BEFORE THE OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
EXHIBIT NO.
CASE 1195

WATERFLOOD DATA FOR HEARING BEFORE COMMISSION

OPERATOR Graridge Corporation DATE 12-18-56

LEASE OR LEASES See Attached List

FIELD Caprock Pool COUNTY Lea & Chaves

RESERVOIR "The Artesia Red Sand" uppermost member of Queen

Date of completion of first well in reservoir November 21, 1940.

List other operators injecting into this reservoir in this field none at present.

(Include plat of field showing lease or leases to be flooded, present producing wells, proposed injection wells, well locations on offset leases, etc.)

I. Reservoir and fluid characteristics

A. Information on entire reservoir

1. Name of reservoir Queen Sand
2. Estimated productive area of entire reservoir 5500 ac
3. Composition (sand, limestone, dolomite, etc.) sand
4. Structure stratigraphic trap located on a structural nose. Structure map included. See note (*) below.
(Include structural and cross-section maps)
5. Type drive during primary production solution gas drive
6. Original reservoir pressure approx. 1040#
7. Was gas cap present originally? unknown At present? no

B. Information on proposed project area

1. Number of productive acres in lease or leases to be flooded 480 ac affected
2. Average depth to top of pay (feet) 3000'
3. Estimated average effective thickness (feet) 12'
4. Estimated average porosity (%) 19
5. Average horizontal permeability (mds.) 147 Range 0-150
6. Connate water content (% of pore space) 45
7. Gravity of oil (API) 37° @ 60° F.
8. Viscosity of oil (centipoises) Estimated at 3 cp.

C. Production history and present status

1. Date first well completed on lease or leases November 21, 1940
2. Oil, gas, water production history by months since date of discovery to present time. (Suggest data be presented graphically as well as in tabular form.)
3. Stage of depletion of project area Stripper stage. ** See below.
4. Number of producing wells on each lease in project area 12 to be affected (see plat)
5. Average daily oil production per well at present time 3 bopd/well
6. Cumulative oil production to date from lease or leases to be flooded
Cumulative average of 40,000 bbl/well or 40 ac tract.
7. Estimated oil saturation at present time (% of pore space) 44.5%
8. If project area has had gas repressuring, give details and results, such as cumulative gas injected, number of injection wells, by-passing or high gas-oil ratio experience, production increases. Yes. Cooperative Producers Company carried out an air injection program in 1951. Results were questionable. There was evidence of by-passing of air and formation plugging when intermittent water injection was tried.

*No Isopach Map could be drawn because a majority of the wells were not drilled through the Queen Sand.

** A great many of the well[illegible] he Pool are at the approximate economic limit and will be plugged [illegible] condary recovery [illegible]

ILLEGIBLE

III. Injection

1. Source of injected water (formations, depths) sand & gravel bed at 350 ft.
2. Fresh or salt water fresh
3. Open or closed system semi-closed
4. Treatment of injected water filtering
5. Pattern and spacing 80 ac, 5-spot
6. Initial injection pressure to be used (psi) as needed to calculated max. of 900 psi
7. Estimated initial per well rate of injection (bbls.) 500 bbls/day
8. Will oil wells be converted into injection wells or will injection wells be drilled? (If to be converted, give well numbers.) All injection wells will be converted producing wells.

9. Will additional oil wells be drilled? No Location

IV. Results expected

1. Estimated residual oil saturation at abandonment (% of pore space) 20
2. Estimated ultimate additional oil that will be recovered as a direct result of injection (bbls.) 2500 bbls/ac.
3. Estimated original oil in place (bbls.) 8832 bbls STO/Ac.

V Recommendations and reasons therefor: As noted earlier, a majority of the wells in the pool are at the "economic limit" and will have to be abandoned in the very near future unless some secondary recovery means are installed.

PRODUCING WELLS TO BE AFFECTED BY THE PILOT FLOODS

Lease, Well Number, and Location	Cumulative Oil Prod. to 11-1-56
Graridge Malco State "A" #2 (G-31-12-32)	42,319 bbls.
#4 (M-31-12-32)	56,518
#6 (K-31-12-32)	59,533
Graridge Livermore Maxwell St. "G" #4 (O-31-12-32)	56,546
#6 (I-31-12-32)	32,832
Graridge Manry St"A" #1 (G-6-13-32)	15,669
Graridge Caprock St #5 (I-6-13-32)	17,376
Gulf Lea St "A" #3 (C-6-13-32)	10,479
"B" #1 (A-6-13-32)	52,200
Great Western St "Q" #1 (M-32-12-32)	51,497
"R" #2 (C-5-13-32)	28,558
"R" #3 (E-5-13-32)	19,896

PROPOSED WATER INJECTION WELLS FOR THE PILOT FLOOD

Lease, Well Number, and Location	Cumulative Oil Prod. to 11-1-56
Graridge Malco St "A" #5 (N-31-12-32)	46,124
Graridge Livermore Maxwell St "G" #5 (J-31-12-32)	72,257
#7 (O-31-12-32)	19,809
Graridge Manry St "A" #2 (B-6-13-32)	53,606
Gulf Lea State "B" #2 (H-6-13-32)	21,560
Great Western State "R" #1 (D-5-13-32)	37,274
Total Primary Prod. -	697,234 bbls.

$\frac{697,234}{18}$ = 38,750 bbls/well or 40 ac.

40 ac X 12' = 480 ac ft

$\frac{38,750}{480}$ = 81 bbls/ac ft.