 4,000,000 barrels of oil after the effective date of unitization.

Phase II- 100% Primary Oil Reserve (1/1/77) - to become effective at the end of Phase I and to be in effect until production from the Unit Area equals 38,071,683 barrels of oil after January 1, 1977.

Phase III-100% Secondary Oil Reserve - to become effective at termination of Phase II and to remain in effect until termination of the Unit.

Gas Allocation

Phase I - 20% 1976 Gas Production plus 80% Remaining Primary Gas Reserves (1/1/77). Phase I gas to be the same period as Phase I oil.

Phase II- 100% Primary Gas Reserve (1/1/77) - Phase II gas to be the same period as Phase II Oil.

Phase III-Gas allocation to be the same as oil allocation.

The undersigned votes as noted below in regard to Participation Formula No. 17 (Continental):

APPROVED _____ COMPANY _____

DISAPPROVED _____ REPRESENTATIVE _____

DATE _____

RETURN TO: SHELL OIL COMPANY
P. O. BOX 991
HOUSTON, TX 77001
ATTN: W. E. BUCK

SAMEDAN OIL CORPORATION
BOX 909
ARDMORE, OKLAHOMA 73401

October 3, 1977

Working Interest Owners
Proposed North Hobbs Unit
Lea County, New Mexico

Re: Proposed Method of Allocating
Operating Cost, Inventory Value
and Capital Expenditure

Ladies and Gentlemen:

A Letter Ballot submitted September 23, 1977, by Shell Oil Company recommended a basis by which Operating Costs, Inventory Value and Capital Expenditures should be allocated to Joint Account. Shell's proposal apportions an unfair share of the inventory value and capital expenditures to the primary oil phase (Phase II) resulting in a disproportionate financial burden on those Working Interest Owners having a low ratio of Phase III to Phase II participation. Approximately 59 percent of the Working Interest Owners (Formula No. 17) have a lesser Phase III participation than Phase II.

Assuming the proposed waterflood responds as predicted, the remaining primary recovery will be accelerated, increasing the present value of these reserves. However, the Unit is being formed primarily for the recovery of secondary oil, and considerable expenditure is required to accomplish this process.

Therefore, we wish to propose the method of allocating Unit costs outlined on the attached Letter Ballot for your consideration. This method does not overburden Phase II but apportions the expenditures to the phases in a more equitable manner.

Please indicate your approval of the attached Letter Ballot and submit it to:

Shell Oil Company
P. O. Box 991
Houston, Texas 77001
Attn: W. E. [illegible]

Very truly yours,

Boyce Parry
Mgr., Secondary Recovery

BP/sg

Enclosures

100

LETTER BALLOT

PROPOSED NORTH HOWE UNIT

METHOD OF ALLOCATING COSTS

(Samedan Oil Corporation)

I. Operating Expenses

1. Operating, Maintenance and Overhead expenses incurred in the production, handling and treating of oil and gas shall be charged on the basis of the phase-in-effect oil participation.

2. Operating, Maintenance and Overhead expenses pertaining to the supply of make-up water, injection of water and all injection facilities, including the injection wells, shall be charged on the basis of 33⅓% Phase II Oil Participation plus 67% Phase III Oil Participation during the Phase I and Phase II periods.

   All the above charges shall be made on the basis of Phase III Oil Participation during the Phase III period.

II. Inventoried Value of Personal Property - Capital Expenditures

1. The inventoried value of personal property shall be made on the basis of 33⅓% Phase II Oil Participation plus 67% Phase III Oil Participation with such value, corrected for retirements, to be adjusted on the basis of Phase III Oil Participation within a reasonable time following the effective date of the Phase III period.

2. All expenditures of a capital nature shall be made on the basis of 33⅓% Phase II Oil Participation plus 67% Phase III Oil Participation during the Phase I and Phase II periods.

   All the above expenditures, corrected for retirements, shall be adjusted on the basis of Phase III Oil Participation within a reasonable time after the effective date of the Phase III period.

3. All expenditures of a capital nature made during the Phase III period shall be charged to the joint account on the basis of Phase III Oil Participation.

APPROVED _____ COMPANY _____

DISAPPROVED _____ REPRESENTATIVE _____

DATE _____

RETURN TO:

SHELL OIL COMPANY
P.O. BOX 991
HOUSTON, TEXAS 77001

November 2, 1977

Subject: Ballot Results -- Participation Formula and Cost Allocation Formula
North Hobbs (Grayburg-San Andres) Unit
Lea County, New Mexico

TO: WORKING INTEREST OWNERS (Mailing List Attached)

By letter of September 23, 1977, ballots were submitted to the Working Interest Owners of the proposed North Hobbs (Grayburg-San Andres) Unit concerning a participation formula and a cost allocation formula. Tabulated below are the results of the ballots returned as of this date. The percentages shown are the Working Interest Owners' participation based on Formula 17 (Oil Allocation).

Participation Formula (No. 17)

	Working Interest Owners' %	
	Approved	Disapproved
Phase I	92.01237	1.46358
Phase II	92.58657	1.30069
Phase III	89.76525	1.27189

Cost Allocation

	Working Interest Owners'%	
	Approved	Disapproved
Phase I	78.13850	15.05034
Phase II	78.33749	15.33648
Phase III	85.16566	5.76775

Following are the results received to date on the cost allocation formula submitted by Samedan Oil Corporation.

Cost Allocation (Samedan)

	Working Interest Owners'%	
	Approved	Disapproved
Phase I	9.07946	30.19928
Phase II	9.53079	29.52246
Phase III	1.72004	28.39264

Shell is currently preparing drafts of the Unit and Unit Operating Agreements and will submit such drafts for your consideration in the near future.

Attached for your consideration and use is a tabulation showing the tract interest and tract participation of each Working Interest Owner as calculated from Participation Formula No. 17. Also attached is a summary tabulation showing the unit participation of each Working Interest Owner as calculated from Participation Formula No. 17.

In the near future you will receive a letter from Shell's Land Department requesting confirmation of Working Interests and other data required for the various exhibits that will be included in the Unit and Unit Operating Agreements. Please give such request your earliest consideration so that all the data will be available when needed for preparation of the Agreements in final form.

Yours very truly,

R L Howard

R. L. Howard
Division Production Manager
Mid-Continent Division

WEB:MJH

Attachments

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. R. W. MULLINS
MANAGER - JOINT VENTURE OPERATIONS - U.S.
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. L. J. CRANDAL
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

W. D. ANDERSON & SONS
P. O. BOX 136
MIDLAND, TX 79702

ATLANTIC RICHFIELD COMPANY
ATTN: MR. G. THANE AKINS
P. O. BOX 1610
MIDLAND, TX 79702

T. J. BERRY
RT. 4
WILLS POINT, TX 75169

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

MARY DANIEL CONRAD
4308 AVONDALE
DALLAS, TX 75219

C&C OPERATING CORP.
P. O. BOX 1829
HOBBS, NM 88240

CHEVRON OIL COMPANY
ATTN: MR. C. F. DWYER
P. O. BOX 1660
MIDLAND, TX 79702

CITIES SERVICE OIL COMPANY
E&P DIVISION
P. O. BOX 1919
MIDLAND, TX 79702

CONTINENTAL OIL COMPANY (2)
ATTN: L. P. THOMPSON
P. O. BOX 460
HOBBS, NM 88240

HERMAN R. CRILE
BOX 864
ROSWELL, NM 88201

JOHN P. CUSACK
P. O. BOX 250
ROSWELL, NM 88201

JOHN P. CUSACK, JR.
3815 McCART STREET
FORT WORTH, TX 76110

MICHAEL F. CUSACK
3815 McCART STREET
FORT WORTH, TX 76110

DEL-LEA, INC. (ANTWEIL)
P. O. BOX 1889
HOBBS, NM 88240

J. N. DUNLAVY
P. O. BOX 837
ROSWELL, NM 88201

ESTES ENGINEERING CO.
306 PETROLEUM BUILDING
MIDLAND, TX 79702

EXXON COMPANY - U. S. A. (2)
ATTN: JOINT INTEREST MANAGER
P. O. BOX 1600
MIDLAND, TX 79702

FIRST NATIONAL BANK OF CASPER
ESTATE OF M. E. TOLE
P. O. BOX 40
CASPER, WY 82601

FIRST NATIONAL BANK OF FORT WORTH
ESTATE OF SMITH SPRALDING
P. O. BOX 2546
FORT WORTH, TX 76101

FIRST ROSWELL COMPANY
P. O. BOX 1180
ROSWELL, NM 88201

C. C. FORBES
P. O. BOX 843
TULSA, OK 74101

ILAMAE FORBES
P. O. BOX 843
TULSA, OK 74101

GETTY OIL COMPANY (2)
ATTN: MR. A. B. CARY
P. O. BOX 1231
MIDLAND, TX 79702

E. P. GOLDEN
C/O MILDRED G. TURNER
P. O. BOX 835
ROSWELL, NM 88201

GULF ENERGY & MINERALS CO.-U.S. (2)
ATTN: R. F. WARD, JR.
DISTRICT OPERATIONS MANAGER
P. O. BOX 1150
MIDLAND, TX 79702

KENNETH NOEL HEADLEY
P. O. BOX 569
TIJERAS, NM 87059

PETER HURD
SAN PATRICIO, NM 88343

B. J. JERNIGAN
P. O. BOX 993
MIDLAND, TX 79701

RUBY WANDA CONRAD JUDSON
7 JOSEPHINE COURT
NORTHPORT, LONG ISLAND
NEW YORK, NY 11768

A. A. KEMNITZ
P. O. BOX 729
HOBBS, NM 88240

LYNN KINCAID
217 E. VEGA DR.
HOBBS, NM 88240

GEORGE P. LAFLIN
815 METRO BANK BUILDING
DENVER, CO 80202

MR. GEORGE H. LANDRETH
8123 BOEDEKER CIRCLE
DALLAS, TX 75225

MR. W. A. LANDRETH
908 CONTINENTAL NATIONAL BANK BLDG.
FT. WORTH, TX 76102

M. RALPH LOWE
C/O A. W. MOURSUND
P. O. BOX 125
JOHNSON CITY, TX 78636

MARATHON OIL COMPANY
ATTN: MR. G. A. NAERT
P. O. BOX 522
MIDLAND, TX 79702

KATHRYN LOUISE CONRAD McCARTHY
4435 SAN GABRIEL
DALLAS, TX 75229

J. S. McGANNON
P. O. BOX 1651
SANTA FE, NM 87501

K. D. McPETERS
P. O. BOX 1860
HOBBS, NM 88240

MOBIL OIL CORPORATION
3 GREENWAY PLAZA EAST
SUITE 800
HOUSTON, TX 77046

WAYNE MOORE
403 N. MARINEFIELD
MIDLAND, TX 79701

J. E. MORAN
FIRST NATIONAL BANK - MIDLAND
TRUSTEE FOR F. E. MORAN
TRUST #1 (NO. 323)
P. O. BOX 1599
MIDLAND, TX 79701

R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

G. D. MORRIS
2901 W. HWY 83, BOX 154
McALLEN, TX 78501

MR. J. H. MORRIS AS AGENT
1615 FIRST NATIONAL BUILDING
TULSA, OK 74103

NATHLYN IONE CONRAD MURDOCH
4132 DEEP VALLEY DRIVE
DALLAS, TX 75234

RICHARD L. NOBLE
P. O. BOX 67605
CENTURY CITY
LOS ANGELES, CA 90067

LINDA B. & BEN F. PARRISH
C/O DANA T. RICHARDSON, JR.
NUMBER ONE POST OAK PLACE
4615 POST OAK PLACE DRIVE
SUITE 240
HOUSTON, TX 77027

M. C. PARRISH ESTATE
C/O DANA T. RICHARDSON, JR.
NUMBER ONE POST OAK PLACE
4615 POST OAK PLACE DRIVE
SUITE 240
HOUSTON, TX 77027

PORTALES NATIONAL BANK
PORTALES, NM 88130

JOHN RORING
1710 WILSHIRE BOULEVARD
OKLAHOMA CITY, OK 73116

FRANCES I. CONRAD ROSE
BOX 20234
DALLAS, TX 75220

SAMEDAN OIL CORPORATION
ATTN: MR. M. G. MARTIN
2207 WILCO BUILDING
MIDLAND, TX 79702

SAMEDAN OIL CORPORATION
ATTN: MR. BOYCE BERRY
P. O. BOX 909
ARDMORE, OK 73401

HOWELL SPEAR
P. O. BOX 1684
MIDLAND, TX 79701

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THRONTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS
P. O. BOX 1861
MIDLAND, TX 79702

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO, INC.
ATTN: ASSISTANT DIVISION MANAGER
P. O. BOX 3109
MIDLAND, TX 79702

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
1700 ONE MAIN PLACE
DALLAS, TX 75250

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. R. J. WOMACK
P. O. BOX 4067
MIDLAND, TX 79702

BETTYE CONRAD TREADAWAY
5215 HAVENWOODS
HOUSTON, TX 77066

TWO STATES OIL COMPANY
1910 EMPIRE LIFE BLDG.
DALLAS, TX 75201

LOYD WHITLEY
701 W. GEORGE APT. 99
MIDLAND, TX 79701

HATTIE C. WILLIAMS
P. O. BOX 3187
LUBBOCK, TX 79410

A. T. WILLIAMSON
1630 HARVARD CT.
HOBBS, NM 88240

THE WISER OIL COMPANY
ATTN: MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

THE WISER OIL COMPANY
ATTN: MR. C. P. LaRUE
P. O. BOX 192
SISTERVILLE, WV 26175

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701
(PRIMARY TERM ENDS OCTOBER, 1975)

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P. O. BOX 6031
DALLAS, TX 75222

RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

SHELL OIL COMPANY

P.O. BOX 991

HOUSTON, TEXAS 77001
December 14, 1977

Subject: North Hobbs (Grayburg - San Andres) Unit
Lea County, New Mexico

TO: ALL WORKING INTEREST OWNERS
NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT
(Mailing List Attached)

A meeting of the Working Interest Owners of the proposed North Hobbs (Grayburg - San Andres) Unit is called for 10:00 A.M. February 2, 1978 in the Midland Room, Midland National Bank, Midland, Texas.

The agenda for the meeting will be as follows:

1. Review drafts of Unit and Unit Operating Agreements.
2. Develop course of action for further unitization efforts.
3. Any other business.

Attached for your review are copies of proposed Unit and Unit Operating Agreements. Exhibits pertaining to tract and unit participation have not been included as current division of interests are not yet available. Tabulations showing the interests as now available have been attached and the exhibits will be prepared as soon as the data is complete.

We would appreciate any written comments prior to the meeting and asked that all parties attend the meeting prepared to render decisions regarding the various provisions of the agreements.

Response to date on the ballots submitted September 23, 1977 is as follows:

Participation Formula (No. 17)

	Working Interest Owners' %	
	Approved	Disapproved
Phase I	92.04485	1.46358
Phase II	92.62039	1.30069
Phase III	89.76789	1.27189

Cost Allocation

	Working Interest Owners' %	
	Approved	Disapproved
Phase I	78.13850	15.08282
Phase II	78.33749	15.37030
Phase III	85.16566	5.77039

Cost Allocation (Samedon)

	Working Interest Owners' %	
	Approved	Disapproved
Phase I	9.18740	36.47405
Phase II	9.59976	35.82007
Phase III	1.73943	38.79959

Yours very truly,

W. E. Buck
Chairman, Working Interest
Owners' Committee

WEB:TS

Attachments

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. R. W. MULLINS
MANAGER - JOINT VENTURE OPERATIONS - U.S.
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. GEORGE GARRETT
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

W. D. ANDERSON & SONS
P. O. BOX 136
MIDLAND, TX 79702

ATLANTIC RICHFIELD COMPANY
ATTN: MR. G. THANE AKINS
P. O. BOX 1610
MIDLAND, TX 79702

T. J. BERRY
RT. 4
WILLS POINT, TX 75169

MR. W. K. BYROM
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HOBBS, NM 88240

MARY DANIEL CONRAD
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CHEVRON OIL COMPANY
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CITIES SERVICE OIL COMPANY
E&P DIVISION
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MIDLAND, TX 79702

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ROSWELL, NM 88201

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P. O. BOX 250
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ROSWELL, NM 88201

ESTES ENGINEERING CO.
306 PETROLEUM BUILDING
MIDLAND, TX 79702

EXXON COMPANY - U. S. A. (2)
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FIRST NATIONAL BANK TRUSTEE M. E. TATE
P. O. BOX 40
CASPER, WY 82601

FIRST NATIONAL BANK OF FORT WORTH
ESTATE OF SMITH SPRALDING
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MR. R. M. MORAN
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MIDLAND, TX 79702

SAMEDAN OIL CORPORATION
ATTN. MR. BOYCE BERRY
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ARDMORE, OK 73401

HOWELL SPEAR
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MIDLAND, TX 79701

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THRONTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS
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MIDLAND, TX 79702

MR. BILL L. SWEET
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HOBBS, NM 88240

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TRUSTEE FOR CECIL H. SWEET AND
IMA EMMETTA SWEET TRUST
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HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

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ATTN: ASSISTANT DIVISION MANAGER
P. O. BOX 3109
MIDLAND, TX 79702

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
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TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
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DALLAS, TX 75250

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. R. J. WOMACK
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5215 HAVENWOODS
HOUSTON, TX 77066

TWO STATES OIL COMPANY
MERCANTILE COMMERCE BLDG., SUITE 1910
DALLAS, TX 75201

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701 W. GEORGE APT. 99
MIDLAND, TX 79701

HATTIE C. WILLIAMS
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LUBBOCK, TX 79410

A. T. WILLIAMSON
630 HARVARD CT.
HOBBS, NM 88240

THE WISER OIL COMPANY
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110 GIHLS TOWER EAST
MIDLAND, TX 79701

THE WISER OIL COMPANY
ATTN: MR. C. P. LaRUE
P. O. BOX 192
SISTERVILLE, WV 26175

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
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RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

SAMEDAN OIL CORPORATION
BOX 905
ARDMORE, OKLAHOMA 73401

January 16, 1978

Working Interest Owners
Proposed North Hobbs Unit
Lea County, New Mexico

Re: Method of Allocating
Operating Costs, Inventory
Value and Capital Expenditure

Ladies and Gentlemen:

Proceedings toward unitization of the North Hobbs Field have resulted in two proposals of methods by which to make charges to the various Tracts within the proposed Unit, such charges pertaining to Operating Costs, Inventory Adjustment and Capital Expenditures.

Shell Oil Company presented a method September 23, 1977, which recommends charging operating costs on the basis of the oil participation phase-in-effect and allocating inventory adjustment and capital expenditures on the basis of 100% Remaining Primary Oil Reserves (Phase II), with readjustment to occur at the beginning of Phase III (100% Secondary Oil Reserve Parameter).

Samedan Oil Corporation proposed a second method for allocating the above charges on October ?, 1977. Samedan contended at the time of their proposal that Shell's recommendation was disproportionately weighted on the remaining primary oil reserves. Samedan's proposal tended to make charges using a combination of Remaining Primary Oil Reserves (Phase II) and Secondary Oil Reserves (Phase III), thereby allocating costs more fairly and more commensurate with the purpose of forming the Unit.

Shell Oil Company has scheduled a Working Interest Owners Meeting on February 2, 1978, at Midland, Texas. In preparation for this meeting, Samedan has conducted an in-depth study of the different proposals for allocating costs, and by this letter we intend to show the inequitable, high development costs incurred by Shell's proposal for those Tracts having a high remaining primary oil parameter and a low secondary oil parameter.

The proposed North Hobbs Unit incorporates basically three distinct types of oil producing Tracts:

(1) Some 31 of the 83 Tracts produce only from the Grayburg zone and have no remaining primary reserves in the San Andres formation.

The current producing rate of these Tracts places them in a "stripper" status, or essentially a depleted state. Conversely, all of these Tracts have secondary reserves. Three of these leases have no current production and no remaining primary reserves, but do have secondary reserves. Tracts having only Grayburg reserves are paying a low development cost for secondary reserves during the early phases of the Unit.

(2) Tracts having San Andres II, San Andres III Upper and San Andres III Lower have a higher producing rate than those having Grayburg only, and consequently, also have a higher remaining primary reserve position. These San Andres zones also are given secondary oil reserves, which brings the Phase II (Remaining Primary Oil) and Phase III (Secondary Oil) parameters closer together. However, these zones are pressure depleting, having a solution gas drive mechanism.

(3) The third category of producing properties includes those Tracts which produce almost entirely from the San Andres I zone, which has no secondary reserves due to the active water-drive reservoir mechanism. There are 17 Tracts which have 70% or more of their remaining primary reserves in the San Andres I zone, but have little or no secondary reserves. There are 6 Tracts which receive 100% of the remaining reserves from the San Andres I zone and have relatively small secondary reserves.

This third category is paying an unfairly high development cost for its negligible secondary reserves during the initial stage of the operations.

Below is a tabulation of all Samedan operated leases showing a comparison of investment and discounted net cash flow before Federal Income Taxes. The assumption is made that a basic 1/8 Royalty Interest exists and that the bulk of the investment or development capital expenditures will be made during the first three years of operations.

Tract No.	Lease Name	Remaining Primary Oil Zone	Development Cost Per Secondary Bbl.		Discounted Primary Phase Income @ 10%	
			Shell Proposal	Samedan Proposal	Shell Proposal (M$)	Samedan Proposal (M$)
32	State 'C'	San Andres I	$ 0.92	$ 0.55	$2,746	$3,135
[illegible]	State 'B'	Grayburg	$ 0.09	$ 0.29	$ 56	$ 46
41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
55	Moon 'A'	S.A. I, S.A. II	$ 3.90	$ 1.58	$2,335	$2,702
56	Moon 'B'	S.A. I, S.A. II	$ 8.54	$ 3.13	$ 289	$ 351
64	Turner 'B'	San Andres I	$ 8.93	$ 3.16	$ 383	$ 419
65	Turner 'B-2'	San Andres I	[illegible]	[illegible]	[illegible]	[illegible]
66	Turner 'A'	San Andres I	$ 2.41	$ 1.13	$2,285	$2,646

The above clearly shows the wide range of development costs as they apply from lease to lease, but more significantly, the figures show that Tracts having a high remaining primary position, mainly because of the San Andres I

zone, and a low secondary reserves position are paying for a large share of the development costs which are being made for secondary oil recovery. The principle is totally unacceptable to Samedan.

We believe water injection will enhance the recovery of remaining primary reserves, and consequently, the primary phase should incur a portion of the development costs. However, the Unit is being formed for the recovery of secondary reserves, and the secondary phase is obligated to share its portion of the development costs. Even though an adjustment of the costs are to be made at the beginning of Phase III, there is no assurance that the operations will reach the Phase III period. Should Phase III not become effective, development costs administered against the high percentage remaining primary-low percentage secondary participants will not be recovered. Further, the excessive early high costs charged against the Tracts with a high remaining primary position, requires those Tracts to sustain an unfavorable present value position by, in effect, loaning money to the Tracts having a low remaining primary - high secondary position for the duration of the primary phase. Such loan made today, and repaid at the beginning of Phase III, has little present worth.

Due to the extreme difference in the present worth value of the primary phase Tract income, between Shell's proposal and Samedan's proposal, as a percent of the total primary phase Tract net income, Samedan must take the strong position of refusing to become a part of the North Hobbs Unit should Shell's proposal be adopted. Further, we have an obligation to our joint interest owners to make them aware of this unfair basis of administering expenses. Should Shell's proposal be made a part of the Unit Operating Agreement, Samedan will resort to any available legal means to prevent its enactment.

We request that the agenda for the meeting scheduled for February 2, 1978, be modified to permit renegotiation of a method for allocating costs. This request is in the interest of permitting continued progress toward unitization.

Very truly yours,

SAMEDAN OIL CORPORATION

Boyce Perry

Boyce Perry
Agr., Secondary Recovery

BP/kg

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001
January 24, 1978

Subject: North Hobbs (Grayburg San Andres) Unit
Lea County, New Mexico

TO: ALL WORKING INTEREST OWNERS

By letter of January 16, 1978, Samedan Oil Corporation advised that they considered the cost allocation formula as balloted by letter of September 23, 1977, inequitable. Samedan further requested by their letter that negotiation of a cost allocation formula be included on the agenda for the Working Interest Owners meeting called for February 2, 1978. In view of Samedan's request and as it was agreed at the previous Working Interest Owners meeting that the cost allocation formula would be considered at the time the draft agreements were reviewed, the stated agenda of the meeting called for February 2, 1978, is hereby amended to include consideration of a cost allocation formula.

Shell does not agree that the comparisons set forth by Samedan are acceptable criteria for determining equity. However, Shell has reviewed the effects of both the Samedan and Shell formulas and is concerned that either of the two formulas might result in the secondary recovery project yielding a less-than-acceptable investment opportunity for certain parties. This situation results from the extreme variation in participation of tracts from the primary to secondary phase.

In an effort to evaluate the effect of the two cost formulas, Shell developed a comparison of the incremental present value profit for each tract. Incremental profit as used in the analysis, is the difference between the present value profit to be derived from unit operations (recovery of primary plus secondary oil) and the present value profit resulting from non-unit (primary oil and gas only) operations of any given tract. A discount factor of 10 percent was used in all cases and only the before tax profit was calculated. The production rates and capital and operating cost estimates as developed by the Technical Committee and presented in the "Waterflood Feasibility Study" were used in the evaluation.

The attached graph shows the results of Shell's review. The percent incremental present value profit (incremental present value profit divided by present value capital for each tract) was plotted against the ratio of each tract's primary participation percentage to its secondary participation. To facilitate computer plotting, the natural logarithm of the ratio was used. The results indicate that by using the Samedan formula, the tracts having a high ratio (high primary and relatively low secondary participation) would yield a very favorable return on the capital investment; whereas, the tracts with a low ratio (low primary and relatively high secondary) would yield a low return on investment. With the Shell formula, the reverse is true. Tracts with a high ratio would yield a low

return on investment and tracts with a relatively low ratio would enjoy a high return on investment.

It is recognized that the method of evaluation does not result in absolute values for each tract. However, it is felt that the method offers a realistic means of comparing the trends of the cost allocation formulas and that such trends should be considered in developing an acceptable formula.

Based on the above comparisons, it is Shell's feeling that further consideration should be given to negotiating a cost allocation formula which would provide for a unitized operation that would yield acceptable investment opportunities to all parties. It is, therefore, asked that all Working Interest Owners attend the meeting of February 2, 1978, prepared to render a decision regarding a method of allocating unit costs.

Yours very truly,

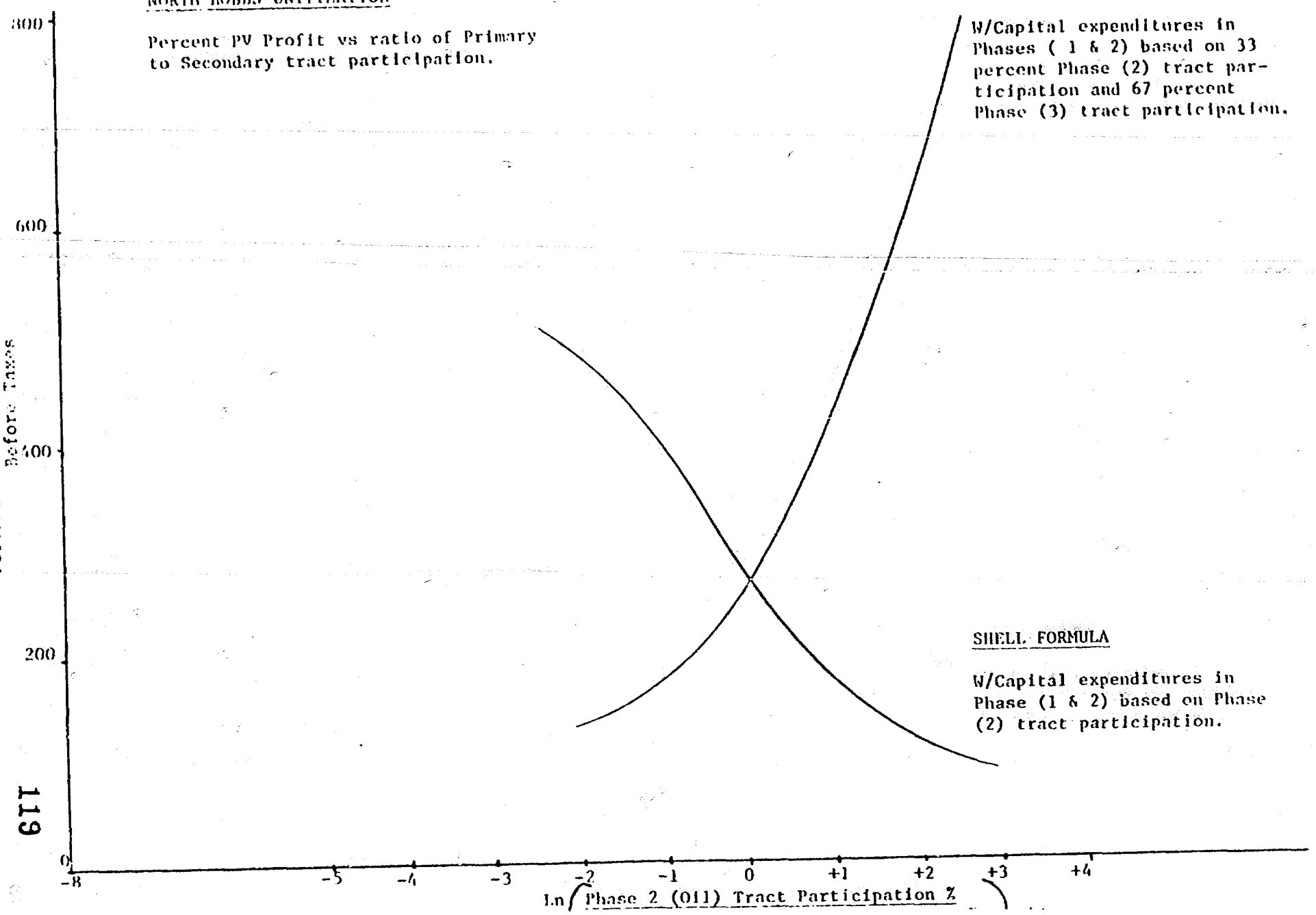
For: R. L. Howard
Division Production Manager
Mid-Continent Division

WEB:TS

Attachment

NORTH HOBBS UNITIZATION

Percent PV Profit vs ratio of Primary to Secondary tract participation.



SAMEDEN FORMULA

W/Capital expenditures in Phases (1 & 2) based on 33 percent Phase (2) tract participation and 67 percent Phase (3) tract participation.

SHELL FORMULA

W/Capital expenditures in Phase (1 & 2) based on Phase (2) tract participation.

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
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MIDLAND, TX 79701

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THRONTON
12850 HILLCREST ROAD
DALLAS, TX 75230

SUN OIL COMPANY (DELAWARE)
ATTN: MR. R. K. BEGGS
P. O. BOX 1861
MIDLAND, TX 79702

MR. BILL L. SWEET
P. O. BOX 51
HOBBS, NM 88240

FIRST NATIONAL BANK OF LEA COUNTY
TRUSTEE FOR CECIL H. SWEET AND
IMA EMMETTA SWEET TRUST
P. O. BOX 70
HOBBS, NM 88240

C. H. SWEET OIL COMPANY
ATTN: MR. C. H. SWEET
P. O. BOX 1115
HOBBS, NM 88240

TEXACO, INC.
ATTN: ASSISTANT DIVISION MANAGER
P. O. BOX 3109
MIDLAND, TX 79702

TEXACO, INC.
ATTN: DISTRICT ENGINEER
P. O. BOX 728
HOBBS, NM 88240

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. L. B. CARRUTH
1700 ONE MAIN PLACE
DALLAS, TX 75250

TEXAS PACIFIC OIL CO., INC.
ATTN: MR. R. J. WOMACK
P. O. BOX 4067
MIDLAND, TX 79702

BETTYE CONRAD TREADAWAY
5215 HAVENWOODS
HOUSTON, TX 77066

TWO STATES OIL COMPANY
MERCANTILE COMMERCE BLDG., SUITE 1910
DALLAS, TX 75201

LOYD WHITLEY
701 W. GEORGE APT. 99
MIDLAND, TX 79701

HATTIE C. WILLIAMS
P. O. BOX 3187
LUBBOCK, TX 79410

A. T. WILLIAMSON
630 HARVARD CT.
HOBBS, NM 88240

THE WISER OIL COMPANY
ATTN: MR. BILL LARSEN
110 GIHLS TOWER EAST
MIDLAND, TX 79701

THE WISER OIL COMPANY
ATTN: MR. C. P. LaRUE
P. O. BOX 192
SISTERVILLE, WV 26175

YEAGER & ARMSTRONG
WESTERN UNITED LIFE BUILDING
MIDLAND, TX 79701

RUTH PEELER YEAGER,
HENRY YEAGER, JR.,
& FIRST NATIONAL BANK IN DALLAS
JOINT TRUSTEES OF RUTH ANNE
YEAGER TRUST NO. 2
P. O. BOX 6031
DALLAS, TX 75222

MRS. RUTH PEELER YEAGER
C/O TRUST OIL DEPARTMENT
TRUST SERVICES
FIRST NATIONAL BANK IN DALLAS
P. O. BOX 6031
DALLAS, TX 75222

RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

February 8, 1978

Subject: Minutes - Working Interest Owners' Meeting
Proposed North Hobbs (Grayburg-San Andres) Un
Lea County, New New Mexico

TO: WORKING INTEREST OWNERS (Mailing List Attached)

A meeting of the Working Interest Owners of the proposed North Hobbs (Grayburg-San Andres) Unit was held February 2, 1978 in Midland, Texas. Representatives attending the meeting are shown on the attached attendance list.

Mr. Buck opened the meeting by stating that at the meeting of September 23, 1977, general agreement was reached on an oil and gas allocation formula. Mr. Buck stated that it was also agreed at such meeting for Shell to submit ballots on the oil and gas allocation formula and a cost allocation formula. In addition, Shell was to develop drafts of Unit and Unit Operating Agreements and to submitt such drafts to the Working Interest Owners for review. Mr. Buck advised that the draft agreements had been completed and were submitted with the call to meeting.

Mr. Buck then advised that the results of the ballots on the oil and gas allocation formula were as follows:

	Working Interest Owners' % (Oil Only)	
	Approved	Disapproved
Phase I	92.04485	1.46358
Phase II	92.62039	1.30069
Phase III	89.76789	1.27189

Response to date on the cost allocation formula is as follows:

	Working Interest Owners' % (Oil Only)	
	Approved	Disapproved
Phase I	82.82611	15.0828
Phase II	82.73358	15.37030
Phase III	92.80451	5.77039

Mr. Buck then stated that Samedan Oil Corporation submitted a cost allocation formula in writing to all Working Interest Owners and requested a ballot vote. The ballot response to such formula was as follows:

Working Interest Owners' % (Oil Only)

	Approved*	Disapproved
Phase I	13.86912	36.47405
Phase II	14.30357	35.82007
Phase III	4.55875	38.79959

*Includes Texas Pacific approval stated at meeting.

Mr. Buck went on to advise that the program of unitization and water injection has been submitted to the Commissioner of Public Land, State of New Mexico and to the United States Department of Interior, Geological Survey. Although neither agency has given any written response, Mr. Buck felt from the discussions at the presentations that the program was favorably received by both.

Mr. Buck advised that a review of the division of interests received to date indicated a diversity of working interests above and below 4500 feet in a number of leases. In view of this, it is believed that the base of the unitized formation (Section 2 (h), Unit Agreement) should be defined as the depth of 4500 feet beneath the surface. The depth of 4500 feet is approximately 200 feet below the established water level in the San Andres formation.

Mr. Buck pointed out that some parties advised in writing of their objections to the cost allocation formula and that they would object to an effort to form a unit on such basis under the New Mexico Unitization Statute. In view of this, Mr. Buck felt the Working Interest Owners should decide whether to proceed with unitization efforts based on the cost allocation formula which has an indicated acceptance by more than 75 percent of the Working Interests or to attempt to develop another formula that would receive greater acceptance. It was noted that the Working Interests approving both the participation formula and the Shell cost allocation formula, and which could, therefore, be anticipated to ratify a unit agreement, total 78 percent for each Phase I and Phase II and 85 percent for Phase III. The meeting was then opened for discussion.

Mr. Joe Thorton, Sun Production Company, advised that Sun would oppose an effort to form the unit under the New Mexico Unitization Statute. Mr. Thornton stated that such opposition was not on a matter of equity but as a matter of principle. Sun did not feel the New Mexico Oil Conservation Commission had the authority to act in this particular instance.

Mr. Boyce Perry, Samedan, stated they would oppose unitization if based on present cost allocation formula and that they felt the formula proposed by Samedan was more in keeping with the benefits to be derived from the project. Mr. John Cusack, Cusack interests, advised that he would not accept the formula as presented and favored the one submitted by Samedan. After more discussion in which some parties indicated a preference to proceed with the formula which has received in excess of 75% approval, Mr. Boyce Perry, Samedan, moved that an effort be made to negotiate a cost allocation which would be acceptable to a greater number of the Working Interest Owners. The motion was seconded by Mr. Cusack, Cusack Interests. Voting results were as follows:

	Working Interest Owners' % (Oil Only)		
	For	Against	Pass
Phase I	75.23913	21.67889	0.22719
Phase II	76.07912	21.12195	0.19658
Phase III	62.00388	34.33593	0.43429
	97.14531	97.39765	96.77410

The motion was considered passed and the meeting was opened for suggested cost allocation formulas.

Mr. Boyce Perry, Samedan, requested that the formula submitted in writing be again submitted for vote. The formula was as follows:

I. Operating Expenses

1. Operating, Maintenance and Overhead expenses incurred in the production, handling and treating of oil and gas shall be charged on the basis of the phase-in-effect oil participation.

2. Operating, Maintenance and Overhead expenses pertaining to the supply of make-up water, injection of water and all injection facilities, including the injection wells, shall be charged on the basis of 33% Phase II Oil Participation plus 67% Phase III Oil Participation during the Phase I and Phase II periods.

   All the above charges shall be made on the basis of Phase III Oil Participation during the Phase III period.

II. Inventoried Value of personal Property - Capital Expenditures

1. The inventoried value of personal property shall be made on the basis of 33% Phase II Oil Participation plus 67% Phase III Oil Participation with such value, corrected for retirements, to be adjusted on the basis of Phase III Oil Participation within a reasonable time following the effective date of the Phase III period.

2. All expenditures of a capital nature shall be made on the basis of 33% Phase II Oil Participation plus 67% Phase III Oil Participation during the Phase I and Phase II periods.

3. All the above expenditures, corrected for retirements, shall be adjusted on the basis of Phase III Oil Participation within a reasonable time after the effective date of the Phase III period.

4. All expenditures of a capital nature made during the Phase III period shall be charged to the joint account on the basis of Phase III Oil Participation.

Details of the voting are shown on Attachment No. I and the summary results were as follows:

	Working Interest Owners' % (Oil Only)		
	For	Against	Pass
Phase I	18.42891	78.48903	
Phase II	18.99331	78.17770	
Phase III	8.11158	88.18190	
.33 Phase II + .67 Phase III	11.70255	83.82857	

Mr. R. W. Mullins, Amerada-Hess Corporation, proposed that the Samedan formula be used, only that no adjustment in the investment account be made at the termination of Phase II (Oil). Details of the voting are shown on Attachment No. 2 and summary results were as follows:

	Working Interest Owners' % (Oil Only)		
	For	Against	Pass
Phase I	6.56696	79.03633	11.54184
Phase II	6.56261	78.89605	11.96893
Phase III	8.60241	73.91749	14.81957
.33 Phase II + .67 Phase III			

Mr. O. V. Stuckey, Getty Oil Company, proposed that all capital expenditures during Phase I and Phase II be allocated on 2/3 Phase II Interest (Oil) plus 1/3 Phase III Interest (Oil) and adjusted to Phase III at termination of Phase II (Oil). Operating expenses were to be based on phase-in-effect. Details of the voting are shown on Attachment No. 3, and the summary results were as follows:

	Working Interest Owners' % (Oil Only)		
	For	Against	Pass
Phase I	59.97659	36.94135	
Phase II	60.40459	36.76642	
Phase III	56.81526	39.47822	
2/3 Phase II + 1/3 Phase III	59.20220	37.66659	

Mr. Boyce Perry, proposed that all capital expenditures be allocated on 1/3 Phase II (oil) + 2/3 Phase III (oil) during Phase I and II and adjusted to Phase III interests at termination of Phase II (Oil). Operating costs to be based on phase-in-effect. Details of the vote are shown on Attachment No. 4 and the summary results were as follows:

	Working Interest Owners' % (Oil)		
	For	Against	Pass
Phase I	18.42891	78.48903	
Phase II	18.99331	78.17770	
Phase III	8.11158	88.18190	
1/3 Phase II + 2/3 Phase III	11.73764	84.83270	

Mr. Thane Aikens, Arco, proposed that all capital expenditures during Phase I (Oil) and Phase II (Oil) be allocated on .50 Phase II (Oil) plus .50 Phase III (Oil) interest and adjusted to Phase III (Oil) at termination of Phase II. All operating expenses to be allocated on phase-in-effect. Details of the vote are shown on Attachment No. 5 and summary results were as follows:

	Working Interest Owners' % (Oil)		
	For	Against	Pass
Phase I	78.27269	18.64525	
Phase II	78.88410	18.28691	
Phase III	68.56783	27.72595	
.5 Phase II + .5 Phase III	73.72588	23.00645	

Mr. Buck, Shell, proposed a compromise of two previous proposals, (Getty and Arco). Such proposal was that all capital expenditures during Phase I (Oil) and Phase II (Oil) be allocated on 58 percent Phase II (Oil) interest and 42 percent Phase III (Oil) interest and adjusted to Phase III (Oil) at termination of Phase II (Oil). Operating expenses to be allocated on basis of phase-in-effect. Details of the vote are shown on Attachment No. 6 and summary results are as follows:

	Working Interest Owners' % (Oil Only)		
	For	Against	Pass
Phase I	82.01563	10.87691	2.63643
Phase II	82.36473	10.72944	2.71879
Phase III	76.86992	13.50522	4.03993
.58 Phase II + .42 Phase III	80.05693	11.89528	2.27367

In view of the favorable response to the last cost formula submitted by Shell, it was agreed to submit the formula for ballot vote. It was understood that all votes were cast subject to management approval.

Time did not permit review of the Unit and Unit Operating Agreements and Mr. Buck advised that a meeting would be called at a later date for such purpose. Comments regarding the agreements have been received from two parties. Based on the comments, Shell proposed certain changes or additions. A list of the changes were given to the Working Interest Owners present and a copy is attached to the minutes.

Mr. Shepherd, Exxon, asked for an explanation of the limiting quantity of 23,000,000 barrels of oil stated in Article 16 (c) of the Unit Agreement. Mr. Buck advised that based on the projected primary performance of the Unit, it was estimated that, without water injection, the unit production would average 10 barrels of oil per day per well after the production of 23,000,000 barrels from January 1, 1979. As all production would qualify as stripper for FEA pricing purposes at such time and under such conditions, it was suggested that this amount be used as the limiting quantity of oil.

All parties who had not done so, were ask to submit as soon as possible the division of interests for their properties in order that the necessary exhibits for the agreements could be completed.

There being no further business, the meeting was adjourned.

Yours very truly,

W. E. Buck
Chairman, Working Interest Owners Committee

WEB:TS

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

ABO PETROLEUM CORPORATION
YATES BUILDING
ATTN: MR. JOHN A. YATES
207 SOUTH FOURTH STREET
ARTESIA, NM 88210

AMERADA HESS CORPORATION
ATTN: MR. R. W. MULLINS
MANAGER - JOINT VENTURE OPERATIONS - U.S.
P. O. BOX 2040
TULSA, OK 74102

AMERADA HESS CORPORATION
ATTN: MR. GEORGE GARRETT
P. O. DRAWER 817
SEMINOLE, TX 79360

AMOCO PRODUCTION COMPANY
ATTN: MR. BRUCE A. LANDIS, JR.
P. O. BOX 3092
HOUSTON, TX 77002

ADA A. ANDERSON
P. O. BOX 136
MIDLAND, TX 79702

W. D. ANDERSON & SONS
P. O. BOX 136
MIDLAND, TX 79702

WARREN ANDERSON ESTATE
P. O. BOX 136
MIDLAND, TX 79702

J. M. ARMSTRONG
BOX 990
MIDLAND, TX 79702

ATLANTIC RICHFIELD COMPANY
ATTN: MR. G. THANE AKINS
P. O. BOX 1610
MIDLAND, TX 79702

MR. W. K. BYROM
ATTN: MR. C. W. BYROM
P. O. BOX 147
HOBBS, NM 88240

MARY DANIEL CONRAD
4308 AVONDALE
DALLAS, TX 75219

C&C OPERATING CORP.
P. O. BOX 1829
HOBBS, NM 88240

CHEVRON OIL COMPANY
ATTN: MR. C. F. DWYER
P. O. BOX 1660
MIDLAND, TX 79702

CITIES SERVICE OIL COMPANY
E&P DIVISION
P. O. BOX 1919
MIDLAND, TX 79702

CONTINENTAL OIL COMPANY (2)
ATTN: L. P. THOMPSON
P. O. BOX 460
HOBBS, NM 88240

HERMAN R. CRILE, SR. REVOCABLE TRUST
BOX 864
ROSWELL, NM 88201

JOHN P. CUSACK
P. O. BOX 250
ROSWELL, NM 88201

JOHN P. CUSACK, JR.
3815 McCART STREET
FORT WORTH, TX 76110

MICHAEL F. CUSACK
3815 McCART STREET
FORT WORTH, TX 76110

DEL-LEA, INC. (ANTWELL)
P. O. BOX 1889
HOBBS, NM 88240

J. N. DUNLAVY
P. O. BOX 837
ROSWELL, NM 88201

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306 PETROLEUM BUILDING
MIDLAND, TX 79702

EXXON COMPANY - U. S. A. (2)
ATTN: JOINT INTEREST MANAGER
P. O. BOX 1600
MIDLAND, TX 79702

FIRST NATIONAL BANK OF CASPER
FIRST NATIONAL BANK TRUSTEE M. E. TATE
P. O. BOX 40
CASPER, WY 82601

FIRST NATIONAL BANK OF FORT WORTH
ESTATE OF SMITH SPRALDING
P. O. BOX 2546
FORT WORTH, TX 76101

FIRST ROSWELL COMPANY
P. O. BOX 1180
ROSWELL, NM 88201

C. C. FORBES
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TULSA, OK 74101

ILAMAE FORBES
P. O. BOX 843
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GETTY OIL COMPANY (2)
ATTN: MR. A. B. CARY
P. O. BOX 1231
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PETER HURD
SAN PATRICIO, NM 88348

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DALLAS, TX 75225

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FT. WORTH, TX 76102

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ATTN: JACK P. SEMON
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MARATHON OIL COMPANY
ATTN: MR. G. A. NAERT
P. O. BOX 522
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DALLAS, TX 75229

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MARGARET M. McPHERON
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HOBBS, NM 88240

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3 GREENWAY PLAZA EAST
SUITE 800
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R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

MORANCO
MR. R. M. MORAN
ATTN: MR. R. M. MORAN
P. O. BOX 1860
HOBBS, NM 88240

131

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MR. J. H. MORRIS AS AGENT
1615 FIRST NATIONAL BUILDING
TULSA, OK 74103

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CENTURY CITY
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PORTALES, NM 88130

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SAMEDAN OIL CORPORATION
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2207 WILCO BUILDING
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SAMEDAN OIL CORPORATION
ATTN. MR. BOYCE BERRY
P. O. BOX 909
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SEA PROPERTIES, LTD.
BOX 1486
ARDMORE, OK 73401

HOWELL SPEAR
P. O. BOX 1684
MIDLAND, TX 79701

E. C. SULIVAN
C/O SAMEDAN OIL CORPORATION
2207 WILCO BUILDING
MIDLAND, TX 79702

SUN OIL COMPANY (DELAWARE)
ATTN: MR. JOE W. THRONTON
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DALLAS, TX 75222

RUTH ANNE YEAGER
3924 GLENWICK LANE
DALLAS, TX 75205

ATTENDANCE LIST"

WORKING INTEREST OWNERS'MEETING
NORTH HOBBS (GRAYBURG-SAN ANDRESS) UNIT
FEBRUARY 2, 1978

COMPANY	NAME	LOCATION
Amerada-Hess Corp.	R. W. Mullins	Tulsa, Ok.
Amerada-Hess Corp.	Gerald Hill	Tulsa, Ok.
Amoco Production Company	S. R. Denton	Houston, Tx.
Atlantic Richfield	Tom Furtwangler	Midland, Tx.
Atlantic Richfield	Thane Akins	Midland, Tx.
Atlantic Richfield	George Nathman	Midland, Tx.
Chevron USA, Inc.	W. A. Goudeau	Midland, Tx.
Chevron USA, Inc.	B. O. Gunn	Midland, Tx.
Chevron USA, Inc.	D. D. Allen	Midland, Tx.
Cities Service Oil Company	J. L. Relph ✓	Midland, Tx.
Cities Service Oil Company	M. S. Mabry	Midland, Tx.
Conoco Oil Company	V. T. Lyon	Hobbs, N.M.
Conoco Oil Company	J. S. Anderson	Hobbs, N. M.
Cusack Inc.	John P. Cusack	Roswell, N.M.
Cusack Inc.	Max E. Curry	Midland, Tx.
Exxon Company	J. M. Shepherd	Midland, Tx.
Exxon Company	J. B. Campbell	Midland, Tx.
Exxon Company	W. E. Nolan	Midland, Tx.
First National Bank Dallas (Trust - Yeager Interests)	Gene Thomas	Dallas, Tx.
Getty Oil Company	O. V. Stuckey	Midland, Tx.
Gulf Oil Company	J. D. Mussett	Midland, Tx.
Marathon Oil Company	G. A. Naert	Midland, Tx.
Moranco Oil Company	Ken McPeters	Hobbs, N.M.
Samedan Oil Company	Boyce Perry	Ardmore, Ok.
Shell Oil Company	W. E. Buck	Houston, Tx.
Shell Oil Company	Bill Lancaster	Houston, Tx.
Shell Oil Company	Paul L. Bondor	Houston, Tx.
Shell Oil Company	Shri B. Mathur	Houston, Tx.
Shell Oil Company	Lee Campbell	Houston, Tx.
Sun Oil Company	Joseph Martin	Midland, Tx.
Sun Oil Company	Joe Thornton	Dallas, Tx.
Texaco Inc.	Robert E. Davis	Midland, Tx.
Texaco Inc.	Morris Todd	Midland, Tx.
Texas Pacific Oil Company	G. R. Meyer	Dallas, Tx.
Wiser Oil Company	W. R. Larsen	Midland. Tx.

14-71-1

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Attachment No. 1 pg 1 of 2

PROPOSED NORTH HOBBS UNIT

Cost Allocation Formula - Samedan

WIO NO	WINAME	PHASE I Oil	PHASE II Oil	PHASE III Oil	.33 Phase II / .67 Phase III	Vote
1	AMERADA HESS CORP.	656696	650261	860241	7.90948	No
2	AMOCO PRODUCTION CO.	138897	135805	187841	1.70669	No
3	ANDERSON ADA A	.00629	.00396	.02317		
4	ANDERSON EST., WARREN D	.00629	.00396	.02317		
5	ANDERSON, W D AND SONS	.01257	.00793	.04633		
6	ARMSTRONG, J M	.01257	.00793	.04633		
7	ATLANTIC RICHFIELD CO.	294388	318766	327303	2.19293	No
8	BYROM W K	.06780	.06400	.07001		
9	C&C OPERATING CO.	.01133	.00688	.03147		
0	CHEVRON OIL COMPANY	321471	339898	297321	3.11371	Yes
11	CITIES SERVICE OIL CO.	324881	320246	554436	4.77153	No
12	CONRAD MARY DANIEL	.02408	.02508	.00196		
13	CONTINENTAL OIL CO.	1124634	1171358	1436721	13.49151	No
14	CRILE, HERMAN R.	.03613	.03762	.00294		
15	CUSACK, J. P.	.27045	.25609	.01173	.09237	Yes
16	CUSACK, JR., J. P.	113609	123831	.08912	.46835	Yes
17	CUSACK, MICHAEL F.	113609	123831	.08912	.46835	Yes
18.	DEL-LEA, INC. (ANTWEIL)	.11092	.10053	.03652		
19	DUNLAVEY, J. N.	.00194	.00171	.00191		
20	ESTES, RUSSELL G.	.00335	.00211	.01236		
21	EXXON COMPANY - U.S.A.	468761	439609	763885	6.56874	No
22	FIRST ROSWELL COMPANY	.00388	.00340	.00303		
23	FORBES C. C.	.06067	.05656	.02645	.03638	Yes
24	FORBES, ILAMAE	.05908	.05507	.02575	.03542	Yes
25	GETTY OIL COMPANY	872066	874234	755887	7.94941	No
26	GULF ENERGY & MINERALS	971717	944656	1523438	13.32439	No
27	HEADLEY, KENNETH NOEL	.05778	.05978	.00522		
28	HURD, PETER	.02408	.02508	.00196		
29	JUDSON, RUBY WANDA CONRA	.00482	.00502	.00039		
30	KEMNITZ, A. A.	.91817	.85586	.40024	.55059	Yes
31	LAFLIN, GEORGE P.	.00194	.00171	.00191		
32	LOWE, M. RALPH	.03128	.02674	.00165		
33	MARATHON OIL COMPANY	263643	271879	403993	3.60395	No
34	MCCARTHY, KATHRYN L. C.	.00482	.00502	.00039		
35	MCPETERS, K. D.	.00877	.00757	.00318		
36	MCPHERON, MARGARAT M.	.02034	.01920	.02101		
37	MCPHERON, ROBERT L.	.01017	.00960	.01050		
38	MOBIL OIL CORP.	.92642	.92205	.67264		
39	MORANCO	.03320	.02848	.00537	.01300	Yes

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PROPOSED NORTH HOBBS UNIT

WIO NO	WINAME					
40	MORAN, R. M.	.03511	.03029	.01270	.01851	Yes
41	MORRIS, G. D.	.03992	.03721	.01740	.02394	Yes
42	MURDOCH, NATHYLYN I. CONRA	.00482	.00502	.00039		
43	NOBLE, RICHARD L.	.48543	.45249	.21160		
44	PARRISH, M.C. ESTATE	.01173	.01003	.00062		
45	PORTALES NATIONAL BANK	.05989	.05582	.02610	.03591	Yes
46	RORING JOHN	.11975	.11163	.05221	.07182	Yes
47	ROSE, FRANCIS I. CONRAD	.00482	.00502	.00039		
48	SAMEDAN OIL CORP.	5.93726	6.19129	1.31910	2.92693	Yes
49	SEA PROPERTIES, LTD.	.09213	.09662	.01578	.04245	Yes
50	SHELL OIL COMPANY	24.12270	23.76832	18.87538	20.49005	No
51	1ST NATL BANK/FT. WORTH	.03992	.03721	.01740	.02394	Yes
53	SPEAR HOWELL	.00096	.00085	.00096		
54	SULLIVAN, E. C.	.05989	.05582	.02610	.03591	Yes
55	SUN OIL CO. (DELEWARE)	.22719	.19658	.43429		
56	SWEET, BILL L.	.02651	.02300	.17776		
57	SWEET, C. H. OIL CO.	.26443	.24146	.79399		
58	1ST NATL BANK OF CASPER	.11976	.11163	.05221	.07182	Yes
59	TEXACO, INC.	3.16134	3.09110	1.16515	1.80071	No
60	TEXAS PACIFIC OIL CO. IN	4.68172	4.70381	2.81932	3.44120	Yes
61	TREADAWAY, BETTYE CONRA	.00482	.00502	.00039		
62	TWO STATES OIL CO.	.06498	.06649	.00682		
63	WALLACE, COLLEEN MCPHERO	.01017	.00960	.01050		
64	WHITLEY, LOYD	.00194	.00171	.00191		
65	WILLIAMS, HATTIE C.	.13381	.14505	.02222	.06276	Yes
66	WILLIAMSON, A. T.	.00194	.00171	.00191		
67	WISER OIL COMPANY, THE	.28139	.28927	.11005	.16919	Yes
68	YATES, JOHN A	.12986	.10695	.38811		
69	YEAGER & ARMSTRONG	.01257	.00793	.04633		
70	YEAGER JR. DR. HENRY	.01586	.01631	.00127	.00623	No
71	YEAGER RUTH ANNE	.01166	.01214	.00095	.00465	No
72	YEAGER RUTH/HENRY	.00402	.00418	.00033	.00166	No
73	YEAGER RUTH PEELER	.01682	.01751	.00137	.00670	No
74	LANDRETH INTERESTS	.45232	.44225	.61170		
	Yes	18.42891	18.99331	8.11158	11.70255	
	No	78.48903	78.17770	88.18190	83.82857	

SR [illegible] (Rev. [illegible]) Printed in U.S.A.

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PROPOSED NORTH HOBBS UNIT

Amerada-Hess - Cost Allocation Formula

.33 Phase II + .67 Phase III - No adjustment.

WIO NO	WINAME	PHASE I Oil	PHASE II Oil	PHASE III Oil	.33 Phase II +.67 Phase III	Vote
1	AMERADA HESS CORP.	656696	650261	866241	790948	Yes
2	AMOCO PRODUCTION CO.	138897	135805	187841	170669	No
3	ANDERSON ADA A	.00629	.00396	.00423	17	
4	ANDERSON EST., WARREN D	.00629	.00396	.00423	17	
5	ANDERSON, W D AND SONS	.01257	.00793	.00843	33	
6	ARMSTRONG, I M	.01257	.00793	.00843	33	
7	ATLANTIC RICHFIELD CO.	294388	318761	317303	219293	No
8	BYROM W R	.06780	.06400	.00701		
9	C&C OPERATING CO.	.01133	.00688	.03147		
10	CHEVRON OIL COMPANY	331471	339898	297321	311371	No
11	CITIES SERVICE OIL CO.	324881	300246	554436	477163	No
12	CONRAD MARY DANIEL	.02408	.02508	.00196		
13	CONTINENTAL OIL CO.	1124634	1173358	1436721	1349151	Pass
14	CRTES, HERMAN R	.03613	.03762	.00294		
15	CUSACK, I P	270415	256619	011173	092337	No
16	CUSACK, JR., I P	113669	123831	08912	46835	No
17	CUSACK, MICHAEL F.	113609	117383	08912	46835	No
18	DEL-LEA, INC. (ANTWEIL)	111092	106513	08652		
19	DUNLAVEY, I N	.00194	.00171	.00191		
20	ESTES, RUSSELL G	.00335	.00211	.01236		
21	EXXON COMPANY - U.S.A.	488761	439609	763885	658874	No
22	FIRST ROSWELL COMPANY	.00388	.00340	.00363		
23	FORBES C. C.	.01667	.05656	.02645	.03638	No
24	FORBES, HAMAR	.05908	.05507	.02575	.03542	No
25	GETTY OIL COMPANY	872066	874234	755887	794941	No
26	GULF ENERGY & MINERALS	971717	944656	1523438	1332439	No
27	HEADLEY, KENNETH NOEL	.05778	.05978	.00522		
28	HURD, PETER	.02408	.02508	.00196		
29	JUDSON, RUBY WANDA CONRA	.01482	.00502	.00039		
30	KENNITZ, A. A.	.91817	.85586	.00214	.55059	No
31	LAFLIN, GEORGE P.	.00194	.00171	.00191		
32	LOWE, M. RALPH	.03128	.02674	.00165		
33	MARATHON OIL COMPANY	2.83643	2.71879	4.03993	3.60395	No
34	MCCARTHY, KATHRYN I C	.00482	.00502	.00039		
35	MCPETERS, K. D.	.00877	.00757	.00318		
36	MCPHERON, MARGARAT M.	.02034	.01920	.02191		
37	MCPHERON, ROBERT L.	.01017	.00940	.01050		137
38	MOBIL OIL CORP.	.92642	.82895	.67264		
39	MORANCO	.03320	.02848	.00537	.01300	Pass

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Attachment No. 2 (Cont)

PROPOSED NORTH HOBBS UNIT

WIO NO	WINAME					
40	MORAN, R. M.	.03511	.03029	.01270	.01951	Pass
41	MORRIS, G. D.	.03992	.03721	.01740	.02394	No
42	MURDOCH, NATHYLYN I. CONRA	.00482	.00502	.00039		
43	NOBLE, RICHARD L.	.48543	.45249	.21160		
44	PARRISH, M.C. ESTATE	.01173	.01093	.00512		
45	PORTALES NATIONAL BANK	.05989	.05582	.02610	.03591	No
46	RORING JOHN	.11975	.11163	.05221	.07182	No
47	ROSE, FRANCIS I. CONRAD	.00482	.00502	.00039		
48	SAMEDAN OIL CORP.	5.93726	6.19129	1.31910	2.92693	No
49	SEA PROPERTIES, LTD.	.09213	.09682	.01578	.09245	No
50	SHELL OIL COMPANY	24.12270	23.76832	18.87538	20.49005	No
51	1ST NATL BANK/FT. WORTH	.03992	.03721	.01740	.02394	No
53	SPEAR HOWELL	.00996	.00885	.00096		
54	SULLIVAN, E. C.	.05989	.05582	.02610	.03591	No
55	SUN OIL CO. (DELEWARE)	.22719	.19668	.09429	.35584	Pass
56	SWEET, BILL L.	.02691	.02300	.01776		
57	SWEET, C. H. OIL CO.	.26443	.24146	.19399		
58	1ST NATL BANK OF CASPER	.11976	.11163	.05221	.07182	No
59	TEXACO, INC.	3.16134	3.09110	1.16515	1.80071	No
60	TEXAS PACIFIC OIL CO. IN	4.48172	4.10381	2.81932	3.44120	No
61	TREADAWAY, BETTYE CONRA	.00482	.00502	.00039		
62	TWO STATES OIL CO.	.06498	.06649	.06682		
63	WALLACE, COLLEEN MCPHERO	.01017	.00960	.01050		
64	WHITLEY, LOYD	.00194	.00171	.00191		
65	WILLIAMS, HATTIE C.	.13381	.14505	.12222	.06276	No
66	WILLIAMSON, A. T.	.00194	.00171	.00191		
67	WISER OIL COMPANY, THE	.28139	.28927	.11005	.14919	No
68	YATES, JOHN A	.12986	.10695	.03811		
69	YEAGER & ARMSTRONG	.01257	.00793	.04633		
70	YEAGER JR. DR. HENRY	.01586	.01631	.00127	.00623	No
71	YEAGER RUTH ANNE	.01186	.01214	.00095	.00465	No
72	YEAGER RUTH/HENRY	.00402	.00418	.00033	.00160	No
73	YEAGER-RUTH PEELER	.01682	.01751	.00137	.00670	No
74	LANDRETH INTERESTS	.45232	.47085	.41170		
	Yes	6.56696	6.50291	8.66241	7.90948	
	No	79.03633	78.29605	73.91749	74.09862	138
	Pass	11.54184	11.96893	11.48195	13.87816	

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At Amend No. 3

PROPOSED NORTH HOBBS UNIT

Getty Formula - 2/3 Phase II + 1/3 Phase III - Adj to Phase III

WIO NO	WINAME	PHASE I Oil	PHASE II Oil	PHASE III Oil	2/3 Phase II + 1/3 Phase III	Vote
1	AMERADA HESS CORP.	656696	650261	860241	720182	Yes
2	AMOCO PRODUCTION CO.	138897	135805	187841	153135	No
3	ANDERSON ADA A	.00629	.00396	.02317		
4	ANDERSON EST., WARREN D	.00629	.00396	.02317		
5	ANDERSON, W D AND SONS	.01257	.00793	.04633		
6	ARMSTRONG, J M	.01257	.00793	.04633		
7	ATLANTIC RICHFIELD CO.	294388	318766	327303	321579	Yes
8	BYROM W K	.06780	.06400	.07001		
9	C&C OPERATING CO.	.01133	.00688	.03147		
0	CHEVRON OIL COMPANY	321471	329998	297321	325673	Yes
11	CITIES SERVICE OIL CO.	324881	320246	554436	398270	No
12	CONRAD MARY DANIEL	.02408	.02508	.00196		
13	CONTINENTAL OIL CO.	1124634	1171358	1436721	1259686	Yes
14	CRILE, HERMAN R	.03613	.03762	.00294		
15	CUSACK, J. P.	.27045	.25609	.01173	.17462	No
16	CUSACK, JR., J. P.	1.13609	1.23831	.08912	.85516	No
17	CUSACK, MICHAEL F.	1.13609	1.23831	.08912	.85516	No
18.	DEL-LEA, INC. (ANTWEIL)	.11092	.10053	.03652		
19	DUNLAVEY, J N	.00194	.00171	.00191		
20	ESTES, RUSSELL G	.00335	.00211	.01236		
21	EXXON COMPANY - U.S.A.	468761	439609	763885	547646	No
22	FIRST ROSWELL COMPANY	.00388	.00340	.00303		
23	FORBES C. C.	.06067	.05656	.02645	.04652	No
24	FORBES, ILAMAE	.05908	.05507	.02575	.04529	No
25	GETTY OIL COMPANY	872066	874234	755887	834701	Yes
26	GULF ENERGY & MINERALS	971717	944656	1523438	1137470	No
27	HEADLEY, KENNETH NOEL	.05778	.05978	.00522		
28	HURD, PETER	.02408	.02508	.00196		
29	JUDSON, RUBY WANDA CONRA	.00482	.00502	.00039		
30	KEMNITZ, A. A.	.91817	.85586	.40024	.70392	No
31	LAFLIN, GEORGE P.	.00194	.00171	.00191		
32	LOWE, M. RALPH	.03128	.02674	.00165		
33	MARATHON OIL COMPANY	263643	271879	403993	315886	No
34	MCCARTHY, KATHRYN L. C.	.00482	.00502	.00039		
35	MCPETERS, K. D.	.00877	.00757	.00318		
36	MCPHERON, MARGARAT M.	.02034	.01920	.02101		
37	MCPHERON, ROBERT L.	.01017	.00960	.01050		
38	MOBIL OIL CORP.	.92642	.82805	.67264		
39	MORANCO	.03320	.02848	.00537	.02077	No

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Attachment No. 3 (Cont)

PROPOSED NORTH HOBBS UNIT

WIO NO	WINAME					
40	MORAN, R. M.	.03511	.03029	.01270	.02442	No
41	MORRIS, G. D.	.03992	.03721	.01740	.03060	No
42	MURDOCH, NATHYLYN I. CONRA	.00482	.00502	.00039		
43	NOBLE, RICHARD L.	.48543	.45249	.21160		
44	PARRISH, M.C. ESTATE	.01173	.01003	.00062		
45	PORTALES NATIONAL BANK	.05989	.05582	.02610	.04591	No
46	RORING JOHN	.11975	.11163	.05221	.09181	No
47	ROSE, FRANCIS I. CONRAD	.00482	.00502	.00039		
48	SAMEDAN OIL CORP.	5.93726	6.19129	1.31910	4.56677	No
49	SEA PROPERTIES, LTD.	.09213	.09662	.01578	.06967	No
50	SHELL OIL COMPANY	24.12270	23.76832	18.87538	22.13512	Yes
51	1ST NATL BANK/FT. WORTH	.03992	.03721	.01740	.03060	No
53	SPEAR HOWELL	.00096	.00085	.00096		
54	SULLIVAN, E. C.	.05989	.05582	.02610	.04591	No
55	SUN OIL CO. (DELEWARE)	.22719	.19658	.43429		
56	SWEET, BILL L.	.02651	.02300	.17776		
57	SWEET, C. H. OIL CO.	.26443	.24146	.79399		
58	1ST NATL BANK OF CASPER	.11976	.11163	.05221	.09181	No
59	TEXACO, INC.	3.16134	3.09110	1.16515	2.44887	Yes
60	TEXAS PACIFIC OIL CO. IN	4.68172	4.70381	2.81932	4.07524	No
61	TREADAWAY, BETTYE CONRA	.00482	.00502	.00039		
62	TWO STATES OIL CO.	.06498	.06649	.00682		
63	WALLACE, COLLEEN MCPHERO	.01017	.00960	.01050		
64	WHITLEY, LOYD	.00194	.00171	.00191		
65	WILLIAMS, HATTIE C.	.13381	.14505	.02222	.10410	No
66	WILLIAMSON, A. T.	.00194	.00171	.00191		
67	WISER OIL COMPANY, THE	.28139	.28927	.11005	.22951	No
68	YATES, JOHN A	.12986	.10695	.58811		
69	YEAGER & ARMSTRONG	.01257	.00793	.04633		
70	YEAGER JR. DR. HENRY	.01506	.01631	.00127	.01129	No
71	YEAGER RUTH ANNE	.01166	.01214	.00095	.00841	No
72	YEAGER RUTH/HENRY	.00402	.00418	.00033	.00290	No
73	YEAGER RUTH PEELER	.01682	.01751	.00137	.01213	No
74	LANDRETH INTERESTS	.45232	.44225	.01170		
	Yes	59.97659	60.40459	56.81526	59.20[illegible]	
	No	36.94135	36.76642	39.47822	37.666[illegible]	

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PROPOSED NORTH HOBBS UNIT

Same Sch Compromise Cost Formula - 1/3 Phase II + 2/3 Phase III
(As) after Phase I - Expense - Phase-in-effect

WIO NO	WINAME	PHASE I Oil	PHASE II Oil	PHASE III Oil	1/3 Phase II + 2/3 Phase III	Vote
1	AMERADA HESS CORP.	656696	650281	860241	7.90169	No.
2	AMOCO PRODUCTION CO.	138897	135805	187841	1.70479	No
3	ANDERSON ADA A	.00629	.00396	.02317		
4	ANDERSON EST., WARREN D	.00629	.00396	.02317		
5	ANDERSON, W D AND SONS	.01257	.00793	.04633		
6	ARMSTRONG, J M	.01257	.00793	.04633		
7	ATLANTIC RICHFIELD CO.	294388	318741	347303	3.24425	No
8	BYROM W K	.06780	.06401	.07001		
9	C&C OPERATING CO.	.01133	.00688	.03147		
10	CHEVRON OIL COMPANY	321471	339898	297321	3.11482	Yes
11	CITIES SERVICE OIL CO.	324881	370246	554436	4.76325	No
12	CONRAD MARY DANIEL	.02408	.02508	.00196		
13	CONTINENTAL OIL CO.	1124634	1117358	1436722	13.48132	No
14	CRUP, HERMAN P.	.03613	.03762	.00294		
15	CUSACK, I. P.	.27045	.25669	.01173	.09317	Yes
16	CUSACK, JR., I. P.	.11369	.12883	.08912	.47214	Yes
17	CUSACK, MICHAEL F.	.11369	.12383	.08912	.47214	Yes
18.	DEL-LEA, INC. (ANTWEIL)	.11092	.10053	.06592		
19	DUNLAVEY, I N	.00194	.00171	.00191		
20	ESTES, RUSSELL G	.03315	.02211	.01236		
21	EXXON COMPANY - U.S.A.	488761	439509	763885	6.55728	No
22	FIRST ROSWELL COMPANY	.00388	.00340	.00243		
23	FORBES C. C.	.06047	.05656	.02645	.03648	Yes
24	FORBES, TAMAR	.05908	.05507	.02575	.03551	Yes
25	GETTY OIL COMPANY	872066	814234	755887	7.95256	No
26	GULF ENERGY & MINERALS	971717	944656	1523438	13.30378	No
27	HEADLEY, KENNETH NOEL	.05778	.05378	.03532		
28	HURD, PETER	.02408	.02508	.00986		
29	JUDSON, RUBY WANDA CONRA	.00482	.00502	.00239		
30	KENNITZ, A. A.	.08817	.05586	.04004	.05526	Yes
31	LAFLIN, GEORGE P.	.00194	.00171	.00191		
32	LOWE, M. RALPH	.03129	.02671	.00165		
33	MARATHON OIL COMPANY	283643	271879	403993	3.59919	No
34	MCCARTHY, KATHRYN L. C.	.00482	.00502	.00239		
35	MCPETERS, K. D.	.00877	.00757	.00318		
36	MCPHERON, MARGARAT M.	.02034	.01920	.02101		
37	MCPHERON, ROBERT L.	.01017	.00960	.01050		141
38	MOBIL OIL CORP.	.92642	.82805	.67204		
39	MORANCO	.03320	.02848	.00537	.01307	Yes

Attachment No. 4 (Cont)

PROPOSED NORTH HOBBS UNIT

WIO NO	WINAME					
40	MORAN, R. M.	.03511	.03029	.01270	.01857	Yes
41	MORRIS, G. D.	.03992	.03721	.01740	.02400	Yes
42	MURDOCH, NATHYLYN I. CONRA	.00482	.00502	.00039		
43	NOBLE, RICHARD L.	.48543	.45249	.21160		
44	PARRISH, M.C. ESTATE	.01173	.01003	.00062		
45	PORTALES NATIONAL BANK	.05989	.05582	.02610	.03600	Yes
46	RORING JOHN	.11975	.11163	.05221	.07201	Yes
47	ROSE, FRANCIS I. CONRAD	.00482	.00502	.00039		
48	SAMEDAN OIL CORP.	593726	619129	1.31910	294287	Yes
49	SEA PROPERTIES, LTD.	.09213	.09662	.01578	.04272	Yes
50	SHELL OIL COMPANY	2412270	2376832	1887538	205043	No
51	1ST NATL BANK/FT. WORTH	.03992	.03721	.01740	.02400	Yes
53	SPEAR HOWELL	.00096	.00085	.00096		
54	SULLIVAN, E. C.	.05989	.05582	.02610	.03600	Yes
55	SUN OIL CO. (DELEWARE)	.22719	.19658	.43429		
56	SWEET, BILL L.	.02651	.02300	.17776		
57	SWEET, C. H. OIL CO.	.26443	.24146	.79399		
58	1ST NATL BANK OF CASPER	.11976	.11163	.05221	.07201	Yes
59	TEXACO, INC.	316134	309110	1.16515	180695	No
60	TEXAS PACIFIC OIL CO. IN	468172	470381	2.81932	344714	Yes
61	TREADAWAY, BETTYE CONRA	.00482	.00502	.00039		
62	TWO STATES OIL CO.	.06498	.05649	.00682		
63	WALLACE, COLLEEN MCPHERO	.01017	.00960	.01050		
64	WHITLEY, LOYD	.00194	.00171	.00191		
65	WILLIAMS, HATTIE C.	.13361	.14505	.02222	.06316	Yes
66	WILLIAMSON, A. T.	.00194	.00171	.00191		
67	WISER OIL COMPANY, THE	.28139	.28927	.11005	.16977	Yes
68	YATES, JOHN A	.12986	.10695	.38811		
69	YEAGER & ARMSTRONG	.01257	.00793	.04633		
70	YEAGER JR. DR. HENRY	.01566	.01631	.00127	.00629	No
71	YEAGER RUTH ANNE	.01166	.01214	.00095	.00468	No
72	YEAGER RUTH/HENRY	.00402	.00418	.00033	.00181	No
73	YEAGER RUTH PEELER	.01682	.01751	.00137	.00675	No
74	LANDRETH INTERESTS	.45232	.44225	.01170		
		Yes 18.42891	18.99331	8.11158	1173764	
		No 78.48903	78.17770	88.18190	2483870	

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Attachment No. 5 Page 1042

PROPOSED NORTH HOBBS UNIT

Atlantic Richfield - Cost Allocation Formula

.5 Phase II + .5 Phase III Leveling Phase I & II Adjusted to Phase III Operating Phase-in-effect

WIO NO	WINAME	PHASE I oil	PHASE II oil	PHASE III oil	.5 Phase II + .5 Phase III	Vote
1	AMERADA HESS CORP.	656696	650261	860241	7.55251	No
2	AMOCO PRODUCTION CO.	138897	135805	187841	1.61823	No
3	ANDERSON ADA A	.00629	.00396	.02317		
4	ANDERSON EST., WARREN D	.00629	.00396	.02317		
5	ANDERSON, W D AND SONS	.01257	.00793	.04633		
6	ARMSTRONG, J M	.01257	.00793	.04633		
7	ATLANTIC RICHFIELD CO.	2943.88	3187.84	3273.03	3.23035	Yes
8	BYROM W K	.06780	.04010	.07001		
9	C&C OPERATING CO.	.01133	.00688	.03147		
0	CHEVRON OIL COMPANY	3.21471	3.39898	2.97321	3.18610	Yes
11	CITIES SERVICE OIL CO.	3.24881	3.30246	5.54436	4.37341	No
12	CONRAD MARY DANIEL	.02408	.02508	.00196		
13	CONTINENTAL OIL CO.	1.24634	1.17358	1.43672	1.30460	Yes
14	CRILE, HERMAN R	.03613	.03762	.00294		
15	CUSACK, I. P.	.27045	.21569	.01173	.13391	Yes
16	CUSACK, JR., I. P.	.11269	.12883	.08912	.06372	Yes
17	CUSACK, MICHAEL F.	.11369	.12385	.08912	.06372	Yes
18	DEL-LEA, INC. (ANADEL)	.11092	.11093	.00692		
19	DUNLAVEY, J. N.	.00194	.00171	.00191		
20	ESTES, RUSSELL G.	.02315	.02211	.01236		
21	EXXON COMPANY - U.S.A.	4.88761	4.39609	7.63885	6.01747	No
22	FIRST ROSWELL COMPANY	.00388	.00340	.00223		
23	FORBES C. C.	.01617	.01656	.02645	.04151	Yes
24	FORBES, ULAMAE	.05908	.05507	.02575	.04041	Yes
25	GETTY OIL COMPANY	8.72066	8.74234	7.55887	8.16061	Yes
26	GULF ENERGY & MINERALS	9.11717	9.44656	15.13438	12.34047	Yes
27	HEADLEY, KENNETH NOEL	.05778	.05978	.00572		
28	HURD, PETER	.02408	.02508	.00196		
29	HUDSON, RUBY WANDA C WRA	.01482	.01502	.00039		
30	KENNITZ, A. A.	.91817	.85526	.40024	.62805	Yes
31	LAFLIN, GEORGE P.	.00174	.00171	.00171		
32	LOWE, M. RALPH	.03128	.02674	.00165		
33	MARATHON OIL COMPANY	2.43643	2.71879	4.03993	3.37936	No
34	MCCARTHY, KATHRYN L. C.	.01482	.01502	.00039		
35	MCPETERS, K. D.	.00877	.00757	.00318		
36	MCPHERON, MARGARAT M.	.02034	.01920	.02101		
37	MCPHERON, ROBERT L.	.01017	.00960	.01050		143
38	MOBIL OIL CORP.	.92642	.82295	.67264		
39	MORANCO	.03320	.02348	.00537	.01693	No

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PROPOSED NORTH HOBBS UNIT Attachment No. 5 (Cont)

WIO NO	WINAME					
40	MORAN, R. M.	.03511	.03029	.01270	.02150	No
41	MORRIS, G. D.	.03992	.03721	.01740	.02731	Yes
42	MURDOCH, NATHYLYN I. CONRA	.00482	.00502	.00039		
43	NOBLE, RICHARD L.	.48543	.45249	.21160		
44	PARRISH, M.C. ESTATE	.01173	.01003	.00062		
45	PORTALES NATIONAL BANK	.05989	.05582	.02610	.04096	Yes
46	RORING JOHN	.11975	.11163	.05221	.08192	Yes
47	ROSE, FRANCIS I. CONRAD	.00482	.00502	.00039		
48	SAMEDAN OIL CORP.	593726	619129	131910	375520	Yes
49	SEA PROPERTIES, LTD.	.09213	.09662	.01578	.05620	Yes
50	SHELL OIL COMPANY	2412270	2376832	1887538	2132185	Yes
51	1ST NATL BANK/FT. WORTH	.03992	.03721	.01740	.02731	Yes
53	SPEAR HOWELL	.00096	.00085	.00096		
54	SULLIVAN, F. C.	.05989	.05582	.02610	.04096	Yes
55	SUN OIL CO. (DELEWARE)	.22719	.19658	.43429		
56	SWEET, BILL L.	.02651	.02300	.17776		
57	SWEET, C. E. OIL CO.	.26443	.24146	.79399		
58	1ST NATL BANK OF CASPER	.11976	.11163	.05221	.08192	Yes
59	TEXACO, INC.	316134	3.09[illegible]	1.16515	2.12813	Yes
60	TEXAS PACIFIC OIL CO. IN	468172	470381	281932	376157	Yes
61	TREADAWAY, BETTYE CONRA	.00482	.00502	.00039		
62	TWO STATES OIL CO.	.06498	.06649	.00682		
63	WALLACE, COLLEEN MCPHERO	.01017	.00960	.01050		
64	WHITLEY, LOYD	.00194	.00171	.00191		
65	WILLIAMS, HATTIE C.	.13361	.14505	.02222	.08384	Yes
66	WILLIAMSON, A. T.	.00194	.00171	.00191		
67	WISER OIL COMPANY, THE	.28139	.28927	.11005	.19966	Yes
68	YATES, JOHN A.	.12986	.10695	.33811		
69	YEAGER & ARMSTRONG	.01257	.00793	.04633		
70	YEAGER JR. DR. HENRY	.01586	.01631	.00127	.00879	No
71	YEAGER RUTH ANNE	.01166	.01[illegible]	.00095	.00655	No
72	YEAGER RUTH/HENRY	.00402	.00418	.00033	.00226	No
73	YEAGER RUTH PEELER	.01682	.01751	.00137	.00944	No
74	LANDRETH INTERESTS	.45232	.44225	.61170		
	Yes	7827269	7888410	6856753	7372588	
	No	1864525	1828691	2772595	2300645	

PROPOSED NORTH HOBBS UNIT

Shell Formula - .58 Phase II + .42 Phase III

Adj. to Phase III - Expense - Phase-in - effect

WIO ID	WINAME	PHASE I Oil	PHASE II Oil	PHASE III Oil	.58 Phase II .42 Phase III	Vote
1	AMERADA HESS CORP.	656696	650261	860241	738452	Yes
2	AMOCO PRODUCTION CO.	13897	135805	18784		
3	ANDERSON ADA A	.00629	.00396	.02317		
4	ANDERSON EST., WARREN D	.00629	.00396	.02317		
5	ANDERSON, W D AND SONS	.01257	.00793	.04633		
6	ARMSTRONG, I M	.01257	.00793	.04633		
7	ATLANTIC RICHFIELD CO.	294388	318701	347303	322351	Yes
8	BYROM W R	.06780	.06401	.09001		
9	C&C OPERATING CO.	.01133	.00688	.03147		
10	CHEVRON OIL COMPANY	321471	339898	297321	320016	Yes
11	CITIES SERVICE OIL CO.	324881	320046	554436	418606	No
12	CONRAD MARY DANIEL	.02408	.02508	.00196		
13	CONTINENTAL OIL CO.	1127134	1117358	1436721	1282811	Yes
14	CRILE, HERMAN R	.03613	.03762	.00294		
15	CUSACK, I. B.	270415	256609	.01173	.15346	No
16	CUSACK, JR., I. B.	11E609	12E831	.08912	.75565	No
17	CUSACK, MICHAEL E.	113609	117383	.08912	.75565	No
18	DEL-LEA, INC. (ANTWEIL)	.11092	.11053	.08692		
19	DUNLAVEY, I N	.00194	.00171	.00191		
20	ESTES, RUSSELL G	.03315	.00211	.01236		
21	EXXON COMPANY - U.S.A.	488761	439609	763885	675805	No
22	FIRST ROSWELL COMPANY	.00388	.00340	.00303		
23	FORBES C. C.	.01617	.05656	.02645	.04391	Yes
24	FORBES, ILAMAE	.05908	.05507	.02575	.04276	Yes
25	GETTY OIL COMPANY	872066	874234	755887	924529	Yes
26	GULF ENERGY & MINERALS	971717	944656	1523438	1187744	Yes
27	HEADLEY, KENNETH NOEL	.05778	.05978	.00522		
28	HURD, PETER	.02408	.02508	.00196		
29	JUDSON, RUBY WANDA CONRA	.01482	.00502	.00039		
30	KEDDITZ, A. A.	.91817	.85586	.40024	.66450	Yes
31	LAFLIN, GEORGE P.	.00194	.00171	.00191		
32	LOWE, M. RALPH	.03128	.02674	.00165		
33	MARATHON OIL COMPANY	283643	271879	403993	327367	Poss
34	MCCARTHY, KATHRYN L. C.	.01482	.00502	.00039		
35	MCPETERS, K. D.	.00817	.00757	.00318		
36	MCPHERON, MARGARAT M.	.02034	.01920	.02191		145
37	MCPHERON, ROBERT L.	.01017	.00960	.01050		
38	MOBIL OIL CORP.	.92642	.82805	.67264		

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Attachment No. C (Cont.)

PROPOSED NORTH HOBBS UNIT

WIO NO	WINAME					
40	MORAN, R. M.	.03511	.03029	.01270	.02290	No.
41	MORRIS, G. D.	.03992	.03721	.01740	.02889	Yes
42	MURDOCH, NATHYLYN I.-CONRA	.00482	.00502	.00039		
43	NOBLE, RICHARD L.	.48543	.45249	.21160		
44	PARRISH, M.C. ESTATE	.01173	.01063	.00062		
45	PORTALES NATIONAL BANK	.05989	.05582	.02610	.04334	Yes
46	RORING JOHN	.11975	.11163	.05221	.08668	Yes
47	ROSE, FRANCIS I. CONRAD	.00482	.00502	.00039		
48	SAMEDAN OIL CORP.	5.93716	6.19129	1.31910	4.14497	Yes
49	SEA PROPERTIES, LTD.	.09213	.09662	.01578	.06267	Yes
50	SHELL OIL COMPANY	24.12270	23.76832	4.88753	21.73379	Yes
51	1ST NATL BANK/FT. WORTH	.03992	.03721	.01740	.02889	Yes
53	SPEAR HOWELL	.00096	.00085	.00096		
54	SULLIVAN, E. C.	.05989	.05582	.02610	.04334	Yes
55	SUN OIL CO. (DELEWARE)	.22719	.19658	.04329		
56	SWEET, BILL L.	.02651	.02300	.01776		
57	SWEET, C. E. OIL CO.	.26443	.24146	.07399		
58	1ST NATL BANK OF CASPER	.11976	.11163	.05221	.08668	Yes
59	TEXACO, INC.	3.16134	3.09110	1.16515	2.28220	Yes
60	TEXAS PACIFIC OIL CO. IN	4.48172	4.10381	2.81932	3.91232	Yes
61	TREADAWAY, BETTYE CONRA	.00482	.00502	.00039		
62	TWO STATES OIL CO.	.06498	.06649	.00682		
63	WALLACE, COLLEEN MCPHERO	.01017	.00960	.00510		
64	WHITLEY, LOYD	.00194	.00171	.00191		
65	WILLIAMS, HATTIE C.	.13381	.14505	.02222	.09346	Yes
66	WILLIAMSON, A. T.	.00194	.00171	.00191		
67	WISER OIL COMPANY, THE	.28139	.28927	.11005	.21400	No
68	YATES, JOHN A	.12986	.10695	.03811		
69	YEAGER & ARMSTRONG	.01257	.00793	.00433		
70	YEAGER JR. DR. HENRY	.01546	.01631	.00127	.00999	No
71	YEAGER RUTH ANNE	.01166	.01214	.00095	.00744	No
72	YEAGER RUTH/HENRY	.00482	.00418	.00033	.00256	No
73	YEAGER-RUTH PEELER	.01682	.01751	.00137	.01074	No
74	LANDRETH INTERESTS	.45232	.44285	.01770		
	Yes	12.01563	12.36473	7.65992	8.05693	146
	No	10.87691	10.76944	1.35052	1.85528	
	Poss	2.03643	2.11879	.40393	3.27367	

PROPOSED CHANGES IN UNIT AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT

Page 3: In subsection (h), delete "and 5347 feet" and add at the end "and the depth of 4500 feet beneath the surface".

Page 9: In the third paragraph of Section 12, delete "owner" and insert "party or parties entitled thereto".

Page 10: At the end of the next to last paragraph in Section 13 add:

"Unit Operator shall notify the Supervisor and the Land Commissioner as to the date each phase change occurs".

Page 19: At the end of the first paragraph in Section 24 add:

"Unit Operator shall not file this Agreement or notice thereof for record, and hence this Agreement shall not become effective, unless such filing is approved by Working Interest Owners owning a combined Phase III Unit Participation of at least eighty percent (80%) as to all Tracts then committed to this Agreement".

Page 24: In the fifth line of the first paragraph of Section 39 after "become parties to this Agreement" insert "or have approved this Agreement in writing".

Page 25: At the end of the first paragraph in the revised Section 24 add:

"Unit Operator shall not file this Agreement or notice thereof for record, and hence this Agreement shall not become effective, unless within ninety (90) days after the date all other prerequisites for effectiveness of this Agreement have been satisfied, such filing is approved by Working Interest Owners owning a combined Phase III Unit Participation of at least sixty-five percent (65%) as to all Tracts within the Unit Area.

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001
February 9, 1978

Subject: Proposed Cost Allocation Formula
North Hobbs (Grayburg - San Andres) Unit
Lea County, New Mexico

TO: ALL WORKING INTEREST OWNERS

At the Working Interest Owners Meeting of the proposed North Hobbs (Grayburg - San Andres) Unit of February 2, 1978, it was agreed to submit for ballot vote a method of allocating unit costs as proposed by Shell Oil Company. Accordingly, a ballot is hereby submitted for such method of allocating unit costs. Please indicate your decision on this matter in the space provided and return one copy to Shell Oil Company, Box 991, Houston, Texas 77001, Attention W. E. Buck.

Enclosed for your convenience is a self-addressed, stamped envelope.

Yours very truly,

W E Buck

W. E. Buck
Chairman, Working Interest Owners Comm

WEB:TS

Attachments

NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT
COST ALLOCATION FORMULA - PROPOSED BY SHELL AT
MEETING OF FEBRUARY 2, 1978

I. Operating Expenses

Operating, maintenance, and overhead expenses to be allocated on phase-in-effect unit participation (oil).

II. Capital Expenditures and Inventoried Value of Personal Property

1. The inventoried value of personal property and all expenditures of a capital nature (including injection well conversion costs) made during Phase I (oil) and Phase II (oil) will be allocated on the basis of .58 Phase II (oil) participation plus .42 Phase III (oil) participation.

2. At the termination of Phase II (oil), the inventoried value of personal property and the capital investment account (both adjusted for retirements and including conversion costs) shall be adjusted to Phase III (oil) participation.

3. All expenditures of a capital nature made during Phase III will be allocated on the basis of Phase III (oil) participation.

The undersigned votes as noted below in regard to the above stated cost allocation formula.

Approved _____ Company _____

Disapproved _____ Representative _____

Date _____

Return to: Shell Oil Company
P. O. Box 991
Houston, Texas 77001
Attention: W. E. Buck

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

May 3, 1978

Subject: North Hobbs (Grayburg - San Andres) Unit
Lea County, New Mexico

TO: Working Interest Owners
(Mailing List Attached)

A meeting of the working interest owners of the proposed North Hobbs (Grayburg-San Andres) Unit is called for 10:00 A.M., May 18, 1978, in the Reddy Room, Texas Electric Service Company, Midland, Texas.

The agenda for the meeting will be as follows:

1. Review drafts of Unit and Unit Operating Agreements with view to preparing agreements in final form and submitting to working and royalty interests for ratification.

2. Develop further course of action for unitization matters.

3. Any other business

The indicated response to date on the ballot submitted February 9, 1978, is as follows:

Investment Participation

	Working Interest Owners' Participation %	
	Approved	Disapproved
Phase I Oil (Unit Participation)	85.33638	10.18781
Phase II Oil (Unit Participation)	85.79607	9.70702
Phase III Oil (Unit Participation)	83.62214	14.55282
Investment Participation	84.88304	11.74226

(Detailed response is shown on attached tabulation)

The response shown includes, as approved, the indicated acceptance of Samedan Oil Corporation. Samedan has advised that they will accept the formula with the added provision that the investment account be re-adjusted to Phase III Oil Unit Participation at the termination of Phase II (production of 38,071,683 bbls oil after 1/1/77) or at January 1, 1991, which ever occurs first. The date,

January 1, 1991, is the first day of the year following the approximate date that oil production from the unit area after January 1, 1977, totals 38,071,683 barrels as determined from the unit production performance estimated by the Technical Committee. As this is in keeping with the intent and purpose of the proposed formula for investment expenditures, the draft of the Unit Operating Agreement has been revised to include such stipulation.

All working interests owners, who have now indicated acceptance of the cost allocation formula, have previously indicated acceptance also of the gas and oil participation formulas. Shell considers this response sufficient to proceed with finalization of the Unit and Unit Operating Agreements and to submit such agreements for ratification at the earliest possible date.

Drafts of the Unit and Unit Operating agreements were submitted with the call to meeting of December 14, 1977. Due to further negotiation of the cost allocation formula, the drafts were not reviewed at the meeting of February 2, 1978. In the interim, written comments have been received from a number of the working interest owners. The comments have been reviewed and the revisions suggested by Shell are attached. All comments will be discussed at the meeting and representatives are asked to attend the meeting prepared to render decisions concerning the agreements.

A current listing of all working interest owners has been made and, as there have been changes in ownership, a new tabulation showing unit participation (oil and gas) and investment participation (based on .58 -.42 formula) is being prepared. Such tabulation will be mailed to you as soon as completed.

Yours very truly,

W E Buck

W. E. Buck
Chairman, Working Interest Owners
Committee

WEB:TS

Attachments

PROPOSED NORTH HOBBS UNIT

COST ALLOCATION FORMULA (Investment Participation)

.58 Phase II (o.i) + .42 Phase III (o.i)

WIO No.	WINAME	PHASE I oil %	PHASE II oil %	PHASE III oil %	INVESTMENT PARTICIPATION (.58 Phase II + .42 Phase III) %	Acceptance Y-Yes N-No
1	AMERADA HESS CORP.	656696	650261	860241	738453	Y
2	AMOCO PRODUCTION CO.	138897	135805	187841	157600	Y
3	ANDERSON ADA A	.00629	.00396	.02317	.01203	N
4	ANDERSON EST., WARREN D	.00629	.00396	.02317	.01203	N
5	ANDERSON, W D AND SONS	.01257	.00793	.04633	.02406	N
6	ARMSTRONG, I M	.01257	.00793	.04633	.02406	N
7	ATLANTIC RICHFIELD CO.	294388	318716	327303	322351	Y
8	BYROM W K	.06780	.06400	.07001		
9	C&C OPERATING CO.	.01133	.00688	.03147		
10	CHEVRON OIL COMPANY	321471	339898	297321	320016	Y
11	CITIES SERVICE OIL CO.	324881	320246	554436	416604	N
12	CONRAD MARY DANIEL	.02408	.02508	.00196		
13	CONTINENTAL OIL CO.	1124634	1117358	1436721	1282810	Y
14	CRILE, HERMAN R.	.03613	.03762	.00294	.03305	N
15	CUSACK, I. P.	.27045	.25669	.01173		
16	CUSACK, JR., I. P.	.12609	.12883	.08712		
17	CUSACK, MICHAEL F.	.13609	.13883	.08912		
18	DEL-LEA, INC. (ANTWEIL)	.11092	.11053	.03652		
19	DUNLAVEY, I.N.	.00194	.00171	.00191		
20	ESTES, RUSSELL G.	.00335	.00211	.01236	.00642	N
21	EXXON COMPANY - U.S.A.	488761	439609	763885	575805	N
22	FIRST ROSWELL COMPANY	.00388	.00340	.00323	.00358	N
23	FORBES, C. C.	.26067	.25656	.02645		
24	FORBES, ELANAE	.05908	.05507	.02575		
25	GETTY OIL COMPANY	872066	874234	755887	824529	Y
26	GULF ENERGY & MINERALS	971717	944656	1523438	1187744	Y
27	HEADLEY, KENNETH NOEL	.05778	.05978	.00522		
28	HURD, PETER	.02408	.02508	.00196		
29	JUDSON, RUBY WANDA CONRA	.01482	.01502	.00039		
30	KEMNITZ, A. A.	.91817	.85526	.90024	.66430	N
31	LAFLIN, GEORGE P.	.00194	.00171	.00191		
32	LOWE, M. RALPH	.03128	.02674	.01145		
33	MARATHON OIL COMPANY	243643	271879	403993	327367	Y
34	MCCARTHY, KATHRYN L. C.	.01482	.01502	.00039		
35	MCPETERS, K. D.	.00877	.00757	.00318		
36	MCPHERON, MARGARAT M.	.02034	.01920	.02101		
37	MCPHERON, ROBERT L.	.01017	.00960	.01050		
38	MOBIL OIL CORP.	.92642	.82895	.67244		
39	MORANCO	.03340	.02948	.00537	.01877	N

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PROPOSED NORTH HOBBS UNIT

WIO	WINAME						
40	MORAN, R. M.	.23511	.03029	.01270	.02290		N
41	MORRIS, G. D.	.03992	.03721	.01740			
42	MURDOCH, NATHYLYN I. CONRA	.00482	.00502	.00039			
43	NOBLE, RICHARD L.	.48543	.45249	.21160	.35132		N
44	PARRISH, M.C. ESTATE	.01173	.01003	.00062			
45	PORTALES NATIONAL BANK	.05989	.05582	.02610			
46	RORING JOHN	.11975	.11163	.05221			
47	ROSE, FRANCIS I. CONRAD	.00482	.00502	.00039			
48	SAMEDAN OIL CORP.	5.93736	6.19129	1.31910	4.14497	Y	
49	SEA PROPERTIES, LTD.	.09213	.09662	.01578	.06267		N
50	SHELL OIL COMPANY	24.12270	23.76832	18.87538	21.71329	Y	
51	1ST NATL BANK/FT. WORTH	.03992	.03721	.01740			
53	SPEAR HOWELL	.00096	.00085	.00096			
54	SULLIVAN, E. C.	.05989	.05582	.02610			
55	SUN OIL CO. (DELEWARE)	.22719	.19658	.43429	.29642		N
56	SWEET, BILL L.	.02651	.02300	.17776			
57	SWEET, C. H. OIL CO.	.26443	.24146	.79399	.47352	Y	
58	1ST NATL BANK OF CASPER	.11976	.11163	.05221	.08667		N
59	TEXACO, INC.	3.16134	3.09110	1.16515	2.28226	Y	
60	TEXAS PACIFIC OIL CO. IN	4.68172	4.70381	2.81932	3.91234	Y	
61	TREADAWAY, BETTYE CONRA	.00482	.00502	.00039			
62	TWO STATES OIL CO.	.06498	.06649	.00682	.04143		N
63	WALLACE, COLLEEN MCPHERO	.01017	.00960	.01050			
64	WHITLEY, LOYD	.00194	.00171	.00191			
65	WILLIAMS, HATTIE C.	.13361	.14505	.02222	.09346		N
66	WILLIAMSON, A. T.	.00194	.00171	.00191			
67	WISER OIL COMPANY, THE	.28139	.28927	.11005	.21400	Y	
68	YATES, JOHN A	.12986	.10695	.38811			
69	YEAGER & ARMSTRONG	.01257	.00793	.04633	.02406		N
70	YEAGER JR. DR. HENRY	.01566	.01631	.00127	.00999		N
71	YEAGER RUTH ANNE	.01166	.01214	.00095	.00744		N
72	YEAGER RUTH/HENRY	.00402	.00418	.00033	.00256		N
73	YEAGER RUTH PEELER	.01682	.01751	.00137	.01073		N
74	LANDRETH INTERESTS	.45232	.44225	.01170	.51342	Y	
	Totals						
	Yes	85.33638	85.79607	83.62214	84.88304		
	No.	10.18781	9.70702	14.55282	11.74226		

153

PROPOSED CHANGES IN UNIT AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT

Page 3: In subsection (h), delete "and 5347 feet" and add at the end "and the depth of 4500 feet beneath the surface".

Page 9: In the 5th line of the 1st paragraph in Section 12, after "water" insert "injection plants", and in the next line after "injection" insert "plants".

Page 9: In the 3rd paragraph in Section 12, delete "owner" and insert "party or parties entitled thereto".

Page 10: At the end of the next to last paragraph in Section 13 add:

"Unit Operator shall notify the Supervisor and the Land Commissioner as to the date each phase change occurs".

Page 15: At the end of the 3rd sentence in the last paragraph in Section 16, change the period to a semicolon and add "thereafter all oil produced, saved and sold from the unit shall, as to each and every category into which such production may then or thereafter be classified for pricing or other purposes, be allocated to all qualified Tracts in proportion to Tract Participation in accordance with the provisions of Section 15".

Page 16: At the beginning of Section 18, delete "The State of New Mexico and United States of America and" and insert "Any and".

Page 19: In the 10th and 14th lines in Section 23, change "instrument or transfer" to "instrument of transfer" and delete the comma in the 14th line.

Page 19: At the end of the 1st paragraph in Section 24 add:

"Unit Operator shall not file this Agreement or notice thereof for record, and hence this Agreement shall not become effective, unless such filing is approved by Working Interest Owners owning a combined Phase III Unit Participation of at least eighty percent (80%) as to all Tracts then qualified under the provisions of Section 14".

Page 21: At the beginning of Section 27 insert "Unless a different representative is designated by Working Interest Owners,".

Page 22: In the 8th line in Section 32 change "interested subject thereto" to "interest subject hereto".

PROPOSED CHANGES IN UNIT AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT

Page 24: In the 5th line of the 1st paragraph in Section 39 after "become parties to this Agreement" insert "or have approved this Agreement in writing".

Page 25: At the end of the 1st paragraph in the revised Section 24 add:

"Unit Operator shall not file this Agreement or notice thereof for record, and hence this Agreement shall not become effective, unless within ninety (90) days after the date all other prerequisites for effectiveness of this Agreement have been satisfied, such filing is approved by Working Interest Owners owning a combined Phase III Unit Participation of at least sixty-five percent (65%) as to all Tracts within the Unit Area.

PROPOSED CHANGES IN UNIT OPERATING AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES) UNIT

Page 1: Add a section in Article I as follows:

"1.2 Additional Definitions. For the purposes of this agreement, the following terms and expressions as used herein shall mean:

(a) "Investment Participation" shall mean the sum of .58 Phase II Unit Participation and .42 Phase III Unit Participation.

(b) "Investment Readjustment Date" shall mean the date of termination of Phase II or January 1, 1991, whichever is the earlier date."

Page 1: Change the first sentence in Section 2.1.2 to read "Exhibit E, attached hereto, is a schedule showing the Tract Participation, the Unit Participation, and the Investment Participation of each Working Interest Owner."

Page 6: After the 1st sentence in Section 7.9 insert "Unit Operator shall furnish to a Working Interest Owner, upon written request, a copy of each authority for expenditure prepared by Unit Operator for its own use."

Page 8: In the 7th line of Section 10.3.1 change "Phase II Unit Participation" to "Investment Participation".

Page 9: Make the following changes in Section 10.3.2:

Beginning in the 1st line in the 1st paragraph, change "as of the end of Phase II" to "as of the Investment Adjustment Date".

Beginning in the 8th line in the 1st paragraph change "during Phase I and Phase II Unit Operations" to "prior to the Investment Readjustment Date".

Beginning in the 2nd line in paragraph (b) change "during Phase I and Phase II Unit Operations" to "prior to the Investment Readjustment Date".

Beginning in the 2nd line in paragraph (c) change "prior to the effective date of Phase III Unit Operations" to "prior to the Investment Readjustment Date".

Page 9: Delete the last sentence in Section 10.4.

PROPOSED CHANGES IN UNIT OPERATING AGREEMENT
NORTH HOBBS (GRAYBURG-SAN ANDRES UNIT)

Page 10: Make the following changes in Section 10.5:

In the 5th line change "Phase II Unit Participation" to "Investment Participation."

Beginning in the 5th line change "as and while Phase I and Phase II may be effective" to "during the time prior to the Investment Readjustment Date".

In the 7th line change "from and after the time Phase III may hereafter become effective" to "from and after the Investment Readjustment Date."

Page 10: Change Section 11.1.2 to read as follows:

"11.1.2. Investment Cost. The cost of investment items (as described in Section 10.3.2 (b) above) incurred prior to the Investment Readjustment Date shall be shared and borne by Working Interest Owners in proportion to Investment Participation. The cost of such investment iters incurred after the Investment Readjustment Date shall be shared and borne by Working Interest Owners in proportion to Phase III Unit Participation."

Page 12: In the 4th line from the top of the page after "collected from" insert "or otherwise received for the account of".

Page 16: In the 10th line of Section 18.1, after "Working Interest Owners" insert "without regard to plugging and abandonment costs".

Page 17: In the 4th line of Section 20.1.2, after "Working Interest Owners" insert "without regard to plugging and abandonment costs".

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SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001

May 8, 1978

Subject: Participation and Cost Allocation Tabulations
North Hobbs (Grayburg-San Andres) Unit
Lea County, New Mexico

To: Working Interest Owners - North Hobbs
(Grayburg - San Andres) Unit
(Mailing List Attached)

The call to meeting of May 3, 1978, advised that up-dated tabulations of all working interest owners and their respective unit and investment participation would be furnished as soon as completed. Attached are the following listed tabulations:

1. Tract participation and Investment Participation.

2. Tract Participation and Investment Participation - by tract and working interest in each tract.

3. Unit Participation and Investment Participation - by working interest owner and by tract.

4. Summary of Unit and Investment Participation.

The data shown will be used in preparing the exhibits to the unit and unit operating agreements. It is, therefore, requested that if any errors are noted, Shell be so advised as soon as possible.

Since the call to meeting was issued, Cities Service has indicated acceptance of the cost allocation formula. The current response concerning the investment allocation, including the acceptance of Cities Service, is as follows:

Investment Participation

	Working Interest Owners' Participation %	
	Approved	Disapproved
Phase I Oil (Unit Participation)	88.58519	6.93900
Phase II Oil (Unit Participation)	88.99853	6.50456

Investment Participation

	Working Interest Owners' Participation %	
	Approved	Disapproved
Phase III Oil (Unit Participation)	89.16650	9.00846
Investment Participation	89.06910	7.5562

Yours very truly,

W. E. Buck
Chairman, Working Interest Owners Committee

WEB:TS

Attachments

SHELL OIL COMPANY

P.O. BOX 991
HOUSTON, TEXAS 77001
JUN - 2 1978

Subject: Minutes - Working Interest Owners' Meeting
of May 18, 1978
Proposed North Hobbs (Grayburg - San Andres)Unit
Lea County, New Mexico

TO: WORKING INTEREST OWNERS
(Mailing List Attached)

A meeting of the Working interest Owners of the proposed North Hobbs (Grayburg-San Andres) Unit was held May 18, 1978 in Midland, Texas. The representatives attending the meeting are shown on the attached attendance list.

Mr. Buck, chairman, opened the meeting by stating that the cost allocation formula submitted for ballot consideration by letter of February 9, 1978, had been accepted by Working Interest Owners totaling approximately 89 percent based on the oil unit participation. He further advised that all parties indicating acceptance of the cost allocation formula had also previously indicated acceptance of the unit participation (oil & gas) formula. He stated that Shell, as Unit Expeditor, believed the affirmative response was sufficient to proceed with the development and the submittal for execution of the unit and unit operating agreements.

Mr. Buck pointed out that drafts of the unit and unit operating agreements had been submitted to the Working Interest Owners with the notice of the meeting of February 2, 1978. Comments from a number of Working Interest Owners have been received and reviewed by Shell. Revisions, suggested by Shell and resulting from the comments received, were attached to the notice of this meeting.

As the first agenda item, the unit and unit operating agreements were reviewed. The unit agreement was reviewed first, page at a time. Comments of the Working Interest Owners were discussed and agreement reached on various revisions or deletions.

The unit operating agreement was then reviewed in the same manner. The major items of discussion were as follows:

Article 4.2	Agreement was reached to revise the provision to include the requirement that any request for monetary approval at a meeting must appear as an agenda item.
Article 7.9	Agreement was reached to include a provision requiring the unit operator to furnish informational AFE's to Working Interest Owners for any single capital expenditures in excess of $5000.

Article 10.2 Agreement was reached to provide for the inventory and pricing of items considered non-controllable as determined by the Working Interest Owners.

Article 10.3.2 In answer to questions, Mr. Buck explained that it was Shell's understanding that if any items of personal property and facilities were replaced by new items, the Investment Account would be reduced by the inventory value or actual installation cost of the item replaced and increased by the actual cost, including installation, of the new item. When given a specific example, Mr. Buck replied that if a treating or separation vessel, included in the original inventory, was replaced by a new vessel, the Investment Account would be reduced by the original inventory value of the replaced vessel and increased by the actual cost, including installation, of the new vessel. When asked about costs to deepen wells, Mr. Buck replied that it was Shell's understanding that such costs, being a part of the development program, would be charged on the basis of the investment participation and included in the adjustment of the Investment Account.

Article 18.1
Article 20.1.2 It was agreed that wells no longer needed for unit operations could be taken over by the Working Interest Owner by payment of net salvage value as estimated by Working Interest Owners.

Exhibit F (Accounting Procedure)

Because of the comments concerning the deletion of the word "direct" (Section I (1)) and the addition of the phrase "and related expenses"(Section II 2, A(1)), Mr. Buck offered the following explanation prior to review.

The revisions do not represent a change in Shell's accounting procedures or in the method of handling joint venture properties. The changes in the form are brought about by the use of the 1974-COPAS form.

Shell refers to their field operating Unit as a Production Unit. The employees and/or contract labor engaged in operating and maintaining the properties included in a Production Unit are supervised by a Production Foreman who is assisted by one or more Maintenance Foremen. The Production Unit is the First Level of Supervision. The salaries and related expenses of Production Unit Supervisors are considered as direct charges, since they were excluded from the calculation of overhead rates. All expenses of supervisory employees assigned to offices above a Production Unit, starting with the Division Production Superintendent, are included in Shell's overhead charges.

The COPAS-1974 Accounting Procedure defines First Level Supervisors as employees whose primary function is the direct supervision of other employees and/or contract labor. Previous COPAS Accounting Procedures did not include such a definition. Bulletin No. 8, associated with COPAS-1968 Accounting Procedure, defines First Level Supervisors as employees and their assistants who supervise other employees and/or contract labor. The COPAS-1968 form was acceptable to Shell. As supervision of Production Unit operating employees and/or contract labor by the Production Foreman may not always be direct, it was felt that the definition of the 1974-COPAS form could not be applied to Shell's organization. To avoid an interpretation that the Maintenance Foreman rather than the Production Unit is the First Level of Supervision, Shell felt it essential to delete the word "direct" when using the COPAS-1974 Accounting Procedure.

Related expenses are the expenses necessary for proper performance of the foreman's function. This would include such expenses as office rent, utilities, communication, answering service, and other miscellaneous expenses directly related to the Production Unit.

Although no formal vote was taken, it appeared that the unit and unit operating agreements, revised as discussed, were generally acceptable to the Working Interest Owners present and that it would not be necessary to submit revised drafts of the agreements. Mr. Buck advised that the agreements would be prepared in final form and submitted to the United States Department of Interior, Geological Survey and to the New Mexico State Land Office for review. If no revisions of substance are required by the governmental agencies, the agreements will be submitted to the working and royalty interests for ratification without further review. Depending on the time required for review by the governmental agencies, Mr. Buck estimated that the agreements would be submitted for ratification at some time between July 15, and August 1, 1978.

It was pointed out that ownership and lease data had been furnished to all Working Interest Owners by Shell's Land Department with the request that Shell be notified of any errors. As there are approximately 1500 royalty interests and 74 working interests, considerable time and effort would be required to correct data after the first printing of the agreements. Therefore, all parties are urged to review the data submitted as soon as possible and to advise Shell of any changes or corrections.

Mr. Buck noted that a unit of this size would require considerable preliminary planning and design work in order that injection operations could be commenced as early as possible after the effective date of unitization. As part of this preliminary work, Shell is proceeding to negotiate a water purchase agreement with the City of Hobbs, to purchase key rights-of-way and plant sites, and to design long delivery equipment and facilities. Shell will advise the Working Interest Owners from time to time of the progress of this work and the status of sign-up of working and royalty interests.

There being no further business, the meeting was adjourned.

Yours very truly

W. E. Buck
Chairman, Working Interests Owners' Committee

WEB:TS

Attachment

NORTH HOBBS UNIT

MAY 18, 1978

COMPANY	NAME	LOCATION
Amerada-Hess	R. W. Mullins	Tulsa, Ok.
Amoco	S. R. Denton	Houston, Tx.
Atlantic Richfield	Thane Akins	Midland, Tx.
Chevron USA	W. A. Masters	Denver, Co.
Chevron USA	W. A. Goudeau	Midland, Tx.
Chevron USA	D. D. Allen	Midland, Tx.
Citco	M. S. Mabry	Midland, Tx.
Conoco Oil Company	E. L. Oshlo	Hobbs, N. M.
Exxon Oil Company	J. B. Campbell	Midland, Tx.
Exxon Oil Company	W. E. Nolan	Midland, Tx.
First National Bank - Dallas	Gene Thomas	Dallas, Tx.
Getty Oil Company	O. V. Stuckey	Midland, Tx.
Gulf Oil Company	J. D. Mussett	Midland, Tx.
Moranco Oil Company	Ken McPeters	Hobbs, N. M.
Samedan Oil Company	Boyce Perry	Ardmore, Ok.
Shell Oil Company	W. E. Buck	Houston, Tx.
Shell Oil Company	W. L. Campbell	Houston, Tx.
Shell Oil Company	L. A. Kirkpatrick	Houston, Tx.
Shell Oil Company	W. R. Lancaster	Houston, Tx.
Texaco Inc.	Morris Todd	Midland, Tx.
Texas Pacific	Russ Meyers	Dallas, Tx.

NORTH HOBBS UNIT
WORKING INTEREST OWNERS
ADDRESSEE LIST

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SAMEDAN OIL CORPORATION
900 WALL TOWERS EAST
MIDLAND, TX 79701

SAMUEL ROBERTS NOBLE FOUNDATION, INC.
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MOBIL OIL CORPORATION
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ATTENTION MR. JOE W. THORNTON
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SUN OIL COMPANY (DELAWARE)
ATTENTION MR. R. K. BEGGS
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TEXACO, INC.
ATTENTION DISTRICT ENGINEER
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TEXAS PACIFIC OIL CO., INC.
ATTENTION MR. R. J. WOMACK
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TWO STATES OIL COMPANY
MERCANTILE COMMERCE BUILDING
SUITE 1910
DALLAS, TX 75201

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