

BEFORE EXAMINER UTZ  
OIL CONSERVATION COMMISSION  
EXHIBIT NO. 1  
CASE NO. 24-4

LEGEND

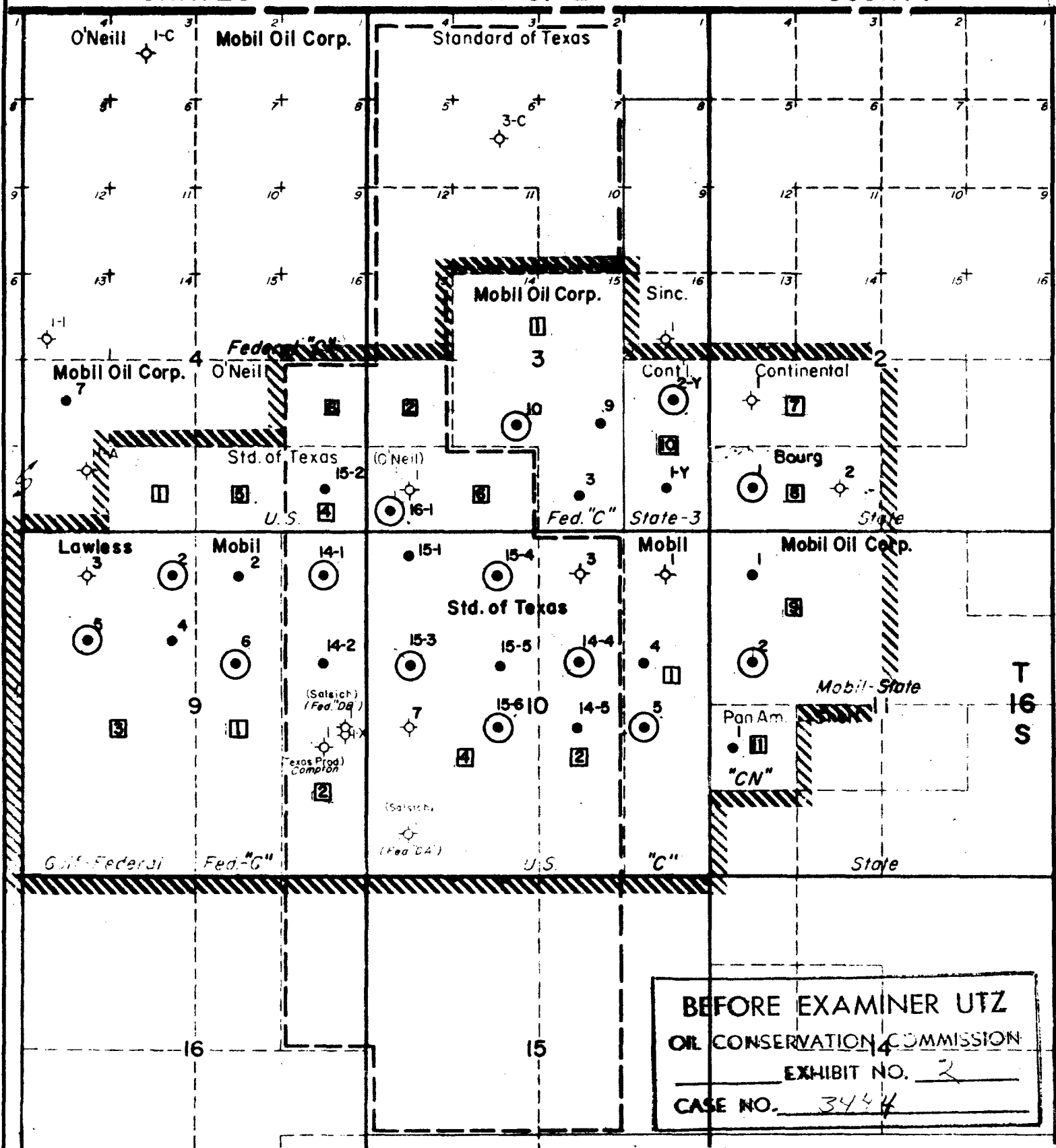
- Unit Boundary
- Proposed Injection Well
- Producing Well

EXHIBIT I  
LEASE MAP  
NORTHEAST SQUARE LAKE  
PREMIER UNIT  
SQUARE LAKE NORTH FIELD  
EDDY COUNTY, NEW MEXICO  
7-13-66

CHAVES

R-31-E

COUNTY



## LEGEND

Unit Boundary

Injection Well (Proposed)

Producing Well

Tract Number

## EXHIBIT 2

WATERFLOOD PATTERN MAP

NORTHEAST SQUARE LAKE (PREMIER) UNIT

SQUARE LAKE NORTH FIELD

Eddy County, New Mexico

R.W.W. 7-13-66 C.T.A.

Scale: 1"=2000'

00  
26 AM 7 3

APPLICATION  
NORTHEAST SQUARE LAKE PREMIER UNIT WATERFLOOD

Mobil Oil Corporation hereby makes application for authority to institute a waterflood project by injecting water into the Premier (Basal Grayburg) formation within an area to be designated as the Northeast Square Lake Premier Unit.

1. The following described land is designated and recognized as constituting the Unit Area:

Township 16 South, Range 31 East, N.M.P.M.

Sec. 2: SW/4

Sec. 3: Lots 14 & 15 and the S/2

Sec. 4: E/2 of the SE/4; SW/4 of the SE/4 and SE/4  
of the SW/4

Sec. 9: All

Sec. 10: All

Sec. 11: NW/4 and NW/4 of the SW/4

Containing 2200 acres, more or less, in Eddy County.

Exhibit 1 is a lease map showing all wells and leases within a two mile radius of the Unit Area.

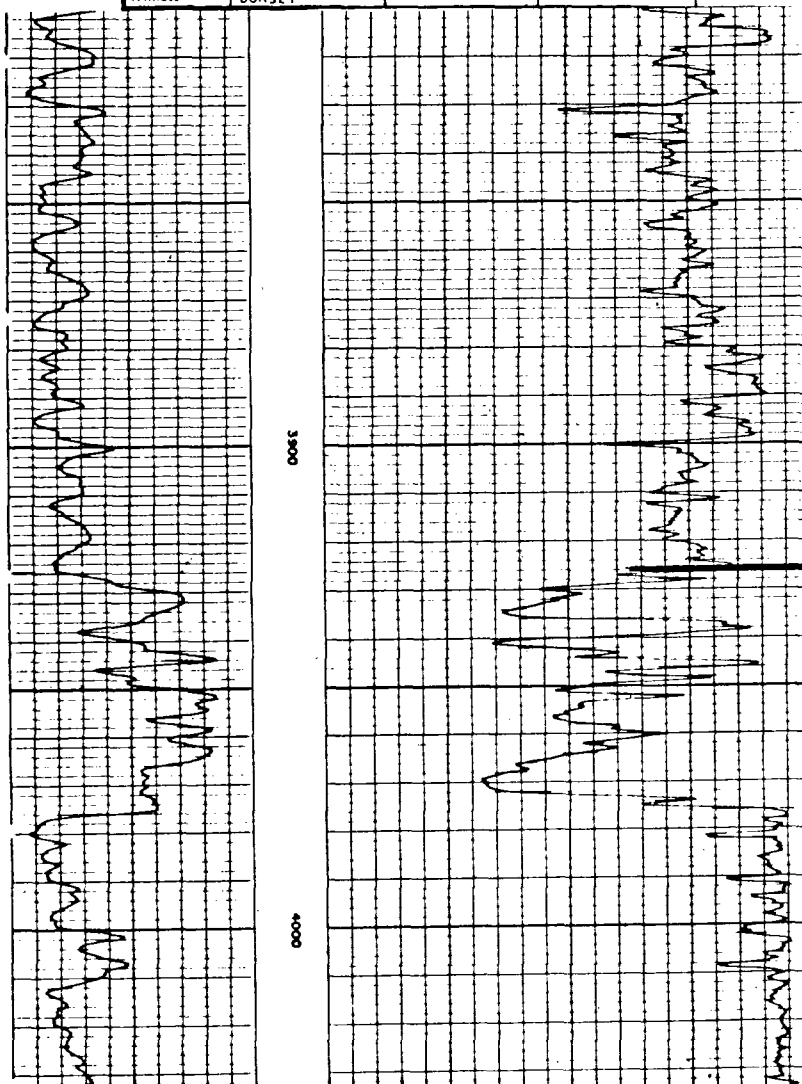
2. It is proposed to initiate injection at a total rate of 3,500 barrels of water per day into 14 injection wells, which is 250 barrels per day per well. The injection pattern, which has the symmetry of a five spot, is shown on Exhibit 2. The well head pressure after about 50% fill up is anticipated to be approximately 2000 psig. Injection equipment will be designed for a working pressure of 2200 psig. All water injection facilities

will be internally coated.

3. The zone to be flooded is the Premier Sand (Basal Grayburg) formation. Exhibit 3 is a sonic log of the Oscar Bourg Drilling Company No. 1 State located 660 feet FSL and 660 feet FWL, Sec. 2, T-16-S, R-31-E. This log depicts typical Premier Sand development in the Unit Area. In this well the top of the Premier is about 3926 feet below derrick floor datum. The unitized interval is the continuous stratigraphic section from 3926 feet to 3976 feet.
4. Injection will be through corrosion protected tubing below tension packers. The annular space between the tubing and casing will be filled with corrosion inhibited water. A diagrammatic sketch showing pertinent completion data for each injection well is presented in Exhibits 4 thru 17.
5. Make-up water will be purchased from the Double Eagle Corporation. Produced water will be injected into the waterflood pattern as soon as it becomes available.
6. The Unit Area production for April 1966 was 2,202 barrels of oil from 23 producing wells, which is an average daily production of 4 barrels per well per day. There are 3 shut in wells and 3 temporarily abandoned wells in addition to the producers within the unit boundary. The Unit Area has reached the advanced stage of depletion. It is requested that the project be operated under the provisions of Commission Rule No. 701-E relating to waterflood projects and the establishment of allowables in accordance therewith.

Mobil Oil Corporation respectfully requests the Commission issue its order granting approval to the institution of the Northeast Square Lake Premier Unit Waterflood as proposed.

SCHLIMBERGER WELL SURVEYING CORPORATION DAVIDSON, TEXAS			
COUNTY EDDY FIELD WILDCAT LOCATION STATE - 1 WELL COMPANY OSCAR BOURG DRILLING COMPANY	COMPANY OSCAR BOURG DRILLING COMPANY		Other Surveys 11-GR MLL
	WELL STATE - 1		Location of Well 660' FROM S&W/L
	FIELD WILDCAT		
	LOCATION SEC. 2-16S-31E		
	COUNTY EDDY		EST. Elevation: K.B. 4417 D.F. 44047 or G.L. 44047
STATE NEW MEXICO			
Log Depths Measured From KB 12.25 Ft. above GL			
RUN No.	ONE		
Date	3-24-60		
First Reading	4097		
Last Reading	0		
Feet Measured	4097		
Csg. Schlum.	-		
Csg. Driller	376		
Depth Reached	4101		
Bottom Driller	4100		
Mud Mat.	SALT		
Dens. Visc.	10.8	33	
Mud Resist.	.05	73	*F
" Reg. BMT	.042	90	*F
" pH			*F
" Wtr. Loss	25	CC 30 min	*F
" Rml	.04	73	*F
Bit Size	7 7/8" TO 3915; 7 13/16" TO 3981; 72 TO 10		
Spans:			
	1' 420	To 4097	To
Opr. Rig Time	23 HOURS		
Truck No.	2527-HOBBS		
Recorded By	ROUSH		
Witness	DORSEY		



TOP PREMIER

UNITIZED INTERVAL

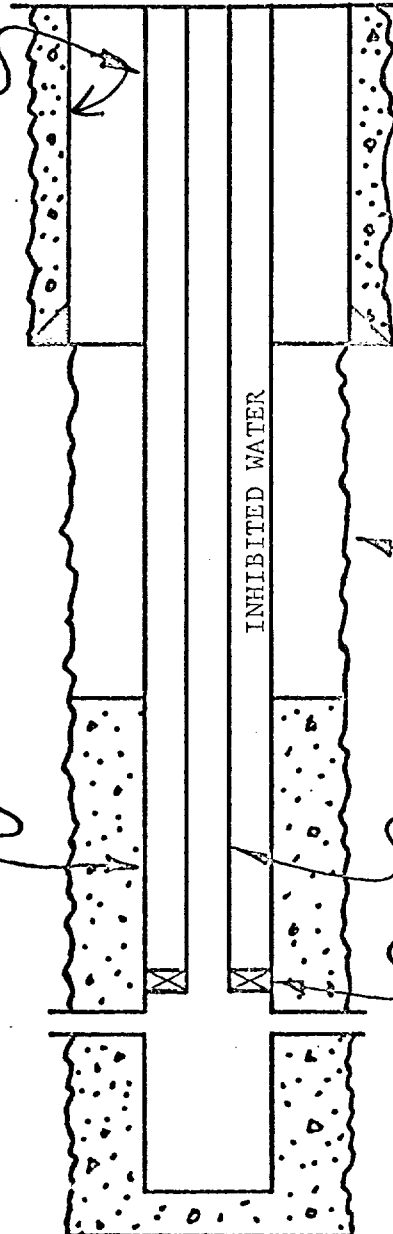
EXHIBIT 3  
UNITIZED FORMATION  
NORTHEAST SQUARE LAKE  
PREMIER UNIT  
SQUARE LAKE NORTH FIELD  
EDDY COUNTY, NEW MEXICO  
R.W.W. 7-13-66

EXHIBIT 4  
INJECTION WELL COMPLETION DATA

MOBIL	FEDERAL C	5
OPERATOR	LEASE	WELL NO.
LOCATION: I - SEC. 10, T-16-S, R-31-E		
NORTHEAST SQUARE LAKE UNIT		
SQUARE LAKE NORTH FIELD		
EDDY COUNTY, NEW MEXICO		

8 5/8 " 24 #/FT CASING  
@ 1017 FT CEMENTED  
WITH 100 SACKS  
OF Neat CEMENT

4 1/2 " 11.6 #/FT CASING  
@ 3864 FT CEMENTED  
WITH 200 SACKS  
OF Neat CEMENT



CEMENT TOP @ 587 FT  
(Volumetric fill up calculations)

11 " HOLE SIZE

7 7/8 " HOLE SIZE

CEMENT TOP @ 2902 FT  
(Volumetric Fill up Calculations)

2 3/8" CEMENT LINED TUBING  
@ 3757 FT

TENSION PACKER

PREMIER PERFORATION  
~~OPEN HOLE~~  
FROM 3787-92 FT  
TO 3827-32 FT

PLUG BACK T.D. 3844 FT

TOTAL DEPTH 3868 FT

(NEW WELL NAME WILL BE TRACT 1 WELL 5)

EXHIBIT 5  
INJECTION WELL COMPLETION DATA

MOBIL FEDERAL C 6  
OPERATOR LEASE WELL NO:

LOCATION: G - SEC. 9, T-16-S, R-31-E  
NORTHEAST SQUARE LAKE UNIT  
SQUARE LAKE NORTH FIELD  
EDDY COUNTY, NEW MEXICO

8 5/8 " 24 #/FT CASING  
@ 850 FT CEMENTED  
WITH 100 SACKS  
OF Neat CEMENT

CEMENT TOP @ 418 FT  
(Volumetric fill up calculations)

11 " HOLE SIZE

7 7/8 " HOLE SIZE

CEMENT TOP @ 2675 FT  
(volumetric fill up calculations)

4 1/2 " 10.5 #/FT CASING  
@ 3636 FT CEMENTED  
WITH 200 SACKS  
OF Neat CEMENT

2 3/8" CEMENT LINED TUBING  
@ 3536 FT

TENSION PACKER

PREMIER PERFORATION

~~OR OPEN HOLE~~

FROM 3566 FT  
TO 3608 FT

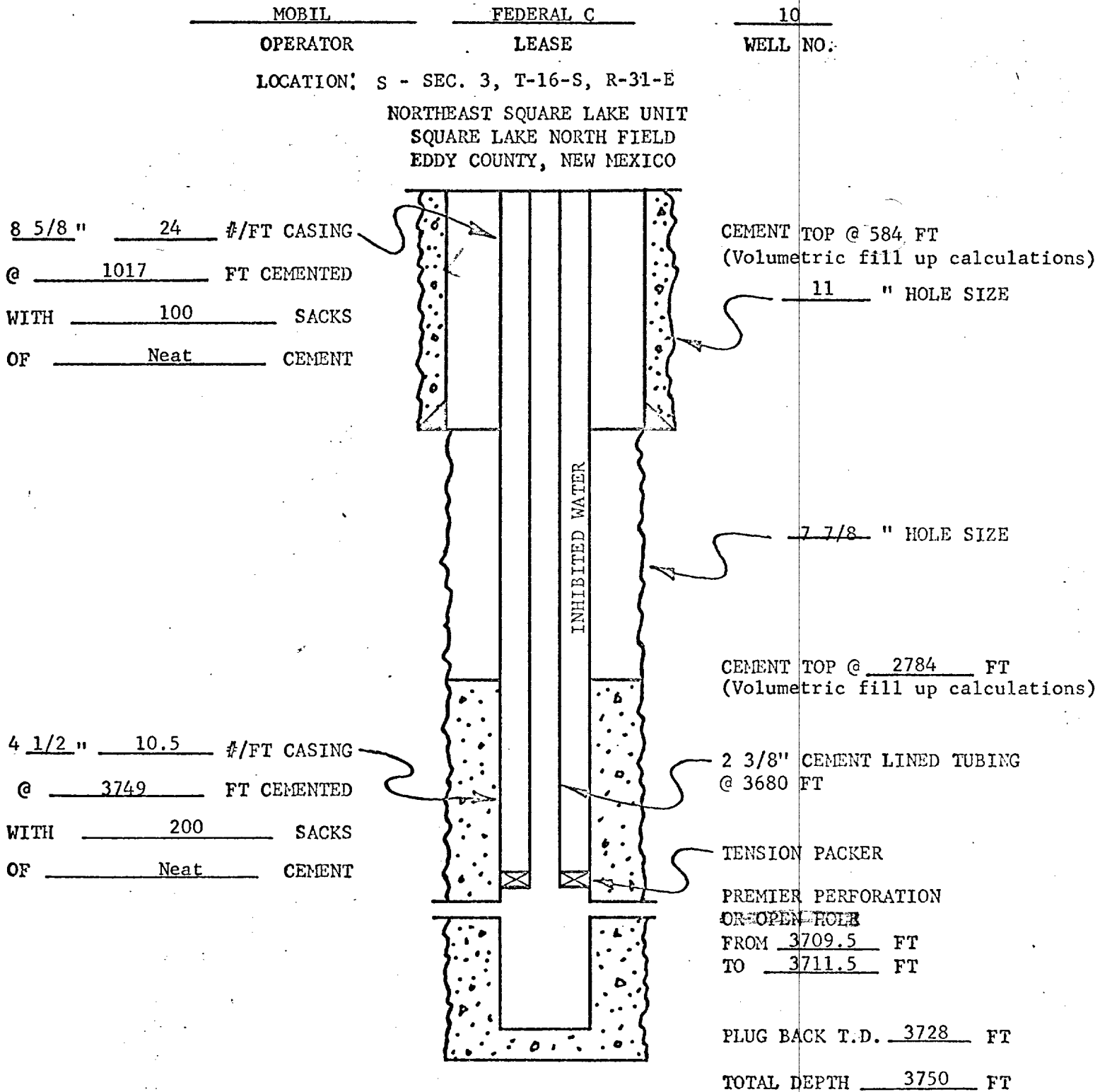
PLUG BACK T.D. 3624 FT

TOTAL DEPTH 3641 FT

(NEW WELL NAME WILL BE TRACT 1 WELL 6)



EXHIBIT 6  
INJECTION WELL COMPLETION DATA



(NEW WELL NAME WILL BE TRACT 1 WELL 10)

EXHIBIT 7  
INJECTION WELL COMPLETION DATA

STANDARD OF TEXAS

FEDERAL 14

1

OPERATOR

LEASE

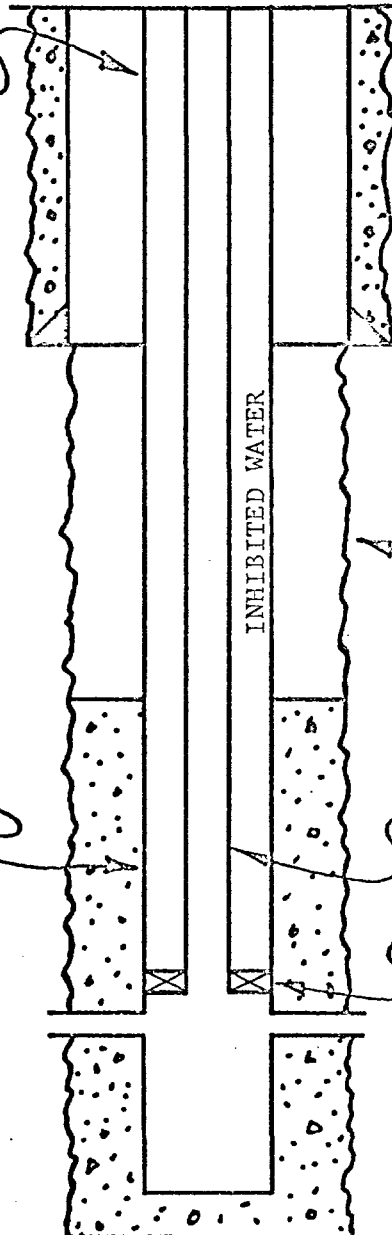
WELL NO:

LOCATION: A - SEC. 9, T-16-S, R-31-E

NORTHEAST SQUARE LAKE UNIT  
SQUARE LAKE NORTH FIELD  
EDDY COUNTY, NEW MEXICO

8 5/8" 24 #/FT CASING  
@ 223 FT CEMENTED  
WITH 120 SACKS  
OF Neat CEMENT

5 1/2" 14 #/FT CASING  
@ 3700 FT CEMENTED  
WITH 250 SACKS  
OF Neat CEMENT



CEMENT CIRCULATED

11 " HOLE SIZE

7 7/8 " HOLE SIZE

CEMENT TOP @ 2113 FT  
(Volumetric fill up calculations)

2 3/8" CEMENT LINED TUBING  
@ 3580 FT

TENSION PACKER

PREMIER PERFORATION  
~~ON OPEN HOLE~~  
FROM 3608 FT  
TO 3660 FT

PLUG BACK T.D. 3670 FT

TOTAL DEPTH 3700 FT

(NEW WELL NAME WILL BE TRACT 2 WELL 1)

EXHIBIT 8  
INJECTION WELL COMPLETION DATA

STANDARD OF TEXAS

FEDERAL 14

4

OPERATOR

LEASE

WELL NO.

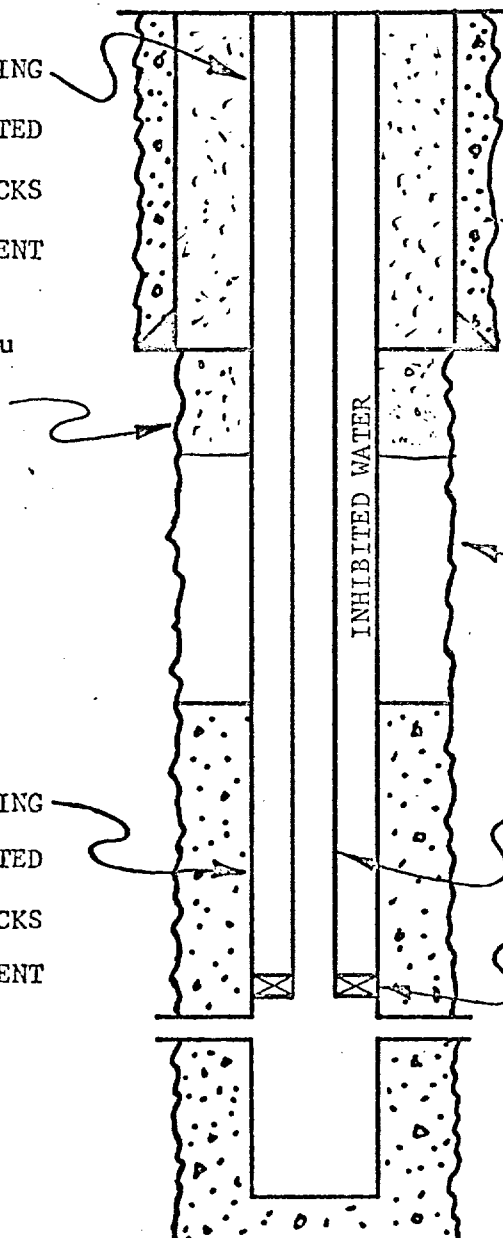
LOCATION: G - SEC. 10, T-16-S, R-31-E

NORTHEAST SQUARE LAKE UNIT  
SQUARE LAKE NORTH FIELD  
EDDY COUNTY, NEW MEXICO

8 5/8 " 36 #/FT CASING  
@ 212 FT CEMENTED  
WITH 135 SACKS  
OF Neat CEMENT

225 sxs Neat cement thru  
staging collar @ 1015'  
Cement Circulated

4 1/2 " 11.6 #/FT CASING  
@ 3815 FT CEMENTED  
WITH 200 SACKS  
OF Neat CEMENT



CEMENT CIRCULATED

11 " HOLE SIZE

6 3/4 " HOLE SIZE

CEMENT TOP @ 2212 FT  
(Volumetric fill up calculations)

2 3/8 " CEMENT LINED TUBING  
@ 3690 feet

TENSION PACKER

PREMIER PERFORATION  
OR OPEN HOLE  
FROM 3720 FT  
TO 3778 FT

PLUG BACK T.D. 3781 FT

TOTAL DEPTH 3820 FT

(NEW WELL NAME WILL BE TRACT 2 WELL 4)

EXHIBIT 9  
INJECTION WELL COMPLETION DATA

JAKE LAWLESS INC.

GULF-FEDERAL

2

OPERATOR

LEASE

WELL NO.:

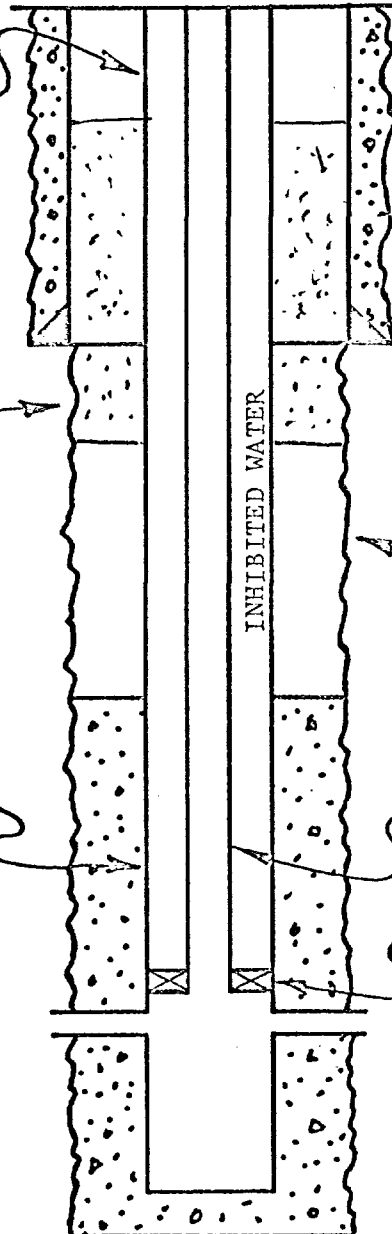
LOCATION: C - SEC. 9, T-16-S, R-31-E

NORTHEAST SQUARE LAKE UNIT  
SQUARE LAKE NORTH FIELD  
EDDY COUNTY, NEW MEXICO

7 5/8" 20 #/FT CASING  
@ 177 FT CEMENTED  
WITH 100 SACKS  
OF Neat CEMENT

100 sx set with tubing  
outside casing @ 760'  
Est. Top @ 100'

3 1/2" 8.5 #/FT CASING  
@ 3606 FT CEMENTED  
WITH 200 SACKS  
OF Neat CEMENT



CEMENT CIRCULATED

10 " HOLE SIZE

6 3/4 " HOLE SIZE

CEMENT TOP @ 2924 FT  
(VOLUMETRIC FILL UP CALCULATION)

2 1/16" CEMENT LINED TUBING  
@ 3530 FT

TENSION PACKER

PREMIER PERFORATION  
OR OPEN HOLE

FROM 3560 FT  
TO 3565 FT

PLUG BACK T.D. 3597 FT

TOTAL DEPTH 3606 FT

(NEW WELL NAME WILL BE TRACT 3 WELL 2)

EXHIBIT 10  
INJECTION WELL COMPLETION DATA

JAKE LAWLESS INC+

GULF-FEDERAL

5

OPERATOR

LEASE

WELL NO:

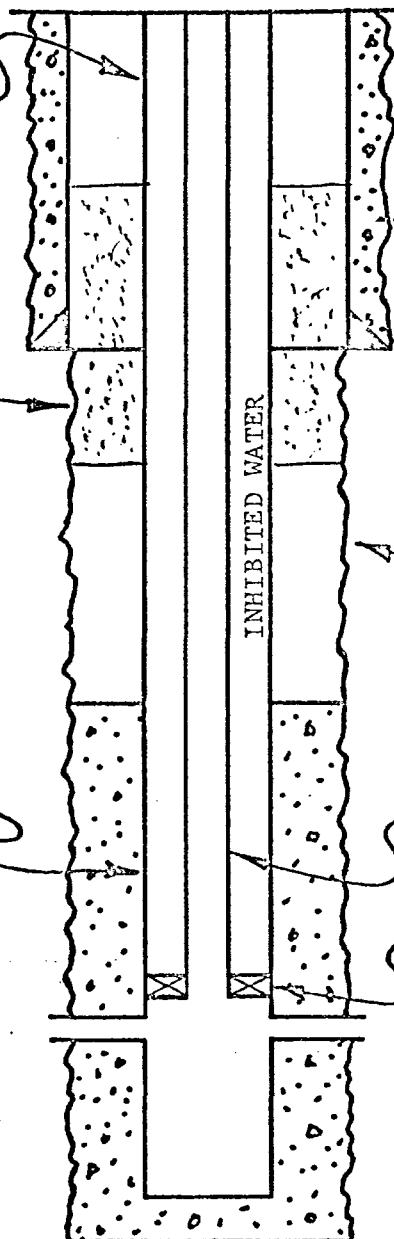
LOCATION: E - SEC. 9, T-16-S, R-31-E

NORTHEAST SQUARE LAKE UNIT  
SQUARE LAKE NORTH FIELD  
EDDY COUNTY, NEW MEXICO

7 5/8 " 20 #/FT CASING  
@ 163 FT CEMENTED  
WITH 100 SACKS  
OF Neat CEMENT

100 sx @ 738 ft set with  
1" tubing outside the casing  
Est. Top @ 60'

3 1/2 " 8.68 #/FT CASING  
@ 3542 FT CEMENTED  
WITH 200 SACKS  
OF Neat CEMENT



CEMENT CIRCULATED

10 \" HOLE SIZE

6 3/4 \" HOLE SIZE

CEMENT TOP @ 2860 FT  
(volumetric fill up calculations)

2 1/16\" CEMENT LINED TUBING  
@ 3466 FT

TENSION PACKER

PREMIER PERFORATION  
OR OPEN HOLE  
FROM 3496 FT  
TO 3501 FT

PLUG BACK T.D. 3542 FT

TOTAL DEPTH 3542 FT

(NEW WELL NAME WILL BE TRACT 3 WELL 5)

EXHIBIT 11  
INJECTION WELL COMPLETION DATA

STANDARD OF TEXAS

FEDERAL 15

3

OPERATOR

LEASE

WELL NO.:

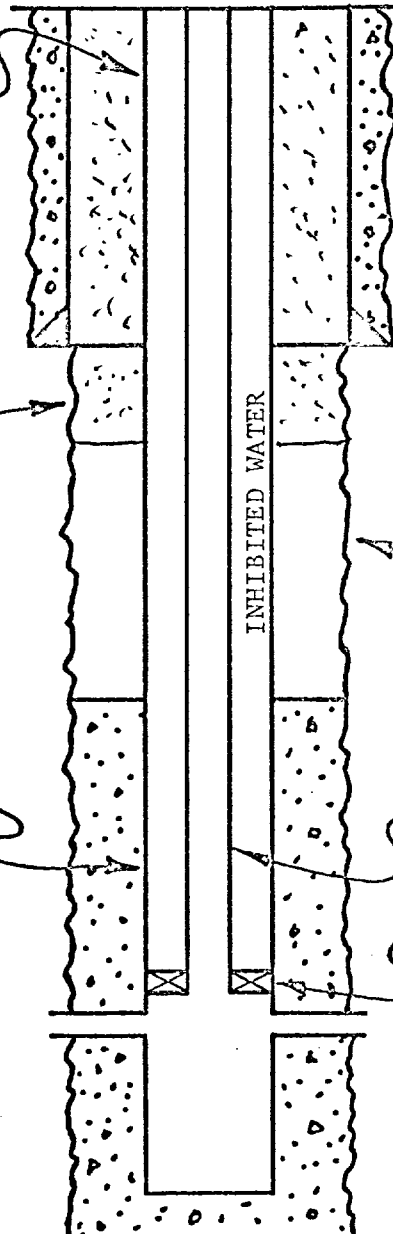
LOCATION: E - SEC. 10, T-16-S, R-31-E

NORTHEAST SQUARE LAKE UNIT  
SQUARE LAKE NORTH FIELD  
EDDY COUNTY, NEW MEXICO

8 5/8" 24 #/FT CASING  
@ 141 FT CEMENTED  
WITH 100 SACKS  
OF Neat CEMENT

150 sx - staging collar  
@ 1007'  
Cement Circulated

4 1/2" 11.6 #/FT CASING  
@ 3747 FT CEMENTED  
WITH 200 SACKS  
OF Neat CEMENT



CEMENT TOP @ 40 FT

11 " HOLE SIZE

6 3/4 " HOLE SIZE

CEMENT TOP @ 2157 FT  
(volumetric fill up calculations)

2 3/8" CEMENT LINED TUBING  
@ 3615 ft.

TENSION PACKER

PREMIER PERFORATION  
OR OPEN HOLE  
FROM 3645 FT  
TO 3703 FT

PLUG BACK T.D. 3713 FT

TOTAL DEPTH 3750 FT

(NEW WELL NAME WILL BE TRACT 4 WELL 3)

EXHIBIT 12  
INJECTION WELL COMPLETION DATA

STANDARD OF TEXAS

FEDERAL 15

4

OPERATOR

LEASE

WELL NO.

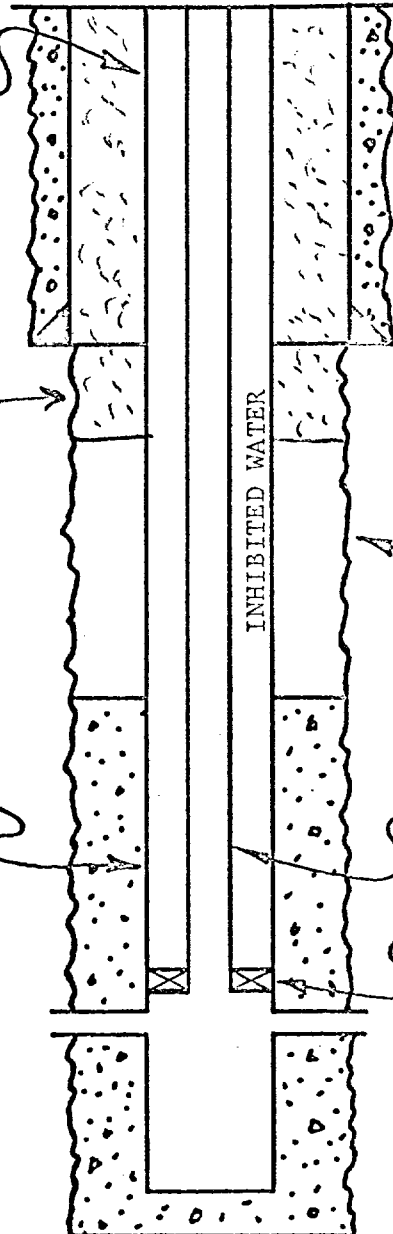
LOCATION: C - SEC. 10, T-16-S, R-31-E

NORTHEAST SQUARE LAKE UNIT  
SQUARE LAKE NORTH FIELD  
EDDY COUNTY, NEW MEXICO

8 5/8" 24 #/FT CASING  
@ 200 FT CEMENTED  
WITH 125 SACKS  
OF Neat CEMENT

200 sx Neat @ 996'  
circulated to surface  
by staging collar

4 1/2" 9.5 #/FT CASING  
@ 3770 FT CEMENTED  
WITH 200 SACKS  
OF Neat CEMENT



CEMENT CIRCULATED

11" HOLE SIZE

6 3/4" HOLE SIZE

CEMENT TOP @ 2177 FT  
(volumetric fill up calculation)

2 3/8" CEMENT LINED TUBING  
@ 3642 FT

TENSION PACKER

PREMIER PERFORATION  
~~OR OPEN HOLE~~  
FROM 3672 FT  
TO 3718 FT

PLUG BACK T.D. 3741 FT

TOTAL DEPTH 3770 FT

(NEW WELL NAME WILL BE TRACT 4 WELL 4)

EXHIBIT 13  
INJECTION WELL COMPLETION DATA

STANDARD OF TEXAS

FEDERAL 15

6

OPERATOR

LEASE

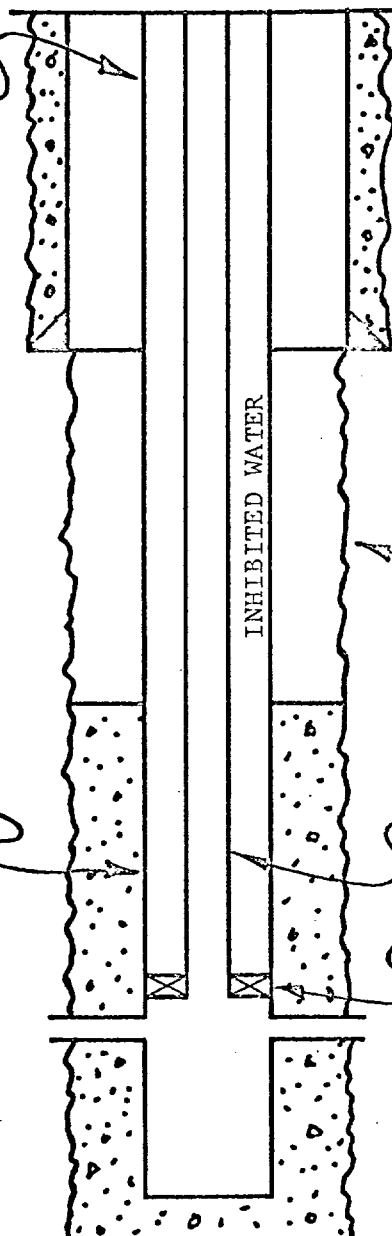
WELL NO:

LOCATION: K - SEC. 10, T-16-S, R-31-E

NORTHEAST SQUARE LAKE UNIT  
SQUARE LAKE NORTH FIELD  
EDDY COUNTY, NEW MEXICO

8 5/8" 36 #/FT CASING  
@ 210 FT CEMENTED  
WITH 125 SACKS  
OF Neat CEMENT

4 1/2" 11.6 #/FT CASING  
@ 3865 FT CEMENTED  
WITH 450 (STAGED) SACKS  
OF Neat CEMENT



CEMENT CIRCULATED

11" HOLE SIZE

6 3/4" HOLE SIZE

CEMENT TOP @ 2559 FT  
(Cement bond log)

2 3/8" CEMENT LINED TUBING  
@ 3646 FT

TENSION PACKER

PREMIER PERFORATION  
~~OR OPEN HOLE~~  
FROM 3676 FT  
TO 3738 FT

PLUG BACK T.D. 3868 FT

TOTAL DEPTH 3868 FT

(NEW WELL NAME WILL BE TRACT 4 WELL 6)



EXHIBIT 14  
INJECTION WELL COMPLETION DATA

STANDARD OF TEXAS

FEDERAL 16

1

OPERATOR

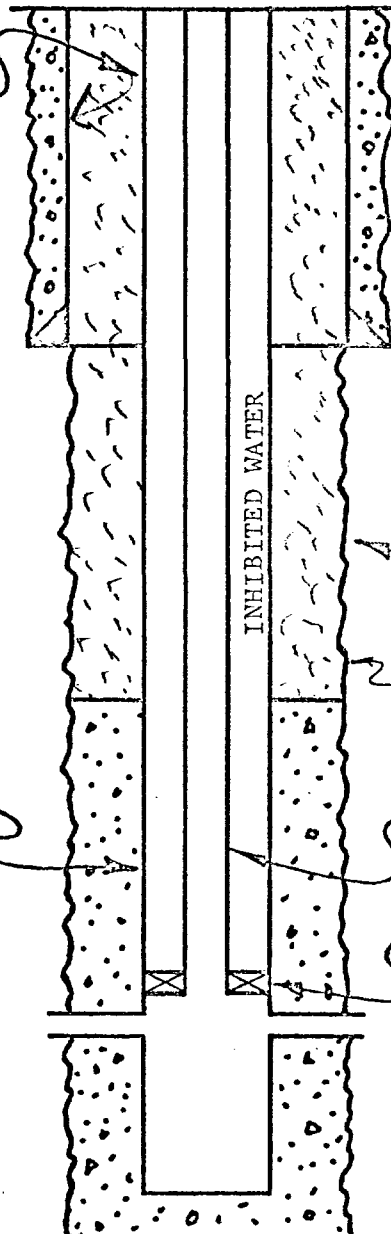
LEASE

WELL NO.

LOCATION: U - SEC. 3, T-16-S, R-31-E  
NORTHEAST SQUARE LAKE UNIT  
SQUARE LAKE NORTH FIELD  
EDDY COUNTY, NEW MEXICO

8 5/8 " 24 #/FT CASING  
@ 212 FT CEMENTED  
WITH 125 SACKS  
OF Neat CEMENT

4 1/2 " 11.6 #/FT CASING  
@ 3726 FT CEMENTED  
WITH 440 SACKS  
OF 40% DIACEL D CEMENT  
+ 150 SX NEAT - CIRC. 5 SX



CEMENT CIRCULATED

11 " HOLE SIZE

6 3/4 " HOLE SIZE

CEMENT CIRCULATED

2 3/8" CEMENT LINED TUBING  
@ 3615 FT

TENSION PACKER

PREMIER PERFORATION  
OR OPEN HOLE  
FROM 3645 FT  
TO 3686 FT

PLUG BACK T.D. 3695 FT

TOTAL DEPTH 3728 FT

(NEW WELL NAME WILL BE TRACT 6 WELL 1)

EXHIBIT 15  
INJECTION WELL COMPLETION DATA

BOURG DRILLING CO.

STATE

1

OPERATOR

LEASE

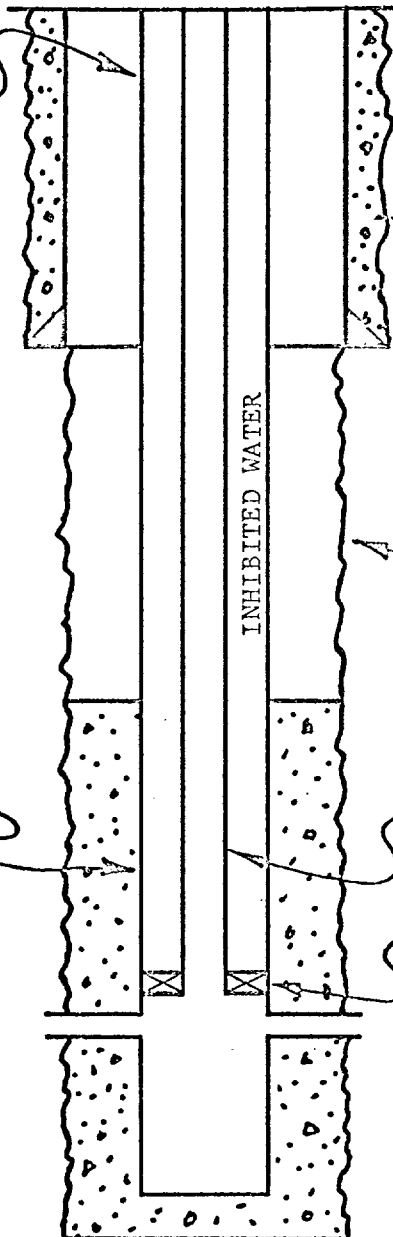
WELL NO.

LOCATION: U - SEC. 2, T-16-S, R-31-E

NORTHEAST SQUARE LAKE UNIT  
SQUARE LAKE NORTH FIELD  
EDDY COUNTY, NEW MEXICO

8 5/8 " 32 #/FT CASING  
@ 376 FT CEMENTED  
WITH 175 SACKS  
OF Neat CEMENT

5 1/2 " 14 #/FT CASING  
@ 4100 FT CEMENTED  
WITH 200 SACKS  
OF Neat CEMENT



CEMENT CIRCULATED

11 " HOLE SIZE

7 7/8 " HOLE SIZE

CEMENT TOP @ 2831 FT  
(calculated by volumetric fill up)

2 3/8" CEMENT LINED TUBING  
@ 3934 FT

TENSION PACKER

PREMIER PERFORATION  
OR OPEN HOLE  
FROM 3964 FT  
TO 3972 FT

PLUG BACK T.D. 4075 FT

TOTAL DEPTH 4100 FT

(NEW WELL NAME WILL BE TRACT 8 WELL 1)

EXHIBIT 16  
INJECTION WELL COMPLETION DATA

MOBIL

MOBIL STATE

2

OPERATOR

LEASE

WELL NO.

LOCATION: E - SEC. 11, T-16-S, R-31-E  
NORTHEAST SQUARE LAKE UNIT  
SQUARE LAKE NORTH FIELD  
EDDY COUNTY, NEW MEXICO

8 5/8 " 24 #/FT CASING  
@ 484 FT CEMENTED  
WITH 260 SACKS  
OF Neat CEMENT

CEMENT CIRCULATED

10 3/4 " HOLE SIZE

7 7/8 " HOLE SIZE

CEMENT TOP @ 3061 FT  
(volumetric fill up calculations)

4 1/2 " 9.5 #/FT CASING  
@ 4029 FT CEMENTED  
WITH 200 SACKS  
OF Neat CEMENT

2 3/8" CEMENT LINED TUBING  
@ 3970 FT

TENSION PACKER

PREMIER PERFORATION  
OR OPEN HOLE  
FROM 4000 FT  
TO 4002 FT

PLUG BACK T.D. 4027 FT

TOTAL DEPTH 4035 FT

(NEW WELL NAME WILL BE TRACT 9 WELL 2)

EXHIBIT 17  
INJECTION WELL COMPLETION DATA

CONTINENTAL OIL CO.

STATE Y-3

2

OPERATOR

LEASE

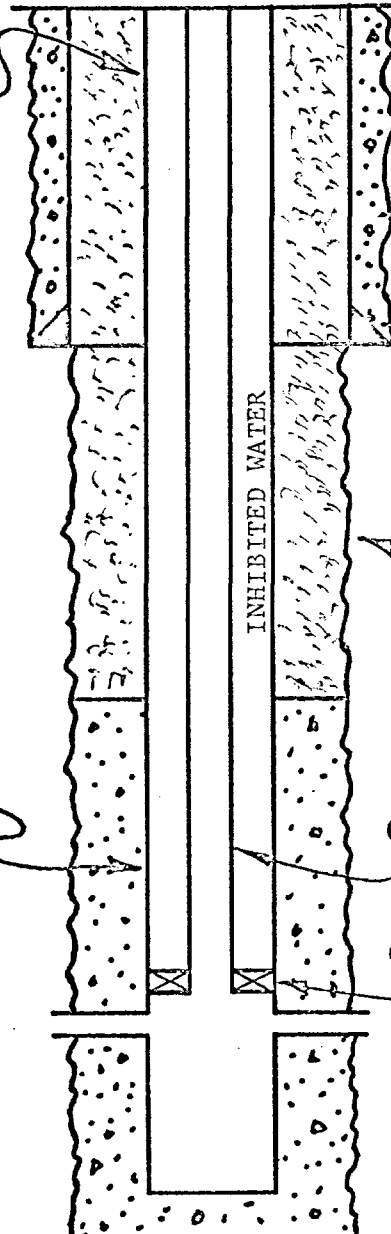
WELL NO.

LOCATION: Q - SEC. 3, T-16-S, R-31-E

NORTHEAST SQUARE LAKE UNIT  
SQUARE LAKE NORTH FIELD  
EDDY COUNTY, NEW MEXICO

7 5/8" 24 #/FT CASING  
@ 428 FT CEMENTED  
WITH 420 SACKS  
OF Neat CEMENT

4 1/2" 9.5 #/FT CASING  
@ 3907 FT CEMENTED  
WITH 3915 SACKS  
OF Neat CEMENT



CEMENT CIRCULATED

9 7/8" HOLE SIZE

6 3/4" HOLE SIZE

CEMENT CIRCULATED

2 3/8" CEMENT LINED TUBING  
@ 3880 FT

TENSION PACKER

~~PREMIER PERFORATION~~  
OR OPEN HOLE  
FROM 3907 FT  
TO 3970 FT

PLUG BACK T.D. \_\_\_\_\_ FT

TOTAL DEPTH 3970 FT

(NEW WELL NAME WILL BE TRACT 10 WELL 2)