

E #
4360

DIAGRAMMATIC WELL SKETCH

WIW TO BE DRILLED UNIT-E - S25

VACUUM (GRAYBURG-SAN ANDRES) POOL

T17S R34E

LEA COUNTY, NEW MEXICO

EX 5

BEFORE EXAMINATION NUTTER

OIL CONSERVATION COMMISSION

APPL. NO. 53

CASE NO. ~~4360~~ 4367

8 5/8"

2 3/4" C.L. Tubing

4 1/2" 9.5 # J-55
4900'

INT PKR. 4450'

SAN ANDRES Perforations
4500' - 4850'

4900' TD

CASE 4361

NMOC

DIAGRAMMATIC WELL SKETCH

WIW TO BE DRILLED IN UNIT "N" S 36 T 17 S

VACUUM (GRAYBURG-SAN ANDRES) POOL

K 30 E

LEA COUNTY, NEW MEXICO

8 ⁵/₈ "

2 ³/₂ " C.L. Tubing

BEFORE EXAMINER NUTTER

OIL CONSERVATION COMMISSION

EXHIBIT NO. 1 F

CASE NO. 4 - 1

INJ PKR. 4450'

SAN ANDRES Perforations

4500' - 4850'

4 ¹/₂ " 9.5 # J-55
4900'

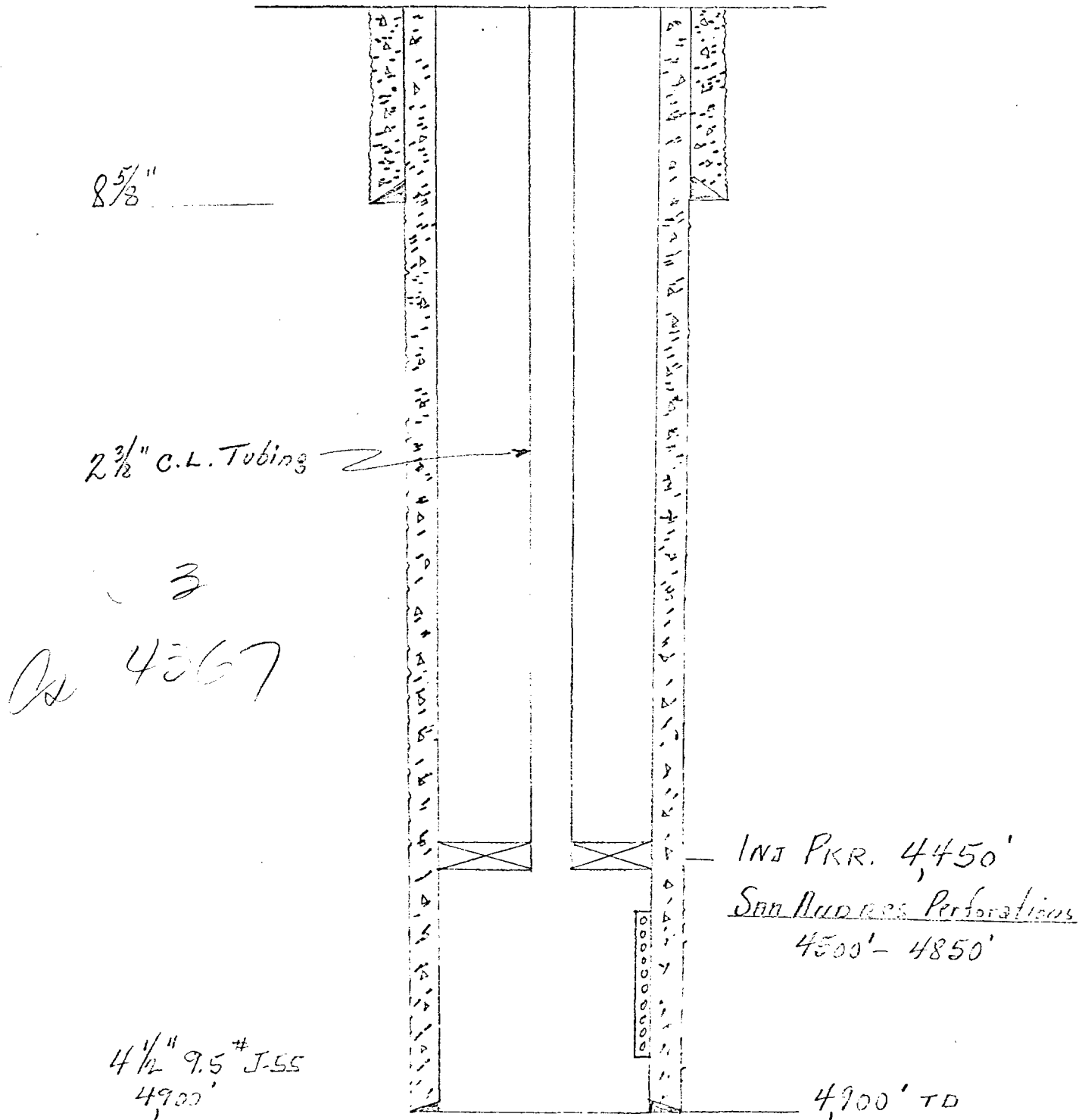
4900' TD

DIAGRAMMATIC WELL SKETCH

WIW'S TO BE DRILLED

VACUUM (GRAYBURG-SAN ANDRES) POOL

LEA COUNTY, NEW MEXICO



TABULATION OF PRODUCTION
MOBIL - BRIDGES STATE LEASE
VACUUM GBSA FIELD, LEA COUNTY, N. M.

BEFORE EXAMINER NOTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 4
CASE NO. 4367

Well No. 11				Well No. 12				Well No. 13				Well No. 15			
Date	Oil, Bbls.	Gas, MCF	Wtr, Bbls.	Date	Oil, Bbls.	Gas, MCF	Wtr, Bbls.	Date	Oil, Bbls.	Gas, MCF	Wtr, Bbls.	Date	Oil, Bbls.	Gas, MCF	Wtr, Bbls.
Mo. Yr.				Mo. Yr.				Mo. Yr.				Mo. Yr.			
Cumulative Oil 1-1-60				Cumulative Oil 1-1-60				Cumulative Oil 1-1-60				Cumulative Oil 1-1-60			
60	99,346	2,920		60	311,246	25,662	1,333	60	69,497			60	295,471	7,173	0
61	1,257	3,632		61	12,447	20,446	1,391	61	0	0		61	12,451	9,359	375
62	1,321	2,528		62	11,240	26,445	1,209	62	0	0		62	11,240	9,004	1,169
63	1,154	289		63	10,192	14,859	1,113	63	0	0		63	10,192	8,585	2,354
64	104			64	11,786	28,920	936	64	0	0		64	10,286	15,428	2,002
65	0	0		65	10,036	43,285	939	65	0	0		65	10,036	16,981	1,241
66	0	0		66	9,306	44,962	604	66	0	0		66	9,306	14,182	1,418
67	0	0		67	8,908	50,568	616	67	0	0		67	8,038	8,706	279
68	0	0		68	12,639	28,015	860	68	0	0		68	6,885	8,079	327
					14,814								7,736		
Cumulative Oil 1-1-69				Cumulative Oil 1-1-69				Cumulative Oil 1-1-69				Cumulative Oil 1-1-69			
103,182				412,614				381,641				381,641			
J 69	0	0		J 69	907	1,175	60	J 69	365	673	29	J 69	365	673	29
F	0	0		F	1,137	1,004	50	F	591	743	25	F	591	743	25
M	0	0		M	3,252	1,139	163	M	1,707	851	81	M	1,707	851	81
A	0	0		A	4,076	1,022	204	A	2,140	764	102	A	2,140	764	102
M	0	0		M	4,239	909	212	M	2,225	680	106	M	2,225	680	106
J	0	0		J	899	1,072	77	J	456	774	38	J	456	774	38
J	0	0		J	691	725	74	J	532	796	60	J	532	796	60
A	0	0		A	627	613	60	A	567	752	60	A	567	752	60
S	0	0		S	663	720	28	S	387	1,168	28	S	387	1,168	28
O	0	0		O	683	776	28	O	398	1,256	28	O	398	1,256	28
N	0	0		N	737	797	74	N	429	1,211	17	N	429	1,211	17
D	0	0		D	786	883	131	D	458	1,251	0	D	458	1,251	0
Total				Total	18,697	10,835	1,161	Total	10,255	10,919	574	Total	10,255	10,919	574
Cummu. 1-1-70				Cummu. 1-1-70				Cummu. 1-1-70				Cummu. 1-1-70			
J 70	0			J 70	431,311	853	100	J 70	391,896	1,245	30	J 70	421	1,245	30
F	0			F	697	812	76	F	421	1,218	51	F	421	1,218	51
M	0			M	610	813	72	M	381	1,219	48	M	381	1,219	48
A	0			A	578	813	95	A	362	712	0	A	362	712	0
					856	1,424			412				412		
Cumulative Oil to 5-1-70 103,182				Cumulative Oil to 5-1-70 434,052				Cumulative Oil to 5-1-70 393,472				Cumulative Oil to 5-1-70 393,472			

TABULATION OF PRODUCTION
MOBIL - BRIDGES STATE LEASE
VACUUM GBSA FIELD, LEA COUNTY, N. M.

Well No. 25					Well No. 26					Well No. 29				
Date		Oil, Bbls.	Gas, MCF	Wtr, Bbls.	Date		Oil, Bbls.	Gas, MCF	Wtr, Bbls.	Date		Oil, Bbls.	Gas, MCF	Wtr, Bbls.
Mo. Yr.					Mo. Yr.					Mo. Yr.				
Cummu. 1-1-60 122,114					Cummu. 1-1-60 126,310					Cummu. 1-1-60 157,537				
60		4,986	16,254		60		1,669	7,029	3,822	60		3,208	19,180	0
61		4,643	19,525		61		1,620	5,986	4,769	61		2,452	19,819	0
62		4,043	12,001		62		1,446	6,505	6,510	62		2,022	22,014	0
63		6,041	20,173	120	63		1,297	4,226	4,740	63		1,566	12,019	122
64		8,437	18,276	0	64		1,646	3,633	440	64		1,317	17,675	0
65		3,709	11,120	0	65		1,701	6,463	22	65		1,216	14,645	0
66		2,724	8,182	62	66		1,336	1,063	998	66		992	24,102	15
67		2,743	5,805	189	67		659	0	1,326	67		1,281	26,164	12
68		3,289	9,513	449	68		657	0	1,765	68		1,521	17,567	121
Cummu. 1-1-69 162,729					Cummu. 1-1-69 138,341					Cummu. 1-1-69 173,112				
J 69		174	1,101	60	J 69		35	0	180	J 69		69	174	30
F		284	1,226	50	F		56	0	153	F		112	192	25
M		813	1,391	163	M		163	0	489	M		325	169	81
A		1,019	1,248	204	A		203	0	609	A		407	168	102
M		1,059	1,110	212	M		212	0	636	M		424	170	106
J		219	1,275	33	J		2	0	6	J		103	168	26
J		240	1,231	30	J		0	0	0	J		94	118	30
A		239	1,103	30	A		0	0	0	A		90	80	30
S		193	1,133	28	S		55	0	2,750	S		111	1,167	28
O		199	1,219	28	O		57	0	2,850	O		114	1,257	29
N		215	1,175	18	N		0	0	0	N		123	1,161	31
D		229	1,215	0	D		0	0	0	D		131	1,140	33
Total		4,883	14,427	856	Total		783	0	7,673	Total		2,103	5,964	551
Cummu. 1-1-70 167,612					Cummu. 1-1-70 139,124					Cummu. 1-1-70 175,215				
J 70		203	1,173	28	J		16	0	192	J		97	909	29
F		178	1,117	51	F		25	0	300	F		76	779	25
M		169	1,119	48	M		24	0	288	M		72	779	24
A		221	356	0	A		32	0	384	A		69	1,001	23
Cummu. 5-1-70 168,383					Cummu. 5-1-70 139,221					Cummu. 5-1-70 175,529				

TABULATION OF PRODUCTION
CONOCO - STATE II-35 LEASE
VACUUM GBSA FIELD, LEA COUNTY, N. M.

Well No. 2			
Date	Oil, Bbls.	Gas, MCF	Wtr, Bbls.
No. Yr.			
Cumu. 1-1-60	324,271		
60	12,019	2,565	0
61	12,544	12,122	0
62	12,667	17,484	0
63	13,840	8,541	0
64	13,793	6,285	0
65	13,140	8,150	0
66	14,565	8,290	0
67	16,154	5,679	0
68	17,719	1,305	0
Cumu. 1-1-69	450,712		
J 69	1,572	402	0
F	1,471	377	0
M	1,489	381	0
A	1,529	391	0
M	1,515	388	0
J	1,501	384	0
J	1,642	420	0
A	1,641	420	0
S	1,538	394	0
O	1,647	684	0
N	1,581	656	0
D	1,639	680	0
Total	18,765	5,577	
Cumu. 1-1-70	469,477		
J	1,426	592	0
F	1,471	466	0
M	1,624	515	0
Cumu. 4-1-70	473,998		

Well No. 3			
Date	Oil, Bbls.	Gas, MCF	Wtr, Bbls.
No. Yr.			
Cumu. 1-1-60	322,684		
60	12,018	2,599	0
61	12,543	8,169	0
62	12,668	8,305	0
63	13,839	15,085	0
64	13,793	11,577	0
65	13,140	12,261	0
66	14,089	10,495	16
67	11,790	6,163	0
68	9,861	1,057	0
Cumu. 1-1-69	436,425		
J 69	838	325	0
F	785	305	0
M	794	308	0
A	790	307	0
M	814	316	0
J	806	313	0
J	881	342	0
A	881	342	0
S	827	321	0
O	840	311	0
N	805	298	0
D	834	309	0
Total	9,895	3,797	0
Cumu. 1-1-70	446,320		
J 70	777	287	0
F	750	484	0
M	867	559	0
Cumu. 4-1-70	448,714		

Well No. 6			
Date	Oil, Bbls.	Gas, MCF	Wtr, Bbls.
No. Yr.			
Cumu. 1-1-60	285,888		
60	7,533	8,347	0
61	7,454	28,919	0
62	7,925	32,168	0
63	8,442	15,770	0
64	8,621	14,014	248
65	5,197	6,920	0
66	3,252	4,492	46
67	3,464	5,220	0
68	3,994	1,090	0
Cumu. 1-1-69	341,770		
J 69	314	325	0
F	305	316	0
M	298	308	0
A	306	317	0
M	337	349	0
J	311	322	0
J	365	378	0
A	365	378	0
S	342	354	0
O	249	311	31
N	239	299	30
D	247	309	31
Total	3,678	3,966	92
Cumu. 1-1-70	345,448		
J 70	230	288	29
F	222	351	37
M	224	355	37
Cumu. 4-1-70	346,124		

TABULATION OF PRODUCTION
MARATHON-MCALLESTER STATE LEASE
VACUUM GBSA FIELD - LEA COUNTY, N. M.

Well No. 2					Well No. 3					Well No. 4				
Date		Oil, Bbls.	Gas, MCF	Wtr, Bbls.	Date		Oil, Bbls.	Gas, MCF	Wtr, Bbls.	Date		Oil, Bbls.	Gas, MCF	Wtr, Bbls.
Mo.	Yr.				Mo.	Yr.				Mo.	Yr.			
Cummu. 1-1-60 316,744					Cummu. 1-1-60 309,902					Cummu. 1-1-60 306,248				
60		12,673	14,364		60		12,674	12,941		60		12,674	13,056	0
61		11,988	7,607		61		12,145	8,505		61		12,428	14,855	0
62		12,900	6,668		62		12,835	6,360		62		12,794	15,940	0
63		10,927	10,927	34	63		13,068	8,177		63		13,052	13,826	0
64		13,887	14,247	148	64		13,869	8,648		64		13,781	11,316	0
65		13,876	20,551	135	65		13,998	10,726		65		13,997	13,264	0
66		14,675	14,313	237	66		17,157	10,685		66		16,943	23,725	0
67		8,995	4,967	271	67		17,194	10,305		67		19,447	23,647	0
68		12,913	12,864	810	68		18,065	7,804	664	68		14,492	15,033	0
Cummu. 1-1-69 429,578					Cummu. 1-1-69					Cummu. 1-1-69 435,856				
J	69	1,899	1,483	122	J	69	1,960	407	30	J	69	1,470	902	0
F		1,765	877	110	F		1,848	898	0	F		1,324	1,482	0
M		1,932	1,062	118	M		1,990	1,061	29	M		1,427	1,754	0
A		1,891	1,157	814	A		1,819	1,080	27	A		1,397	1,911	0
M		1,188	876	1,188	M		2,239	875	27	M		1,079	1,448	0
J		1,093	866	1,093	J		2,380	999	29	J		749	1,543	0
J		1,209	903	1,209	J		2,359	934	28	J		796	1,544	0
A		1,360	1,012	1,360	A		2,635	1,120	34	A		804	1,553	0
S		2,022	1,036	0	S		3,537	1,036	0	S		1,287	1,712	0
O		1,374	1,416	1,374	O		2,561	1,486	0	O		875	2,030	0
N		1,254	1,188	1,254	N		2,338	1,249	23	N		798	1,704	0
D		1,166	942	1,166	D		2,248	1,433	22	D		768	1,438	0
Total		18,153	12,818	9,808	Total		27,914	12,578	249	Total		12,774	19,121	
Cummu. 1-1-70 447,731					Cummu. 1-1-70 468,821					Cummu. 1-1-70 448,630				
J	70	1,055	942	1,055	J		2,232	1,574	22	J		2,057	1,165	523
F		547	371	547	F		2,190	1,170	23	F		1,986	2,950	20
M		1,229	782	819	M		2,486	1,249	26	M		2,165	3,055	21
Cummu. 4-1-70 450,562					Cummu. 4-1-70 475,729					Cummu. 4-1-70 454,838				

MOBIL OIL CORPORATION
CALCULATION OF WATERFLOOD
RESERVES FOR BRIDGES STATE NO. 26
VACUUM GBSA FIELD, LEA COUNTY, N. M.

First assume that:

(1) Pattern will remain open on the south and will be influenced only by WiWs Nos. 15, 29 and 35.

(2) Closed pattern reserves = 1/2 of primary ultimate and open pattern reserve = 1/4 of primary ultimate

<u>Well No.</u>	<u>Primary Oil to 1-1-70 MB</u>	<u>Remaining Primary to 1-1-70 MB</u>	<u>Ultimate Primary MB</u>
15	367	50	417
26	137	0	137
29	170	7	107
35	105	2	<u>177</u>
			838

If each well is draining 40 acres, the primary oil in this pattern is

$$\frac{838 \text{ MB}}{160 \text{ Acres}} = 5238 \text{ Bbls./Acre}$$

The swept area if pattern remains open on the south is 40 acres and waterflood reserves are:

$$5238 \times 1/4 \times 40 \text{ Acres} = 52 \text{ MB}$$

Now assume the pattern is closed by a drilled injection well located 560 feet south of Well No. 26.

The swept area then becomes 55 acres and the waterflood reserves:

$$5238 \times 1/2 \times 55 \text{ acres} = 144 \text{ MB}$$

The oil that will be lost if the pattern is not closed on the south is then:

$$144 - 52 = 92 \text{ MB}$$

PWKelly/lh
6-8-70

BEFORE EXAMINER NUTTER	
OIL CONSERVATION COMMISSION	
EXHIBIT NO. <u>5</u>	
CASE NO. <u>4367</u>	

GEO. HATCH

Mobil Oil Corporation respectfully requests permission to expand the Grayburg San Andres waterflood operations on the Bridges State lease in the Vacuum Field, Lea County, New Mexico, to include 15 additional water injection wells situated at orthodox and unorthodox locations in Sections 25, 26, and 27, T-17-S, R-34-E. Of the total of 15 new water injection wells, two are proposed for drilling, one at an orthodox location in Unit "E" of Section 25 and the other at an unorthodox location in Unit "N" of Section 26.

The Vacuum Grayburg San Andres Field, found at a depth of approximately 4500', was discovered in August 1929 and has produced under a solution gas primary mechanism throughout the northern portion and is thought to be influenced by a water drive in the south. Cumulative primary oil from the field to the end of 1969 was approximately 125 MM barrels.

The Bridges State lease of Mobil Oil Corporation produced on primary until pilot waterflood operations were initiated in the northern part in December 1958. Pilot injection was through 6 wells initially which was expanded to 8 injectors in May 1963. Results of the pilot justified expansion of the flood which was accomplished in October 1967 to include a total of 30 injectors. Performance of the expanded flood has progressed to the point where it is now necessary to expand injection operations throughout the remainder of the developed portion of the Bridges State lease.

Documents submitted in support of this application include a plat showing the locations of the proposed injection wells, together with diagrammatic sketches of each such well and all of the injection well logs that are available. There is also a graph depicting performance of the flood since 1965. A copy of this request with attachments is being furnished the State Engineer.