

EXHIBITS FOR HEARING BEFORE
NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

January 7, 1958

Docket No. 38-57
Case 1368

AMBASSADOR OIL CORPORATION


PILOT WATER FLOOD
SQUARE LAKE POOL

Edy County New Mexico

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

App EXHIBIT No. *1*
CASE 1368

LIST OF EXHIBITS

1. Map showing location of all input wells, location of all oil and gas wells, and names of leases in the general vicinity of the proposed project.
 2. Tabulation of Engineering data.
 3. Summary of well log data on proposed injection wells, as taken from New Mexico Oil Conservation Commission Well Records and/or United States Geological Survey Well Records.
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ENGINEERING DATA

Name of formations to be flooded:

Lower Grayburg and upper San Andres of Permian System.

Average depth to top of zones to be flooded:

Approximately 3160 in pilot area.

Average depth to bottom of zones to be flooded:

Approximately 3400 in pilot area.

Structural Features:

Structure - Stratigraphic Trap on an eastward plunging nose.

Gas Cap - None

Water Drive - None, very little water produced with oil and from a few wells.

Characteristics of Reservoir Fluids:

Gravity of Oil - 34° to 37° API.

Oil undersaturated, high salt content.

Original solution GOR - 250 cu. ft. per bbl.

Original formation pressure - 950 p.s.i.

Primary Producing History:

Discovery date - 1941

Major Development of Field - 1945

Development Spacing - Center of 40 acre units.

Type reservoir drive - Solution gas.

State of depletion - Stripper stage with wells, averaging 2 to 4 bbls/well/day.

Cumulative production of injection wells in proposed pilot flood area to January 1, 1957.

A.O.C. Carper Bruning #1 E	56,807 bbls.
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A.O.C. Fidel Grier #2 I	50,442 "
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A.O.C. Texas Trading Grier #4 K	48,091 "
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" " " #1 M	67,852 "
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" " " State #3 C	20,997 "
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A.O.C. Carper Wheatley #1 O	18,900 "
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Water Source and Treatment:

Source - The Queen Sand (known as the Red Sand) encountered at 2571 to approximately 2610 in test well just completed.

The water has been analyzed and found to be a heavy brine having the following characteristics:

Chlorides	197,000 parts per million		
Calcium	7,120 "	"	"
Magnesium	10,500 "	"	"
Sulfates	750 "	"	"
Iron	24 "	"	"
Carbon Dioxide	68 "	"	"
Total Hardness	61,200 "	"	" CaCO ₃
pH	6.5		

Treatment - The water will be injected in a closed system at the beginning of the project, passing through individual filters at each well. Cement lined pipe is to be used in the distribution system. As the pilot flood progresses, samples will be taken frequently and tested, to see if further treatment of the water is required.

Proposed Pilot Flood Spacing - 80 acre, five spot by conversion
at alternate wells in 40 acre units.

Injection Rates and Pressures:

Estimated injection rate - 500-800 BPD/WELL

Estimated injection pressure - GRAVITY AT INCEPTION

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WELL RECORD SUMMARY OF PROPOSED WATER INJECTION WELLS
SQUARE LAKE FIELD, EDDY COUNTY, NEW MEXICO

<u>LEASE</u>	<u>DESCRIPTION</u>	<u>WELL NUMBER</u>	<u>ELEVATION</u>	<u>CASING</u>		<u>SACKS CEMENT USED</u>
				<u>SIZE</u>	<u>WEIGHT</u> <u>DEPTH</u>	
✓ A.O.C. Fidel-Orier	NE1SE1 Sec 30 T16S R31E	21 ✓	3855.6	5 1/2	14# 3055	100
✓ A.O.C. Carper- Bruning	SW1NW4 Sec 29 T16S R31E	1 ✓	3899.2	5 1/2	14# 3120	100
✓ A.O.C. Texas Trading- Orier	SW1SW4 Sec 29 T16S R31E	1 ✓	3868.0	5 1/2	15# 3162	100
✓ A.O.C. Texas Trading- Orier	NE1SW4 Sec 29 T16S R31E	4 ✓	3924.3	5 1/2	14# 3239	100
A.O.C. Texas Trading- State	NE1NW4 Sec 32 T16S R31E	3 ✓	3923.9	5 1/2	3255	100
✓ A.O.C. Carper- Wheatley	SW1SE1 Sec 29 T16S R31E	1 ✓	3944.0	5 1/2	17# 3156	100

(Continued)

<u>WELL</u>	<u>PRODUCTIVE HORIZONS</u>												<u>TOTAL DEPTH</u>
	<u>TOP</u>	<u>BOTTOM</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>TOP</u>	<u>BOTTOM</u>	
2	3135	3151	3184	3198	3203	3206	3265	3270	3313	3329			3352
1	3180	3200	3222	3248	3358	3374	3380	3402					3404
1	3218	3228	3314	3386	3386	3404							3458
4	3250	3258	3260	3262	3300	3340	3435	3452					3474
3	3270	3285	3450	3467									3470
1	3295	3310	3350	3385	3497	3522							3522

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A.O.C. Texas Trading Grier #4 K	48,091 "
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Injection Rates and Pressures:

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Estimated injection pressure - Gravity at inception.

WELL RECORD SUMMARY OF PROPOSED WATER INJECTION WELLS
SQUARE LAKE FIELD, EDDY COUNTY, NEW MEXICO

Logge	Well No.	Elev.	Size	Wt.	Depth	Sacks Cement Used	Productive Horizons	Total Depth
AOC - J. H. Fidel-Federal NE/4 SE/4 Sec. 30-T16S-R31E	2	3855.6	5½	14#	3055	100	3135-3151', 3184-3198', 3203-3206', 3265-3270', 3313-3329'	3352
AOC - Carper Drilling Co. - M. S. Bruning-Federal SW/4 NW/4 Sec. 29-T16S-R31E	1	3899.2	5½	14#	3120	100	3180-3200', 3222-3248', 3358-3374', 3380-3402	3404
AOC - Carper Drilling Co. - Federal "D" SE/4 NW/4, Sec. 29-T16S-R31E	1	3924.0						
AOC - Texas Trading Co. - Federal "A" SW/4 SW/4, Sec. 29-T16S-R31E	1	3888.0	5½	15#	3162	100	3218-3228', 3314-3386', 3386-3404', 3250-3258', 3260-3262', 3300-3340', 3436-3452	3458
AOC - Texas Trading Co. - Federal "A" NE/4 SW/4 Sec. 29-T16S-R31E	4	3924.3	5½	14#	3239	100		3474
AOC - Texas Trading Co., State of New Mexico "R", NE/4 NW/4 Sec. 32-T16S-R31E	3	3923.9	5½		3255	100	3270-3285', 3450-3467'	3470
AOC - Carper Drilling Co. R. Whetley-Federal, SW/4 SE/4 Sec. 29-T16S-R31E	1	3944.0	5½	17#	3156	100	3295-3310', 3350-3385', 3497-3522'	3522
AOC - Vickers Petroleum Co., Federal NE/4 NE/4 Sec. 30-T16S-R31E	2	3864.5	5½	14#	3057	100	3095-3100', 3153-3166', 3206-3211', 3264-3278', 3293-3303'	3316

Lease	Well No.	Elev.	Size	Wt.	Depth	Sacks		Productive Horizons	Total Depth
						Cement	Used		
AOC - Vickers Petroleum Co., Federal - SW/4 NE/4 Sec. 30- T16S-R31E	3	3830.0	5 1/2	14#	3020	100		3075-3080', 3120-3145	3164
AOC - Vickers Petroleum Co., Federal - Center NE/4, Sec. 30-T16S-R31E	7	3843.2	5 1/2	15 1/2#	3075	100		3085-3089', 3096-3099', 3128-3136'	3207
AOC - Vickers Petroleum Co., Federal, SE/4 NE/4 Sec. 30- T16S-R31E	1	3856.2	5 1/2	14#	3100	100		3105-3130', 3132-3190', 3290-3311'	3326