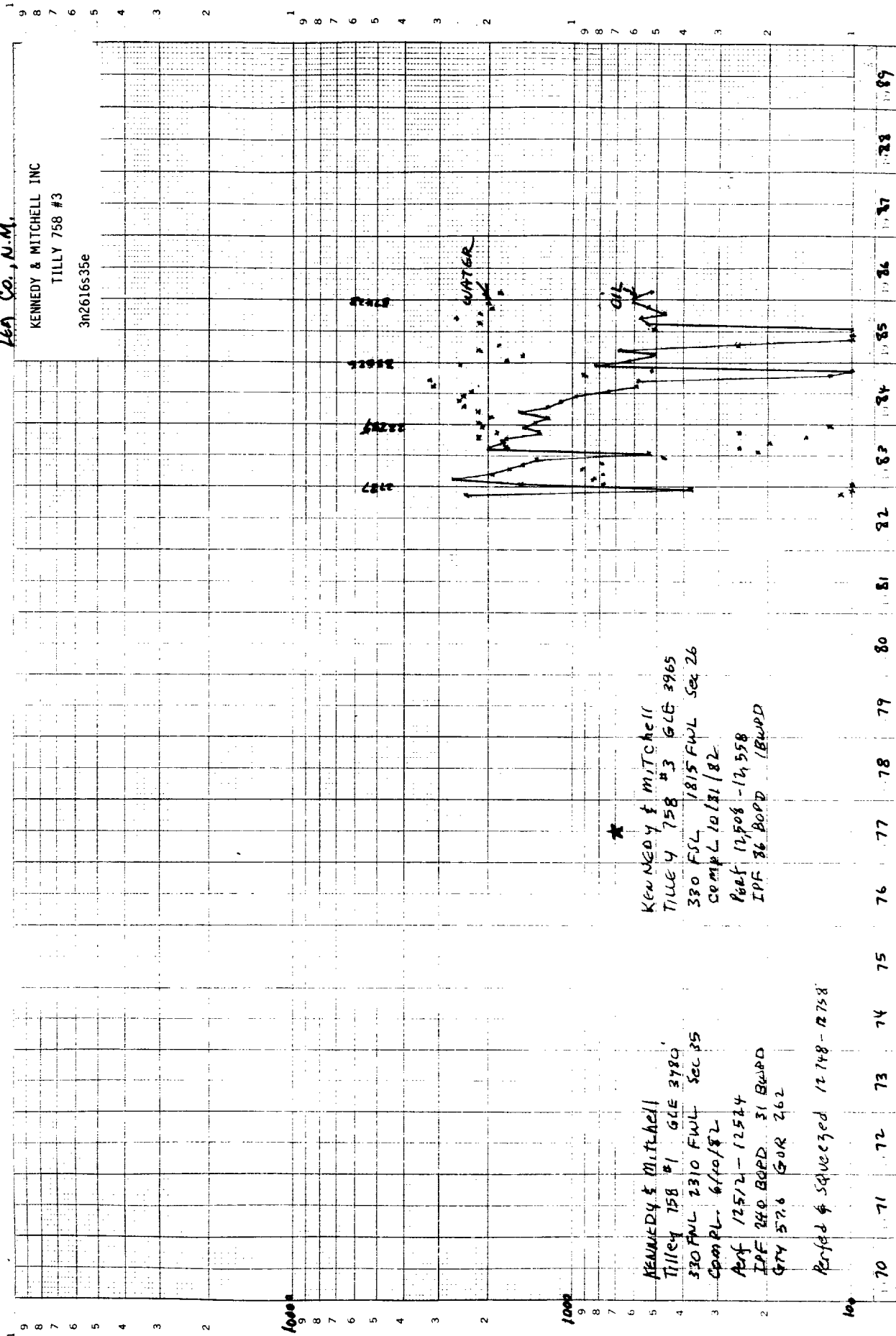


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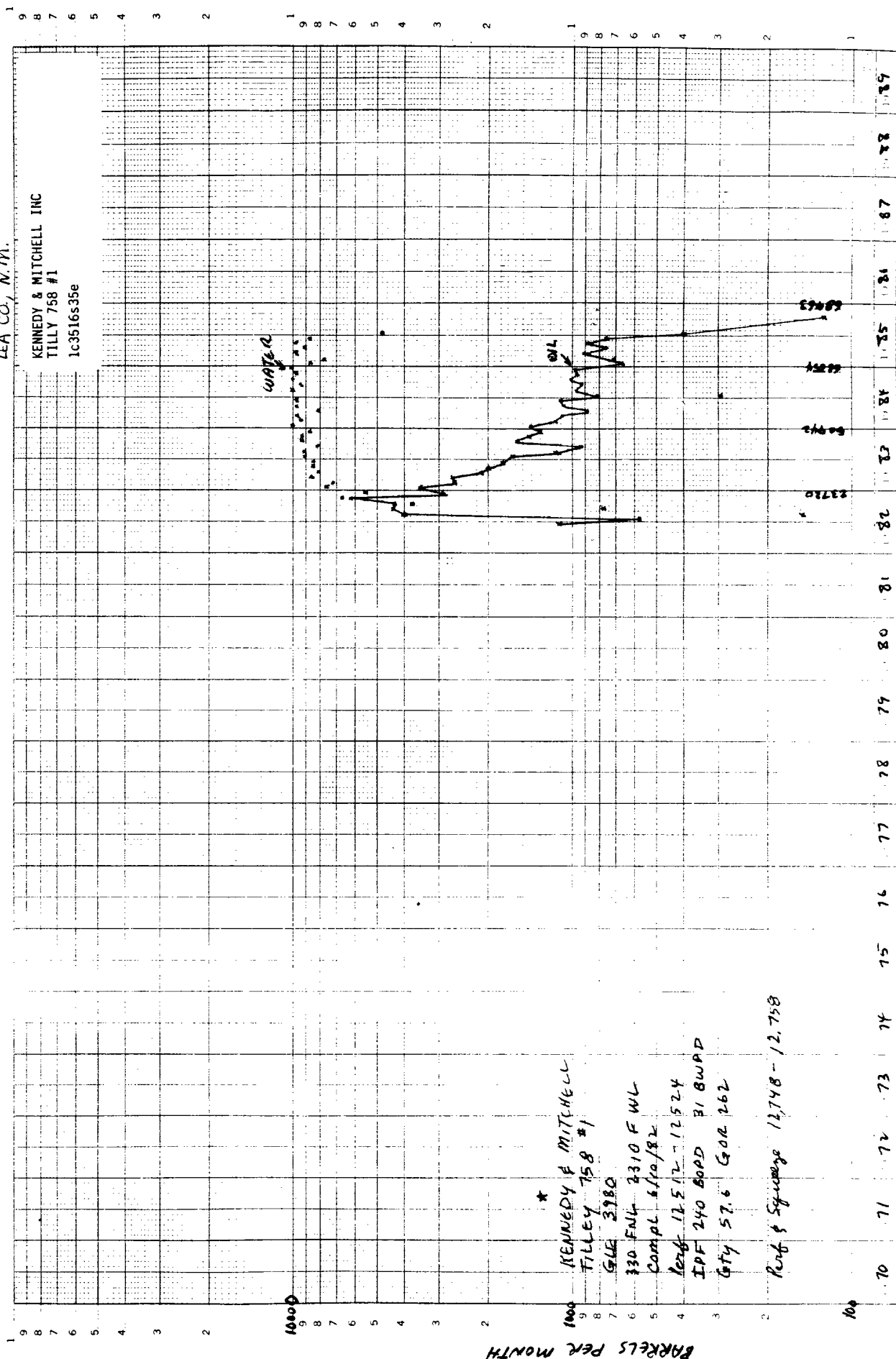
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— BARRELS PER MONTH —



SHOE BAR (DEVONIAN)
LEA CO., N.M.

KENNEDY & MITCHELL INC
TILLY 758 #1
1c3516s35e



ANNUAL REPORT

OF THE

**NEW MEXICO OIL & GAS ENGINEERING
COMMITTEE**

HOBBS, NEW MEXICO

VOLUME I-B
Southeast New Mexico

1985

1985....SHOE BAR (DEVONIAN)....One well still producing at the end of the year.
....SHOE BAR (DEVONIAN) EAST.....One well still producing.

WELL S T R	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	1985	PROD	MP	ACCU
COQUINA OIL CORPORATION																
PAN CANADIAN																
243419525E OIL	433	369	386	399	331	320	332	306	318	282	213	242		4001F	11103	
243419525E GAS	25	25	25	25	25	25	25	25	25	25	25	25		300		
PAN CANADIAN B																
3A3419525E OIL										1390	1276	643		3549P	3749	
3A3419525E GAS										25	25	25		75		
COMPANY TOTAL OIL	433	389	386	399	331	320	332	306	318	1672	1489	1175		7550	14652	
3A3419525E GAS	25	25	25	25	25	25	25	25	25	50	50	50		375		
LAKELAND CORPORATION																
LAKELAND FEDERAL																
103419525E OIL	233	165	234	250	147	171	103	130	233	172	149	94		2036P	10024	
103419525E GAS	490	368	434	495	278	305	201	257	380	317	179	177		4035		
2P3419525E OIL	233	157	220	235	138	161	97	122	219	162	140	43		1977		
2P3419525E GAS	41	29	41	44	52	60	34	46	33					432P	2538	
313419525E OIL	111	97	111	123	180	209	107	151	280		104			1479		
313419525E GAS	14	14	14	15	17	20	12	15	18					145		
313419525E OIL	111	77	110	118	95	111	67	84	151	112	97	64		1196P	7406	
313419525E GAS	462	341	435	468	406	430	394	393	515	452	409	355		5080P		
313419525E OIL	96	67	96	103	83	97	59	74	132	98	85	56		1046		
COMPANY TOTAL OIL	384	271	385	412	294	342	208	260	497	284	246	193		3714	23368	
384 OIL	1063	806	1050	1092	864	944	702	801	1175	769	742	532		16596		
384 GAS	343	234	330	353	238	278	168	211	379	260	225	149		3168		
SHINNERY QUEEN																
SHINNERY QUEEN			QN	ON TO 5M												
BURLINSON AND HUFF																
BURLINSON AND HUFF																
122418532E OIL																
122418532E OIL																9692
FROSTMAN OIL CORP																
FROSTMAN OIL CORP																
222418532E OIL	189	191	230	209	224	159	206	191	214	204	184	202		2403P	37012	
222418532E GAS	273	239	327	325	393	348	310	380	318	317	264	314		3365		
302418532E OIL	240	220	270	280	310	290	270	290	300	310	300	310		3340		
302418532E GAS	652	618	707	705	774	728	690	760	698	693	643	694		8352	9130	
COMPANY TOTAL OIL	189	191	230	209	224	159	206	191	214	204	184	202		2403	46142	
189 OIL	240	220	270	280	310	290	270	290	300	310	300	310		3340		
189 GAS	240	220	270	280	310	290	270	290	300	310	300	310		3340		
SHIPP STRAWN																
SHIPP STRAWN			PS	11M TO 12M												
PENNZOIL COMPANY																
PENNZOIL COMPANY																
3E SHIPP ESTATE																
1G 417537E OIL																
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ANNUAL REPORT

OF THE

NEW MEXICO OIL & GAS ENGINEERING COMMITTEE

HOBBS, NEW MEXICO

==
VOLUME I-B

Southeast New Mexico
==

1982

1982...SHOE BAR (DEVONIAN).....Two new wells begin producing. All other
Devonian wells have been abandoned.

...SHOE BAR (DEVONIAN) EAST.....Two wells still producing.

WELL S T R	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	YR-PRGD MP	ACCU.	
COMPANY TOTAL OIL	6573	5361	6715	6328	7205	6701	5651	3355	2839	3122	2544	1679	58073	131404	
GAS	3889	3397	4212	3962	3351	3607	7371	3840	2887	3118	3549	2528	52011		
WAT	107	82	115	190	228	220	240	170	177	378	267	130	2304		

TEXAS OIL AND GAS CORPORATION															
SCHARB STATE															
1M 219534E OIL	PLUGGING APPROVED 1976														

WESTERN OIL PRODUCERS INCORPORATED															
STATE MTS															
10 419535E OIL											4969	5329	10298F	10298	

SCHARB-WULFCAMP	MC 10M TO 11M														

EXXON CORPORATION															
NEW MEXICO STATE															
2E 419535E OIL											406	1341	65	3551	2196
GAS											327	1740	84	4609	931
3B 419535E OIL											1369	4716	2640	16284F	16284
GAS											580	2691	1331	12495	804
WAT											550	254	804F	335	
COMPANY TOTAL OIL											1369	5266	2894	17088	17088
GAS											580	2966	1303	12838	
WAT											550	275	254	804F	

SOUTHLAND ROYALTY COMPANY															
SCHARB															
2F 419535E OIL	244	270	306	279	178	188	147	243	157	166	159	50	2387F	12798	
GAS	180	357	181	70	174	151	19	82	37	10	45	17	1323		
WAT	150	200	186	205	186	185	195	240	220	217	190	80	2214		

SEVEN RIVERS YESO	YE OM TO 5M														

CHAMA PET. CO.															
IRAMI FEDERAL															
1N3419525E OIL											479	922	575	394	316
GAS											280	1537	1590	1811	1404
WAT											585	816	520	348	205

EXXON CORPORATION															
LAKEWOOD FEDERAL															
103419525E OIL											369	585	519	407	1880P
GAS											76	120	106	617	919
WAT											284	453	400	315	1452

SHINNERY QUEEN	QM OM TO 5M														

BURLESON AND HUFF															
CINCO DE MAYO FEDERAL															
1C2418532E OIL	CONVERTED TO SMO														

CLARENCE FURISTER															
CINCO DE MAYO FEDERAL															
2E2418532E OIL	466	323	362	465	394	358	200	310	304	288	342	285	4177P	28899	
GAS	813	642	670	916	889	864	535	712	718	407	447	541	8174		
WAT	150	150	150	150	150	150	150	150	150	150	150	150	1800		
3D2418532E OIL	LAST PROD. DATE 06/80														

COMPANY TOTAL OIL	466	323	362	465	394	358	200	310	304	288	342	285	4177	38029	
GAS	813	642	670	916	889	864	535	712	718	407	447	541	8174		
WAT	150	150	150	150	150	150	150	150	150	150	150	150	1800		

SHOE BAR DEVONIAN	DV 12M TO 13M														

ATLANTIC RICHFIELD COMPANY															
EIDSON															
1G3516535E OIL	PLUGGING APPROVED 1967														

KENNEDY & MITCHELL, INC.															
TILLY															
1C3516535E OIL											4386	6245	2898	23720F	23720
GAS											952	1803	868	3623	
WAT											3750	4750	5500	16930	
3N2616535E OIL											2406	381	2878F	144	2787
COMPANY TOTAL OIL											4386	8451	3279	26507	26507
GAS											952	1803	868	3623	
WAT											3750	6866	5528	17074	

SINCLAIR OIL CORPORATION															
EIDSON															
2N2616535E OIL	PLUGGING APPROVED 1969														
EIDSON															
2E2616535E OIL	RECOMPLETED TO SHOE BAR PENNSYLVANIAN														
MILLARD EIDSON															
3L2616535E OIL	RECOMPLETED TO SHOE BAR PENNSYLVANIAN														

COMPANY TOTAL OIL															
WESTERN NATURAL GAS COMPANY															
MILLARD EIDSON															
1C3516535E OIL	PLUGGING APPROVED 1962														

SHOE BAR DEVONIAN, EAST	DV 13M TO 14M														

GETTY OIL COMPANY															
STATE L 736															
1D3216536E OIL	CONVERTED TO SMO														

JAKE L. HAMON															
STATE A 1320															
1B3116536E OIL	LAST PROD. DATE 06/81														
STATE K 33															
1K3016536E OIL	PLUGGING APPROVED 1982														
2N3016536E OIL	PLUGGING APPROVED 1980														
STATE K 33 COM															
303016536E OIL	135	160	277	267	310	260	200	168	294	285	244	92	2692P	214902	
GAS	45	87	37	11	278	82	48	56	188	22800	22400	10270	259510		
WAT	21465	19500	24335	23400	23700	23850	21330	22910	23550	22800	22400	10270	259510		
STATE K 4203															
113016536E OIL	PLUGGING APPROVED 1978														
COMPANY TOTAL OIL	135	160	277	267	310	260	200	168	294	285	244	92	2692	93518	
GAS	45	87	37	11	278	82	48	56	188	22800	22400	10270	259510		
WAT	21465	19500	24335	23400	23700	23850	21330	22910	23550	22800	22400	10270	259510	1406585	

ROGER C. HANKS															
C. M. GRAHAM															
2L2916536E OIL	PLUGGING APPROVED 1981														

MCF OIL CORPORATION															
MOBILE STATE COM															
1P3016536E OIL	879	686	792	762	739	690	696	762	612	801	641	248	8311F	303800	
GAS	1249	1120	1200	1200	1240	1200	1240	1085	1200	1240	1120	600	13694		
WAT															

SHOE BAR DEVONIAN, NORTH	DV 12M TO 13M														

LEONARD NICHOLS															
C. W. NICKSON															
1G1516535E OIL	PLUGGING APPROVED 1966														

SINCLAIR OIL CORPORATION															
F. J. DANGLADE															
1J1516535E OIL	RECOMPLETED TO SHOE BAR PENN NORTH (ABANDONED)														

ALLEN K. TROBAUGH															
EIDSON															
1F1516535E OIL	302	241	619	512	475	378	326	297	445	318	159	496	4570F	88303	
GAS	45	140	300	316	278	270	270	270	308	2310	1590	250	307		
WAT	1250	1200	2240	2250	2350	2100	1925	1950	2235	2310	1550	2080	2344		

SHOE BAR PENNSYLVANIAN	PM 10M TO 11M														

ARCO OIL & GAS COMPANY															
EIDSON															
3L2616535E OIL	406	482	560	580	600	608	600	736	436	1219	1161	948	8744P	498016	
GAS	934	748	861	824	819	772	734	1087	187	1413	1343	2022	14825		
WAT	3181	2530	2940	3045	3150	3000	3100	3584	2897	3453	3095	4082	44157		

ANNUAL REPORT

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NEW MEXICO OIL & GAS ENGINEERING COMMITTEE

HOBBS, NEW MEXICO

==
VOLUME I-B

Southeast New Mexico
==

1981

1981...SHOE BAR (DEVONIAN).....*ABANDONED*

...SHOE BAR (DEVONIAN) EAST.....Two producing wells left.

WELL S T R	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	YR-PROD	MP	ACCLM.
COMPANY TOTAL OIL	4557	4249	4424	3654	3215	3045	2926	3851	3231	2142	2362	8294	5554		73331
GAS	2639	2069	1849	1564	1383	786	845	1278	2211	2338	2084	3111	24177		
WAT						10	10	5	47	38	40	64	239		

TEXAS OIL AND GAS CORPORATION															

SCHARB 2 STATE	*****														
1M 219534E OIL	PLUGGING APPROVED 1976														
SCHARB-WOLFCAMP	WC 10M TO 11M														

SOUTHLAND ROYALTY COMPANY															

SCHARB 4	*****														
2F 419535E OIL	2094	1186	1297	1153	850	694	581	516	450	318	417	343	9939F		10411
GAS	351	369	819	475	400	556	429	337	310	236	254	67	4600		
WAT	81	78	73	372	211	260	210	157	120	157	340	124	2183		

SHINNERY QUEEN															
CN 0M TO 5M															

BURKESLY AND HUFF															

CINCO DE MAYO FEDERAL	*****														
1C2418532E OIL	CONVERTED TO SWD														
CLARENCE FURISTER	*****														
CINCO DE MAYO FEDERAL	*****														
2E2418532E OIL	280	179	202	6	84	330	258	189	238	405	337	554	3062P		24722
GAS	101	35	60	113	402	754	642	466	405	369	331	934	5012		
WAT	4	4	4	34	40	40	40	40	40	40	40	150	476		9130
302418532E OIL	LAST PROD. DATE 06/80														
COMPANY TOTAL OIL	280	179	202	6	84	330	258	189	238	405	337	554	3062		33852
GAS	101	35	60	113	402	754	642	466	405	369	331	934	5012		
WAT	4	4	4	34	40	40	40	40	40	40	40	150	476		

SHOE BAR DEVONIAN (ABANDONED) CV															
12M TO 13M															

ATLANTIC RICHFIELD COMPANY															

EIDSON A WA	*****														
1G3516535E OIL	PLUGGING APPROVED 1967														
SINCLAIR OIL CORPORATION	*****														

EIDSON A WA	*****														
2N2616535E OIL	PLUGGING APPROVED 1969														
EIDSON C	*****														
2E2616535E OIL	RECOMPLETED TO SHOE BAR PENNSYLVANIA														
MILLARD EIDSON A	*****														
3L2616535E OIL	RECOMPLETED TO SHOE BAR PENNSYLVANIA														
COMPANY TOTAL OIL	*****														

WESTERN NATURAL GAS COMPANY															

MILLARD EIDSON	*****														
1C3516535E OIL	PLUGGING APPROVED 1962														
SHOE BAR DEVONIAN, EAST CV	13M TO 14M														

GETTY OIL COMPANY															

STATE L 738	*****														
103216536E OIL	CONVERTED TO SWD														
JAKE L. HAMON	*****														
STATE L 1320	*****														
182116536E OIL	103	27	16		119	16							281P		607330
GAS	14210	10780	980	8415	10290	1770							46445		
WAT															
STATE K 33	*****														
1K3016536E OIL	42	23											65P		316204
GAS	15810	14840	2360										33010		174631
WAT															
2N3016536E OIL	PLUGGING APPROVED 1980														
STATE K 33 COM	*****														
303016536E OIL	276	71	11	153	249	240	287	245	281	366	499	205	2883P		212210
GAS	82	40	22	153	249	240	287	245	281	366	499	205	2883P		
WAT	22040	18840	10270	14485	24490	24000	24645	23055	23400	24490	23550	24490	259755		93518
STATE K 4203	*****														
113016536E OIL	PLUGGING APPROVED 1978														
COMPANY TOTAL OIL	421	121	22	153	249	240	287	245	281	366	499	205	3225		1403893
GAS	82	40	22	153	249	240	287	245	281	366	499	205	3225		
WAT	52060	44460	13610	24900	34780	25770	24645	23055	23400	24490	23550	24490	339210		

ROGER C. HANKS															

C. N. GRAHAM	*****														
2L2916536E OIL	PLUGGING APPROVED 1981														
HGE OIL CORPORATION	*****														

MOBIL STATE LCM	*****														
1P3016536E OIL	915	817	899	783	741	679	778	868	822	851	855	885	9893F		295489
GAS	1488	1176	1302	1200	1302	1260	1240	1240	1200	1240	1200	1240	15088		
WAT															

SHOE BAR DEVONIAN, NORTH CV															
12M TO 13M															

LEONARD NICHOLS															

G. N. NICKSCA	*****														
1G1516535E OIL	PLUGGING APPROVED 1966														
SINCLAIR OIL CORPORATION	*****														

F. J. DANGLADE	*****														
1J1516535E OIL	RECOMPLETED TO SHOE BAR PENN NORTH (ABANDONED)														
ALLEN K. TROBAUGH	*****														
EIDSON	*****														
1F1516535E OIL	429	322	445	257	375	367	446	338	427	295	589	454	4762F		83733
GAS	398	240	330	160	331	306	310	290	335	223	310	250	3483		
WAT	1630	1185	1675	1485	2205	1910	2250	2400	2095	1640	2260	2380	23115		

SHOE BAR PENNSYLVANIA PN															
10M TO 11M															

ARCO OIL & GAS COMPANY															

EIDSON A WA	*****														
3L2616535E OIL	580	500	500	453	472	331	410	390	439	542	389	559			
GAS	1095	1020	1225	1029	1081	790	1251	1200	858	1082	1148	884	5985P		489270
WAT	2832	2441	2441	2213	2304	1616	14640	3948	3219	4121	2042	2935	12645		
4K2616535E	243	183		245	190				186	186	165	155	44751		212857
GAS	879	655		1169	1192	908	150	149	722	491	222	929	10002		
WAT	2795	2541	2127	2932	3047	2185	1245	4464	3420	3534	3960	3720	35570		

RAMCO STATE WA															

213516535E	90	76	41	60	48	19	54	40	46	36	32	30	572F		64254
OIL	423	357	193	282	226	89	254	188	5	169	150	141	2477		
GAS	2	76		1	1	1							81		
WAT															
COMPANY TOTAL OIL	913	797	726	768	785	540	820	816	665	783	586	714	8974		766381
GAS	2817	2772	2318	2485	2352	1802	15885	8412	1893	1655	1598	1514	28724		
WAT	5629	5058	4348	5145	5352	3002	15885	8412	1893	1655	1598	1514	28724		

ASHMUN AND HILLIARD															

EIDSON	*****														
302616535E OIL	PLUGGING APPROVED 1977														
J. E. STOKES ET AL	*****														
1G2616535E OIL	PLUGGING APPROVED 1971														
COMPANY TOTAL OIL	*****														

ATLANTIC RICHFIELD COMPANY															

EIDSON A	*****														
3F2616535E OIL	CONVERTED TO SWD														
JAKE L. HAMON	*****														
STATE L 1330	*****														
1C3116536E OIL	CONVERTED TO SWD														
SINCLAIR OIL CORPORATION	*****														

EIDSON A	*****														
2E2616535E OIL	PLUGGING APPROVED 1969														
SHOE BAR PENN NORTH (ABANDONED) PN	10M TO 11M														

Y-F PETROLEUM INC.															

F. J. DOWGLASS	*****														
1J1516535E OIL	ZONE ABANDONED														



RESERVOIR FLUID STUDY
MOBIL PRODUCING TEXAS & NEW MEXICO
LOVINGTON DEEP STATE UNIT #1
LEA COUNTY, NEW MEXICO

BEFORE EXAMINER STOGNER

Oil Conservation Division

MPTM Exhibit No. 6

Case No. 8949

Bell PETROLEUM LABORATORIES

July 15, 1986

Mobil Producing Texas & New Mexico
P.O. Box 633
Midland, Texas 79702

Attn: Glenn Bankson

RE: Reservoir Fluid Study
Lovington Deep State Unit #1
Lea County, New Mexico

Dear Mr. Bankson:

Presented in this report are the results of a recombined reservoir fluid study performed on the subject well using primary separator gas and liquid samples obtained by a representative of Bell Petroleum Services, Inc.

The gas and liquid were recombined to a primary gas - liquid ratio of 624.6 SCF/Bbl. At the reservoir temperature of 176°F, the fluid exhibited a bubble point pressure of 2466 psia. Comparison of this value to the original reservoir pressure of 4620⁵⁰⁰⁰ psia indicates that this fluid exists as a highly undersaturated liquid in the reservoir.

A comparison of the differential vaporization process to the single stage separator process is as follows:

Type of Liberation	Separator Conditions		Gas - Oil Ratio			Formation Volume Factor	Stock Tank Oil	Gravity Separator Gas (Air=1.00)	
	Pressure (psia)	Temp °F	Primary	Stock Tank	Total	Vsat/Vt	°API@60°	Gas	Stock
								Primary	Tank
Flash	54	68	637.0	10.4	647.4	1.3718	49.4	.7311	1.0497
Differential					669.0	1.3769	48.9		.7404

This demonstrates the "black Oil" nature of this fluid.

It has been our pleasure to perform this analysis for you. Should you have any questions or if we can be of further assistance to you, please do not hesitate to contact us.

Sincerely yours,

James L. Barnett

Jim Barnett
Reservoir Fluid Section
Bell Petroleum Laboratories

JB/bar

BP PETROLEUM LABORATORIES

DIFFERENTIAL LIBERATION AT VAPOR PROPERTIES

176 DEGREE F

DIFFERENTIAL LIBERATION AT 176 DEGREE F OIL PROPERTIES (6)

Pressure (psia)	SPECIFIC GRAVITY (3)		DEVIATION Factor Z	GAS		FORMATION VOLUME FACTORS			SOLUTION(1) LIQUID PHAS		
	Incremental	Accumulated		Volume Factor Bg	Total Bt(7)	Oil Bo(7)	Gas Bg(5)	Gas/Oil Ratio Rs	Density (gm/cc)		
5000							1.3333				
4500							1.3407				
4000							1.3487				
3500							1.3571				
3000							1.3662				
2500							1.3761				
2466							1.3769	1.3769		668.96	0.6453
2250	0.6623	0.6623	0.8833	1.2568	1.4286	1.2558	1.3508	1.2558		606.93	0.6535
2000	0.6609	0.6616	0.8868	1.4195	1.5073	1.4109	1.3206	1.4109		536.63	0.6608
1750	0.6609	0.6613	0.8920	1.6318	1.6146	1.6121	1.2923	1.6121		469.03	0.6677
1500	0.6614	0.6614	0.8980	1.9165	1.7659	1.8940	1.2648	1.8940		404.39	0.6749
1250	0.6618	0.6614	0.9050	2.3178	1.9888	2.2838	1.2381	2.2838		340.25	0.6819
1000	0.6623	0.6616	0.9158	2.9318	2.3387	2.8834	1.2118	2.8834		278.13	0.6894
750	0.6670	0.6623	0.9245	3.9461	2.9453	3.8919	1.1863	3.8919		217.00	0.6967
500	0.6900	0.6656	0.9368	5.9977	4.1993	5.9254	1.1601	5.9254		156.05	0.7045
250	0.7519	0.6752	0.9520	12.1908	8.0540	11.9977	1.1323	11.9977		92.04	0.7126
15	1.1492	0.7404	0.9930	-	0	0	1.0621	0		0.00	0.7380

(1) SCF per tank Bbl.

(3) Air = 1.0000

(5) Bbls. at pressure and temperature indicated per MSCF.

(6) Basic: 48.9 API stock tank oil

(7) Reservoir Bbls. at pressure and temperature indicated per stock tank Bbl.

Example Calculation 1: Reservoir Above Bubble Point (Based on Fig. 3.3)

Test Data:

Test Date 5/24/86
 Producing Formation SILVER-DEVONIAN
 Hole Size (inches) 5 1/8"
 Cum. Prod. N_p (bbl) 2130
 Stabilized Daily Prod. q (bbl) 710
 Effective Prod. Life: (hr) = $24 N_p / q$ 3 days - 72 hrs

Company MPTM

Lease

Well No. LOWINGTON DEEP #1

Field EASTER

State NEW MEXICO

I. Calculation of kh (md-ft) and k (md):

$$kh = \frac{162.6 q \mu B}{m}; k = \frac{kh}{h}$$

$$h \frac{19}{710} \text{ ft B/D} \quad 12761 - 12742$$

$$\mu \frac{.37}{1.33} \text{ cp}$$

$$m \frac{250}{250} \text{ psi/cycle}$$

$$kh = \frac{162.6 \times (710) \times (1.33) \times (.37)}{(250)} = 227 \text{ md-ft}; k = \frac{(227)}{(19)} = 12 \text{ md}$$

II. Calculation of Skin Effect, s ; and Pressure Loss Due to Skin, Δp_{skin} (psi):

$$s = 1.151 \left[\frac{p_{1hr} - p_{wf}}{m} - \log \left(\frac{k}{\phi \mu c r_w^2} \right) + 3.23 \right]$$

$$\Delta p_{skin} = (m) \times 0.87 (s)$$

$$k \frac{12}{.07} \text{ md}$$

$$\phi \frac{.37}{.07} \text{ cp}$$

$$c \frac{10 \times 10^{-6}}{.07} \text{ psi}^{-1}$$

$$r_w \frac{2.25}{12} = .1875 \text{ ft}$$

$$p_{1hr} \frac{4630}{3159} \text{ psig}$$

$$p_{wf} \frac{3159}{250} \text{ psig}$$

$$m \frac{250}{250} \text{ psi/cycle}$$

$$s = 1.151 \left[\frac{(4630) - (3159)}{(250)} - \log \frac{(12)(.07)}{(.07)(.37)(10 \times 10^{-6})(.035)} + 3.23 \right] = 1.03$$

$$\Delta p_{skin} = (6.5) \times 0.87 (250) = 6.5 \text{ psi}$$

III. Calculation of Productivity Index (B/D-psi) and Flow Efficiency:

$$J_{(actual)} = \frac{q}{p^* - p_{wf}}$$

$$\Delta p_{skin} \frac{6.5}{710} \text{ psi B/D}$$

$$J_{(actual)} = \frac{(710)}{(5050) - (3159)} = .376 \text{ B/D-psi}$$

$$J_{(ideal)} = \frac{(710)}{(5891) - (6.5)} = .387 \text{ B/D-psi}$$

$$\text{Flow Efficiency} = \frac{J_{(actual)}}{J_{(ideal)}} = \frac{.376}{.387} = .972$$

$$J_{(ideal)} = \frac{q}{(p^* - p_{wf}) - \Delta p_{skin}}$$

$$p^* \frac{5050}{3159} \text{ psig}$$

$$p_{wf} \frac{3159}{250} \text{ psig}$$

Note:

1. Compressibility is obtained from

$$c_t = S_o c_o + S_w c_w + c_f = 0.50(6.4 \times 10^{-6}) + 0.50(2.1 \times 10^{-6}) + .6 \times 10^{-6} = 10 \times 10^{-6}$$

The value of c_o is obtained from PVT analysis, c_f from Fig. G.5; c_w is an average value for water.

B, μ, c From correlations.

$$r_i = \left(\frac{K r_w}{\phi \mu c r_w} \right)^{1/2} \cdot \left(\frac{(12 \times 72)}{(.07)(.37)(10 \times 10^{-6})} \right)^{1/2} = 1875 \text{ feet}$$

$$A = \frac{(1875)^2 \pi}{43560} \approx 250 \text{ ACRES}$$

BEFORE EXAMINER STOGNER

Oil Conservation Division

MPTM Exhibit No. 7

Case No. 8949