

CASE 3790: Application of TENNECO
OIL CO. for a WATERFLOOD PROJECT,
LEA COUNTY, NEW MEXICO.

Case Number

3790

Application
Transcripts.

Small Exhibits

ETC.

**BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO**

**IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:**

**CASE No. 3790
Order No. R-3444**

**APPLICATION OF TENNECO OIL COMPANY
FOR A WATERFLOOD PROJECT, LEA COUNTY,
NEW MEXICO.**

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on June 26, 1968, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 3rd day of July, 1968, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Tenneco Oil Company, seeks permission to institute a waterflood project in its Mesa Queen Unit Area, Mesa-Queen Pool, by the injection of water into the Queen formation through twelve injection wells in Sections 16, 17, and 20, Township 16 South, Range 32 East, MNPM, Lea County, New Mexico.

(3) That the wells in the project area are in an advanced state of depletion and should properly be classified as "stripper" wells.

(4) That the proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(5) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

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CASE No. 3790
Order No. R-3444

IT IS THEREFORE ORDERED:

(1) That the applicant, Tenneco Oil Company, is hereby authorized to institute a waterflood project in its Mesa Queen Unit Area, Mesa-Queen Pool, by the injection of water into the Queen formation through the following-described wells in Township 16 South, Range 32 East, NMPM, Lea County, New Mexico:

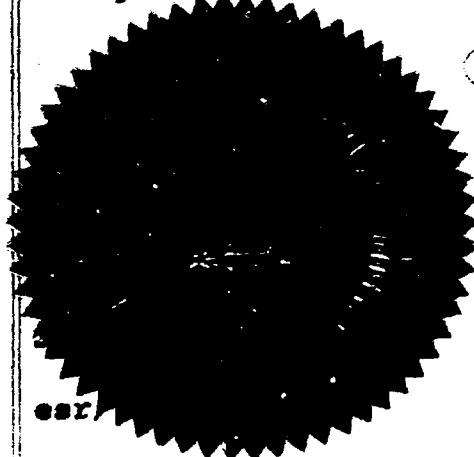
WELL	No.	Unit	Section
Tenneco-Mesa Queen Unit	- 2	NW/4 NE/4	16
Tenneco-Mesa Queen Unit	- 1	NE/4 NW/4	16
Tenneco-Mesa Queen Unit	- 6	SW/4 NW/4	16
Tenneco-Mesa Queen Unit	- 15	NE/4 SW/4	16
Tenneco-Mesa Queen Unit	- 9	SE/4 NE/4	16
Tenneco-Mesa Queen Unit	- 5	SE/4 NE/4	17
Tenneco-Mesa Queen Unit	- 4	SW/4 NE/4	17
Tenneco-Mesa Queen Unit	- 18	SE/4 SW/4	17
Tenneco-Mesa Queen Unit	- 11	NE/4 SW/4	17
Tenneco-Mesa Queen Unit	- 10	NW/4 SW/4	17
Tenneco-Mesa Queen Unit	- 20	SE/4 SE/4	17
Tenneco-Mesa Queen Unit	- 22	NW/4 NW/4	20

(2) That the subject waterflood project is hereby designated the Tenneco Mesa Queen Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(3) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.



STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

DAVID F. CARGO, Chairman

GUYTON B. HAYS, Member

A. L. PORTER, Jr., Member & Secretary

OIL CONSERVATION COMMISSION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

August 1, 1968

C
O
P
Y

Mr. Booker Kelly
White, Gilbert, Koch & Kelly
Attorneys at Law
Post Office Box 787
Santa Fe, New Mexico

Dear Sir:

Reference is made to Commission Order No. R-3444, recently entered in Case No. 3790, approving the Tenneco Mesa Queen Water-flood Project.

Injection is to be through the 12 authorized water injection wells, each of which shall be equipped with 2 3/8-inch plastic- or cement-lined tubing set in a packer. The packers shall be set approximately 50 feet above the uppermost perforation. The casing-tubing annulus shall be loaded with a corrosion-inhibited fluid and left open at the surface or equipped with a pressure gauge to facilitate detection of tubing or packer leakage.

As to allowable, our calculations indicate that when all of the authorized injection wells have been placed on active injection, the maximum allowable which this project will be eligible to receive under the provisions of Rule 701-E-3 is 1008 barrels per day when the Southeast New Mexico normal unit allowable is 42 barrels per day or less.

Please report any error in this calculated maximum allowable immediately, both to the Santa Fe office of the Commission and the appropriate district proration office.

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

August 1, 1968

-2-

Mr. Booker Kelly
White, Gilbert, Koch & Kelly
Attorneys at Law
Post Office Box 787
Santa Fe, New Mexico

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In order that the allowable assigned to the project may be kept current, and in order that the operator may fully benefit from the allowable provisions of Rule 701, it behooves him to promptly notify both of the aforementioned Commission offices by letter of any change in the status of wells in the project area, i.e., when active injection commences, when additional injection or producing wells are drilled, when additional wells are acquired through purchase or unitization, when wells have received a response to water injection, etc.

Your cooperation in keeping the Commission so informed as to the status of the project and the wells therein will be appreciated.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/DSW/esr

cc: Oil Conservation Commission
P. O. Box 1980
Hobbs, New Mexico

Mr. D. E. Gray
State Engineer Office
Capitol Building
Santa Fe, New Mexico

Case 3790

Heard 6-26-65

Rec. 6-28-65.

Grant Denness a waterflood project and permission to convert 12 wells to injection in the Mesa Queen pool & Mesa Queen Unit.

The wells are:

1	Denness - Mesa Queen Unit #2 - NW NE - 16
2	" " " " " " #1 - NE NW - 16
3	" " " " " " #6 - SW NW - 16
4	" " " " " " #15 - NE SW - 16
5	" " " " " " #9 - SE NE - 16
6	" " " " " " #5 - SE NE - 17
7	" " " " " " #4 - SW NE - 17
8	" " " " " " #18 - SE SW - 17
9	" " " " " " #11 - NE SW - 17
10	" " " " " " #10 - NW SW - 17
11	" " " " " " #20 - SE SE - 17
12	" " " " " " #22 - NW NW - 20

all in T16S - R32E.

Injection will be thru tubing and under a packer set as near the casing shoe as possible.

Thudor H. H.

State of New Mexico
Oil Conservation Commission



STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

July 3, 1968

Re: Case No. 3790
Order No. R-3444
Applicant:
Tenneco Oil Company

Enclosed herewith is a copy of the above-referenced Commission order recently entered in the subject case. Letter pertaining to conditions of approval and maximum allowable to follow.

A. L. Porter, Jr.
A. L. PORTER, Jr.
Secretary-Director

Hobbs OCC X
 Artesia OCC
 Aztec OCC
 State Engineer X

Other _____

11 JUN 6 AM 11 25

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

Case 3790

APPLICATION OF TENNECO OIL COMPANY
FOR PERMISSION TO CONDUCT SECONDARY
RECOVERY OPERATIONS BY WATERFLOODING
THE MESA QUEEN FORMATION UNDERLYING
PORTIONS OF SECTIONS 16, 17 and 20
Township 16 South, Range 32 East, Lea
County, New Mexico

WHITE, GILBERT, KOCH & KELLY
ATTORNEYS AT LAW
P. O. BOX 787
SANTA FE, NEW MEXICO

Comes now Tenneco Oil Company and for its Application states:

1. Applicant is the owner and operator of certain oil and gas leases within the above described area located in Lea County, New Mexico. Applicant has concurrently with this application filed its application for approval of a Unit Agreement covering the area described above.

2. Applicant hereby seeks approval of the Commission to conduct secondary recovery operations by waterflooding that portion of the Mesa Queen formation which is encountered between the depths of 3,389 feet and 3,420 feet in which underlies the following described area which comprises applicant's proposed Mesa Queen unitized area, to-wit:

The $W\frac{1}{2}$, the $NE\frac{1}{4}$ and the $NW\frac{1}{4}$ of the $SE\frac{1}{4}$ Section 16

The $S\frac{1}{2}$ and the $S\frac{1}{2}$ of the $NE\frac{1}{4}$ Section 17

The $W\frac{1}{2}$ and $NE\frac{1}{4}$ of the $NW\frac{1}{4}$ Section 20

all in Township 16 South Range 32 East, Lea County, New Mexico

3. Applicant further seeks approval to expand the waterflood project area upon administrative approval by the Secretary-Director of the Commission without notice and hearing after proper showing to the Secretary-Director of justification for any such expansion.

4. Applicant intends to initially operate the proposed waterflood injection into the Mesa Queen formation at an average depth of 3400 feet through the following wells:

DOCKET MARKED

Date 6/13/68

WHITE, GILBERT, KOCH & KELLY
ATTORNEYS AT LAW
P. O. BOX 787
SANTA FE, NEW MEXICO

	Well Name and Number	Location
1		
2	1 Tenneco Sinclair State No. 1 2	NW $\frac{1}{4}$ of NE $\frac{1}{4}$ Section 16
3	2 Tenneco Continental State No. 1 1	NE $\frac{1}{4}$ of NW $\frac{1}{4}$ Section 16
4	3 Tenneco Mobil State No. 1 6	SW $\frac{1}{4}$ of NW $\frac{1}{4}$ Section 16
5	4 Tenneco Mobil State No. 3 15	NE $\frac{1}{4}$ of SW $\frac{1}{4}$ Section 16
6	5 Shell M.Q.A. No. 1 9	SE $\frac{1}{4}$ of NE $\frac{1}{4}$ Section 16
7	6 Tenneco Sinclair State A No. 1 - 5	SE $\frac{1}{4}$ of NE $\frac{1}{4}$ Section 17
8	7 Tenneco Sinclair State A No. 2 - 4	SW $\frac{1}{4}$ of NE $\frac{1}{4}$ Section 17
9	8 Shell M.Q.D. No. 1 18	SE $\frac{1}{4}$ of SW $\frac{1}{4}$ Section 17
10	9 Shell M.Q.D. No. 2 11	NE $\frac{1}{4}$ of SW $\frac{1}{4}$ Section 17
11	10 Shell M.Q.D. No. 4 10	NW $\frac{1}{4}$ of SW $\frac{1}{4}$ Section 17
12	11 Tenneco Mobil State C No. 1 - 20	SE $\frac{1}{4}$ of SE $\frac{1}{4}$ Section 17
13	12 Shell De Cleva State No. 1 22	NW $\frac{1}{4}$ of NW $\frac{1}{4}$ Section 20

5. An initial injection rate of 300 to 500 barrels of water per well per day is anticipated with a surface injection pressure of approximately 1500 PSIG.

6. Attached hereto marked "Exhibit 1" is a plat showing the two mile radius of the proposed injection project and showing all matters required by Rule 701 B of the New Mexico Oil Conservation Commission. Also attached hereto are logs of the proposed injection wells and diagramatic sketches showing the type of installation proposed.

7. The proposed project area is in the advanced stage of depletion and applicant alleges that the waterflooding of the above mentioned zone will economically recover substantial quantities of oil and other hydrocarbons which cannot be recovered by primary recovery operations. In the interest of conservation, the prevention of waste, the protection of correlative rights and to secure the greatest ultimate recovery of oil and other hydrocarbons from that portion of the Mesa Queen formation described in paragraph 2 above, this application should be granted.

WHEREFORE applicant prays that this application be set down for public hearing and at such public hearing be granted.

TENNECO OIL COMPANY

By Millard F. Carr
Division Attorney
P. O. Box 2410, Denver, Colorado
80201

WHITE, GILBERT, KOCH & KELLY
ATTORNEYS AT LAW
P. O. BOX 787
SANTA FE, NEW MEXICO

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WHITE, GILBERT, KOCH & KELLY

By WMB Kelly

DOCKET: EXAMINER HEARING - WEDNESDAY - JUNE 26, 1968

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

The following cases will be heard before Elvis A. Utz, Examiner,
or A. L. Porter, Jr., Alternate Examiner:

CASE 3788: Application of Texaco Inc. for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Grayburg-San Andres formation through its New Mexico State "W" NCT-1 Well No. 1 located in Unit O of Section 13, Township 17 South, Range 34 East, Vacuum (Grayburg-San Andres) Oil Pool, Lea County, New Mexico.

CASE 3789: Application of Tenneco Oil Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Mesa Queen Unit Area comprising 1,040 acres, more or less, of state lands in Township 16 South, Range 32 East, Mesa-Queen Pool, Lea County, New Mexico.

CASE 3790: Application of Tenneco Oil Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its Mesa Queen Unit Area by the injection of water into the Queen formation through 12 wells located in Sections 16, 17, and 20, Township 16 South, Range 32 East, Mesa-Queen Pool, Lea County, New Mexico.

CASE 3573 (Reopened):

In the matter of Case 3573 being reopened pursuant to the provisions of Order No. R-3240 to permit all interested parties to appear and show cause why the temporary rules for the South Corbin-Strawn Oil Pool, Lea County, New Mexico, which include a provision for 160-acre spacing units and a 4000 to one gas-oil ratio limit, should remain in effect.

CASE 3791: Application of Kewanee Oil Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Square Lake "12" Unit Area comprising 1,360 acres, more or less, of Federal lands in Township 17 South, Ranges 29 and 30 East, Square Lake Pool, Eddy County, New Mexico.

CASE 3792: Application of Kewanee Oil Company for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Grayburg formation underlying its Square Lake "12" Unit Area through seven wells located in Sections 1 and 12, Township 17 South, Range 29 East, and Sections 6 and 7, Township 17 South, Range 30 East, Square Lake Pool, Eddy County, New Mexico.

CASE 3793: Application of Gulf Oil Corporation for salt water disposal, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Grayburg formation in the interval from approximately 3812 feet to 3900 feet in its Keohane "C" Federal Well No. 3 located in Unit I of Section 21, Township 18 South, Range 31 East, Shugart Yates-Seven Rivers-Queen-Grayburg Pool, Eddy County, New Mexico.

CASE 3794: Application of Gulf Oil Corporation for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the San Andres formation adjacent to the Eunice-San Andres Pool in the interval from approximately 4100 feet to 4900 feet in the Warren Petroleum Corporation Eunice Plant SWD Well No. 1, located 2255 feet from the North line and 908 feet from the East line of Section 3, Township 22 South, Range 37 East, Lea County, New Mexico.

CASE 3795: Application of Pan American Petroleum Corporation for a pool creation and discovery allowable, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of the Bate-Yates Pool in Lea County, New Mexico, comprising the S/2 of Section 26 and the N/2 of Section 35, both in Township 19 South, Range 33 East, and for the assignment of approximately 16,750 barrels of oil discovery allowable to the discovery well, its Bate Federal Well No. 1 located in Unit N of said section 26.

CASE 3796: Application of The Superior Oil Company for the creation of a new pool, assignment of discovery allowable, and the promulgation of pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new upper Pennsylvanian oil pool for its State D COM Well No. 1 located in Unit G of Section 4, Township 14 South, Range 34 East, Lea County, New Mexico, and for the assignment of an oil discovery allowable in the amount of approximately 52,010 barrels to said well. Applicant further seeks the promulgation of special pool rules for said pool, including a provision for 160-acre proration units.

CASE 3797: Application of Ernest A. Hanson for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Queen formation in the overall interval from approximately 4604 to 5036 feet in his Mescalero Ridge Unit "35" Well No. 11 located in Unit N of Section 35, Township 19 South, Range 34 East, Pearl-Queen Pool, Lea County, New Mexico.

DOCKET: EXAMINER HEARING - WEDNESDAY - JUNE 26, 1968

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

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CASE 3798: Application of Ernest A. Hanson for salt water disposal, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Delaware formation in the interval from approximately 4177 feet to 4185 feet in his Hanson Federal Well No. 7 located in Unit J of Section 25, Township 26 South, Range 31 East, North Mason-Delaware Pool, Eddy County, New Mexico.

CASE 3799: Application of Amerada Petroleum Corporation for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to re-enter and complete as a gas well the State WR "B" Well No. 1 located at an unorthodox location 554 feet from the North line and 2086 feet from the East line of Section 35, Township 12 South, Range 34 East, Ranger Lake-Devonian Gas Pool, Lea County, New Mexico, and to dedicate to said well the E/2 of said section 35.

ir/

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
Appel EXHIBIT NO. 1-9
CASE NO. 3793

EXHIBITS

MESA QUEEN UNIT WATERFLOOD HEARING

JUNE 26, 1968

SANTA FE, NEW MEXICO

MESA QUEEN FIELD DATA

Name of reservoir	Queen Sand
Average depth of pay	3400 feet
Pay thickness	Range 5-14', average 10'
Estimated oil productive acreage	1,000 acres
Field structure	stratigraphic trap
Depth to original oil-water interface	+930' sub-sea
Depth to gas-oil interface	+955' sub-sea
Producing mechanism	solution gas drive
Original oil in place	11,300,000 bbls.
Primary depletion 9-1-67	703,134 bbls. or 6.73% of original oil in place
Average porosity	19.2%
Average permeability	44 md.
Estimated water saturation	25%
Reservoir pressures original	1000 psig
estimated present	100 psig
Reservoir temperature	110° F
Oil gravity	35° API
Current oil production	103 BOPD
Current gas production	2347 MCF/D
Current water production	55 BWPD
Current water cut	35%
Number of producing oil wells	22
Number of producing gas wells	6
Depth allowable factor	1.0
Current top allowable	58 BOPD
Current field allowable	143 BOPD

143 BOPD

MESA QUEEN FIELD
PRODUCTION HISTORY

YEAR	MONTH	OIL BBL'S.	GAS MCF	WATER BBL'S.	GOR	C U M U L A T I V E		
						OIL	GAS	WATER
1962	Aug.	575						
	Sept.	1,031						
	Oct.	1,637						
	Nov.	2,453						
	Dec.	2,559						
	TOTALS	8,255				8,255		
1963	Jan.	3,276		88				
	Feb.	3,569	35,230	437	9,871			
	Mar.	3,970	39,306	566	9,901			
	Apr.	3,848	33,683	1,386	8,753			
	May	3,999	6,786	1,092	1,697			
	June	4,344	33,660	1,071	7,749			
	July	5,091	34,863	653	6,848			
	Aug.	6,677	38,268	133	5,731			
	Sept.	6,414	34,836	221	5,431			
	Oct.	7,281	36,146	0	4,964			
	Nov.	10,767	42,222	30	3,921			
	Dec.	8,719	33,351	118	3,825			
	TOTALS	67,955	368,351	5,795		76,210	368,351	5,795
1964	Jan.	18,194	93,720	168	6,424			
	Feb.	16,243	76,124	511	4,687			
	Mar.	21,507	78,542	0	3,652			
	Apr.	20,927	100,934	0	4,823			
	May	20,697	129,356	0	6,250			
	June	18,345	106,041	750	5,780			
	July	19,079	115,380	775	6,047			
	Aug.	19,856	108,001	778	5,439			
	Sept.	19,175	98,063	754	5,114			
	Oct.	20,179	100,794	780	4,995			
	Nov.	19,647	99,969	754	5,088			
	Dec.	20,349	95,057	779	4,671			
	TOTALS	234,198	1,201,981	6,049		310,408	1,570,332	11,844
1965	Jan.	21,140	98,894	779	4,680			
	Feb.	18,997	72,600	703	3,820			
	Mar.	20,616	99,313	780	4,820			
	Apr.	19,523	115,174	779	5,910			
	May	20,164	112,257	786	5,570			
	June	18,843	113,029	780	6,010			
	July	18,846	101,222	787	5,370			
	Aug.	18,176	124,877	792	6,870			
	Sept.	17,099	105,987	1,723	6,200			
	Oct.	17,124	125,628	1,503	7,330			
	Nov.	16,896	113,040	2,050	6,680			
	Dec.	17,409	117,339	1,947	6,750			
	TOTALS	224,833	1,299,360	13,409		535,291	2,869,692	25,253

MESA QUEEN FIELD
PRODUCTION HISTORY

YEAR	MONTH	OIL BBLs.	GAS MCF	WATER BBLs.	GOR	CUMULATIVE		
						OIL	GAS	WATER
1966	Jan.	16,494	110,197	2,478	6,680			
	Feb.	14,710	90,691	2,314	6,170			
	Mar.	15,151	127,647	2,347	8,425			
	Apr.	14,885	137,453	2,134	9,230			
	May	13,442	138,386	2,863	10,300			
	June	12,627	140,727	2,368	11,120			
	July	8,850	102,738	1,925	16,780			
	Aug.	7,629	123,273	1,775	16,170			
	Sept.	7,444	121,425	1,754	16,340			
	Oct.	7,855	116,278	2,655	14,800			
	Nov.	7,130	166,899	2,389	23,400			
	Dec.	6,478	143,228	2,053	22,100			
	TOTALS	132,695	1,518,942	27,055		667,986	4,388,634	52,308
1967	Jan.	5,668	139,721	1,848	24,650			
	Feb.	4,861	137,544	1,524	28,300			
	Mar.	5,640	154,108	1,710	27,300			
	Apr.	4,378	142,838	1,721	32,600			
	May	4,709	117,404	2,201	24,930			
	June	4,254	41,492	1,998	9,754			
	July	4,245	38,439	2,221	9,055			
	Aug.	3,748	88,350	1,763	23,572			
	Sept.	3,806	86,518	1,052	22,732			
	Oct.	3,993	145,633	1,733	36,472			
	Nov.	3,578	87,178	1,697	24,365			
	Dec.	3,160	85,702	2,218	27,121			
	TOTALS	52,040	1,264,927	21,686		720,026	5,653,561	73,994
1968	Jan.	3,222	80,362	2,324	24,942			
	Feb.	2,869	69,549	1,711	24,242			
	Mar	3,199	72,764	1,734	22,746			

EXHIBIT 6

47 6843
MADE IN U.S.A.
K&E
20 YEARS BY MONTHS
X 3 LOG CYCLES
KEUFFEL & ESSER CO.

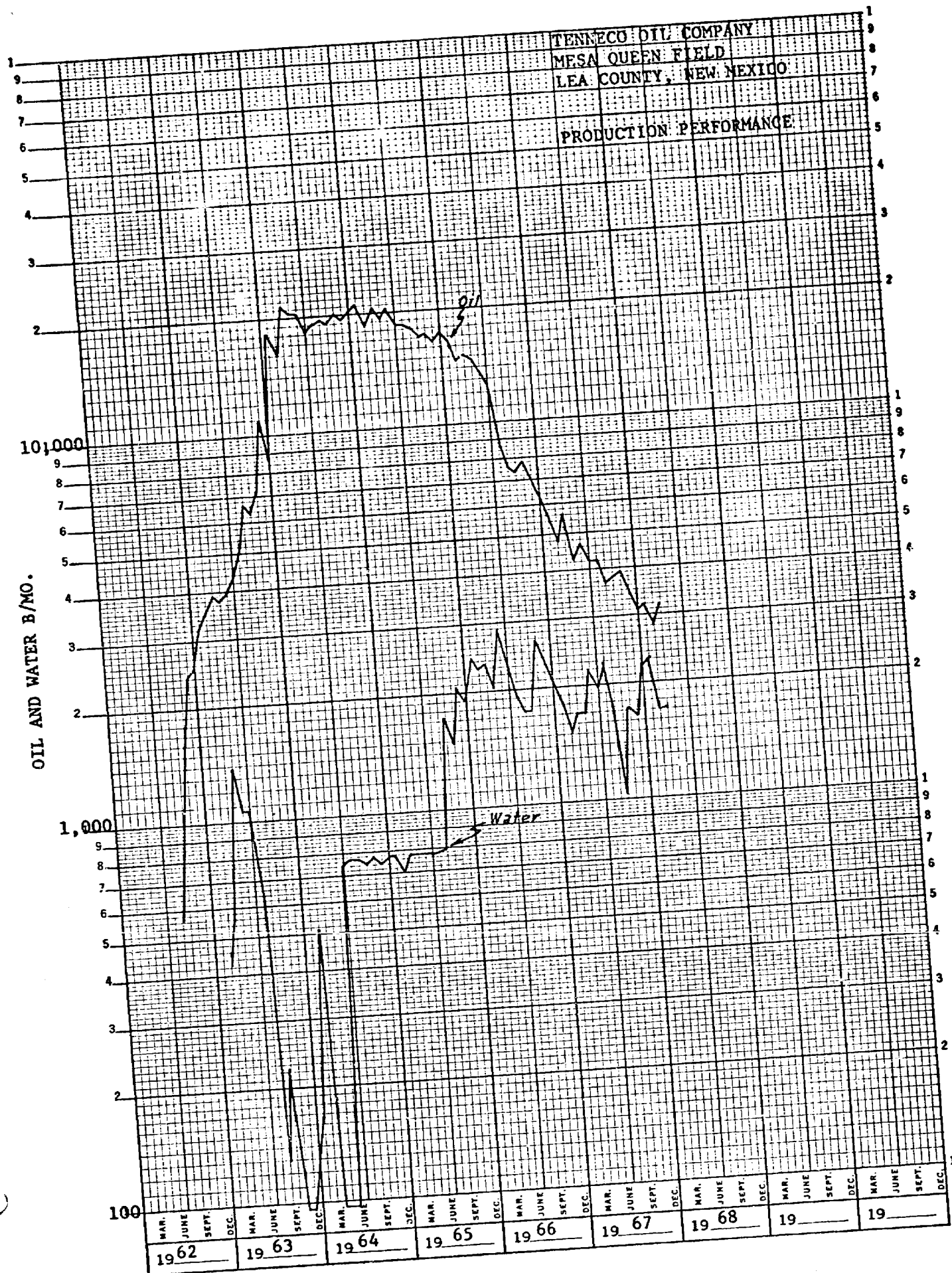


EXHIBIT 7

K-E 20 YEARS BY MONTHS 47 6843
X 3 LOG CYCLES
MADE IN U.S.A.
KEUPTEL & ESSER CO.

GOR CF/BEL.
GAS MCF/MO.

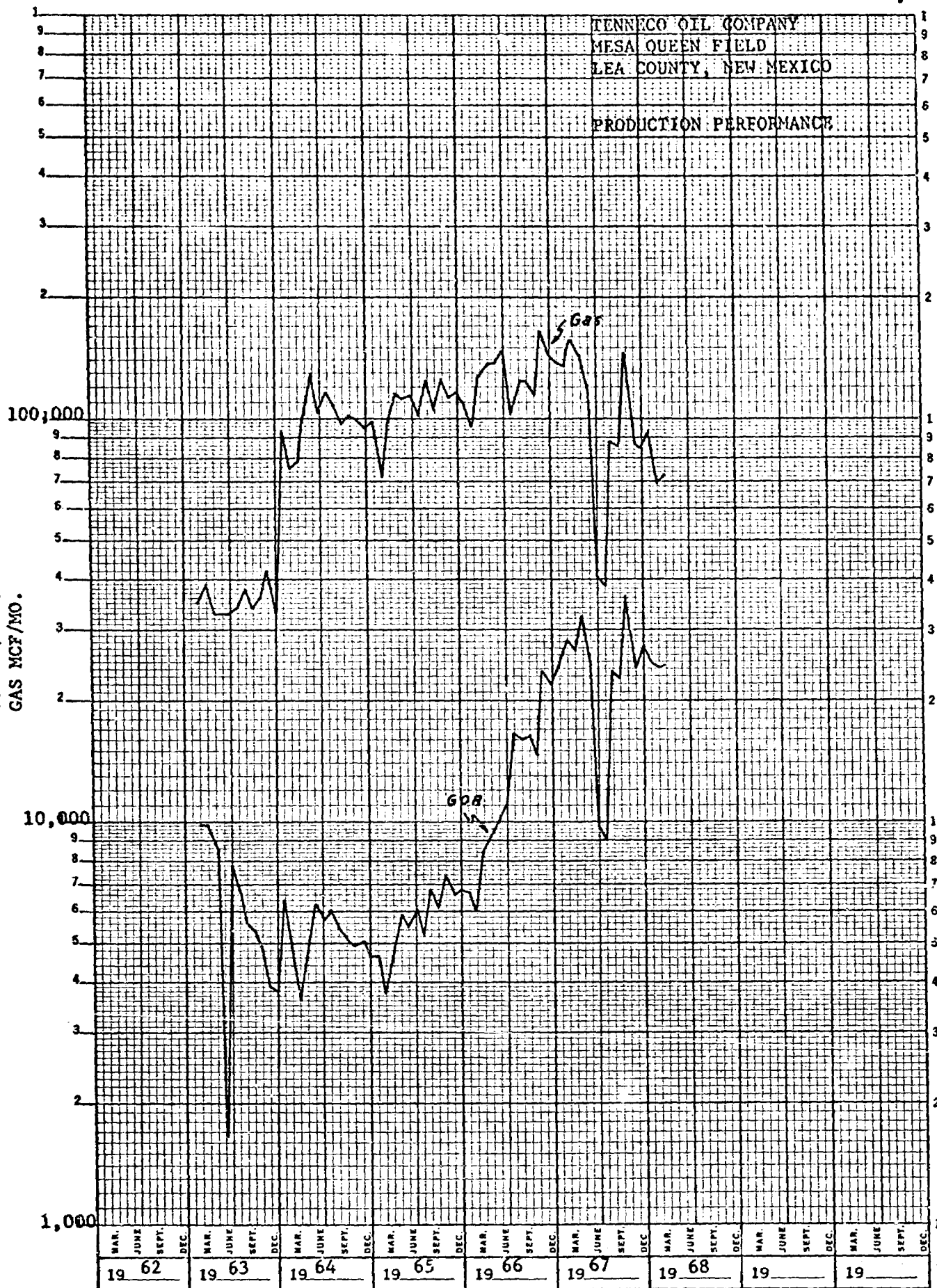
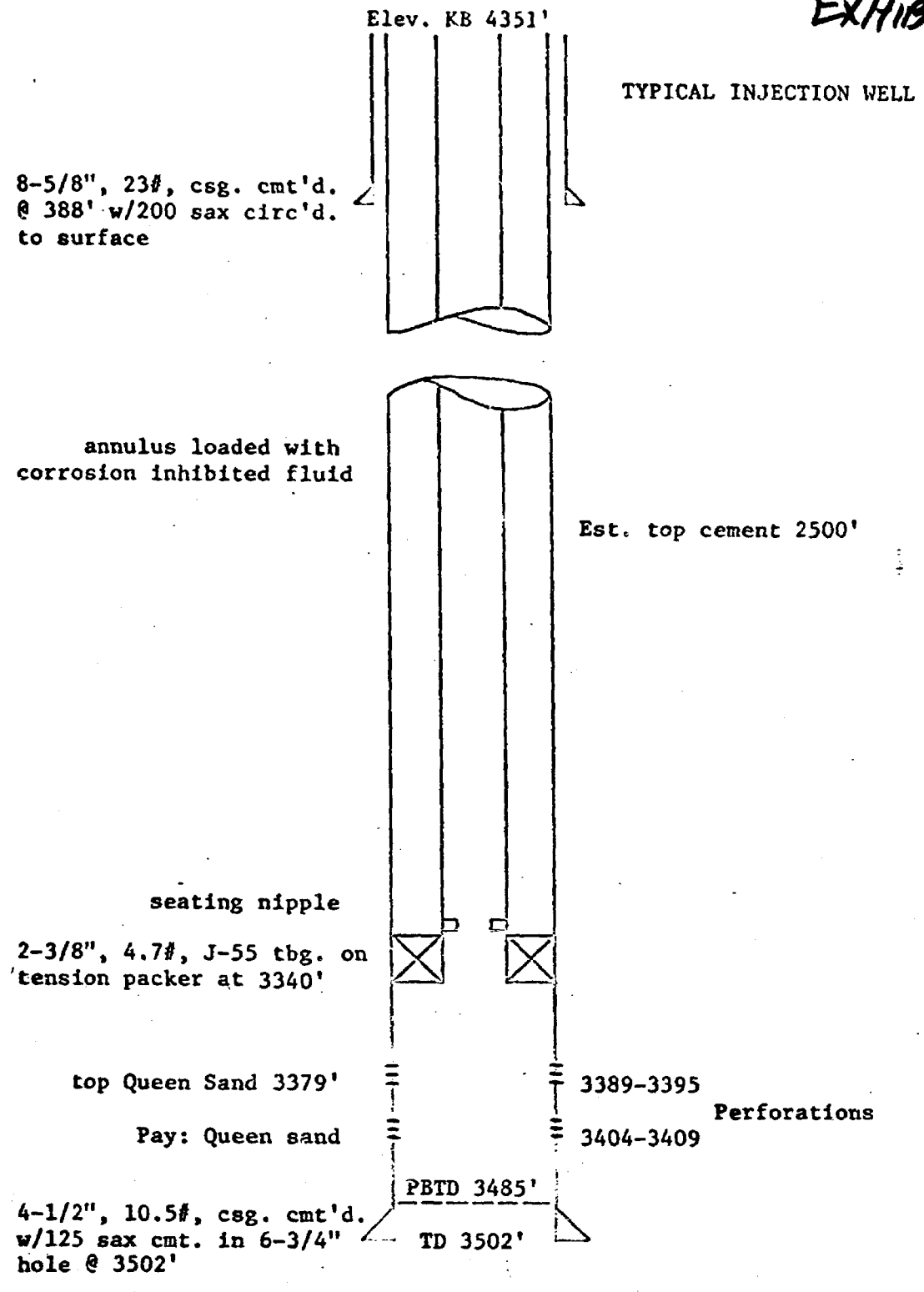


EXHIBIT 8



TENNECO OIL COMPANY SUBSIDIARY OF TENNECO CORPORATION
MESA QUEEN FIELD LEA COUNTY, NEW MEXICO
Cactus Continental State No. 1 PROPOSED WATER INJECTION WELL 990' FNL 2310' FWL Sec. 16 T-16-S, R-32-E

EXHIBIT 8

SCHUMBERGER

SONING LOG

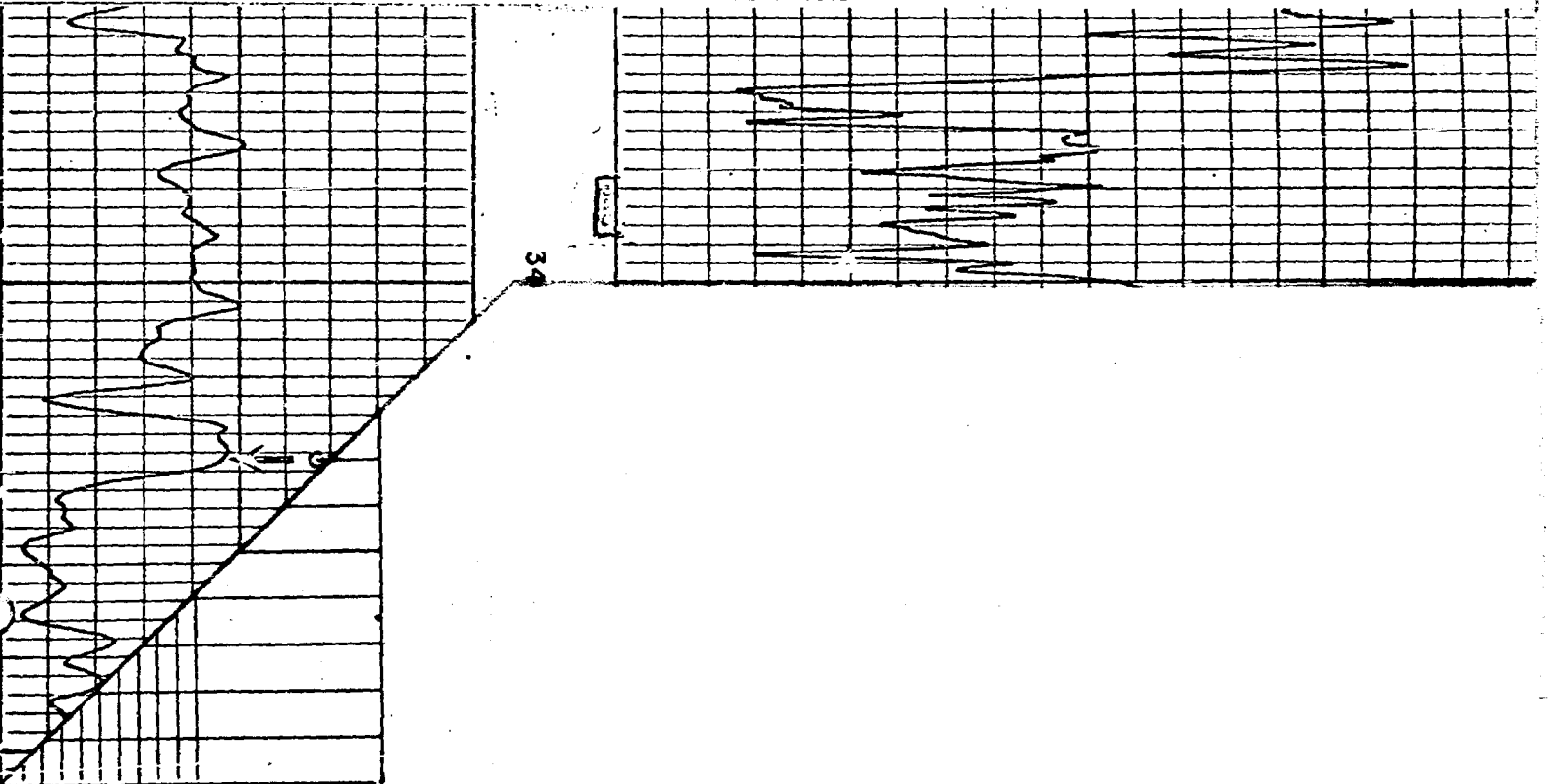
SCHUMBERGER WELL SURVEYING CORPORATION
HOUSTON TEXAS

9

COUNTY LEA **EXHIBIT**
FIELD or LOCATION MESA QUEEN
WELL CONOCO STATE # 1
COMPANY CACTUS DRILLING
COMPANYCOMPANY CACTUS DRILLING
COMPANY
WELL CONOCO STATE # 1
FIELD MESA QUEEN
LOCATION SEC. 16-16S-32E
COUNTY LEA
STATE NEW MEXICOOther Surveys
Location of Well
990' FROM N/L
2310' FROM E/L
Elevation: K.B.: 4351
D.F.: 4341
or G.L.: 4341Log Depths Measured From KB 10 Ft. above GL

RUN No.	ONE		
Date	9-12-63		
First Reading	3484		
Last Reading	100		
Feet Measured	3384		
Csg. Sealum.	-		
Csg. Driller	388		
Depth Reached	3491		
Bottom Driller	3500		
Fluid Nat.	SALT GEL		
Dens. Visc.	10.2 32		
Fluid Resist.	-	@	% F
" Res. BHT	-	@	% F
" pH	-	@	% F
" V/tr. loss	7.2	CC 30 min	% F
" Rmf	-	@	% F
Bit Size	6 1/2"		
Spacing:			
T3 R.1 R.	2950	To 10	To
T3 R.3 R.	CSG.	To 2950	To
Op. Rig Time	2 HOURS		
Truck No.	3701-HOBBS		
Recorded by	WENDLAND		
Witness	SHARP		

FOLD HERE



Elev. KB 4360'

8-5/8" 24# csg. cmt'd. @
377' w/200 sacks circ'd. $\angle$
to surface

BEFORE EXAMINER UTV

CONSERVATION

EXHIBIT NO. 12

USE NO. 308

annulus loaded with
corrosion inhibited fluid

Est. top cmt. 2850'

seating nipple

2-3/8" 4.7# J-55 tbg. on
tension packer at 3365'

Top Queen sand 3393'

Pay: Queen Sand

4-1/2" 10.5# csg. cmt'd.
@ 3475' w/125 sax in
7-7/8" hole

PBTD 3456'

TD 3475'

3404' - 3408

Perforations

3410' - 3415

34'

TENNECO OIL COMPANY
SUBSIDIARY OF TENNECO CORPORATION

MESA QUEEN FIELD
LEA COUNTY, NEW MEXICO

Cactus Sinclair State "A" No. 2
PROPOSED WATER INJECTION WELL
2310 FNL 1650 FEL Sec. 17 T-16-S, R-32-E

EXHIBIT

SCHULTZBERGER

SCHULTZBERGER WELL SURVEYING CORPORATION
Houston, Texas

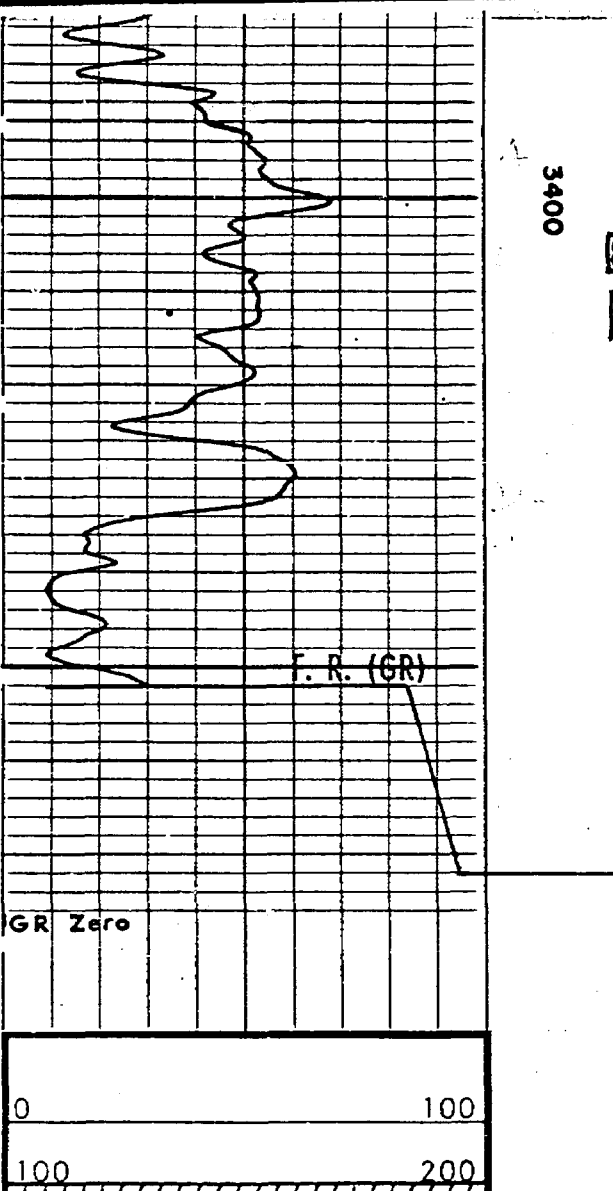
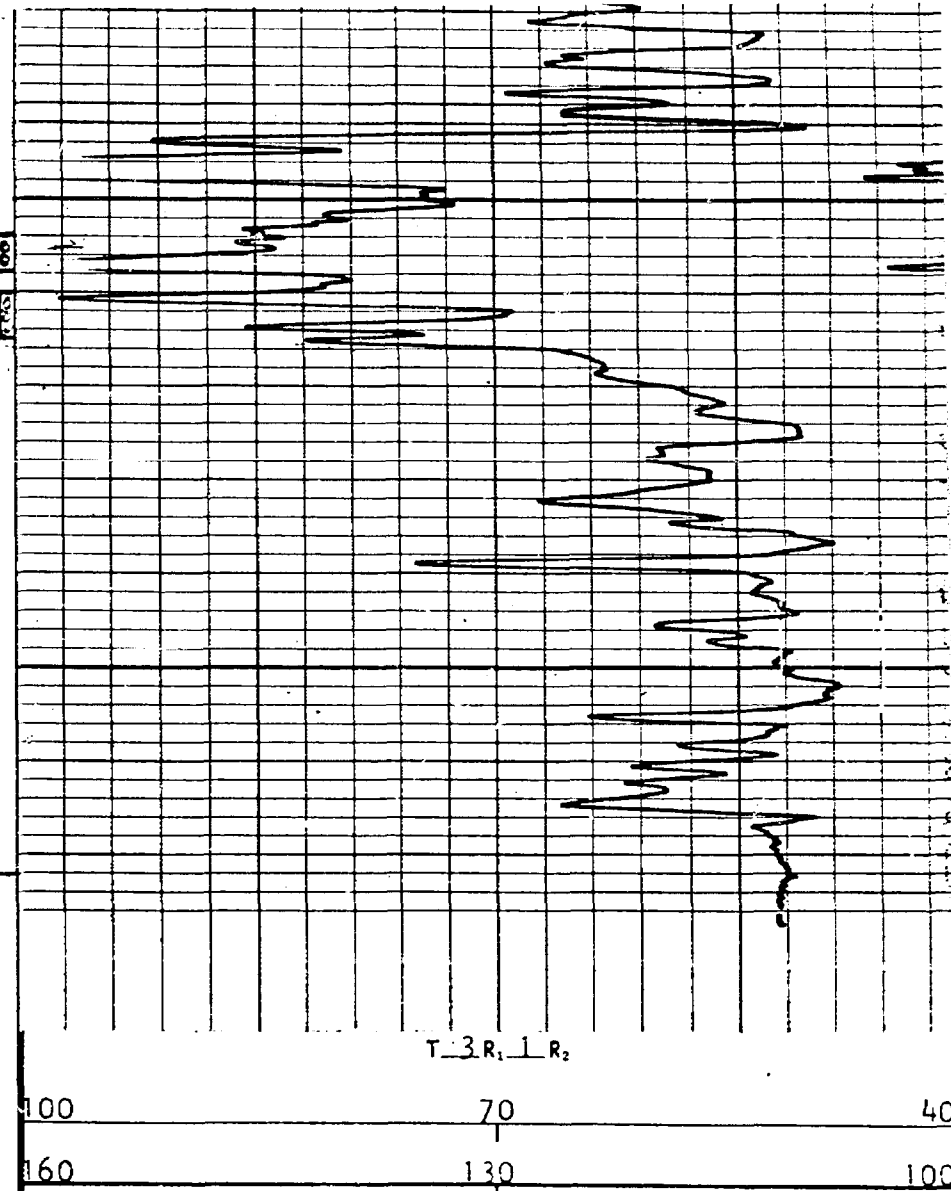
Well file

COUNTY LEA
FIELD or LOCATION MESA QUEEN
WELL #2 SINCLAIR STATE
"A"
COMPANY CACTUS DRILLING CO.

COMPANY CACTUS DRILLING COMPANY
WELL #2 SINCLAIR STATE "A"
FIELD MESA QUEEN
COUNTY LEA STATE NEW MEXICO
LOCATION 2310' FNL
1650' FEL
Sec. 17 Twp. 16-S Rge. 32-E
Other Services: NONE

Permanent Datum: GROUND LEVEL, Elev. 4350
Log Measured From KB, 10 Ft. Above Perm. Datum
Drilling Measured From KB Elev.: K.B. 4360
D.F. --
G.L. 4350

Date	1-7-64		
Run No.	ONE		
Depth—Driller	3475		
Depth—Logger	3475		
Btm. Log Interval	3472		
Top Log Interval	10		
Casing—Driller	8-5/8" @ 370	@	@
Casing—Logger	--		
Bit Size	7-7/8" @ 6-11/16"		
Type Fluid in Hole	NATURAL-STARCH		
Dens. Visc.	10.7 33		
pH Fluid Loss	-- 10.2 mi	ml	ml
Source of Sample	PIT		
R _m @ Meas. Temp.	.05 @ 65 °F	@	@
R _m @ Meas. Temp.	.05 @ 65 °F	@	@
R _m @ Meas. Temp.	NONE @ °F	@	@
R _m @ Meas. Temp.	NONE @ °F	@	@
Source: R _m R _{ms}	M --	@	@
R _m @ BHT	.04 @ 89 °F	@	@
Time Since Circ.	2-HOURS		
Mox. Rec. Temp.	89 °F		
Equip. Location	3855-ARTESIA		
Recorded By	VANN		
Witnessed By	MR. SHARP		



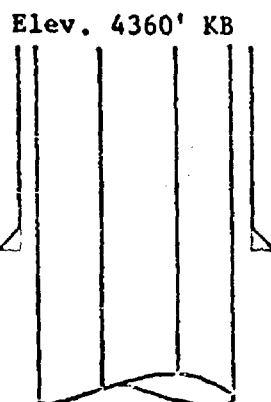
0	100
100	200

CAMMA RAY
API UNITS

DEPTHS

INTERVAL TRANSIT TIME
MICROSECONDS PER FOOT

8-5/8" 24# csg. cmt'd. @
375' w/200 sax circ'd.
to surface



annulus loaded with
corrosion inhibited fluid

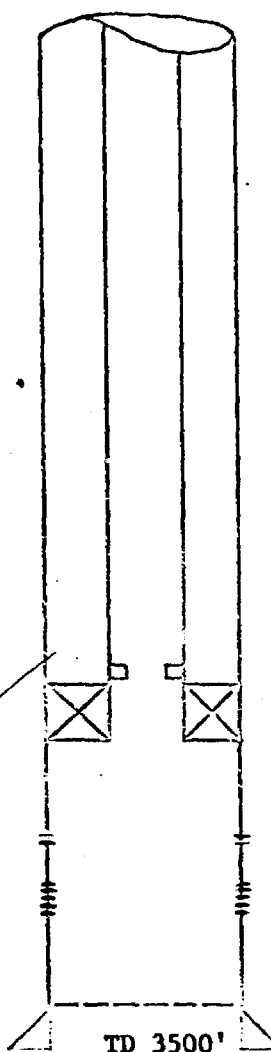
Est. top cmt. 2500'

seating nipple
2-3/8" 4.7# J-55 tbg. on
tension packer @ 3350'

Top Queen Sand 3404'

Pay: Queen Sand

4-1/2" 11.6# csg. cmt'd.
@ 3500' w/125 sax in
6-3/4" hole



3405-3408

3414-3424

Perforations

TENNECO OIL COMPANY
SUBSIDIARY OF TENNECO CORPORATION

MESA QUEEN FIELD
LEA COUNTY, NEW MEXICO

Cactus Mobil State "C" No. 1
PROPOSED WATER INJECTION WELL
990 FSL 670 FEL Sec. 17 T-16-S, R-32-E

EXHIBIT

LANE WELLS

5000 13005
Wells
 DUAL SPACED

A DIVISION OF ORESCO INDUSTRIES, INC.

FILE NO. *117*

COMPANY CACTUS DRILLING COMPANY

WELL MOBIL "C" NO. 1

FIELD MESA QUEEN

COUNTY LEA STATE NEW MEXICO

LOCATION: 990' FSL & 670' FEL

Other Services

SEC 17 TWP 16-S RGE 32-E

Permanent Datum GROUND LEVEL Elev. 4350

Log Measured from K. B. 10 Ft. Above Permanent Datum

Elevations:
 KB 4360
 DF 4359
 GL 4350

Date 2-19-64

Run No. ONE

Depth—Driller 3489

Depth—Logger 3484

Bottom logged Interval 3478

Top logged Interval SURFACE

Casing—Driller 7 5/8" 376

Casing—Logger 376

Bit Size 6 3/4"

Type Fluid in Hole SALT GEL

Density and Viscosity 10.1 35

pH and Fluid Loss 12.8 cc

Source of Sample CIRCULATED

Rm @ Meas. Temp. .080 @ 54 °F

Rmf @ Meas. Temp. .064 @ 54 °F

Rmc @ Meas. Temp. .096 @ 54 °F

Source of Rmf and Rmc MEAS.

Rm @ BHT .040 @ 102 °F

Time Since Circ. 103 °F

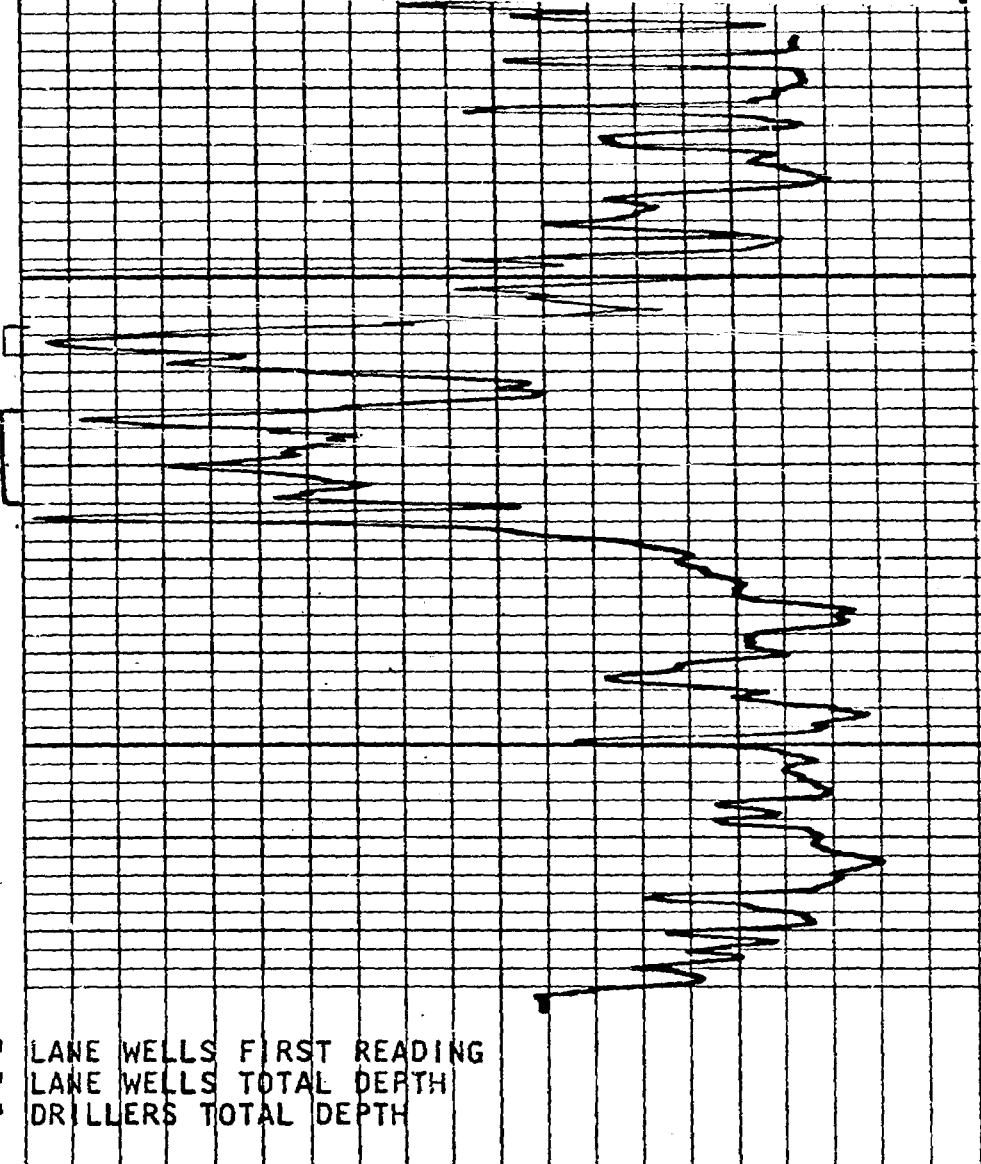
Max. Rec. Temp. Deg. F. 103 °F

Equip. No. and location X900 HOBBS

Recorded By SCHLOTTERBACK-SHANKS

Witnessed By SHARP

FOLD HERE ↓



3478' LANE WELLS FIRST READING
 3484' LANE WELLS TOTAL DEPTH
 3489' DRILLERS TOTAL DEPTH

CACTUS DRILLING COMPANY
 MOBIL "C" NO. 1
 MESA QUEEN
 LEA COUNTY, NEW MEXICO

8-5/8" 23# csg. cmt'd. @
378 w/225 sacks circ'd.
to surface

Elev. KB 4354'

annulus loaded with
corrosion inhibited fluid

Est. top cmt. 2473'

seating nipple

2-3/8" 4.7# J-55 tbg. on
tension packer at 3360'

Top Queen Sand 3404'

Pay: Queen Sand

4-1/2" 10.5# csg. cmt'd.
@ 3473' w/125 sacks in
6-3/4" hole

TD 3473'

3412
3418

Perforations

TENNECO OIL COMPANY
SUSIDIARY OF TENNECO CORPORATION

MESA QUEEN FIELD
LEA COUNTY, NEW MEXICO

Cactus Mobil State No. 3
PROPOSED WATER INJECTION WELL
1650' FWL 2310 FSL Sec. 16 T-16-S, R-32-E

EXHIBIT

SONNIG LOG

ସଂପାଦକ

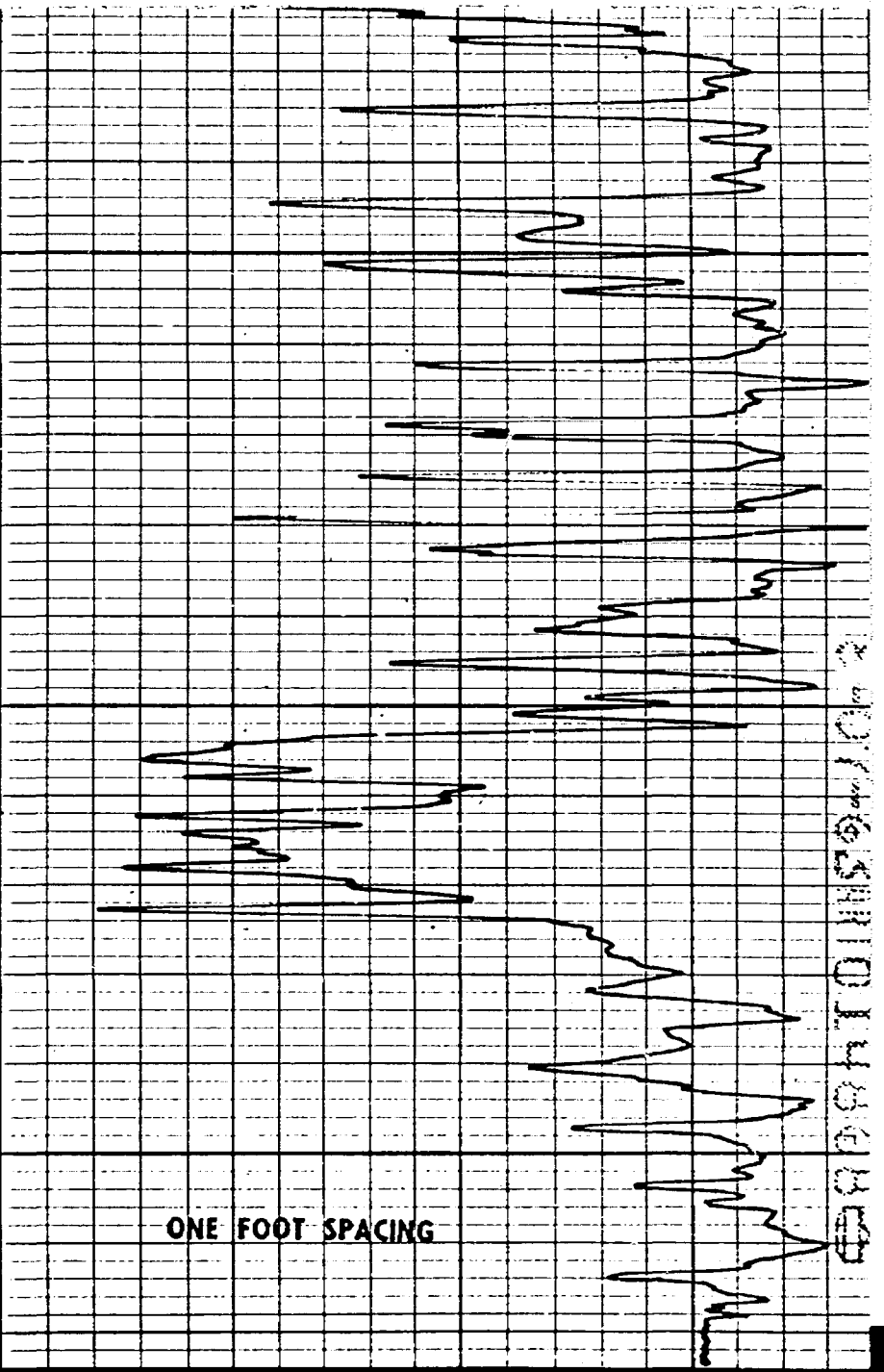
Other Surveys	Location of Well	None
1650' FR. WL 2310' FR. SL FILE COR	Elevation: K.B.: 4354 D.F.: 4353 or G.L.: 4344	

FILE
CDY

Elevation: K.B.: $\frac{4354}{4353}$
D.F.: $\frac{4353}{4344}$
or G.L.: $\frac{4344}{4344}$

Log Depths Measured From	KB	10 Ft. above GL
--------------------------	----	-----------------

RUN No.	ONE		
Date	8-2-63		
First Reading	3469		
Last Reading	10		
Feet Measured	3459		
Csg. Schlum.	--		
Csg. Driller	8-5/8" @ 377		
Depth Reached	3472		
Bottom Driller	3472		
Mud Nat.	SALT GEL		
Dens. Visc.	10.4 39		
Mud Resist.	.05 @ 84 %F	@	%F
" Res. BHT	.045 @ 90 %F	@	%F
" pH	--- @ %F	@	%F
" Wtr. Loss	127 CC 30 min	CC 30 min	
" Rmf	.04 @ 80 %F	@	%F
Bit Size	6-3/4"		
Spacing:			
T ₃ R ₁ 3 R ₂	CSG To 2650	To	
T ₃ R ₁ 1 R ₂	2650 To 3469	To	
Opr. Rig Time	2-HOURS		
Truck No.	2524-ARTESTIA		
Recorded By	VANN		
Witness	SHAPP		



ONE FOOT SPACING

3400

F. R. (GR)

8-5/8", 23#, csg. cmt'd.
@ 328 w/150 sax circ'd.
to surface

Elev. DF 4349'

annulus loaded with
corrosion inhibited fluid

top of cement 2255'

seating nipple

2-3/8", 4.7#, J-55 tbg. on
tension packer @ 3360'

48'

Top Queen Sand 3396'

Pay: Queen Sand

3408-11

Perforations

3414-16

4-1/2", 10.5#, J-55 csg.
cmt'd. @ 3455' w/150 sax
in 6-3/4" hole

TD 3455'

TENNECO OIL COMPANY
SUBSIDIARY OF TENNECO CORPORATION

MESA QUEEN FIELD
LEA COUNTY, NEW MEXICO

Cactus Mobil State No. 1
PROPOSED WATER INJECTION WELL
1980 FNL 660 FWL Sec. 16, T-16-S, R-32-E

EXHIBIT

SCHLUMBERGER

SOLING LOG

SCHLUMBERGER WELL SURVEYING CORPORATION
HOUSTON TEXAS

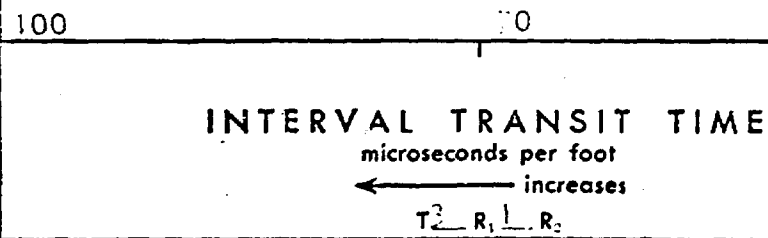
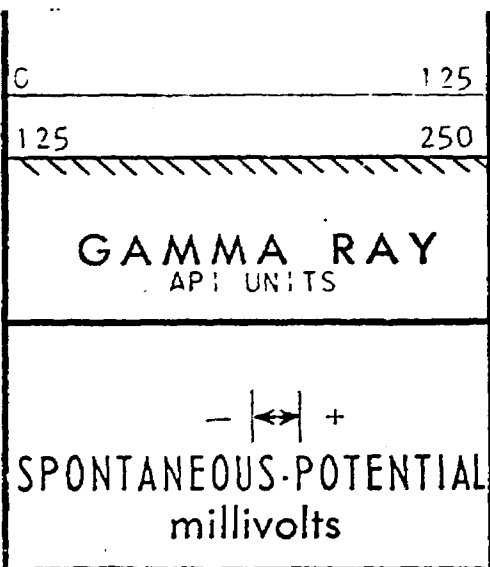
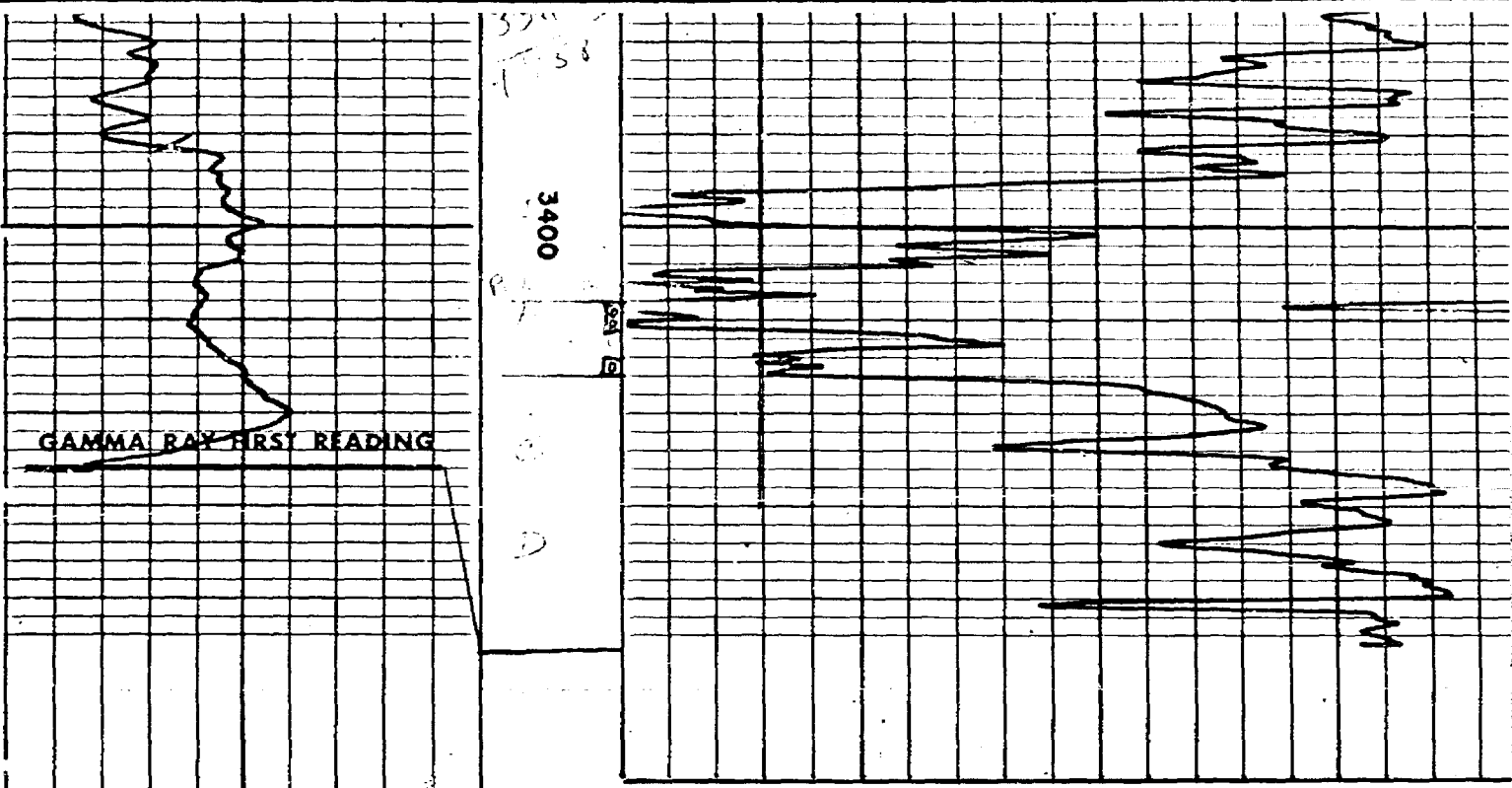
COUNTY LEA
FIELD or LOCATION WILDCAT
WELL MOBIL STATE 1
COMPANY CACTUS DRILLING CO.

COMPANY CACTUS DRILLING
COMPANY
WELL MOBIL STATE # 1
FIELD WILDCAT
LOCATION SEC 16-16S 32E
COUNTY LEA
STATE NEW MEXICO

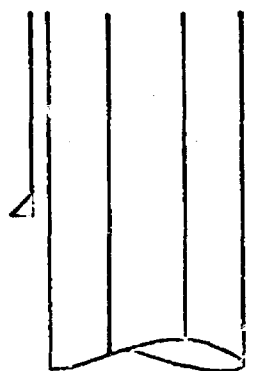
Other Surveys
Well file
Location of Well
1980' FROM N/L
660' FROM W/L
Elevation: K.B.: 4349
D.F.: 4348
or G.L.: 4339

Log Depths Measured From KB 10 ft. above GL

RUN No.	ONE	
Date	8-15-62	
First Reading	3446	
Last Reading	0	"CONFIDENTIAL"
Feet Measured	3446	
Csg. Schlum.		
Csg. Driller	230	
Depth Reached	3452	
Bottom Driller	3455	
Mud No.	SALT GEL	STARCH
Dens. Visc.	10 2	34
Mud Resist.	0.038 @	83 °F
" Res. BHT	0.038 @	83 °F
" pH	@	°F
" Wtr. Loss	8.4	CC 30 min
" Rmf (C)	0.03 @	83 °F
Bit Size	6"	
Spacing:		
T ₂ R ₁ R ₂	CSJ. To 2400	To
T ₂ R ₁ R ₂	2400 To FR	To
Oper. Rig Time	3 HOURS	
Truck No.	3701 HOBBS	
Recorded By	SCHIAFFER	
Witness	PROCTER	



Elev. KB 4345'



8-5/8", 24#, csg. cmt'd. @ 382'
with 200 sacks circ'd. to surface

Est. top cmt. 2200'

annulus loaded with
corrosion inhibited fluid

seating nipple

2-3/8", 4.7# J-55 tbg. on
tension packer at 3350'

top Queen sand 3378'

Pay: Queen sand

Perfs. 3390-3396
3403-3408

PBTD 3548'

Perfs. 3664-3680 plugged
with mud

4-1/2", 10.5#, csg. cmt'd.
@ 3792' w/200 sax in 6-3/4"
hole

TD 4347'

TENNECO OIL COMPANY
SUBSIDIARY OF TENNECO CORPORATION

MESA QUEEN FIELD
LEA COUNTY, NEW MEXICO

Cactus Sinclair State No. 1
PROPOSED WATER INJECTION WELL
1980' FEL, 660' FNL, Sec. 16, T-16-S,
R-32-E

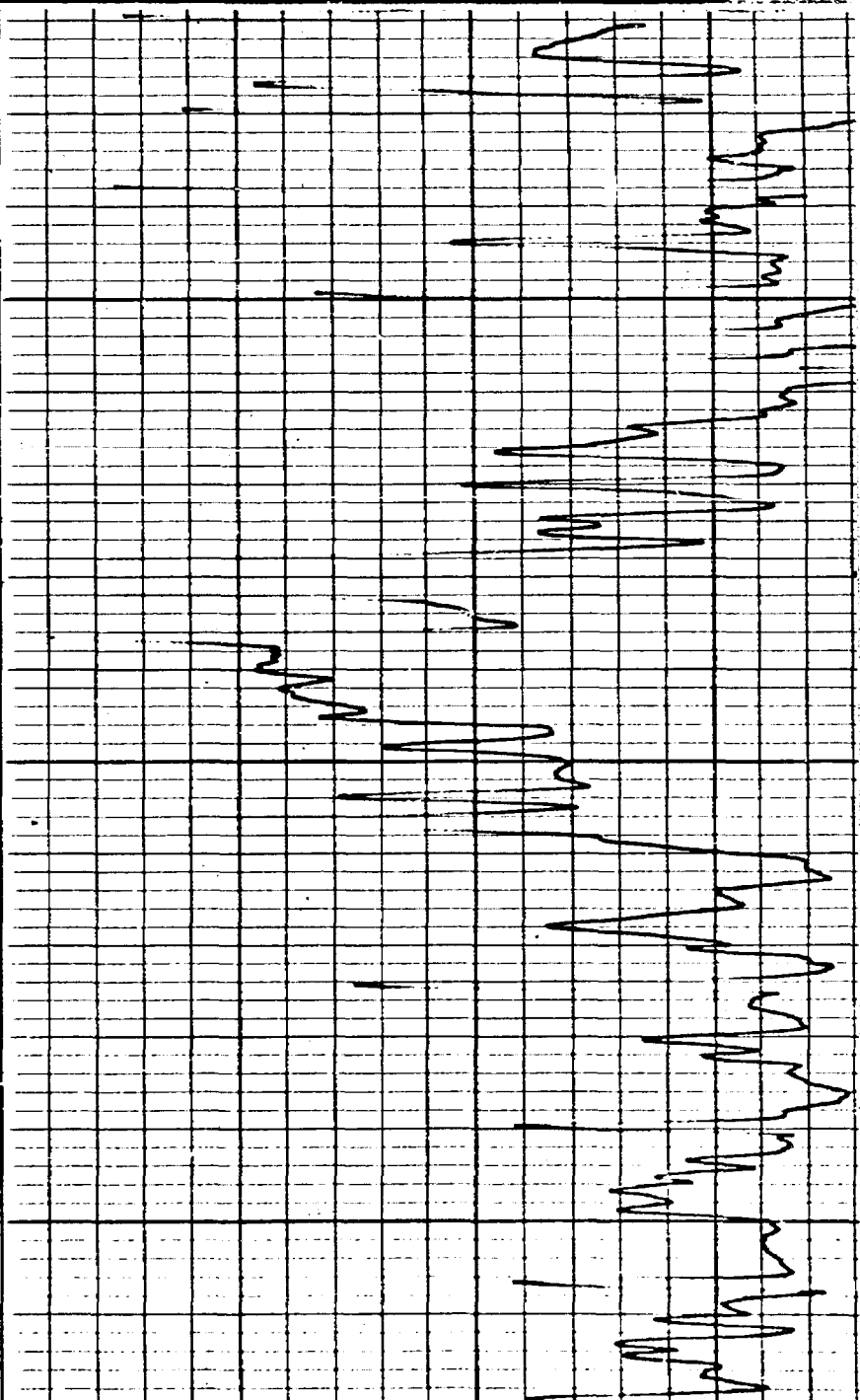
EXHIBIT

SUNBELT

SUNBELT LOG

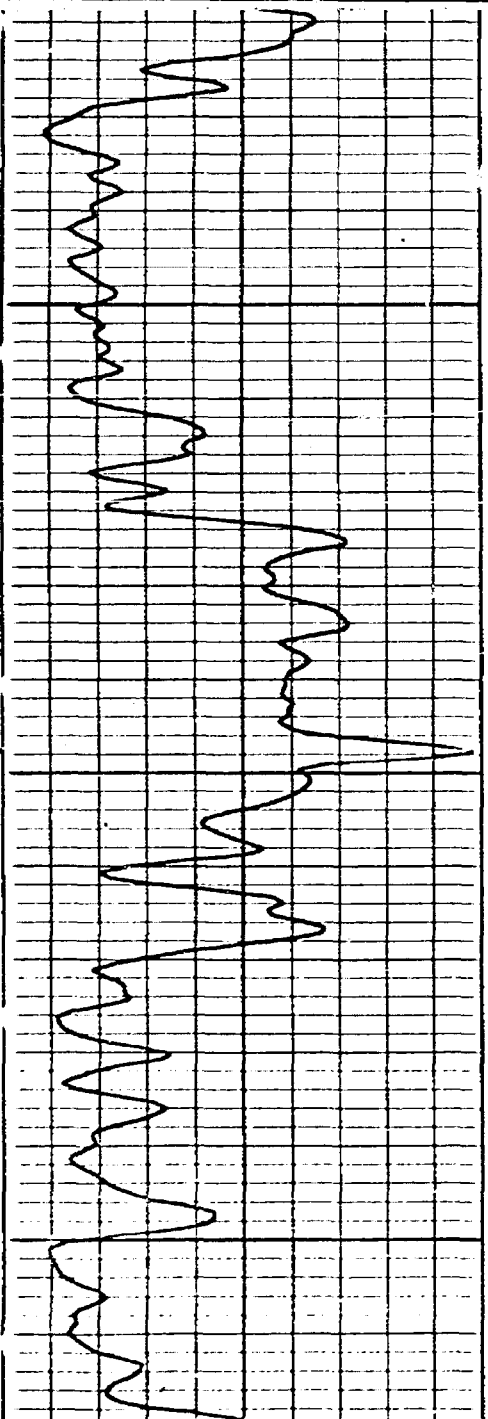
SUNBELT SURVEYING CORPORATION
HOUSTON, TEXASCOUNTY LEA
FIELD or LOCATION MESA QUEEN
WELL 1 SINCLAIR STATE
COMPANY CACTUS DRILLING CO.COMPANY CACTUS DRILLING
WELL CACTUS - 1 SINCLAIR STATE
FIELD MESA QUEEN
LOCATION SEC. 16-16S-32E
COUNTY LEA
STATE NEW MEXICOOther Surveys
NONE
Location of Well
1980' FEL
660' FNL
Elevation: K.B.: 4345
D.F.: 74
or G.L.: 4335Log Depths Measured From KB10 Ft. above GL

RUN No.	ONE		
Date	6-9-63		
First Reading	4328		
Last Reading	0		
Feet Measured	4328		
Csg. Schlum.	--		
Csg. Driller	382		
Depth Reached	4331		
Bottom Driller	4347		
Mud Nat.	SALT-GEL-STARCH		
Dens. Visc.	10.2 30		
Mud Resist.	.043 @ 77 °F	@	°F
" Res. BHT	.026 @ 94 °F	@	°F
" pH	-- @ -- °F	@	°F
" Wtr. Loss	10 CC 30 min	CC 30 min	°F
" Rmf	.025 @ 76 °F	@	°F
Bit Size	6-3/4"		
Spacing:			
T 2 R. 3 R.	282 To 3000	To	To
T 2 R. 1 R.	3000 To 4328	To	To
Op. Rig Time	3-HOURS		
Truck No.	2524-ARTESIA		
Recorded By	MILLER		
Witness	CHAP		



000 00

3400



Elev. DF 4359'

8-5/8" 24# csg. cmt'd. @
383' w/200 sax circ'd.
to surface

annulus loaded with
corrosion inhibited fluid

Est. top cmt. 2640'

seating nipple

2-3/8" 4.7# J-55 on tension
packer at 3350'

Top Queen Sand 3393'

Pay: Queen Sand

3404'

3410

perforations

5-1/2" 15.5 & 18# csg.
cmt'd. @ 3474' w/125 sax
in 7-7/8" hole

PBTD 3454'

TD 3474'

TENNECO OIL COMPANY
SUSSIDIARY OF TENNECO CORPORATION

MESA QUEEN FIELD
LEA COUNTY, NEW MEXICO

Cactus Sinclair State "A" No. 1
PROPOSED WATER INJECTION WELL
2310 FNL & 330 FEL Sec. 17 T-16-S, R-32-E

EXHIBIT

SCHLUMBERGER

GEORGE EDDY MEMORIAL WELL
SCHLUMBERGER WELL SURVEYING CORPORATION
Houston, Texas

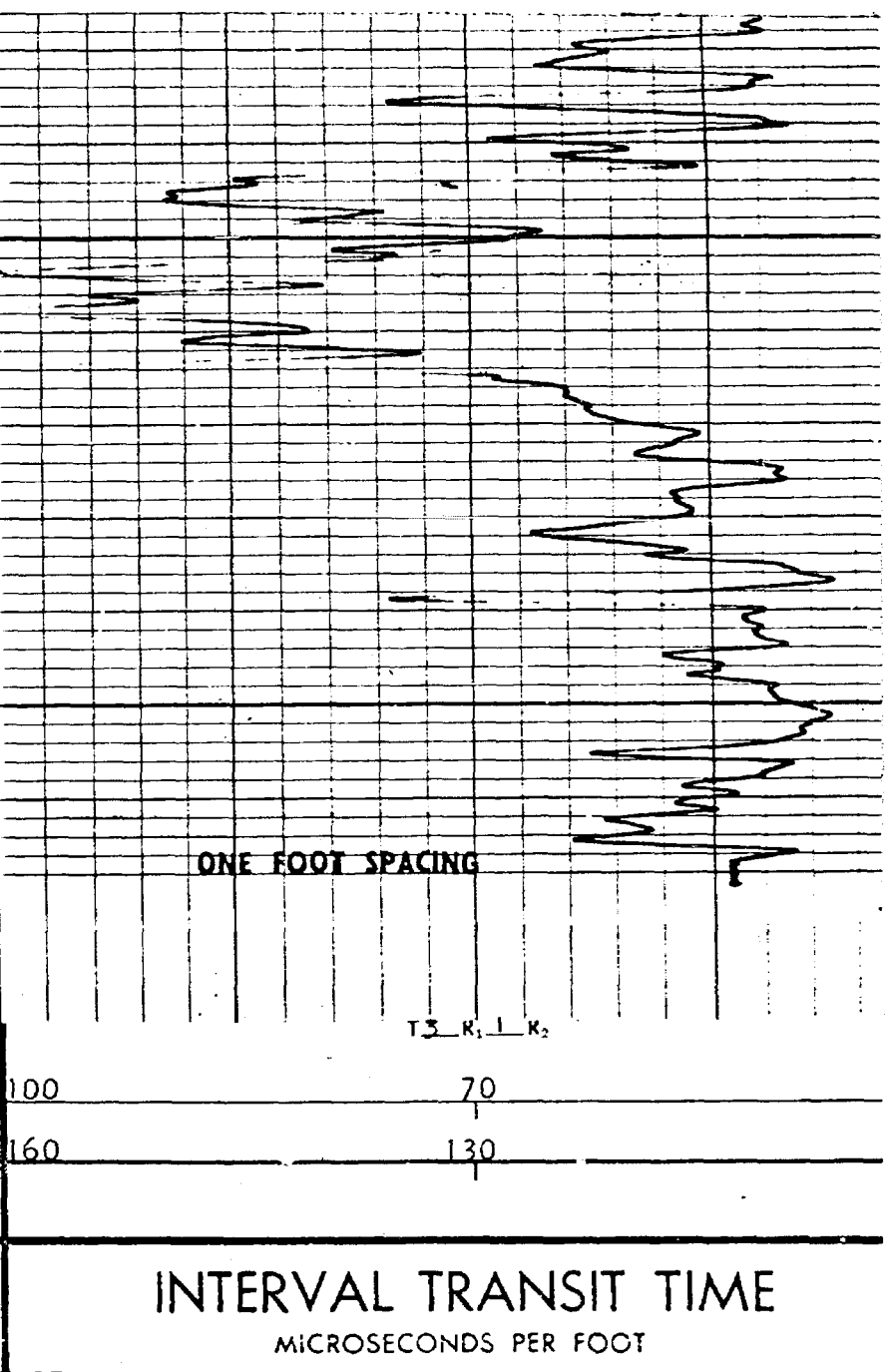
Well file

COUNTY	LEA
FIELD or LOCATION	MESA (QUEEN)
WELL	SINCLAIR STATE "A" #1
COMPANY	CACTUS DRLG. CO.
COMPANY	CACTUS DRILLING COMPANY
WELL	SINCLAIR STATE "A" #1
FIELD	MESA (QUEEN)
COUNTY	LEA
STATE	NEW MEXICO
LOCATION	2310' FNL 330' FEL
Sec. 17	Twp. 16-S Rge. 32-E
Other Services:	NONE

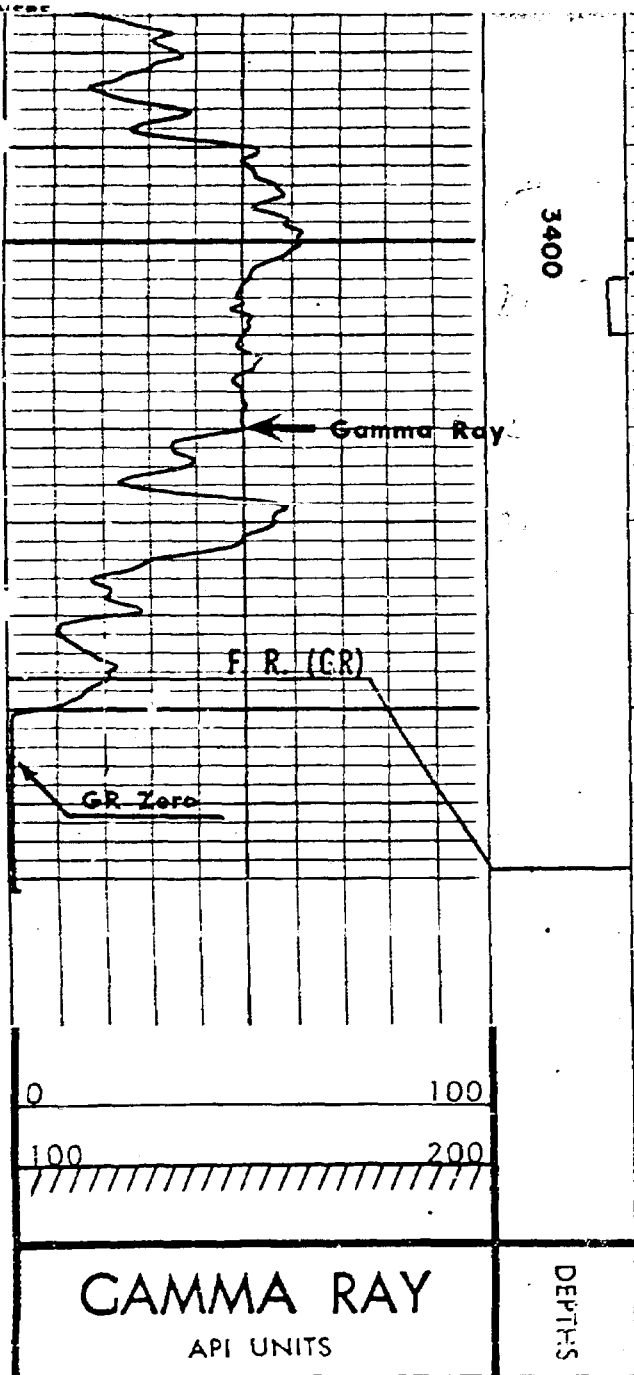
Permanent Datum: GROUND LEVEL, Elev. 4349
 Log Measured From KB, 10 Ft. Above Perm. Datum
 Drilling Measured From KB

Elev.: K.B. 4359
 D.F. ---
 G.L. 4349

Date	1-1-64			
Run No.	ONE			
Depth—Driller	3474			
Depth—Logger	3471			
Btm. Log Interval	3467			
Top Log Interval	100			
Casing—Driller	8-5/8" @ 385			
Casing—Logger	--			
Bit Size	7-7/8"			
Type Fluid in Hole	SALT GEL			
Dens.	10.2	36		
pH	--	10.5 ml		
Source of Sample	PIT			
R _m @ Meas. Temp.	0.65 @ 65 °F	@	@	@
R _{ml} @ Meas. Temp.	-- @ -- °F	@	@	@
R _{mc} @ Meas. Temp.	-- @ -- °F	@	@	@
Source: R _{ml} R _{mc}	--			
R _m @ BHT	0.48 @ 91 °F	@	@	@
Time Since Circ.	4-HOURS			
Mox. Rec. Temp.	91 °F			
Equip. Location	3855 ARTESIA			
Recorded By	HAMPION			
Witnessed By	SHARP			

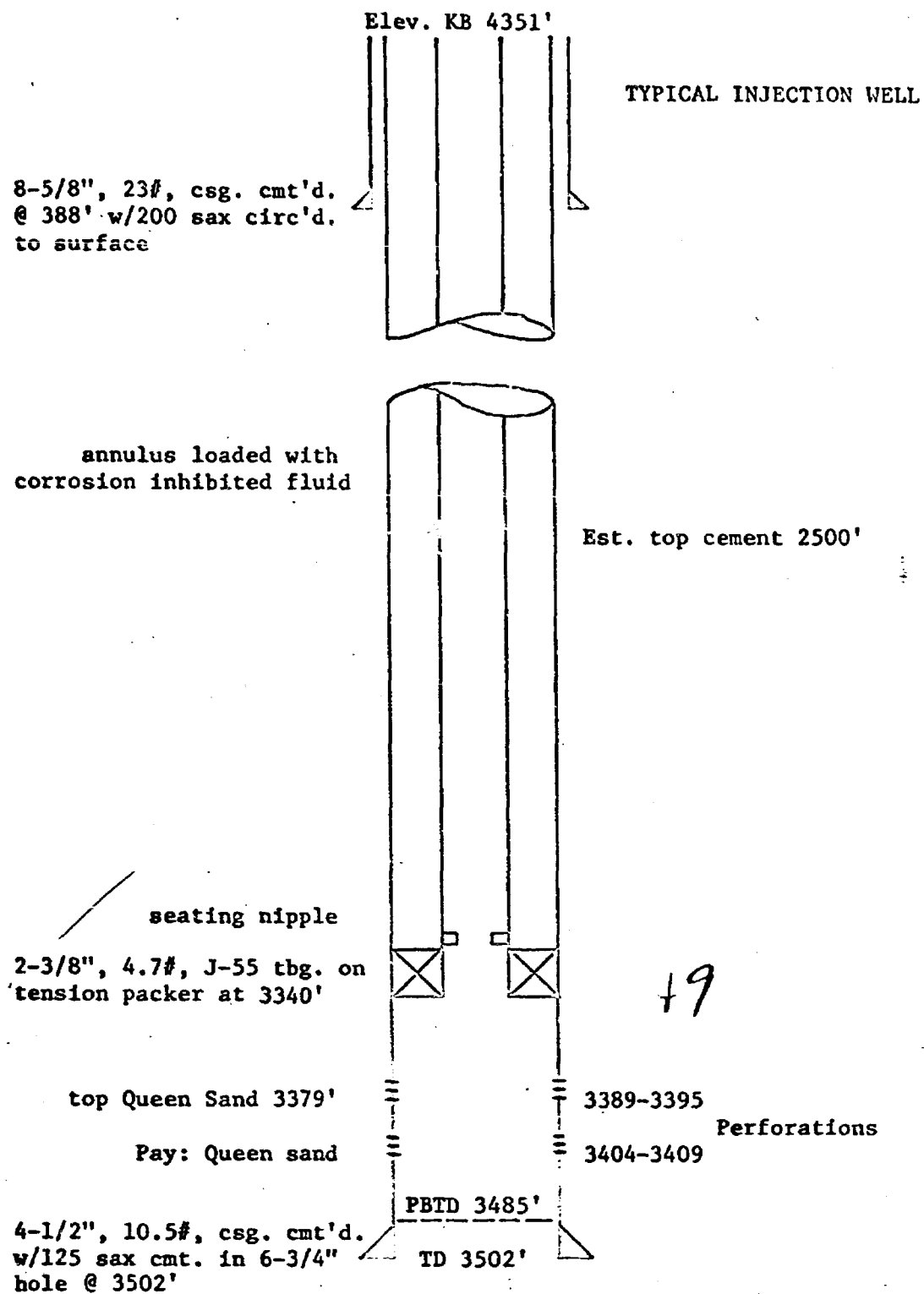


INTERVAL TRANSIT TIME
MICROSECONDS PER FOOT



GAMMA RAY
API UNITS

DEPTHS



TENNECO OIL COMPANY
SUBSIDIARY OF TENNECO CORPORATION

MESA QUEEN FIELD
LEA COUNTY, NEW MEXICO

Cactus Continental State No. 1
PROPOSED WATER INJECTION WELL
990' FNL 2310' FWL Sec. 16 T-16-S, R-32-E

EXHIBIT

SCHULTZBERGER

SUNING 1008

GEOPHYSICAL SURVEYING CORPORATION
HOUSTON, TEXAS

COUNTY LEA
FIELD or LOCATION MESA QUEEN
WELL CONOCO STATE # 1
COMPANY CACTUS DRILLING
COMPANY

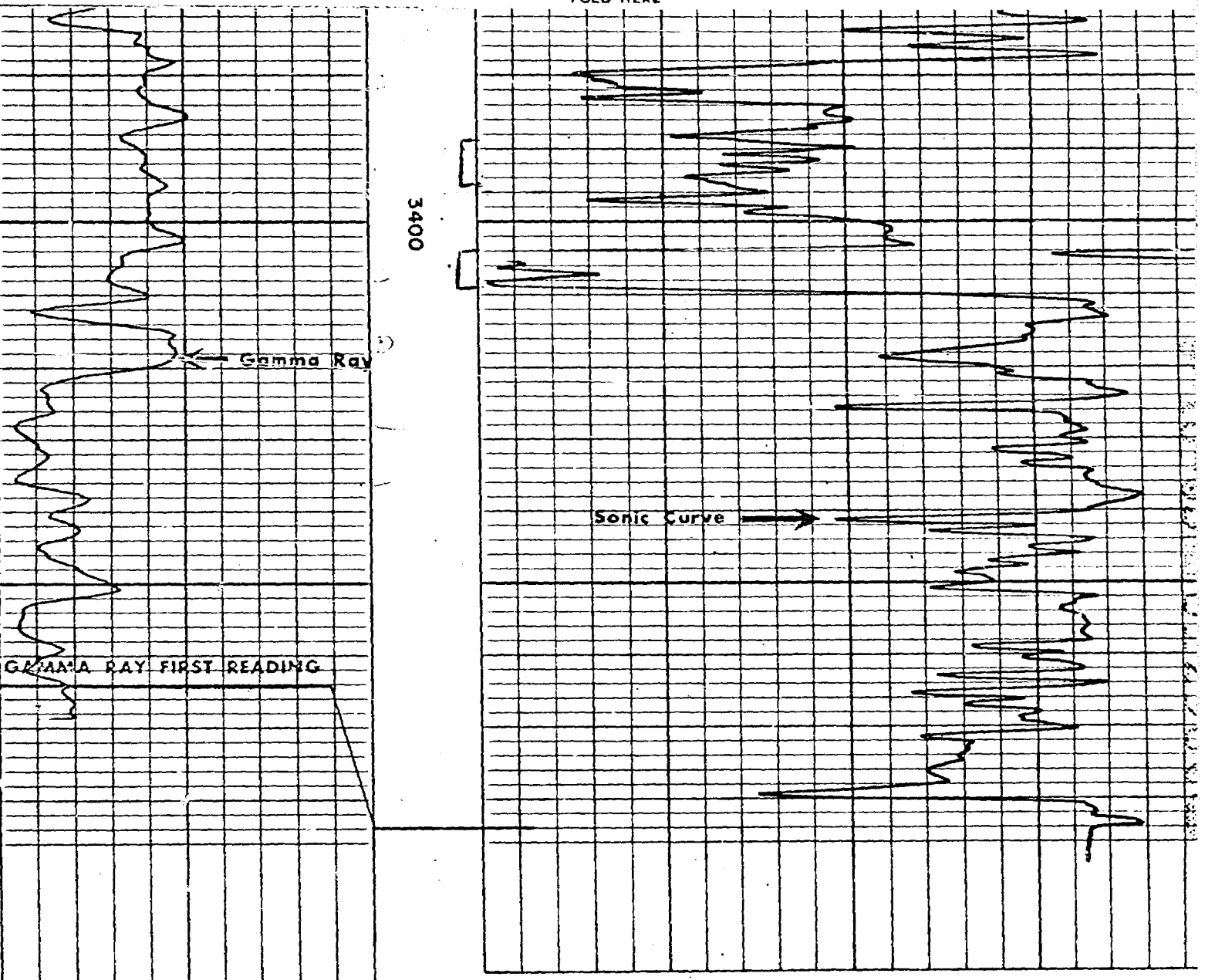
COMPANY CACTUS DRILLING
COMPANY
WELL CONOCO STATE # 1
FIELD MESA QUEEN
LOCATION SEC. 16-16S-32E
COUNTY LEA
STATE NEW MEXICO

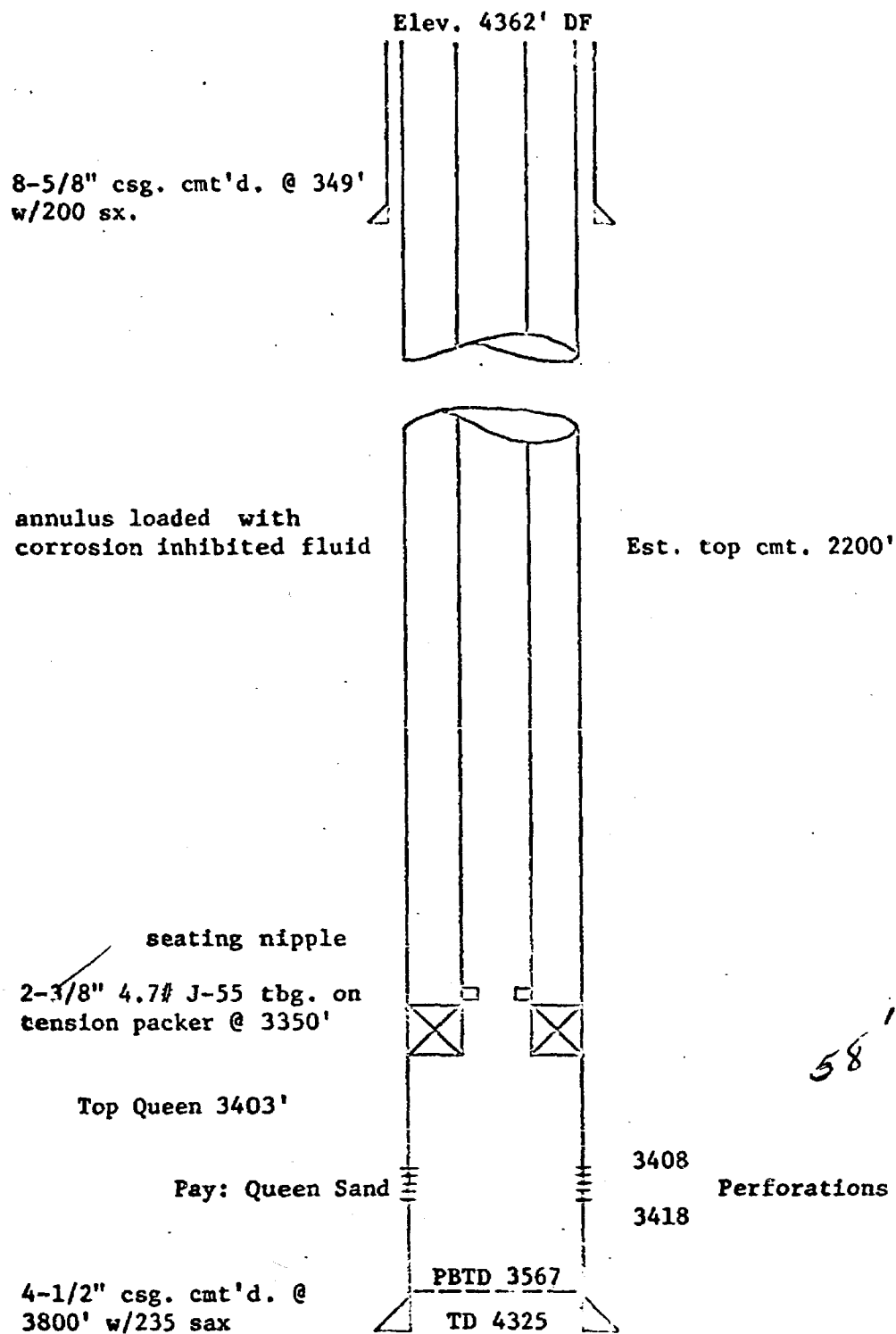
Other Surveys
Location of Well
990' FROM N/L
2310' FROM E/L
Elevation: K.B.: 4351
D.F.: 4341
or G.L.: 4341

Log Depths Measured From KB 10 Ft. above GL

RUN No.	ONE		
Date	9-12-63		
First Reading	3484		
Last Reading	100		
Feet Measured	3384		
Csg. Schlum.	-		
Csg. Driller	388		
Depth Reached	3491		
Bottom Driller	3500		
Mud Nat.	SALT GEL		
Dens.	Visc. 10.2	32	
Mud Resist.	-	@	%F
" Res. BHT	-	@	%F
" pH	-	@	%F
" Wtr. Loss	7.2	CC 30 min	%F
" Rmf	-	@	%F
Bit Size	6 1/2"		
Spacing:			
T3 R.1 R.	2950	To 10	To
T3 R.3 R.	CSG.	To 2950	To
Cgr. Rig Time	2 HOURS		
Track No.	3701-H08BS		
Recorded By	WENDLAND		
Witness	SHARP		

FOLD HERE





Note: This well was originally the Paul DeCleva No. 1 Tidewater State "B" P&A 1-31-63. Worked over and completed by Shell 1-27-64.

TENNECO OIL COMPANY
SUBSIDIARY OF TENNECO CORPORATION

MESA QUEEN FIELD
LEA COUNTY, NEW MEXICO

DeCleva State Well No. 1
PROPOSED WATER INJECTION WELL
660 FNL & 660 FWL Sec. 20, T-16-S, R-32-E

EXHIBIT

SCHLUMBERGER

W43194

COUNTY LEA FIELD or LOCATION WILDCAT WELL TUCUMAN STATE 37 COMPANY PAUL DE CLEVA	COMPANY PAUL DE CLEVA	Other Surveys LL, MLL
	WELL TIDEWATER STATE	Location of Well 660' FROM W/L 660' FROM W/L
	R # 1	
	FIELD WILDCAT	
	LOCATION SEC. 20-16S-32E	
COUNTY LEA	Elevation: K.B. 4374 D.F. 4373 or G.L. 4364	
STATE NEW MEXICO		
Log Depths Measured From KB 10.7 Ft. above GL		
RUN No. ONE		
Date 12-19-62		
First Reading 4309		
Last Reading 0		
Feet Measured 4309		
Csg. Schum.		
Csg. Driller 349		
Depth Reached 4315		
Bottom Driller 4325		
Mud Mat. SALT GEL STARCH		
Dens. Visc. 10.1 35		
Mud Resist. C45 62 *F		
Res. BHT 034 90 *F		
pH		
Wtr. Loss 25.5 CC 30 min		
RMF (H) C48 62 *F		
Bit Size 7 7/8"		
Spacing		
AT 1 R. 1 R. C5G. To 3200	To	To
PT 1 R. 1 R. 5200 To 4307	To	To
Oper. Rig Time 3 HOURS		
Truck No. 1701-HOBBS		
Recorded By SCHAEFFER		
Witness WAGNER		

Reproduced By
West Texas Electrical Log Service
Dallas 2, Texas

REFERENCE W43194

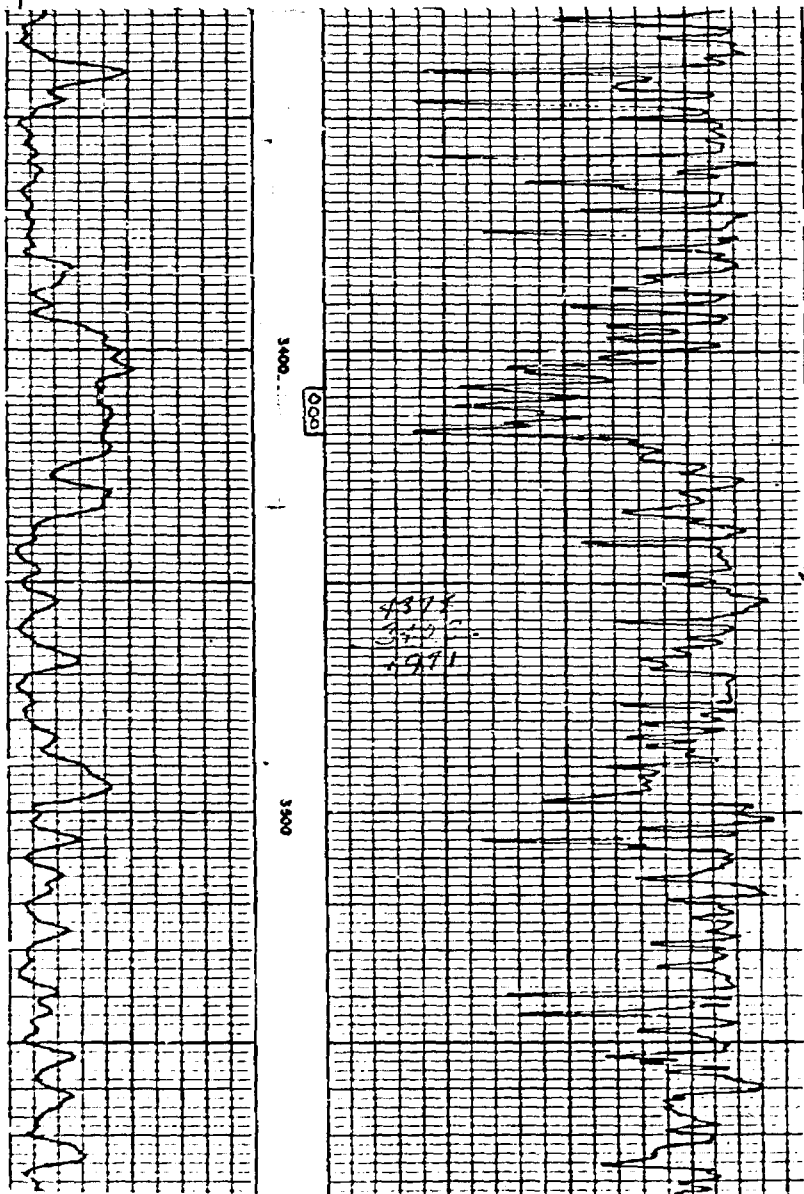


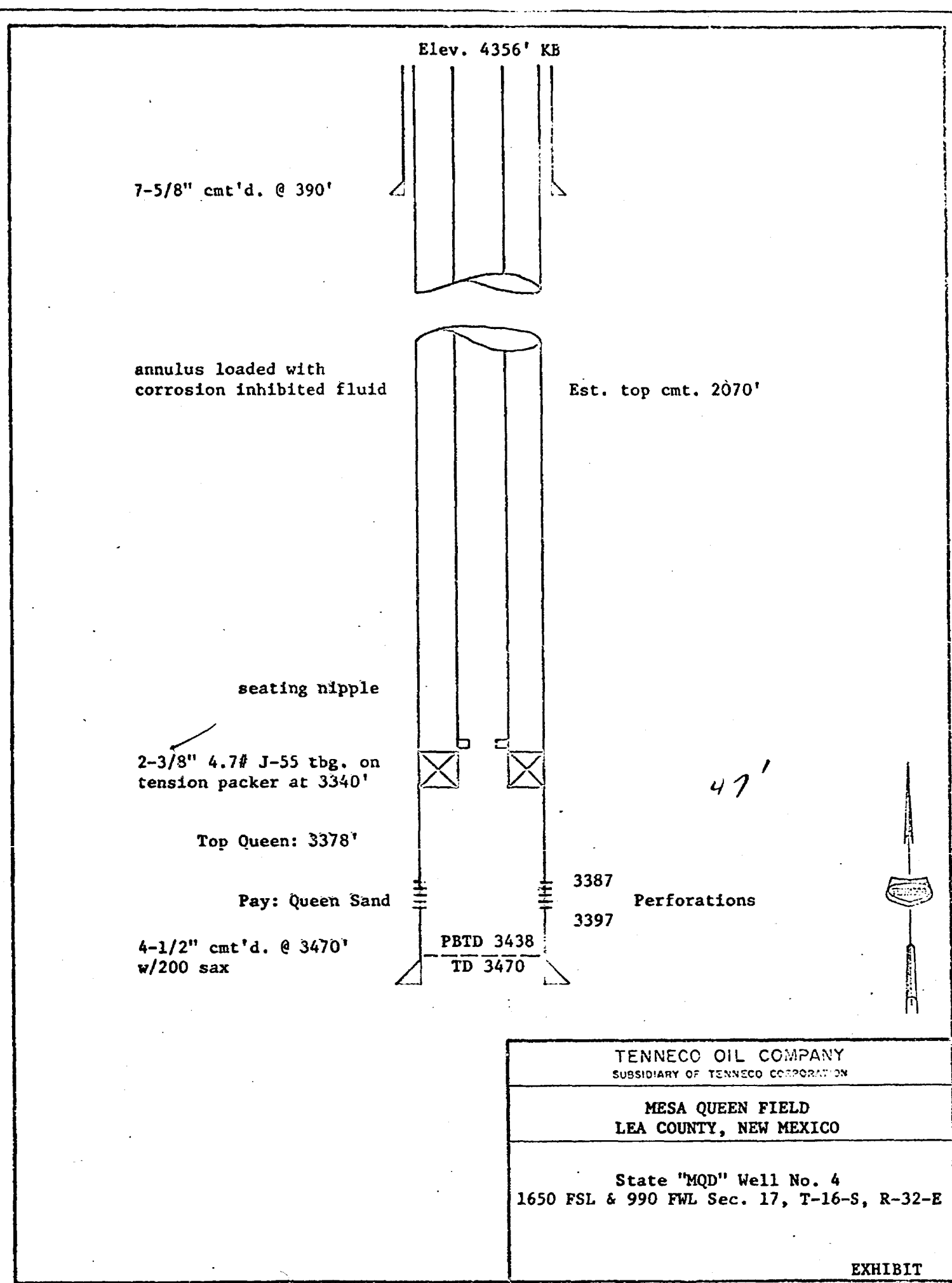
COMPLETION RECORD

SPUD DATE

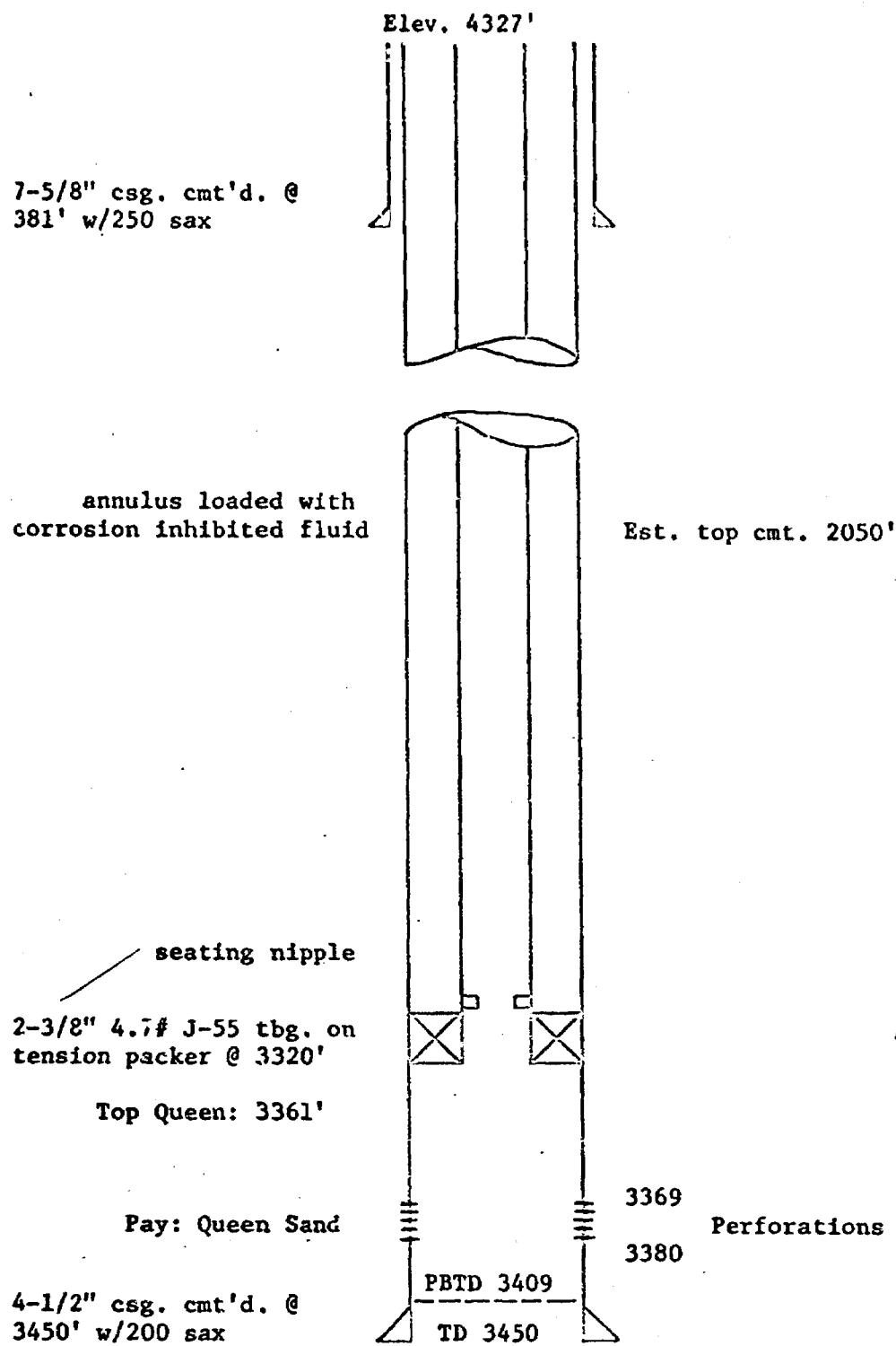
COMP DATE

DST RECORD





SHELL OIL COMPANY
STATE "MQD" NO. 4
MESA QUEEN
LEA COUNTY, NEW MEXICO



TENNECO OIL COMPANY
SUBSIDIARY OF TENNECO CORPORATION

MESA QUEEN FIELD
LEA COUNTY, NEW MEXICO

State "MQD" Well No. 2
PROPOSED WATER INJECTION WELL
1650 FSL, 2310 FWL, Sec. 17, T-16-S,R-32-E

EXHIBIT

LAND WELLS COMPLETION RECORD

FILE NO. _____ COMPANY SHELL OIL COMPANY

WELL SHELL STATE MOD NO. 2

FIELD MESA QUEEN

COUNTY LEA STATE NEW MEXICO

LOCATION 1650' FSL & 2310' FWL Other Services HF/L CAL. G/R-A/L

SEC 17 TWP 16-S RGE 17-E

Permanent Datum GROUND LEVEL Elev. 4317 Elevations

Log Measured from D. F. 10 Ft. Above Permanent Datum 4327

Drilling Measured from D. F. 4317

Date 12-26-63

Run No. ONE

Depth-Driller 3450

Depth-Logger 3448

Bottom Logged Interval 3440

Top Logged Interval 2400

Casing-Driller 2578 381

Casing-Logger 2578 381

Pl. Size 8 3/4"

Type Fluid in Hole SALT MUD

Density and Viscosity 10.4 37

pH and Fluid Loss 10.4 37

Source of Sample CIRCULATED

Rm @ Meas. Temp. 08 @ 62

Rm @ Meas. Temp. 064 @ 62

Rm @ Meas. Temp. 096 @ 62

Source of Rm and Rmc MEAS.

Rm @ RmT 05 @ 95

Time Since Circ. 3 HOURS

Max. Ret. Temp. Deg. F. 95

Equip. No. and Location 4590 MOBBIS

Recorded by WASSELL & TAYLOR

Witnessed by MR. CARLSON

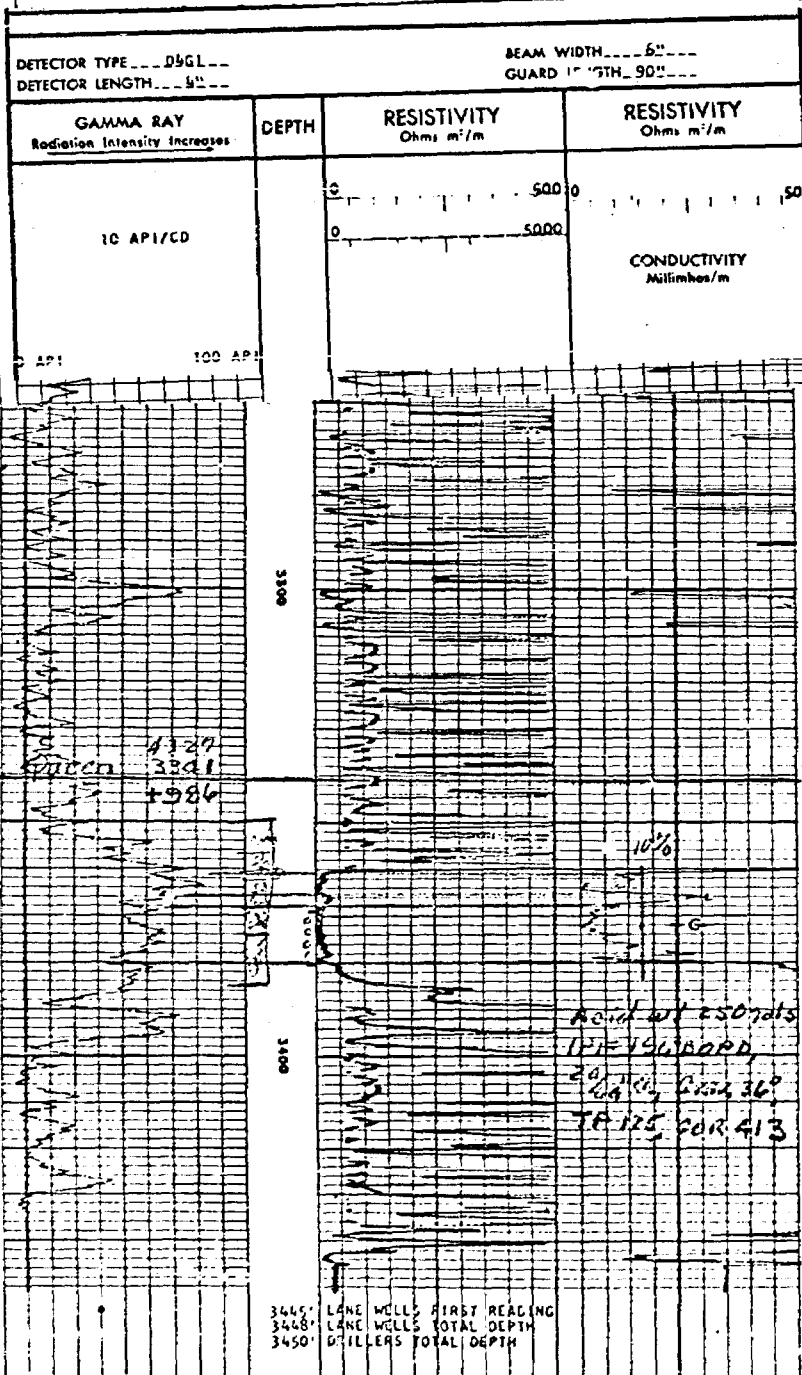
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West Texas Electrical Log Service
Dallas 2, Texas

Rm @ 95 = .05
Rm @ 95 = .075
Rm @ 95 = .002

REFERENCE W3761L



COMPLETION RECORD



SHELL OIL COMPANY
SHELL STATE MOD NO. 2
MESA QUEEN
LEA COUNTY, NEW MEXICO

4327
3327
958

4327
3327
447

7-5/8" csg. cmt'd. 384'
w/250 sax

Elev. 4337'

annulus loaded with
corrosion inhibited fluid

Est. top cmt. 2060'

seating nipple

2-3/8" 4.7# J-55 tbg. on
tension packer @ 3340'

Top Queen Sand: 3380'

Pay: Queen Sand

3388

Perforations

3400

4-1/2" csg. cmt'd. @
3459' w/200 sax

PBTD 3426

TD 3460

TENNECO OIL COMPANY
SUBSIDIARY OF TENNECO CORPORATION

MESA QUEEN FIELD
LEA COUNTY, NEW MEXICO

State "MQD" Well No. 1
PROPOSED WATER INJECTION WELL
330 FSL & 2310 FWL Sec. 17, T-16-S, R-32-E

EXHIBIT

WELLS

FILE NO. _____ COMPANY SHELL OIL COMPANY

WELL STATE "MOON" NO. 1

FIELD MECA QUEEN

COUNTY LEA STATE NEW MEXICO

LOCATION 330° FSL & 2310° FWL ME/L CALIPER 1 1/2

SIC 12 TWP 16 S RGE 32 E

Permanent Datum GROUND LEVEL Elev. 4327 KB 4327

Log Measured from D. F. H. Above Permanent Datum GL 4327

Drilling Measured from D. F.

Date	12 12 63
Run No.	ONE
Depth—Driller	3400
Depth—Logger	3450
Bottom Logged Interval	3450
Top Logged Interval	SURFACE
Casing—Driller	2 7/8 386
Casing—Logger	6 3/4
Bit Size	5 1/2
Type Fluid in Hole	STARCH
Density and Viscosity	10.2 13
pH and Fluid Loss	10 cc
Source of Sample	CIRCULATED
Rm @ Meas. Temp.	.06 @ 68
Rm @ Meas. Temp.	.048 @ 68
Rm @ Meas. Temp.	.072 @ 69
Source of Rm and Rm	MEAS.
Rm @ BHT	.045 @ 95
Time Since Circ.	
Max. Rec. Temp. Deg. F.	95
Equip. No. and Location	X900 HOEBS
Recorded By	SCHLOTTERBACK, SHANKS
Witnessed By	MR. ALEXANDER

Reproduced By
West Texas Electrical Log Service
Dallas 2, Texas

REFERENCE W3704H



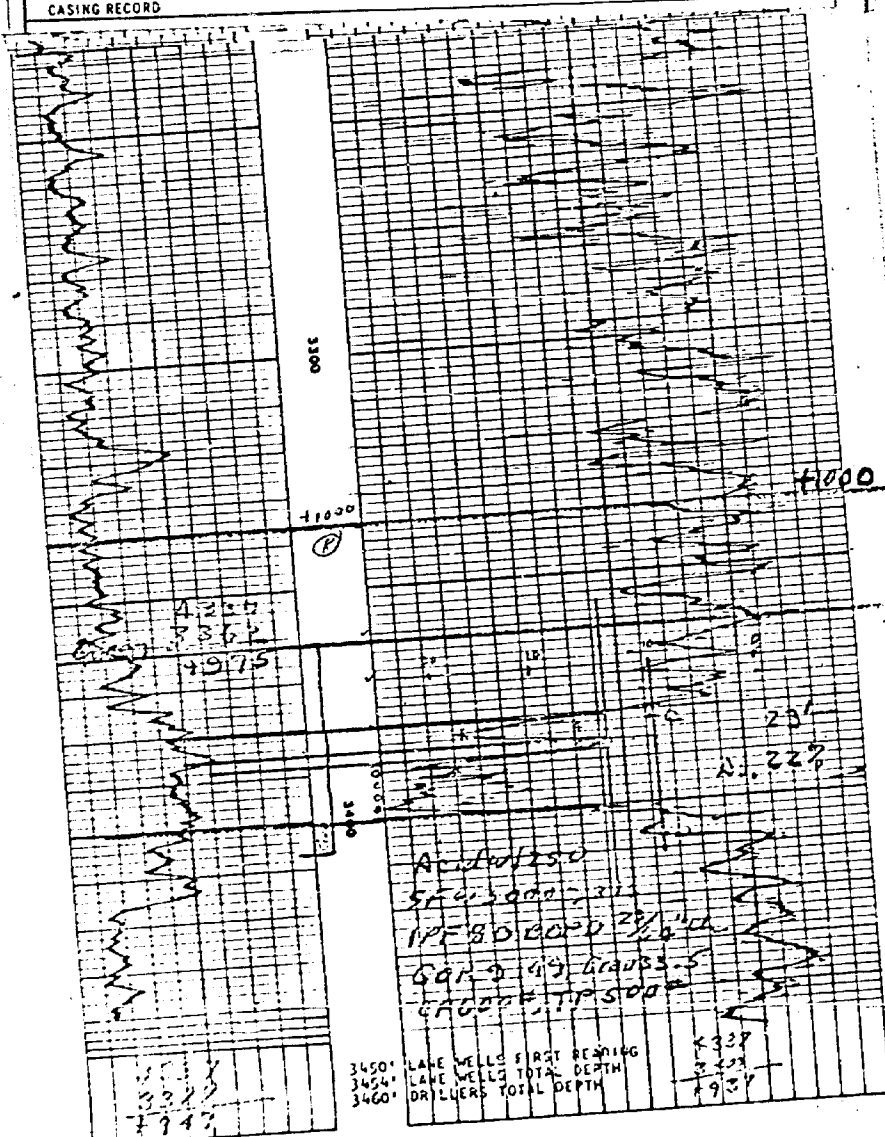
COMPLETION RECORD

SPUD DATE

COMP DATE

DST RECORD

CASING RECORD



SHELL OIL COMPANY
STATE "MOON" NO. 1
MECA QUEEN
LEA COUNTY, NEW MEXICO

7-5/8" csg. cmt'd. @
373' w/250 sax

Elev. 4341' DF

annulus loaded with
corrosion inhibited fluid

Est. top cmt. 2060'

seating nipple

2-3/8" 4.7# J-55 tbg. on
tension packer @ 3350

Top Queen 3399'

Pay: Queen Sand

4-1/2" csg. cmt'd. @
3466 w/200 sax

PBTD 3431

TD 3470

3408-14

3423-3428

Perforations

TENNECO OIL COMPANY
SUBSIDIARY OF TENNECO CORPORATION

MESA QUEEN FIELD
LEA COUNTY, NEW MEXICO

State "MQA" No. 1
PROPOSED WATER INJECTION WELL
1890 FNL & 990 FEL, Sec. 16, T-16-S,R-32-E

EXHIBIT

LAND SURVEYING *West Texas Electrical Log Service*

FILE NO. _____ COMPANY SHELL OIL COMPANY

WELL SHELL STATE "M" NO. A-1

FIELD MESA QUEEN

COUNTY LEA STATE NEW MEXICO

LOCATION: 1880' ENL & 990' FEL Other Services: _____

SEC 16 TWP 16-S RGE 32-E NE/L-CAL. F/L

Permanent Datum D. J. Elev. 4341 Elevations: _____

Log Measured from D. J. ft. Above Permanent Datum _____

Drilling Measured from D. J. _____

Date 12-5-63

Run No. ONE

Depth-Driller 3470

Depth-Logger 3471

Bottom Logged Interval 3467

Top Logged Interval SURFACE

Casing-Driller 7 7/8 @ 373

Casing-Logger 373

Bit Size 5 3/4"

Type Fluid in Hole SALT MUD

Density and Viscosity GEL & STARCH

pH and Fluid Loss 110.4 cc

Source of Sample CIRCULATED

Rm @ Meas. Temp. 07 @ 68

Rm @ Meas. Temp. 056 @ 68

Rm @ Meas. Temp. 084 @ 68

Source of End and Rm REAS.

Rm @ BHI 05 @ 95

Time Since Circ. 2 HOURS

Max. Rec. Temp. Deg. F. 95

Equip. No. and Location 596 HOBBS

Recorded by TAYLOR & WASSILL

Witnessed by MR. ALEXANDER

Reproduced By
West Texas Electrical Log Service
 Dallas 2, Texas

REFERENCE W3668H



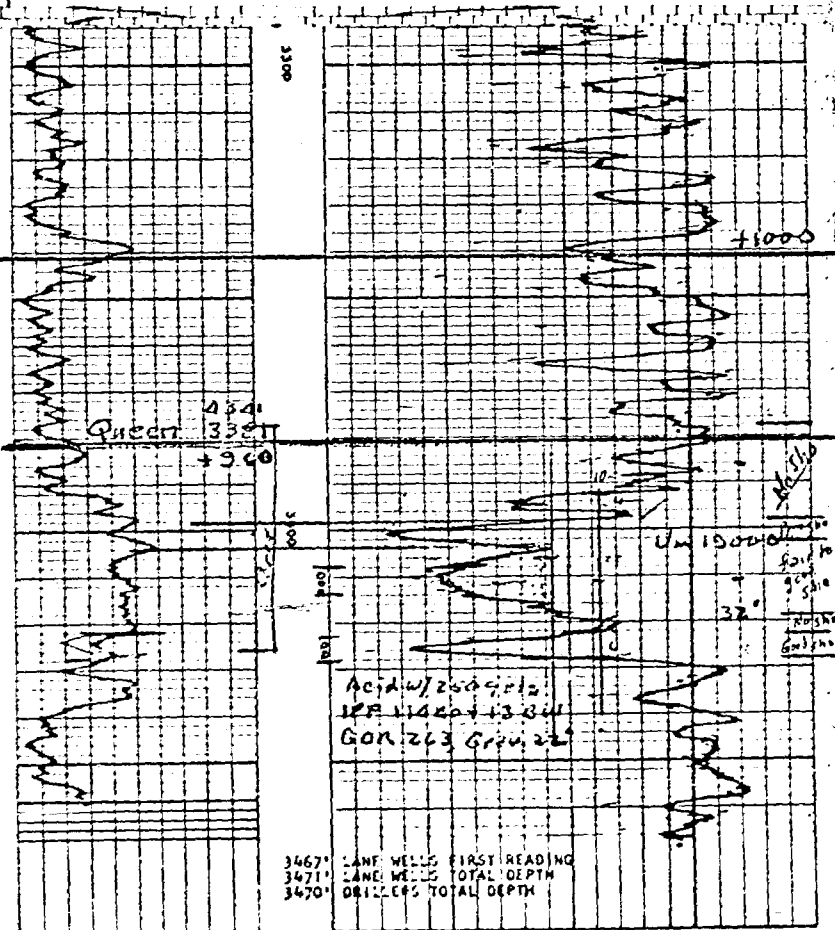
8 COMPLETION RECORD

SPUD DATE _____

COMP DATE _____

DST RECORD _____

CASING RECORD _____



SHELL OIL COMPANY
 SHELL STATE "M" NO. A-1
 MESA QUEEN
 LEA COUNTY, NEW MEXICO

3471 4341
 3473 4328
 +918 +913