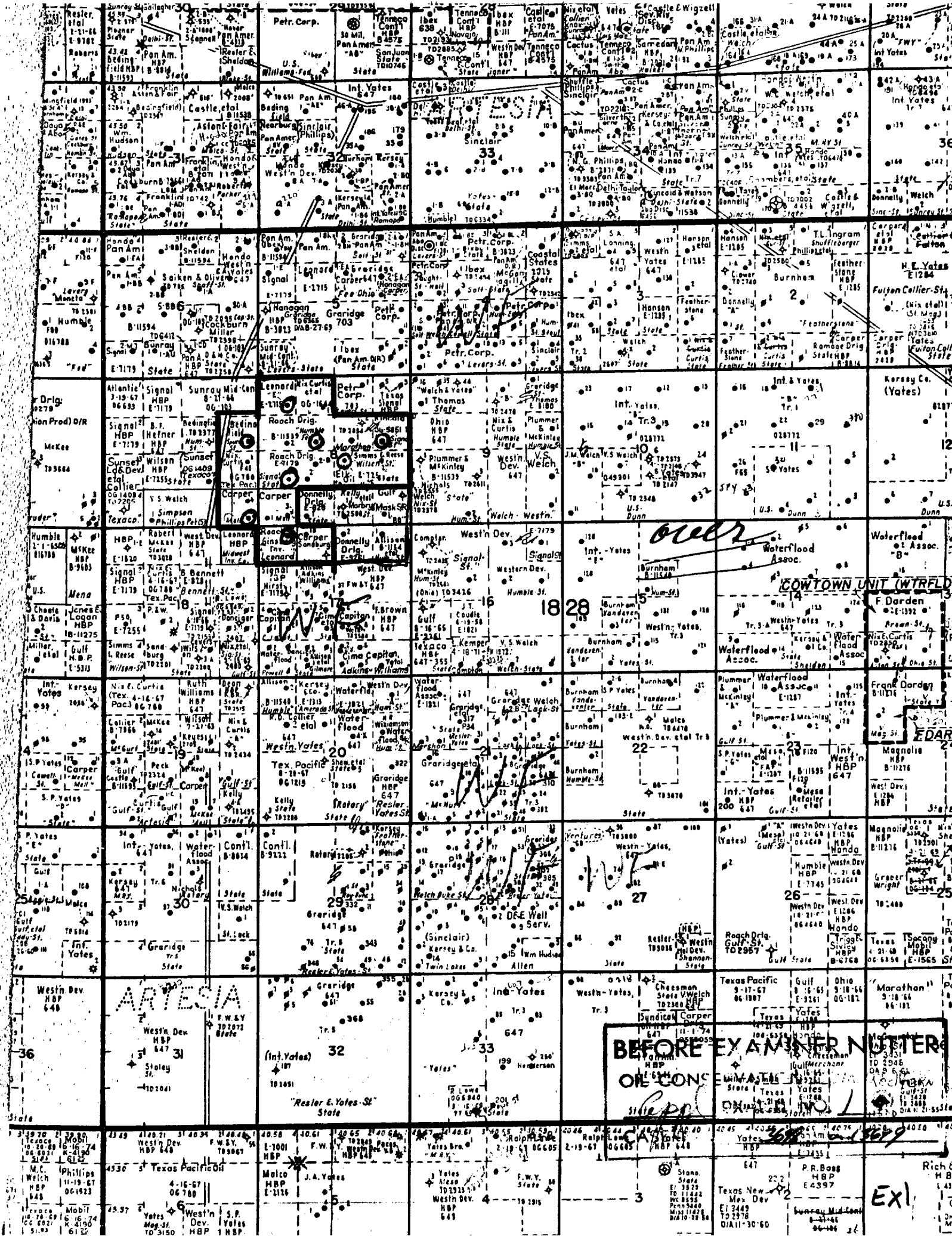




BEFORE EXAMINER NOTED
OF CONC
NO. 1

EXI

$$\begin{array}{r}
 8 \text{ inj tracts} \\
 8 \text{ prod tracts} \\
 \hline
 16 \text{ total tracts} \\
 42 \\
 \hline
 32 \\
 64 \\
 \hline
 672
 \end{array}$$

$$\begin{array}{l}
 3 \text{ extra wells} \\
 \text{~~3~~ } = 3 \times 14 = 42
 \end{array}$$

$$\begin{array}{r}
 42 \\
 672 \\
 \hline
 714
 \end{array}
 \begin{array}{l}
 \text{total} \\
 \text{allowance}
 \end{array}$$

BEFORE EXAMINER NUTTER	
OIL CONSERVATION COMMISSION	
<u>4p</u>	EXHIBIT NO. <u>4</u>
CASE NO. <u>3698 43699</u>	

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INTRODUCTION:

The purpose of this study is to determine the practicality of forming a unit to conduct a secondary recovery program by waterflooding. The unit area is commonly referred to as 'The West Artesia Pool'. All lands in the proposed area are fully developed.

Performance of waterflood projects in the Eddy County area gives a good indication of what might be anticipated by a secondary recovery program. Data necessary for establishing the pertinent covenants of a Unit Agreement and Unit Operating Agreement are incorporated in this study.

GEOLOGY

Area production is derived from four zones, Old Field (Artesia), Metex, Premier of the Grayburg Formation, and Lovington of the San Anders Formation. No one zone is productive throughout the area. Old Field is productive in ten wells, Metex in fourteen, Premier in eighteen, and Lovington in two. As a cross reference, eight wells produce from only one zone, thirteen from two and three from three.

Production is commingled in the well bore. No record is available to class the four zones by productivity. An estimate was made assigning an equal part of the cumulative production of a well to each of its productive intervals. It was not assumed that the wells produced in this manner, but it did determine a pattern that is reliable. Cumulative production, thus determined for

each zone is, Premier 224,330 barrels, Metex 113,319, Old Field 69,454 and Lovington 23,812.

Figure III shows the areal productivity limits of each of the four zones. Rating the zones in declining order of areal size is Premier, Metex, Old Field, and Lovington. It is assumed that a rating based on productivity would be in the same order.

Geological tops, shown in Table III, were picked from the Electric Logs if available. Information from Sample Log or Driller Logs was used where Electric Logs were not run.

PRODUCTION:

Production data was taken from the
New Mexico Oil & Gas Engineering

Committee Reports. Cumulative production in Table IV is to November 1, 1964. Present production is for six months, May through October, 1964 inclusive. Remaining primary production, in Table IV was estimated to be between 72,000 and 78,000 barrels, for simplicity in calculations it was set at 75,800 barrels to correspond in the first eighteen months recovery in the schedule in Table VII. Secondary recovery is estimated to equal ultimate primary recovery. Production in the secondary phase of operation is the estimated secondary recovery plus the then remaining primary. A primary recovery of 22,000 is estimated from November 1, 1964 to July 1, 1965, the projected effective date of the project. This interim production of 22,000 leaves 53,800 barrels of primary oil to be recovered after commencement of a secondary recovery project. Table V is a summary of the production.

PARTICIPATION:

True value of a well is the total recoverable oil and oil products.

Therefore, recoveries are the only criterion used in calculating the participating factors. State of depletion among the wells necessitate the two phase participation system. Phase one proportions the remaining primary recovery as determined by the present producing rate. May through October, 1964 production was determined as basis for arriving at an equitable percent producing rate. Phase two commences after the recovery of the remaining primary which is 75,800 barrels.

Ultimate primary recovery is the sum of present cumulative, production plus estimated remaining primary recovery. Estimated secondary recovery (equal to ultimate primary recovery) is the basis for determining participation during phase two or the secondary recovery period.

Phase one permits the recently completed wells a high rate of return for primary development cost payout.

COSTS:

Total cost listed in Table VIII for 1965 and 1966 are divided

into phase one and phase two. Phase one costs are those that are normally primary production expenses, and are proportioned by phase one participation factors. Costs under phase two are development and operational attributed to secondary recovery and are proportioned by phase two participation factors. After the recovery of the 75,800 barrels, all participation, income and costs,

are under phase two.

DEVELOPMENT:

A four well pilot was designed to take advantage of a surplus injection plant. Expansions to the plant are identical pump and engine size. Well conversion plan summary is included in Table VI. Stages of development, in Table VI are hypothetical, but are similar to any that will evolve by normal response to water injection. Initial full field development can be employed, however, is not as popular as stage development.

ECONOMICS:

Average conditions were used to calculate the full unit economics.

An average working interest of 77.125 was used, this would have the normal 1/8 royalty plus a 3/32 overriding royalty. (1) Gross income is based on an oil price of \$ 2.82 (two dollars and eighty two cents) per barrel less 3.5035 taxes. No allowances are made for gas income, (2) Supervision and general office expense of \$ 90.00 (ninety dollars) per well per month, (3) Operation and maintainence expense of \$ 85.00 (eighty five dollars) per well per month, (4) Watered out wells are plugged and abandoned reducing the well count number in determing other costs, (5) Reduced estimate of operation and maintenance expenses to \$ 65.00 (sixty five dollars) per well per month. All wells plugged in 1973. It was assumed that the plugging costs at the end of the project life, would equal the salvage value.

Table VIII gives gross income, costs and net income of individual leases employing the unit total as determined in Table VII.

UNITIZATION:

All leases being State of New

Mexico will simplify unitization.

Regardless of sell-outs, trades, or side contracts on individual lease, a unit agreement would still be necessary. The potential recovery should prompt all interested operators to proceed with unitization for installing and operating the waterflood project.

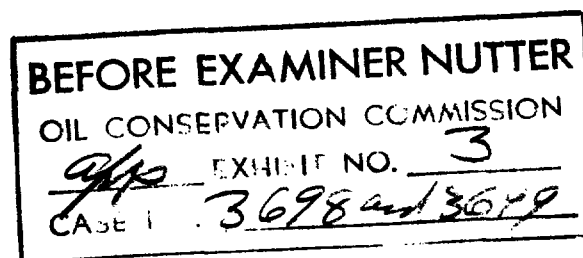
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1. Well Completion Data
2. Productive Zones - Each Well
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2. Unit Area & Injection Pattern
3. Formation Productivity Limits
4. Unit Participation

Tract No.	Basic Royalty	Percentage
2	State	All
3	State	All
4	State	All
5	State	All
6	State	All
7	State	All
8	State	All
9	State	All
10	State	All
11	State	All
12	Midwest Investment Company	All
13	Midwest Investment Company	All



Tract No.	Phase 1 Partic- ulars Factor	Overriding Royalty	Percentage	Comment Status
2				
3	11.94837	Mobile Oil and Refining Londre Keper	5.4687 2.7344	100%
4	1.59360	None		
5		O. P. out of 27% of 27.55 of 3,000,000 to (decap- tional) Francisco Inc. Albert W. River at al., Continental Illinois Bank and Trust Company of Chicago		-0-
6	20.05366	Signal Oil and Gas Co. Londre Keper	5.46875 2.73438	100%
7	21.55322	Wilson Oil Co. and Frances P. Bolton d/b as Wyoming Oil Company	5.4687	100%
8	2.93762	Marathon Oil Company Robert E. Dowling Tracey Clark Cities Services Suspense Various Interest Owners of New Mexico Oil and Gas Company	6.93750 .12500 .12500 .0625 4.000	
9	3.07132	Joseph L. Seagraves & Son, Inc.	12.5	100%
10	.72839	Gulf Oil Corporation	.20312	100%

Phase 1 Particle- ipation Factor				Override Royalty	Percentage	Commitment Status
Tract No.						
11	23.94000	Signal Oil and Gas Co. Robert G. Hannagan	3.203 3.125	100%		
12	-0-	Tenneco	8.203125	100%		
13	3.25930	Tenneco	5.4688	100%		
TOTAL	89.08589					

Tract No.	Phase 1 Partic- ipation Factor	Working Interest	Percentage	Comm- ited Status
2				
3	11.94837	Raymond Smith Gene Reischman Glenn R. Harrison Ben B. Ginsberg C. E. Roach Drilling E. J. Shepard Minnie Shepard	25.00 25.00 25.00 12.50 6.25 3.125 3.125	100.00%
4	1.59360	Cities Service	100.00	100.00%
5	2.08393	Tenneco	100.00	100.00%
6	20.05336	Raymond Smith Gene Reischman Glenn R. Harrison Ben B. Ginsberg C. E. Roach Drilling E. J. Shepard Minnie Shepard	25.00 25.00 25.00 12.50 6.25 3.125 3.125	100.00%
7	21.55322	H & S Oil Co. C. E. Roach Drilling E. J. Shepard Minnie Shepard	87.50 6.25 3.125 3.125	100.00%
8	9.56879	John N. Castner Durham Drilling Company, Inc. Robert Galt Harry B. Gilmore H & S Oil Co. A. Weber, Jr. Kincaid & Watson Drilling Co.	6.25 25.00 6.25 12.50 18.75 6.25 25.00	100.00%
9	3.07182	H & S Oil Company C. E. Roach Drilling E. J. Shepard Minnie Shepard Nix & Curtis Oil Co.	43.75 3.125 1.562 1.562 50.00	100.00%

Tract No.	Partic- ipation Factor	Working Interest	Percentage	
10	.72830	Nix & Curtis Oil Co.	75.00	
		L. F. Hamilton	12.50	
		C. E. Roach Drilling	6.25	
		E. J. Shepard	3.125	
		Minnie Shepard	3.125	100.00%
11	23.94000	Oscar Bourg	6.25	
		John N. Castner	6.25	
		Durham Drilling	25.00	
		Robert Gault	6.25	
		Harry B. Gilmore c/b as		
		G & S Oil Company	6.25	
		W. S. Nelson	6.25	
		H & S Oil Company	12.50	
		A. Weber, Jr.	6.25	
		Kincaid & Watson	25.00	100.00%
12	-0-	Ginsberg Investment	25.00	
		Glenn R. Harrison	25.00	
		Raymond Smith	25.00	
		Gene Reischman	12.50	
		C. E. Roach Drilling	12.50	100.00%
13	3.25930	Cities Service	100.00	100.00%
TOTAL	97.80069			

TABLE I
WELL COMPLETION RECORD
WEST ARTESIA POOL

OWNER Lease & Well No.	Completion Date	Surface Elevation	Total Depth	Casing Record size-depth/saus	Initial Production	Producing Intervals	Stimulation Treatments	Development Stage of Conversion
ALLISON, FRED M. Humble State 1	11- 2-58	3623	2502	8 5/8- 540/	238-F	64/2171-87	SOF - 41,000	
			2376 PED	5 1/2-2376/80		96/2230-54		
						88/2244- 2316		
BEDINGFIELD, J. E. Spurck 1	1-30-58	3620	2415	8 - 457	72-F	2165-2235	SOF - 40,000	3
			2235 PED	7 -2165/65				
CARPER DRILLING CO. Nell 1	7-10-50	3609	2493	8 5/8- 503/50	35-P	2065-2250	TNT - 497	
			2255 PED					
			2235	8 5/8 497/50				
	9- 1-50	3608	2134 PED		35-P	1935-2168	TNT - 542	2
			2128	8 5/8 500/25				
			2118	5 1/2-2118/50				
	10-27-57	3609			100-F	20/1986-96	Ac. - 6,300 SOF - 13,000	
4	8-29-58	3611	2225	8 5/8- 460	70-F	30/1942-52	Ac. - 6,300 SOF - 7,000	
			2222 PED	5 1/2-2222				
			2145	8 5/8- 510/35				
State 18 1	5-15-57	3614		5 1/2-2145/35	140-F	28/2130-37	SOF - 29,000	
DONNELLY DRILLING CO. Eddy State 1	12-15-56	3613	2166	8 5/8- 502/50	62-P	40/2110-20	SOF - 30,000	Pilot
				5 1/2-2166/100				
2	4-14-57	3620	2482	8 5/8- 505/50	60-F	88/2449-71	SOF - 15,000	4
				5 1/2-2478/100				
Kelly State 1	4-1- 58	3616	2485	8 5/8- 499/50	21-P	32/2145-58 32/2458-66	SOF - 21,000	
				5 1/2-2485/100				
KINCAID & WATSON DRILLING CO. Marathon State 1	8- 1-64	36	2295	8 5/8- 426/50	40-F	80/2112-32	SOF - 35,880 g 70,000 #	
				5 1/2-2293/1000				

TABLE I
(con't)

OWNER Lease & Well No.	Completion Date	Surface Elevation	Total Depth	Casing Record size-depth/saxs	Initial Production	Producing Intervals	Stimulation Treatments	Development Stage of Conversion
KINCAID & WATSON DRILLING CO.								
Signal State 1	7-23-62-	3635	2359	8 5/8- 472/50 5 1/2-2348/100	13% L.O. 87% XW 15-P	16/2316-20 32/2024-32	SOF - 22,000 g 35,000 # SOF - 34,500 g 56,000 #	3
LEONARD OIL CO.								
State E-2715 1	6-10-58	3628	2382 2260 PED	8 5/8- 503/50 5 1/2-2260/150	40-F	56/2170-84 24/2204-10	Ac. - 250 SOF - 30,000	5
MASK & WESTALL								
Eddy State BO 1	2- 4-59	3627	2409 2380 PED	7 5/8- 571/300 4 1/2-2402/325	51-P 6 XW	60/2178-88 84/2234-55 96/2294 - 2318	Ac. - 500 SOF - 30,000	4
NIX & CURTIS								
Gulf State D 1	11- -58	3633	2297 2295 PED	5 1/2-2297/125	55-F	40/2254-64	SOF - 12,000	
T.P. State 1	8- 1-58	3621	2252 2235 PED	8 5/8- 457/50 5 1/2-2251/100	40-F	32/2164-72 16/2186-90 32/2200-08 4/2063-65 4/2072-74 12/2075-81	Ac. - 250 SOF - 45,000 g 60,000 # SOF - 10,000 g 40,000,#	
ROACH DRILLING CO.								
Humble State 1	12-24-57	3632	2314	8 5/8- 440/50 5 1/2-2314/100	60-F	40/2265-75 16/1988-96	SOF - 20,000 g 30,000 # SOF - 20,000 g 30,000 #	

TABLE I
(cont)

OWNER Lease & Well No.	Completion Date	Surface Elevation	Total Depth	Casing Record size-depth/sacs	Initial Production	Producing Intervals	Stimulation Treatments	Development Stage of Conversion
ROACH DRILLING CO. Humble State 2	2-25-58	3628	2290	8 5/8- 440/50 5 1/2-2290/100	36-F	40/2196- 2206 24/2220-26 16/2234-38 32/2102-10	SOF - 40,000 g 60,000 # SOF - 10,000 g 20,000 #	2
Leonard State 1	7-17-60	3611	2451 2317 PED	8 5/8-1506/set 5 1/2-2317/166	35-P 4XV	2115-17 2231-35 2267-69 2277-79	SOF - 40,000 g 60,000 #	Pilot
Signal State 1	10-11-59	3623	2273	8 5/8- 427/ 5 1/2-2273/75	60-F	8/2236-38 32/2245-53 2114-20 2204-10	Ac. - 250 SOF - 20,000 g 30,000 # SOF - 20,000 g 30,000 #	Pilot
2	1-21-58	3626	2305	8 5/8- 500/50 5 1/2-2305/100	60-F	40/2213-28 24/2256-62 24/2266-72 10/1990-96	SOF - 20,000 g 30,000 # SOF - 20,000 g 30,000 # SOF - 15,000 g 30,000 #	
2B	4-24-62	3628	2311 2060 PED	8 5/8- 442/50 4 1/2-2060/75	22-P	20/2007-17	SOF - 20,000 g 30,000 #	
SILLES & REESE OIL CO. Wilson State 1	2- 6-58	3631	2340	8 5/8- 455/100 5 1/2-2340/100	60-F	40/2024-34 40/2130-40 12/2197- 2200 20/2253-58 20/2260-55	Ac. - 250 SOF - 57,500 g 86,250 #	Pilot

TABLE I
(con't)

OWNER Lease & Well No.	Completion Date	Surface Elevation	Total Depth	Casing Record size-depth/saxs	Initial Production	Producing Intervals	Stimulation Treatments	Development Stage of Conversion
KINCAID & WATSON DRILLING CO. Signal State 1	7-23-62-	3635	2359	8 5/8- 472/50 5 1/2-2348/100	13% L.O. 87% KW 15-P	16/2316-20 32/2024-32	SOF - 22,000 G 35,000 # SOF - 34,500 G 56,000 #	3
LEONARD OIL CO. State E-2715 1	6-10-58	3628	2382 2260 PBD	8 5/8- 503/50 5 1/2-2260/150	40-F	56/2170-84 24/2204-10	Ac. - 250 SOF - 30,000	5
MASK & WESTALL Eddy State BO 1	2- 4-59	3627	2409 2380 PBD	7 5/8- 571/300 4 1/2-2402/325	51-P 6 KW	60/2178-88 84/2234-55 96/2294- 2318	Ac. - 500 SOF - 30,000	4
NIX & CURTIS Gulf State D 1	11- -58	3633	2297 2295 PBD	5 1/2-2297/125	55-F	40/2254-64	SOF - 12,000	
T.P. State 1	8- 1-58	3621	2252 2235 PBD	8 5/8- 457/50 5 1/2-2251/100	40-F	32/2164-72 16/2186-90 32/2200-08 4/2063-65 4/2072-74 12/2075-81	Ac. - 250 SOF - 45,000 G 60,000 # SOF - 10,000 G 40,000, #	
ROACH DRILLING CO. Humble State 1	12-24-57	3632	2314	8 5/8- 440/50 5 1/2-2314/100	60-F	40/2265-75 16/1988-96	SOF - 20,000 G 30,000 # SOF - 20,000 G 30,000 #	

TABEL II

PRODUCTIVE ZONES - EACH WELL

West Artesia Pool

OWNER Lease & Well No.	OLD FIELD	METEX	PREMIER	LOVINGTON
ALLISON, FRED M. Humble State No. 1	---	2171-2187	2230-2254 2294-2316	---
BEDINGFIELD, J. E. Spurck 1	---	---	2165-2235	---
CARPER DRILLING CO. Mell 1	---	2065 ----open hole	-----2250	---
2	1935-----open hole	-----2134		---
3	1986-1996	2047-2054 2086-2096	----	---
4	1942-1952	---	2156-2163	---
State 18 1	---	---	2130-2137	---
DONNELLY DRILLING CO. Eddy State 1	---	2110-2120	---	---
2	---	---	---	2449-2471
Kelly State 1	Open	2145-2158	open	2458-2466 <i>perf plug mills?</i>
KINCAID & WATSON DRILLING CO. Marathon State 1	---	2112-2132	---	---
Signal State 1	2024-2032	---	2316-2320	---

TABLE II
(con't)

OWNER Lease & Well No.	OLD FIELD	METEX	PREMIER	LOVINGTON
LEONARD OIL CO. State E-2715 1	---	---	2170-2184 2204-2210	---
MASK & WESTALL Eddy State BO 1	---	2178-2188	2234-2255 2294-2318	---
NIX & CURTIS Gulf State 1	---	---	2254-2264	---
T.P. State 1	---	2063-2065 2072-2074 2075-2081	2164-2172 2186-2190 2200-2208	---
ROACH DRILLING CO. Humble State 1	1988-1996	---	2265-2275	---
2	---	2102-2110	2196-2206 2220-2226 2234-2238	---
Leonard State 1	---	2115-2117	2231-2235 2267-2269 2277-2279	---
Signal State 1	---	2114-2120	2236-2238 2245-2253 2204-2210	

TABLE II
(con't)

OWNER Lease & Well No.	OLD FIELD	METEX	PREMIER	LOVINGTON
BOACH DRILLING CO. Signal State 2	1990-1996	---	2218-2228 2258-2262 2266-2272	---
2B	2007-2017	---	---	---
SIMMS & REESE OIL CO. Wilson State 1	2024-2034	2130-2140 2197-2200	2253-2258 2260-2265	---
2	2050-2056	2166-2171 2200-2205	2300-2312	---

TABLE III

GEOLOGICAL FORMATION TOPS

West Artesia Pool

OWNER <u>Lease & Well No.</u>	<u>GRAYBURG</u>		<u>OLD FIELD</u>		<u>METEX</u>		<u>PREMIER</u>		<u>SAN ANDRES</u>		<u>LOVINGTON</u>	
	<u>Surface</u>	<u>Subsea</u>	<u>Surface</u>	<u>Subsea</u>	<u>Surface</u>	<u>Subsea</u>	<u>Surface</u>	<u>Subsea</u>	<u>Surface</u>	<u>Subsea</u>	<u>Surface</u>	<u>Subsea</u>
ALLISON, FRED M. Humble State 1	---		---	2175 1448			---		2300 1323		---	*D
BEDINGFIELD, J. E. Spurck 1	---		---	---			---		2241 1379		---	D
CARPER DRILLING CO. Mell 1	1872	1737	1950	1659	2060	1549	2175	1434	2250	1359	2445	1164 S
2									2230	1378		D
3												
4	1849	1762	1928	1683	2032	1579	2102	1509	---		---	L
State 18 1	---		2022	1592	2130	1484	---		---		---	S
DONNELLY DRILLING CO. Eddy State 1	1922	1691	1999	1614	2101	1512	---		---		---	L
2	1953	1667	2036	1584	2138	1482	2259	1361	2328	1292	2449	1171 L
Kelley State 1											2468	1148 D
KINCAID & WATSON DRILLING CO. Marathon State 1	1932	1700	2011	1621	2111	1521	2238	1394	---		---	L
Signal State 1	1941	1694	2023	1612	2124	1511	2247	1388	2330	1305	---	L

TABLE III
(con't)

OWNER Lease & Well No.	GRAYBURG		OLD FIELD		METEX		PREMIER		SAN ANDRES		LOVINGTON	
	Surface	Subsea	Surface	Subsea	Surface	Subsea	Surface	Subsea	Surface	Subsea	Surface	Subsea
LEONARD OIL CO. State E-2175 1	1860	1768	1942	1686	2044	1584	2167	1461	2244	1384	2372	1256 L
MASK & WESTALL Eddy State.B0 1	----		----		----		----		2368	1259	----	D
NIX & CURTIS Gulf State D 1	1897	1736	1977	1656	2077	1556	2209	1424	2283	1350	----	L
T.P. State 1	1850	1771	1925	1696	2026	1595	2146	1475	2241	1380	----	L
ROACH DRILLING CO. Humble State 1	1902	1730	1984	1648	2084	1548	2122	1420	2294	1338	----	L
	2	1878	1752	1670	2059	1571	2187	1443	2270	1360	----	L
Leonard State 1	1917	1694	1998	1613	2100	1511	2223	1388	2297	1314	----	L
Signal State 1	1886	1737	1964	1659	2066	1557	2192	1431	2267	1356	----	L
	2	1900	1726	1643	2085	1541	2210	1416	2286	1340	----	L
	2B	1915	1713	1634	2101	1527	2231	1397	2297	1331	----	L
SIMMS & REESE OIL CO. Wilson State 1	1934	1697	2019	1612	2119	1512	2246	1385	2324	1304	----	L
	2	1961	1674	2046	2146	1489	2291	1344	2360	1275	----	L

* Information Obtained From:

D - Drillers Log

S - Sample Log

L - Electric Log

TABLE IV

PRODUCTION DATA

&

PARTICIPATION FACTORS

OWNER Lease & Well No.	CUMULATIVE PRODUCTION Nov. 1, 1964	PRESENT PRODUCTION May - Oct. 1964	PHASE I PARTICIPATION FACTOR	REMAINING PRIMARY PRODUCTION	ULTIMATE PRIMARY PRODUCTION	PHASE II PARTICIPATION FACTOR
ALLISON, FRED M. Humble State 1	12,316	612	3.72898	2,827	15,143	2.93056
BEDINGFIELD, J. E. Spurck 1	22,567	305	1.85839	1,409	23,976	4.63998
CARPER DRILLING CO. Well						
1	23,533	1				
2	1,129	37				
3	1,173	278				
4	20,619	136				
Total	46,454	452	2.75408	2,088	48,542	9.39412
State 18 1	18,377	208	1.26736	961	19,338	3.74240
COMPANY TOTAL	64,831	660	4.02144	3,049	67,880	13.33652
DONNELLY DRILLING CO. Eddy State						
1	25,573	561	3.41823	2,591	28,164	5.45046
2	32,456	1,256	7.65294	5,801	38,257	7.40372
Total	58,029	1,817	11.07117	8,392	66,421	12.85418
Kelly State 1	4,712	-0-	-0-	-0-	4,712	0.91190
COMPANY TOTAL	62,741	1,817	11.07117	8,392	71,133	13.76608

TABLE IV
(con't)

OWNER Lease & Well No.	CUMULATIVE PRODUCTION Nov. 1, 1964	PRESENT PRODUCTION May - Oct 1964	PHASE I PARTICIPATION FACTOR	REMAINING PRIMARY PRODUCTION	ULTIMATE PRIMARY PRODUCTION	PHASE II PARTICIPATION FACTOR
KINCAID & WATSON DRILLING CO.						
Marathon State 1	1,327	1,327	8.08555	6,129	7,456	1.44293
Signal State 1	11,409	3,320	20.22910	15,333	26,742	5.17526
COMPANY TOTAL	12,736	4,647	28.31465	21,462	34,198	6.61819
LEONARD OIL CO.						
State E-2715 1	8,473	289	1.76091	1,335	9,808	1.89810
MASK & WESTALL						
Eddy State BO 1	6,199	128	0.77992	591	6,790	1.31404
NIX & CURTIS						
Gulf State D 1	9,805	101	0.61540	466	10,271	1.98771
T.P. State 1	17,997	426	2.59567	1,968	19,965	3.86375
COMPANY TOTAL	27,802	527	3.21107	2,434	30,236	5.85346
ROACH DRILLING CO.						
Humble State 1	38,629	1,253				
2	30,074	404				
Total	68,703	1,657	10.09627	7,653	76,356	14.77686
Leonard State 1	5,592	-0-	-0-	-0-	5,592	1.08219
Signal State						
1	40,057	1,831				
2	31,185	950				
2B	7,604					
Total	78,846	2,781	16.94492	12,844	91,690	17.74437
COMPANY TOTAL	153,141	4,438	27.04119	20,497	173,638	33.60342

TABLE IV
(con't)

OWNER Lease & Well No.	CUMULATIVE PRODUCTION Nov.1, 1964	PRESENT PRODUCTION May - Oct. 1964	PHASE I PARTICIPATION FACTOR	REMAINING PRIMARY PRODUCTION	ULTIMATE PRIMARY PRODUCTION	PHASE II PARTICIPATION FACTOR
SIMMS & REESE OIL CO.						
Wilson State 1	42,707	1,736				
2	27,414	1,253				
COMPANY TOTAL	70,121	2,989	18.21223	13,804	83,925	16.24165
POOL TOTAL						
	440,927	16,412	100.00000	75,800	516,727	100.00000

TABLE V

PRODUCTION SUMMARY

Cumulative Production to 11/1/64	440,937
Est. Remaining Primary	75,800
Est. Production 11/1/64 to 7/1/65	<u>22,200</u>
Remaining Primary at start of Secondary	53,800
Ultimate Primary Recovery	516,727
Estimated Secondary Recovery	516,727
Remaining Primary	<u>53,800</u>
Total Production During Secondary	570,527
Phase One Production	75,800
Phase Two Production (est.)	<u>494,727</u>

These figures should be reduced somewhat to account for gas included in the secondary unit. Not in the hand.

TABLE VI
SECONDARY RECOVERY DEVELOPMENT COSTS

PILOT STAGE	
INJECTION WELL CONVERSION:	
Donnelly Drilling Co. No. 1addy State	
Producing Intervals: 40 holes / 2110-20 Metex	
(Injection down tubing)	
COST: Workover & Wellhead Equipment	\$ 750.00
Roach Drilling Co. No. 1Humble State	
Producing Intervals: 16 holes / 1988-96 Old Field	
40 holes / 2265-75 Premier	
(Injection tubing-annulus dual completion,	
single packer)	
COST: Workover & Wellhead Equipment	\$ 1,200.00
Roach Drilling Co. No. 1Signal State	
Producing Intervals: 24 holes / 2114-20 Metex	
24 holes / 2204-10 Premier	
32 holes / 2245-53 Premier	
(Injection tubing-annulus dual completion,	
single packer)	
COST: Workover & Wellhead Equipment	\$ 1,200.00
Stimms & Reese No. 1Wilson State	
Producing Intervals: 40 holes / 2024-34 Old Field	
40 holes / 2130-40 Metex	
12 holes / 2197-	
2200 Metex	
20 holes / 2253-58 Premier	
20 holes / 2260-65 Premier	
(Injection tubing-annulus dual completion,	
single packer)	
COST: Workover & Wellhead Equipment	\$ 1,200.00
RECOMPLETION:	
Roach Drilling Co. No. 1Signal State	
INJECTION SYSTEM:	
Plant - Used Pump & Engine, Used Storage Tank	
New Equipment & Piping, Labor - Complete	
Distribution Lines	
Total Cost Pilot Stage	\$20,000.00
SECOND STAGE	
INJECTION WELL CONVERSION:	
Roach Drilling Co. No. 1Leonard State	
Producing Intervals:	
8 holes / 2115-17 Metex	
8 holes / 2231-35 Premier	
8 holes / 2267-69 Premier	
8 holes / 2277-79 Premier	

(Injection tubing-annulus dual completion,
single packer)
COST: Workover & Wellhead Equipment \$ 1,200.00

Carper Drilling Co. No. 4 Well
Producing Intervals: open hole / 1935-2168
(Old Field
& Metex)
COST: Workover & Wellhead Equipment \$ 750.00

INJECTION SYSTEM
Plant - Equal to Pilot w/New Pump & Engine
Distribution Lines
Contingencies
Total Cost Second Stage \$20,000.00

THIRD STAGE

INJECTION WELL CONVERSION:
J. E. Heddingfield No. 1 Spark State
Producing Intervals: open hole / 2165-2235
Premier
(Injection down tubing)
COST: Workover & Wellhead Equipment \$ 750.00

Kincaid & Watson No. 1 Signal State
Producing Intervals: 16 holes / 2024-32 Old Field
(Injection down tubing)
COST: Workover & Wellhead Equipment \$ 750.00

INJECTION SYSTEM
Plant
Distribution Lines
Contingencies
Total Cost Third Stage \$ 6,000.00

FOURTH STAGE

INJECTION WELL CONVERSION:
Mask & Westall No. 1 Eddy-State FO
Producing Intervals: 60 holes / 2178-88 Metex
84 holes / 2234-55 Premier
96 holes / 2294-2318
Premier
(Injection tubing-annulus dual completion,
single packer)
COST: Workover & Wellhead Equipment \$ 1,200.00

Donnelly Drilling Co. No. 2 Eddy State
Producing Intervals: 88 holes / 2419-71 Lovington

(Injection down tubing)
COST: Workover & Wellhead Equipment

\$ 750.00

INJECTION SYSTEM

Plant, Equal to Second Stage

Distribution Lines

Contingencies

\$14,000.00
3,000.00
1,040.00

Total Cost Fourth Stage

\$20,000.00

FIFTH STAGE

INJECTION WELL CONVERSION:

Leonard Oil Co. No. 1 State E-2715

Producing Intervals:

56 holes / 2170-84 Premier
24 holes / 2204-10 Premier

(Injection down tubing)

COST: Workover & Wellhead Equipment

\$ 750.00

INJECTION SYSTEM

Plant

Distribution Lines

Contingencies

\$-0-
1,750.00
500.00

Total Cost Fifth Stage

\$ 3,000.00

SIXTH STAGE

LEASE MODERNIZATION & RETURN WATER SYSTEM:

\$10,000.00

DEVELOPMENT COSTS BY YEARS

1965 Pilot \$20,000.00

1966 Second Stage \$20,000.00
Third Stage 6,000.00
\$26,000.00

1967 Fourth Stage \$20,000.00
Fifth Stage 3,000.00
\$23,000.00

1968 Sixth Stage \$10,000.00

Total Development Cost

\$79,000.00

TABLE VII

SECONDARY RECOVERY ECONOMICS

UNIT TOTAL

Year	Gross Production	Gross Income(1)	Development	Supervision & G.O.E.(2)	Costs Operation & Maintenance (3)	Water @ 2 1/2¢/bbl.	Total Costs	Net Income	Cumulative Net Income
1965(6mo)	11,800	9,200	23,800	12,960	12,240	15,000	60,200	(36,400)	(36,400)
1966	64,000	50,000	129,000	25,920	24,480	23,200	99,600	29,400	(7,000)
1967	186,000	145,000	374,000	25,920	24,480	30,000	103,400	270,600	263,600
1968	140,000	109,000	281,500	25,920	24,480	15,000	75,400	206,100	469,700
1969	69,000	53,900	139,000	25,920	24,480	9,600	60,000	79,000	548,700
1970	40,000	31,200	80,500	25,920	24,480	5,400	55,800	24,700	573,400
1971	27,000	21,100	54,400	21,600(4)	15,600(5)	3,000	40,200	14,200	587,600
1972	18,700	14,600	37,600	17,280	12,480	1,650	31,410	6,190	593,790
1973	14,027	11,000	28,400	12,960	9,360	900	23,220	5,180	598,970
TOTAL	570,527	445,000	1,148,200	194,400	172,080	103,750	549,230	598,970	

(1) Income \$2.82 per barrel less 8.503% taxes, net \$2.58 per barrel

(2) Combined fixed rate \$90.00 per well per month

(3) Estimated direct charge \$85.00 per well per month

(4) Plugged and Abandoned watered-out wells, 3 per year for 3 years, remaining 12 wells plugged at end of project life

(5) Estimated direct charges reduced to \$65.00 per well per month

21 wells - Plugged & Abandoned 24 wells

H & S Oil Company Operator
West Artesia Grayburg Unit

Signal State E-7179
NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 8 T-18-S R-28-E
Eddy County, New Mexico

Elev. 3623' G. L.

T/Cement 8 5/8 Casing
calculated 37'

8 5/8" surface casing set at
427' w/50. sx

T/cement, 5 1/2"
calculated 1830'

Injection to be fresh
water down 5 1/2" casing

PERFORATIONS
(8) 2236-2238

(32) 2245-2253
2114-2120
2204-2210

TD 2273', 5 1/2"
w/75 sx

H & S Oil Company Unit Operator
West Artesia Grayburg Unit

Mell' Fee #2
SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec 7 T-18-S R-28-E
Eddy County, New Mexico

Elev. 3611' G. L.

T/ Cement 8 5/8 Casing
calculated 70'

8 5/8" surface casing set at
460' w/50 sx

T/cement, 5 $\frac{1}{2}$ "
calculated 1632'

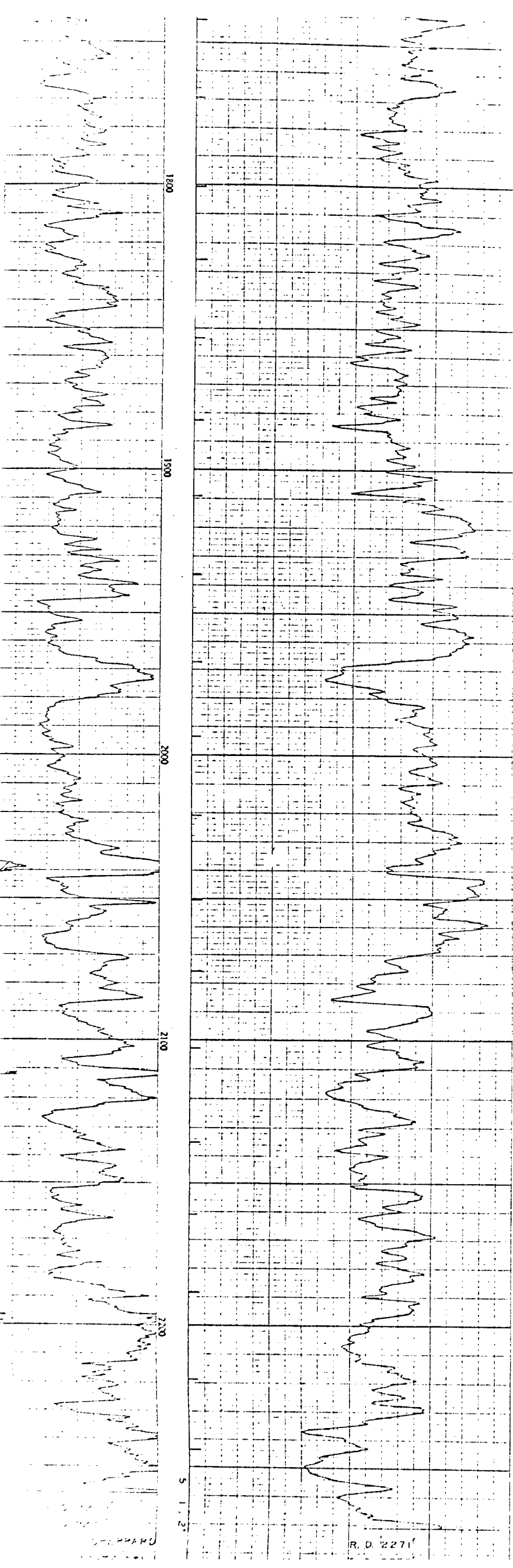
Injection to be fresh
water down 5 $\frac{1}{2}$ " casing

PERFORATIONS

(30) 1942-1952

(21) 2156-2163

TD 2222', 5 $\frac{1}{2}$ "
w/100 sx



THIS FORM CONFORMS TO API RP 33

FORM NO. 758 9 74

LANE WELLS
COMPANYRadioactivity
Log

COMPANY: ROACH & SHEPPARD	Location of Well
WELL: SIGNAL STATE NO. 1	SPOTS
FIELD: ARTESIA	1650 PS-990PWL
COUNTY: EDDY STATE: N.MEX.	
LOCATION: SW 1/4 OF NW 1/4 OF SEC. 8-18S-28E	
LOG MEAS. FROM: CABLE TOOL FLOOR	ELEV. 3366
DRLG. MEAS FROM: CABLE TOOL FLOOR	ELEV. 3366
PERM. DATUM: GROUND LEVEL	ELEV. 3365

TYPE OF LOG	DATE	DATE
ONE-W	ONE-W	ONE-W
10-7-57	10-7-57	10-7-57
DATE	2273	2273
TOTAL DEPTH (DRILLER) S. L.	2272	2272
EFFECTIVE DEPTH (DRILLER)	2272	2272
TOP OF LOGGED INTERVAL	SURFACE	SURFACE
BOTTOM OF LOGGED INTERVAL	2259	2271
TYPE OF FLUID IN HOLE	WATER	WATER
FLUID LEVEL	100	100
MAXIMUM RECORDED TEMP.		100.3
SOURCE STRENGTH & TYPE		13.5
SOURCE SPACING—IN.		13.5
DETECTOR CLASS	SCINT.	SCINT.
DETECTOR TYPE	D621	D621
LENGTH OF MEAS. DEVICE—IN.	4	4
O.D. OF INSTRUMENT—IN.	3 5/8	3 5/8
TIME CONSTANT—SECONDS	2.0-0.9	2.0-0.9
LOGGING SPEED FT./MIN.	30-60	30-60
STATISTICAL VARIATION—IN.	RECORDED	RECORDED
SENSITIVITY REFERENCE	274 J10	D368
RECORDED BY	SUTTON &	CHARKOVIC
WITNESSED BY	ROACH	ROACH

WELL RECORD			
RUN	BIT SIZE	CASING WT.—LB.	FROM WELL RECORD
ONE	8 5/8		SURFACE TO 111
TWO	5 1/2		SURFACE TO 2273
			TO
			TO
			TO

REMARKS OR OTHER DATA

Reproduced By
West Texas Electrical Log Service

Dallas 2, Texas

REFERENCE A7340A

H & S Oil Company Operator
West Artesia Grayburg Unit

Wilson State #1 E-7255
NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec 8 T-18-S R-28-E
Eddy County, New Mexico

Elev. 3631' G. L.

T/ Cement 8 5/8 Casing
calculated 65'

8 5/8" surface casing set at
455' w/50 sx

T/cement, 5 $\frac{1}{2}$ "
calculated 1750'

Injection to be fresh
water down 5 $\frac{1}{2}$ " casing

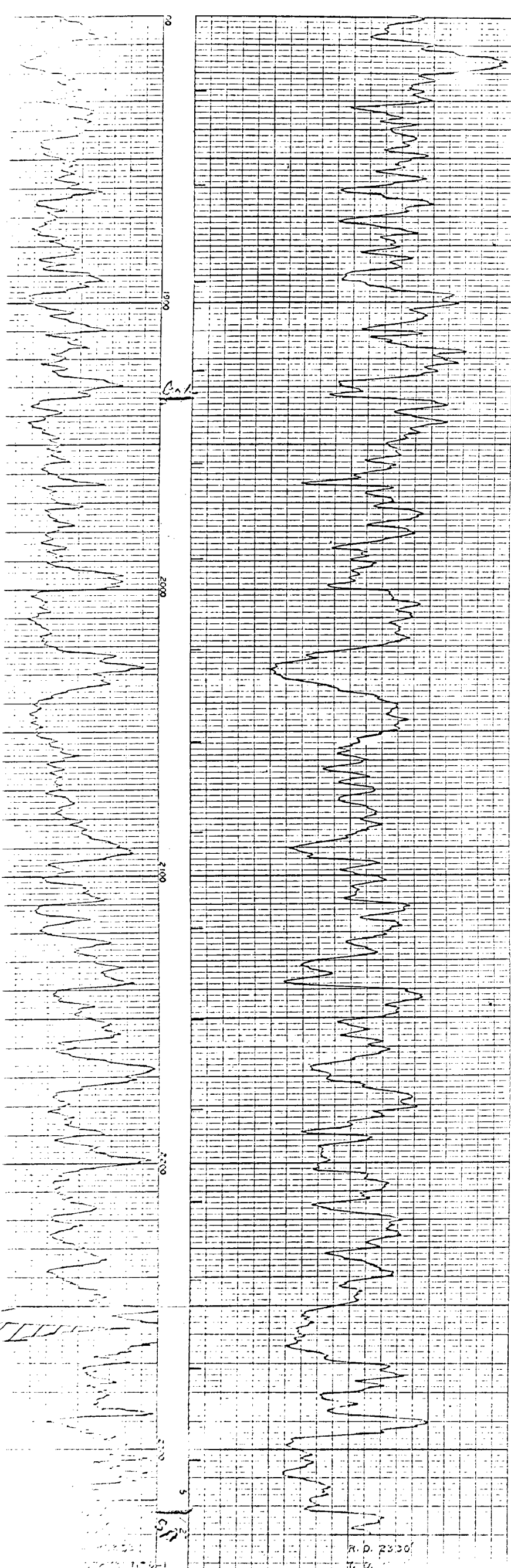
PERFORATIONS

(40) 2024-2034

(40)

2130-2140
2197-2222
2253-2258
2260-2265

TD 2340', 5 $\frac{1}{2}$ "
w/ 100 sx



LANE WELLS COMPANY

Radioactivity Log

COMPANY: SIDS & RESE	Well Location
WELL: WILSON STATE NO. 8-1	
FIELD: ARTESIA	
LOCATION: 330' F.W. & 330' F.W. OF SEC. 8	
COUNTY: EDDY	STATE: N. MEX.
LOG ZERO: TOP CABLE TOOL FLOOR	ELEV. 3633
DRLG. ZERO: TOP CABLE TOOL FLOOR	ELEV. 3633
PERM. DATUM: GROUND LEVEL	ELEV. 3631

TYPE OF LOG	GALPHA RAY	N/NEUTRON
RUN NO.	ONE-NV	ONE-NV
DATE	2-1-58	2-1-58
TOTAL DEPTH (DRILLER) S. L.	2340	2340
EFFECTIVE DEPTH (DRILLER)	2331	2331
TOP OF LOGGED INTERVAL	SURFACE	SURFACE
BOTTOM OF LOGGED INTERVAL	2338	2338
TYPE OF FLUID IN HOLE	WATER	WATER
FLUID LEVEL	74'	
MAXIMUM RECORDED TEMP.		51.043
SOURCE STRENGTH & TYPE		13.5
SOURCE SPACING - IN.		13.5
DETECTOR CLASS	SCINT.	SCINT.
DETECTOR TYPE	NaI	NaI
LENGTH OF MEAS. DEVICE - IN.	4	4
O.D. OF INSTRUMENT - IN.	3 5/8	3 5/8
TIME CONSTANT - SECONDS	2.0-0.9	2.0-0.9
LOGGING SPEED FT./MIN.	30-60	30-60
STATISTICAL VARIATION - IN.	RECORDED	RECORDED
SENSITIVITY REFERENCE	C933	E368
RECORDED BY	HURST &	SUTTON
WITNESSED BY	SPENCER	SPENCER

WELL RECORD			
RUN	BIT SIZE	CASING WT.-LB.	FROM WELL RECORD
ONE	10	8 5/8	SURFACE TO 153
ONE	8	5 1/2	SURFACE TO 2338
			TO
			TO
			TO

REMARKS OR OTHER DATA

Reproduced By
West Texas Electrical Log Service
Dallas 2, Texas

REFERENCE A7732B

9 COMPLETION RECORD

SPUD DATE

COMP DATE

R.D. 2330'

H & S Oil Company Operator
West Artesia Grayburg Unit

Spurk #1 - B6043
SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec 7 T-18-S R-28-E
Eddy County, New Mexico

Elev. 3620' G.L.

20'

20'

T/ Cement 8 5/8 Casing
calculated 67'

8 5/8" surface casing set at
457' w/ 50 sx

20'

20'

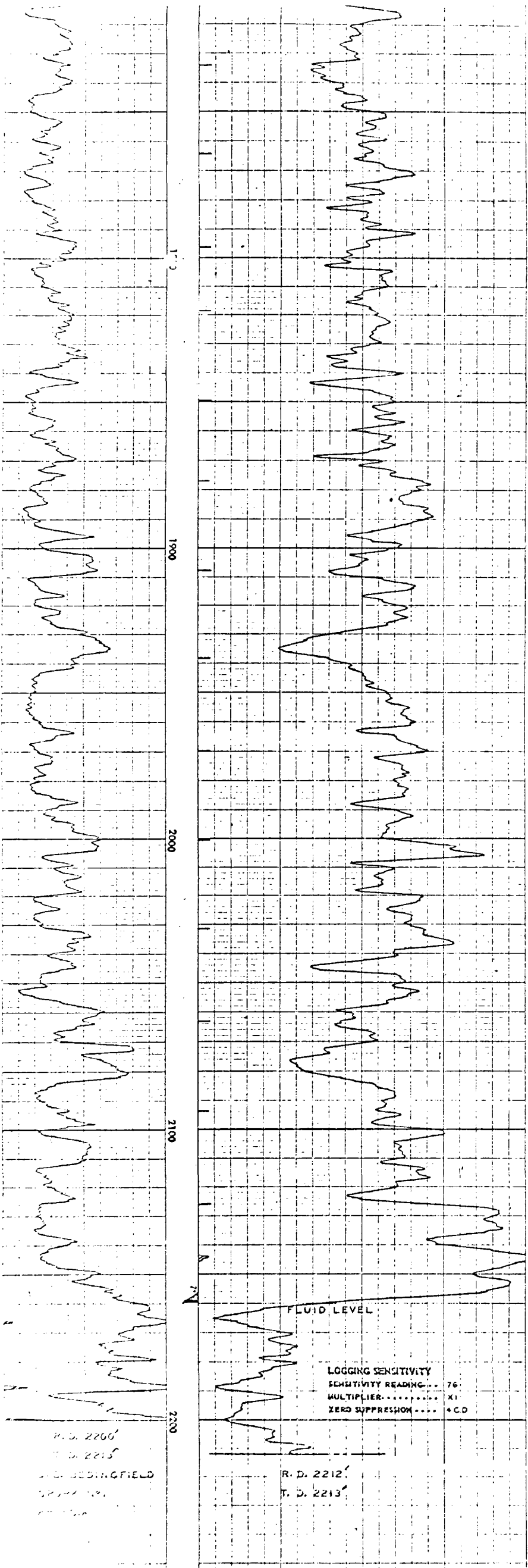
T/cement, 7'
calculated 1515'

Injection to be fresh
water down 7" casing

PERFORATIONS 2165-2235

TD 2165', 7'
w/ 65 sx

Open hole to 2235



LANE WELLS
A DIVISION OF DRESSER INDUSTRIES INC.

Radioactivity Log

COMPANY: J. E. BEDINGFIELD
WELL: SPIRIT NO. 1
FIELD: ARTESIA
LOCATION: SE. OF NE. OF SEC. 7, T. 12N, R. 2E
COUNTY: SUTTER STATE: N. MEX.
LOG ZERO: TOP 7" CASING
DRLG. ZERO: 238 7" CASING
PERM. DATUM: TOP 7" CASING

TYPE OF LOG	GAMMA RAY	N/NEUTRON
RUN NO.	ONE-OW	ONE-OW
DATE	2-12-59	2-12-59
TOTAL DEPTH (DRILLER) RACK	2235	2235
EFFECTIVE DEPTH (DRILLER)	2220	2220
TOP OF LOGGED INTERVAL	SURFACE	SURFACE
BOTTOM OF LOGGED INTERVAL	2200	2212
TYPE OF FLUID IN HOLE	OIL	OIL
FLUID LEVEL		2150
MAXIMUM RECORDED TEMP.		
SOURCE STRENGTH & TYPE		S10A3
SOURCE SPACING - IN.		13.2
DETECTOR CLASS	SCINT.	SCINT.
DETECTOR TYPE	DMG1	DMG1
LENGTH OF MEAS. DEVICE - IN.	1	1
O.D. OF INSTRUMENT - IN.	3 5/8	3 5/8
TIME CONSTANT - SECONDS	2.5-2.9	2.5-2.9
LOGGING SPEED FT./MIN.	30-60	30-60
STATISTICAL VARIATION - IN.	RECORDED	RECORDED
SENSITIVITY REFERENCE	C933	D368
RECORDED BY	COPELAND	COPELAND
WITNESSED BY	BEDINGFIELD	

RUN	BIT SIZE	CASING	WT.-LB.	WELL RECORD	FROM WELL RECORD	FROM LOG
ONE	7	20		SURFACE	TO 2165	SURFACE TO 2159.5
					TO 2220	2159.5 TO 2213
					TO	TO
					TO	TO
					TO	TO

* ELEVATION UNAVAILABLE. REMARKS OR OTHER DATA

Reproduced By

H & S Oil Company Operator
West Artesia Grayburg Unit

Humble State #1 B-11539
SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec 8 T-18-S R-28E
Eddy County, New Mexico

Elev. 3632' G. L.

T/ Cement 8 5/8 Casing
calculated 50'

8 5/8" surface casing set at
440' w/50 sx

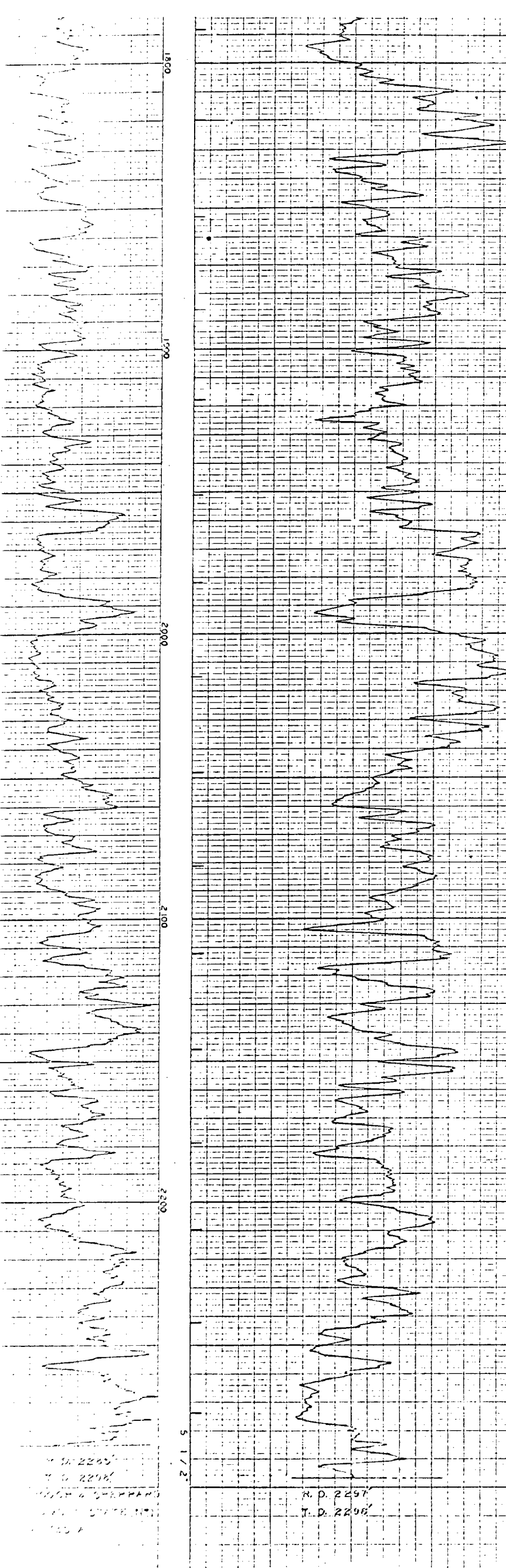
T/cement, 5 1/2"
calculated 1724'

Injection to be fresh
water down 5 1/2" casing

PERFORATIONS
(16) 1988-96

(40) 2265-75

TD 2314', 5 1/2"
w/100 sx



Radioactivity Log

COMPANY: ROOCH & SHEPPARD		Well Location
WELL: HUMBLE STATE NO. 1		
FIELD: ARTESIA		
LOCATION: 2310' FUL & 1980' FUL OF SEC. 8		
COUNTY: TARRANT STATE: TEXAS		
LOG ZERO: CABLE TOOL FLOOR	ELEV. 3633	
DRUG. ZERO: CABLE TOOL FLOOR	ELEV. 3633	
PERM. DATUM: GROUND LEVEL	ELEV. 3631	

TYPE OF LOG	G.M.A. PAX	M. HANCOCK
RUN NO.	ONE-TWO	ONE-TWO
DATE	12-21-57	12-21-57
TOTAL DEPTH (DRILLER) S. F.	2314	2314
EFFECTIVE DEPTH (DRILLER)	2312	2312
TOP OF LOGGED INTERVAL	1400	1400
BOTTOM OF LOGGED INTERVAL	2285	2297
TYPE OF FLUID IN HOLE	WATER	WATER
FLUID LEVEL	FULL	FULL
MAXIMUM RECORDED TEMP.		
SOURCE STRENGTH & TYPE		SLCA3
SOURCE SPACING - IN.		13.5
DETECTOR CLASS	SCINT.	SCINT.
DETECTOR TYPE	NaI	NaI
LENGTH OF MEAS. DEVICE - IN.	4	4
O.D. OF INSTRUMENT - IN.	3 5/8	3 5/8
TIME CONSTANT - SECONDS	2.0-0.9	2.0-0.9
LOGGING SPEED FT./MIN.	30-60	30-60
STATISTICAL VARIATION - IN.	RECORDED	RECORDED
SENSITIVITY REFERENCE	274 J.M.	1368
RECORDED BY	CRKOVIC	CRKOVIC
WITNESSED BY	ROACH	ROACH

WELL RECORD			
RUN	BIT SIZE	CASING WT.-LB.	FROM WELL RECORD
ONE	8		SURFACE TO 1400
TWO	5 1/2		SURFACE TO 2314
			TO
			TO
			TO

FROM LOG	
SURFACE TO 1400	
SURFACE TO 2298	
TO	
TO	
TO	

REMARKS OR OTHER DATA

Reproduced By
West Texas Electrical Log Service
Dallas 2, Texas

REFERENCE A7335E

6 COMPLETION RECORD

H & S Oil Company Operator
West Artesia Grayburg Unit

Signal State OG-5851
SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec 8 T-18-S R-28-E
Eddy County, New Mexico

Elev. 3635 G.L.

20

20

T/ Cement 8 5/8" Casing
calculated 82'

8 5/8" surface casing set at
472' w/50 sx

20

20

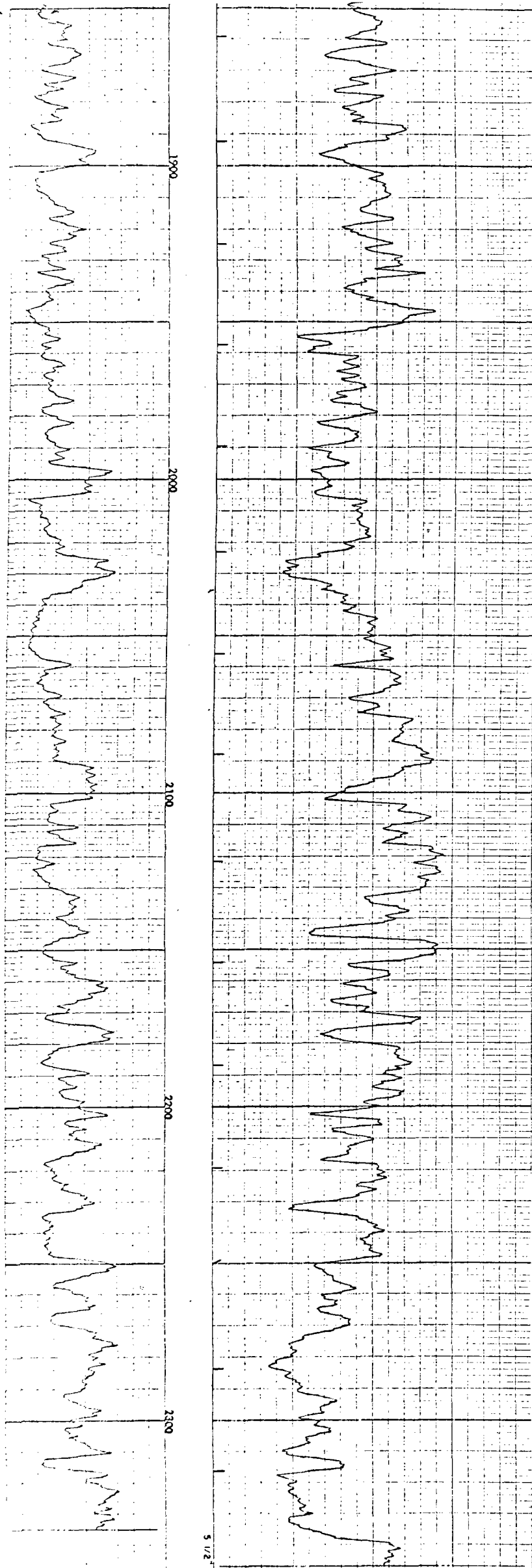
T/cement, 5 1/2"
calculated 1758'

Injection to be fresh
water down 5 1/2" casing

PERFORATIONS
(16) 2316-2320

(32) 2024-2032

TD 2348' , 5 1/2"
w/100 sx



LAND & WATSON

FILE NO. _____ COMPANY KINCAID & WATSON

WELL SIGNAL NO. 1

FIELD ARTESIA

COUNTY EDDY STATE NEW MEXICO

LOCATION: 2310' FNL & 990' FEL Other Services _____

SEC. 8 TWP. 18-S RGE. 20-E

Permanent Datum GROUND LEVEL Elev. 3635 Elevations
Log Measured from DERRICK FLOOR - 2 Ft. Above Permanent Datum KB 3637
Drilling Measured from DERRICK FLOOR GL 3635

Date	<u>5-30-62</u>	<u>5-30-62</u>
Run No.	<u>ONE NW</u>	<u>ONE NW</u>
Type Log	<u>GAUSS RAY</u>	<u>N/NEUTRON</u>
Depth-Driller	<u>2359</u>	<u>2359</u>
Depth-Logger	<u>2348</u>	<u>2348</u>
Bottom Logged Interval	<u>2335</u>	<u>2347</u>
Top Logged Interval	<u>SURFACE</u>	<u>SURFACE</u>
Type Fluid in Hole	<u>OIL</u>	<u>OIL</u>
Salinity Ppm Cl.		
Density Lb. Gal		
Level	<u>FULL</u>	<u>FULL</u>
Max. Rec. Temp. Deg. F.		
Oper. Rig Time		
Recorded By	<u>DAVIS</u>	<u>DAVIS</u>
Witnessed By	<u>MR. LAMB & WATSON</u>	

Run No.	Bit	Bore Hole Record		Size	Wgt.	Casing Record	
		From	To			From	To
1	10 3/4"	SURF.	472	8 5/8"		SURF.	472
1	8"	472	2359	5 1/2"		SURF.	2354

Reproduced By
West Texas Electrical Log Service
Dallas 2, Texas

REFERENCE A10780



8 COMPLETION RECORD

SPUD DATE

R. O. 2347
T. O. 2348

R. O. 2347
T. O. 2348

KINCAID & WATSON
P.O. BOX 100
DALLAS, TEXAS 75201

H & S. Oil Company Operator
West Artesia Grayburg Unit

Leonard State Fee
NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec 17 T-18S R-28-E
Eddy County, New Mexico

Elev. 3611 G. L.

T/ Cement 8 5/8 Casing
calculated 1170'

8 5/8" surface casing set at
1506' w/50' sk

T/cement, 5 1/2"
calculated 1727'

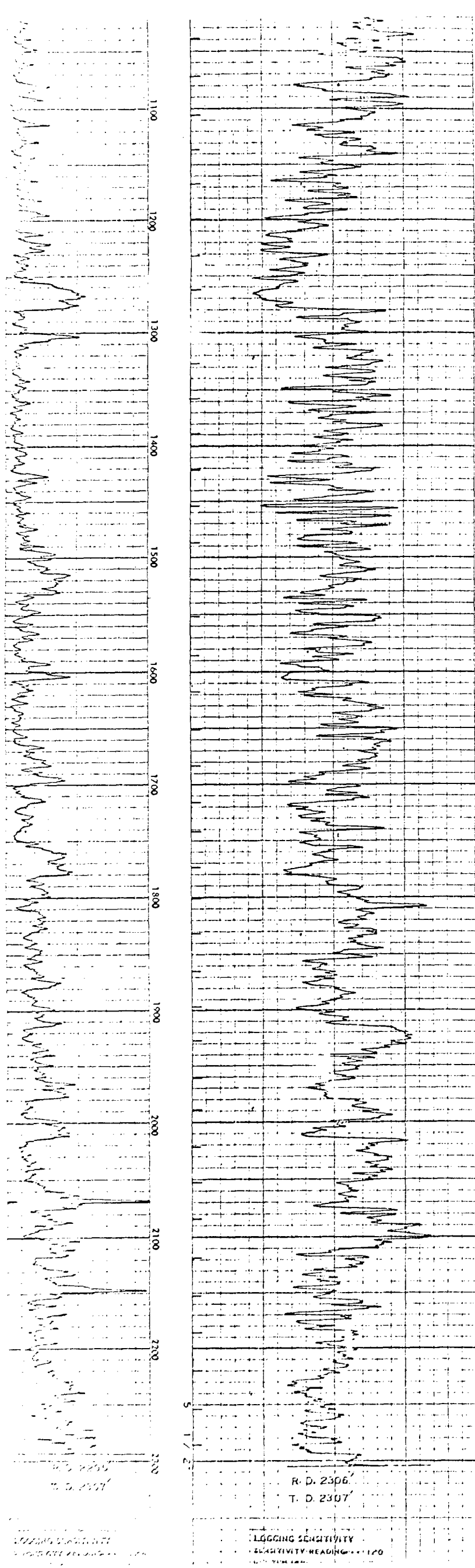
Injection to be fresh
water down 5 1/2" casing

PERFORATIONS

2115-2117

2231-2235
2267-2269
2277-2279

TD 2317', 5 1/2"
w/100' sk



W. T. E. L. S. I.

FILE NO. _____

COMPANY ROACH DRILLING COMPANY

WELL LEONARD NO. 1

FIELD ARTESIA

COUNTY EDDY STATE NEW MEXICO

LOCATION: NW 1/4 OF NW 1/4 Other Services _____

SEC 17 TWP 18-S RGE 26-E

Permanent Datum GROUND LEVEL Elev. _____ KB _____

Log Measured from GROUND LEVEL 2 ft. Above Permanent Datum DF _____

Drilling Measured from GROUND LEVEL GL _____

Date	5-4-60	5-4-60	5-4-60
Run No.	ONE	ONE	ONE
Type Log	WATER RAY	N/NEUTRON	CLAYTON
Depth-Driller	2305	2305	2200
Depth-Logger	2307	2307	2200
Bottom Logged Interval	2235	2306	2200
Top Logged Interval	SURFACE	SURFACE	1400
Type Fluid in Hole	WATER	WATER	WATER
Salinity Ppm Cl.			
Density lb. Gal.			
Level		345	
Max. Rec. Temp. Deg. F			
Opr. Rig Time	2 1/2 HOURS		
Recorded By	REED	REED	REED
Witnessed By	ROACH	ROACH	ROACH

Bore Hole Record				Casing Record			
No.	Bit	From	To	Size	Wgt.	From	To
1				5 1/2"		SURFACE	2300

Reproduced By
West Texas Electrical Log Service
Dallas 2, Texas

REFERENCE A9983B

8 COMPLETION RECORD

SPUD DATE _____

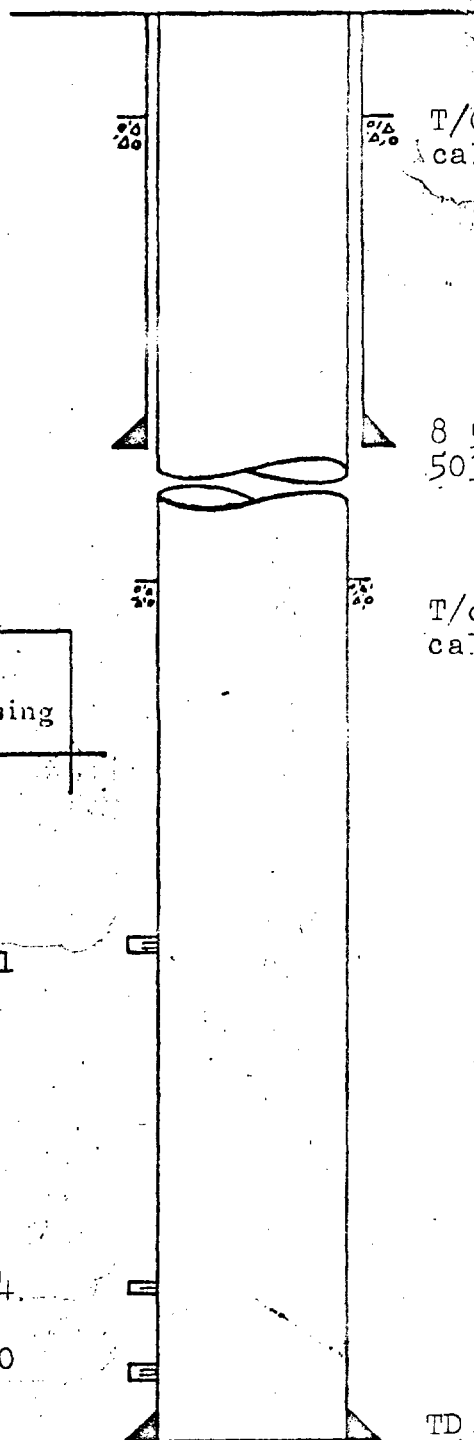
COMP DATE _____

DST RECORD _____

H & S Oil Company Operator
West Artesia Grayburg Unit

Tenneco State E-2715
NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec 8 T-18-S R-28-E
Eddy County, New Mexico

Elev. 3628' G. L.



T/Cement 8 5/8" Casing
calculated 113'

8 5/8" surface casing set at
503' w/50 sx.

T/cement, 5 1/2"
calculated 1375'

Injection to be fresh
water down 5 1/2" casing

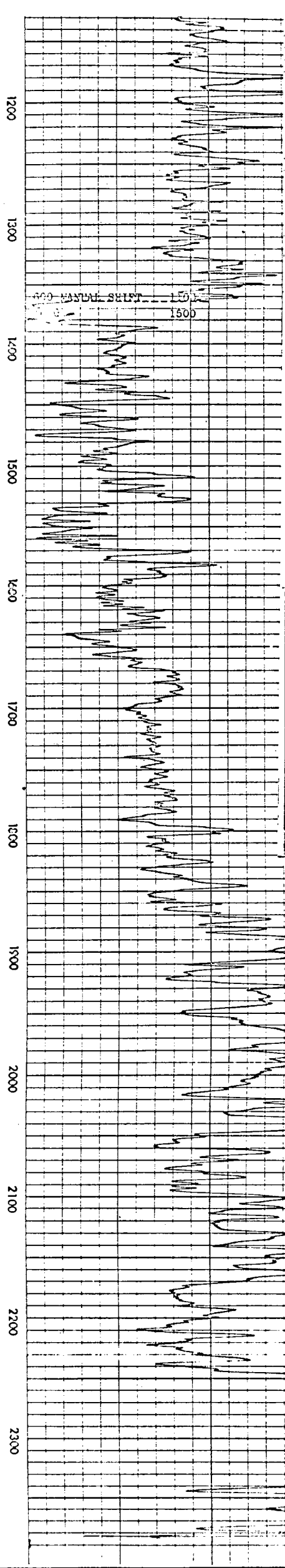
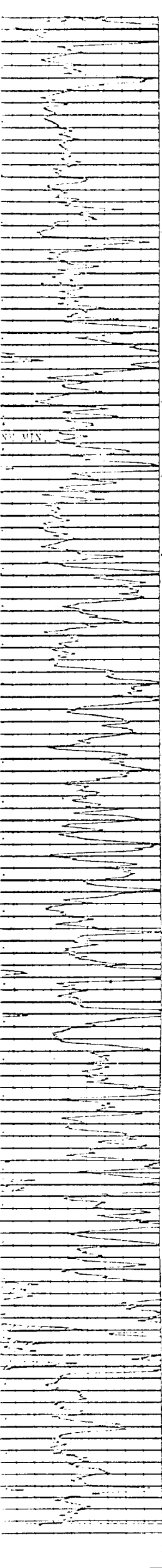
PERFORATIONS :

(44) 2090-2101

(56) 2170-2184

(24) 2204-2210

TD 2260', 5 1/2"
w/ 150'



WELEX



COMPANY LEONARD OIL COMPANY

WELL STATE E 2715 #1
FIELD ARTESIA
COUNTY EDDY
STATE NEW MEXICO

COMPANY LEONARD OIL COMPANY
WELL STATE E 2715 #1
FIELD ARTESIA
COUNTY EDDY STATE NEW MEXICO
Location 990' F/NL
990' F/WL
Other Logs NONE
Sec. 8 Twp. 18-S Rge. 28-E
Elevation

Tennessee

Permanent Datum GROUND LEVEL Elev. 3596'
Log Measured From DERRICK FLOOR
Drilling Measured From DERRICK FLOOR

Type Log	GAMMA	N GAMMA
Run No.	ONE	ONE
Date	5-15-58	5-15-58
Total Depth Driller	2385'	2385'
Present Depth Driller	2385'	2385'
Total Depth Welox	2372'	2382'
Survey Begins	2372'	2382'
Survey Ends	0'	10'
Mud Data		

Type Fluid in Hole DRY
Salinity PPM Cl
Weight lb./gal.
Fluid Level
Max. Hole Temp.

Recorded By P. C. HARRIS
Witnessed By F. HIX

BORE HOLE RECORD				CASING RECORD			
Run	Bit	From	To	Size	Wgt.	From	To
-1-	10"	SURF.	500'	8 5/8"		SURF.	500'
	8"	300'	2382'				

LOGGING TOOL DATA
Truck No. 321-4018 Inst. Truck No. 321-4018 Tool Serial No. 2031
Tool Model No. 2000 Dia. 3 5/8" Log Type NEUTRON-GAMMA
Detector Model No. 2000 Dia. 3 5/8" Tool Model No. 2000 Dia. 3 5/8"
Type GEIGER-MUELLER Length 28" Detector Model No. 2000 Dia. 3 5/8"
Distance To N. Source 120" Type GEIGER-MUELLER Length 14"
Reference Literature: WELEX RADIOACTIVITY LOGGING Source Model No. 18
BULLETIN A-126 Spacing 18" Serial No. 18
Type RADIUM-BERYLLIUM
Strength 400 MG

LOGGING DATA				Gamma Ray Setting				Neutron Setting			
Depth	From	To	Speed	T. C.	Sensitivity	Zero	Scale	T. C.	Sensitivity	Zero	Scale
	2382'	1364'	* 2	90 CPS	0 CPS	5"=100'	2	1000 CPS	1000 CPS	5"=100'	
	1364'	1300'	* 2	90 CPS	0 CPS	5"=100'	2	1000 CPS	600 CPS	5"=100'	
	1300'	1364'	* 2	90 CPS	0 CPS	5"=100'	2	1000 CPS	1000 CPS	2"=100'	
	1364'	0'	* 2	90 CPS	0 CPS	5"=100'	2	1000 CPS	600 CPS	2"=100'	

Calibration Data GAMMA STANDARD 188 CPS. NEUTRON STANDARD 766 CPS.
REMARKS: THIS LOG MADE WITH F.M. EQUIPMENT.
*RECORDED SPOTS ON LEFT INDICATE GR. LOGGING SPEED.

LEONARD OIL COMPANY
STATE E 2715 #1
ARTESIA FIELD
EDDY COUNTY, NEW MEXICO

T.D. LOGGED 2382'
T.D. DRILLER 2385'
T.D. REACHED 2382'

H & S Oil Company Operator
West Artesia Grayburg Unit

Tenneco State 4-2715
NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec 8 T18S R28E
Eddy County, New Mexico

Elev 3628 G.L.

*Calc ant tops
based on 100%
fill up*

*will inject
250 bbl/well
@ about 800 psi
max*

Injection to be fresh
water down 5 $\frac{1}{2}$ " casing

T/cement 8 5/8" casing;
calculated 113'

8 5/8" surface casing set
at 503', w/50' sx

T/cement 5 $\frac{1}{2}$ "
calculated 1375'

*will pressure
test csq @ 1600 psi*

PERFORATIONS

44 2090-2101

*any well
indicating csq leak
shall be equipped
with tubing & packer*

56
24

2170-2184
2204-2210

BEFORE EXAMINER NUTTER

OIL CONSERVATION COMMISSION

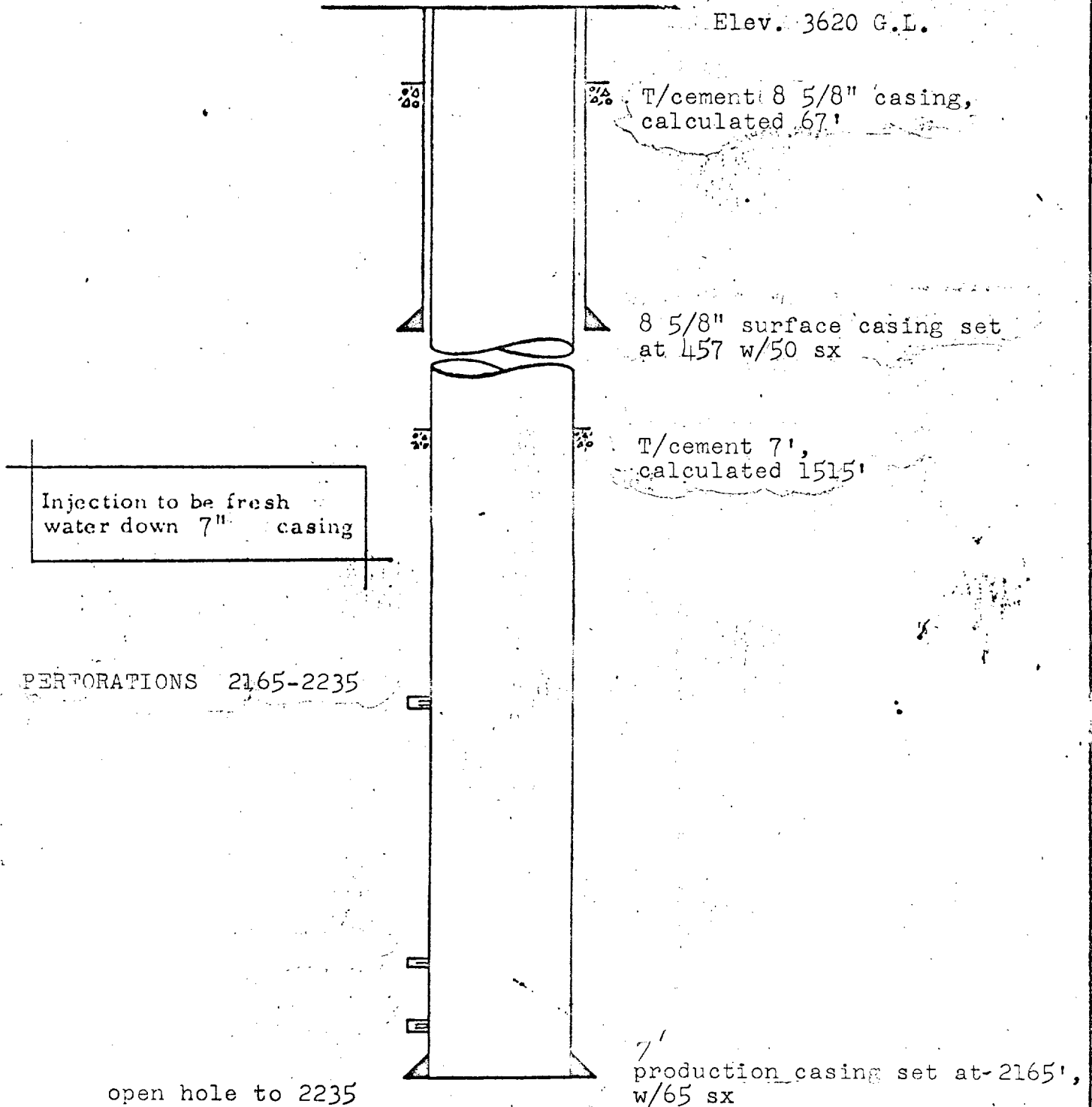
APP EXHIBIT NO. 6

CASE NO. 3698 + 3699

TD 2260, 5 $\frac{1}{2}$ ", w/150sx

H & S Oil Company Operator
West Artesia Grayburg Unit

Spurk #1 B6043
SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec 7 T18S R28E
Eddy County, New Mexico



H & S Oil Company Operator
West Artesia Grayburg Unit

Humble State #1 B-11539
SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec 8 T18S R28S
Eddy County, New Mexico

Elev. 3632 G.L.

$\frac{20}{40}$

$\frac{20}{40}$

T/cement 8 5/8" casing,
calculated 50'

8 5/8" surface casing set
at 140', w/50 sx

$\frac{20}{40}$

$\frac{20}{40}$

T/cement 5 1/2"
calculated 172'

Injection to be fresh
water down 5 1/2" casing

PERFORATIONS

16

1988-1996

40

2265-2275

TD 2314, 5 1/2" w/100 sx

H & S Oil Company Operator
West Artesia Grayburg Unit

Signal State OG-5851
SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 8 T18S R28E
Eddy County, New Mexico

Elev. 3635 G.L.

T/cement 8 5/8" casing,
calculated 82'

8 5/8" surface casing set
at 472', w/50' sx

T/cement 5 1/2"
calculated 1758'

Injection to be fresh
water down 5 1/2" casing

PERFORATIONS
16 2316-2320

32 2024-2032

TD 2348', 5 1/2", w/100' sx

H & S Oil Company Operator
West Artesia Grayburg Unit

Signal State E-7179
NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 8 T18S R28E
Eddy County, New Mexico

Elev. 3623 G.L.

T/cement 8 5/8" casing,
calculated 37'

8 5/8" surface casing set
at 427', w/50' sx

T/cement 5 1/2"
calculated 1830'

Injection to be fresh
water down 5 1/2" casing

PERFORATIONS
8

2236-2238

32

2245-2253
2114-2120
2204-2210

TD 2273', 5 1/2", w/75' sx

H & S Oil Company Operator
West Artesia Grayburg Unit

Wilson State #1 E-7255
NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec 8 T18S R28E
Eddy County, New Mexico

Elev. 3631 G.L.

T/cement 8 5/8" casing,
calculated 65'

8 5/8" surface casing set
at 455', w/50 sx

T/cement 5 1/2"
calculated 1750'

Injection to be fresh
water down 5 1/2" casing

PERFORATIONS

40 2024-2034

40

2130-2140
2197-2222
2253-2258
2260-2265

TD 2340', 5 1/2", w/100sx

H & S Oil Company Operator
West Artesia Grayburg Unit

Mell Fee #2
SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 7 T18S R28E
Eddy County, New Mexico

Elev. 3611 G.L.

T/cement 8 5/8" casing,
calculated 70'

8 5/8" surface casing set
at 460', w/50 sx

T/cement 5 1/2",
calculated 1632'

Injection to be fresh
water down 5 1/2" casing

PERFORATIONS

30 1942-1952

21 2156-2163

TD2222', 5 1/2", w/100 sx

H & S Oil Company Operator
West Artesia Grayburg Unit

Leonard State Fee
NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec 17 T18S R28E
Eddy County, New Mexico

Elev 3611 G.L.

T/cement 8 $\frac{5}{8}$ " casing,
calculated 1170'

8 $\frac{5}{8}$ " surface casing set
at 1506', w/50 sx

T/cement 5 $\frac{1}{2}$ "
calculated 1727'

Injection to be fresh
water down 5 $\frac{1}{2}$ " casing

PERFORATIONS 2115-2117

2231-2235
2267-2269
2277-2279

TD 2317, 5 $\frac{1}{2}$ ", w/100 sx

3694



FIGURE IV

R-28-E

3699

T-18-S

18

17

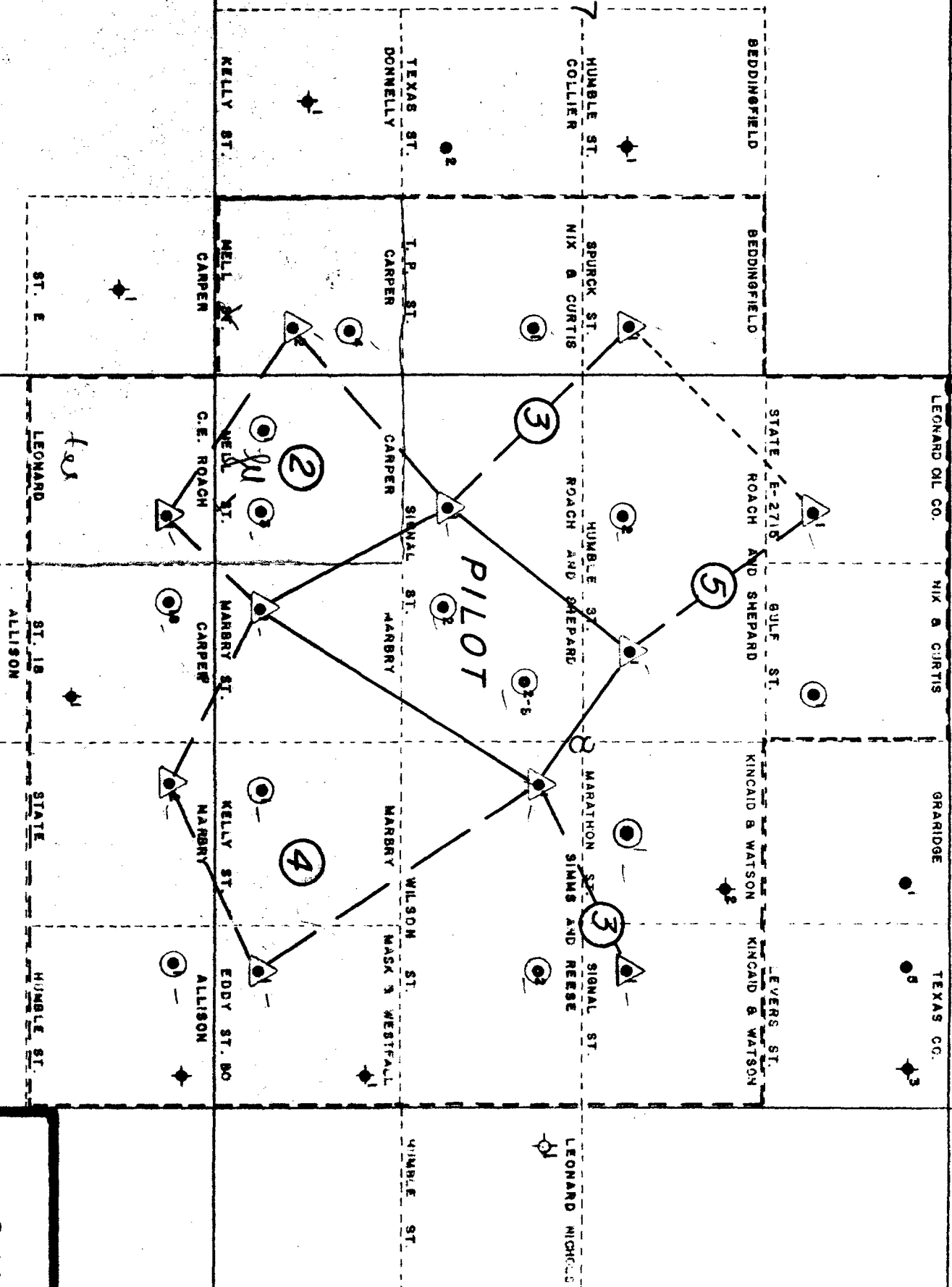
WATERFLOOD DEVELOPMENT PLAN

SIMMS AND REESE
OIL COMPANY

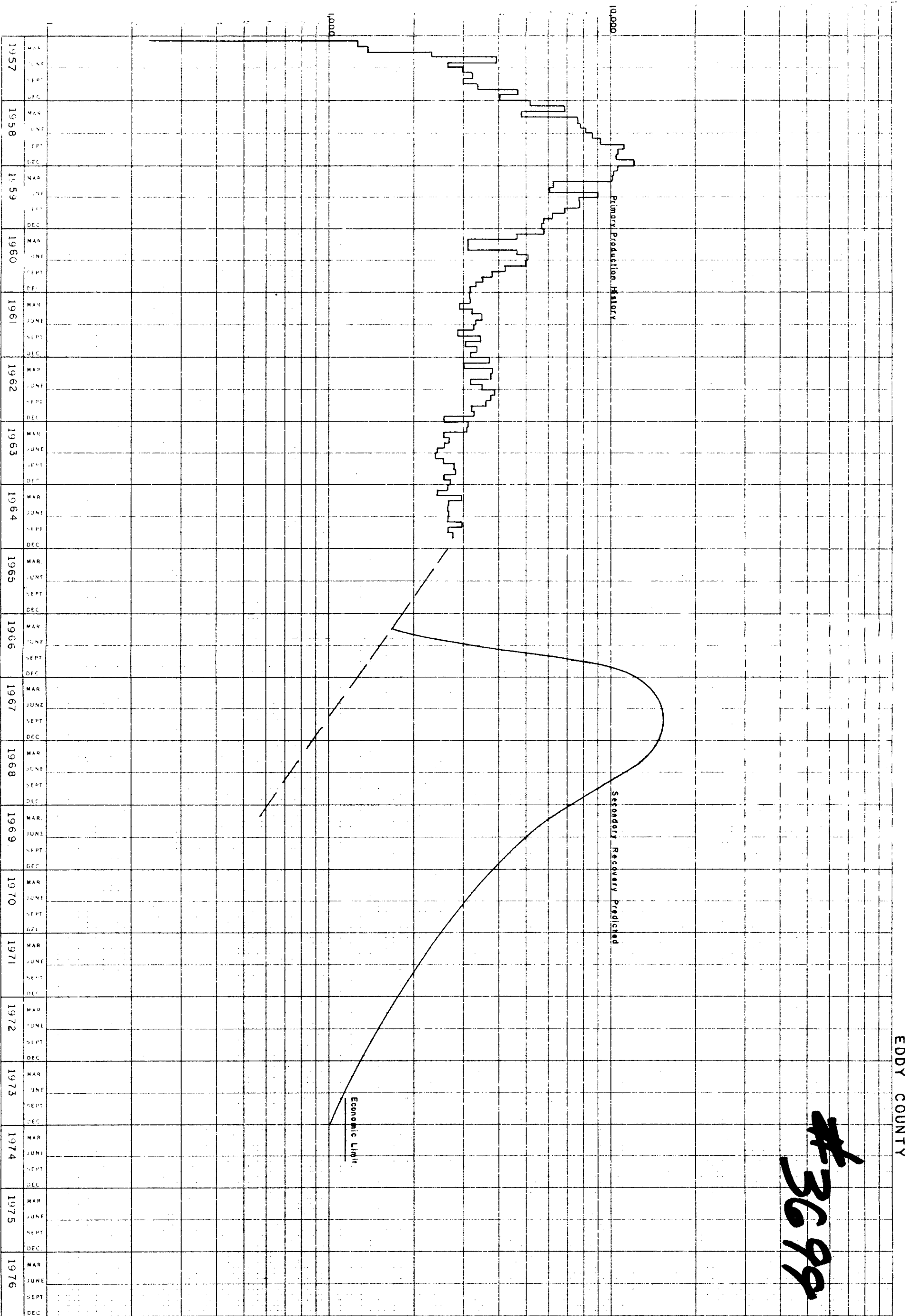
WEST ARTESIA POOL

- PROPOSED UNITIZED AREA
- PROPOSED PRODUCING WELLS
- ▲ PROPOSED INJECTION WELLS

FIGURE 11



PRODUCTION BARRELS PER MONTH



WEST ARTESIA POOL
EDDY COUNTY

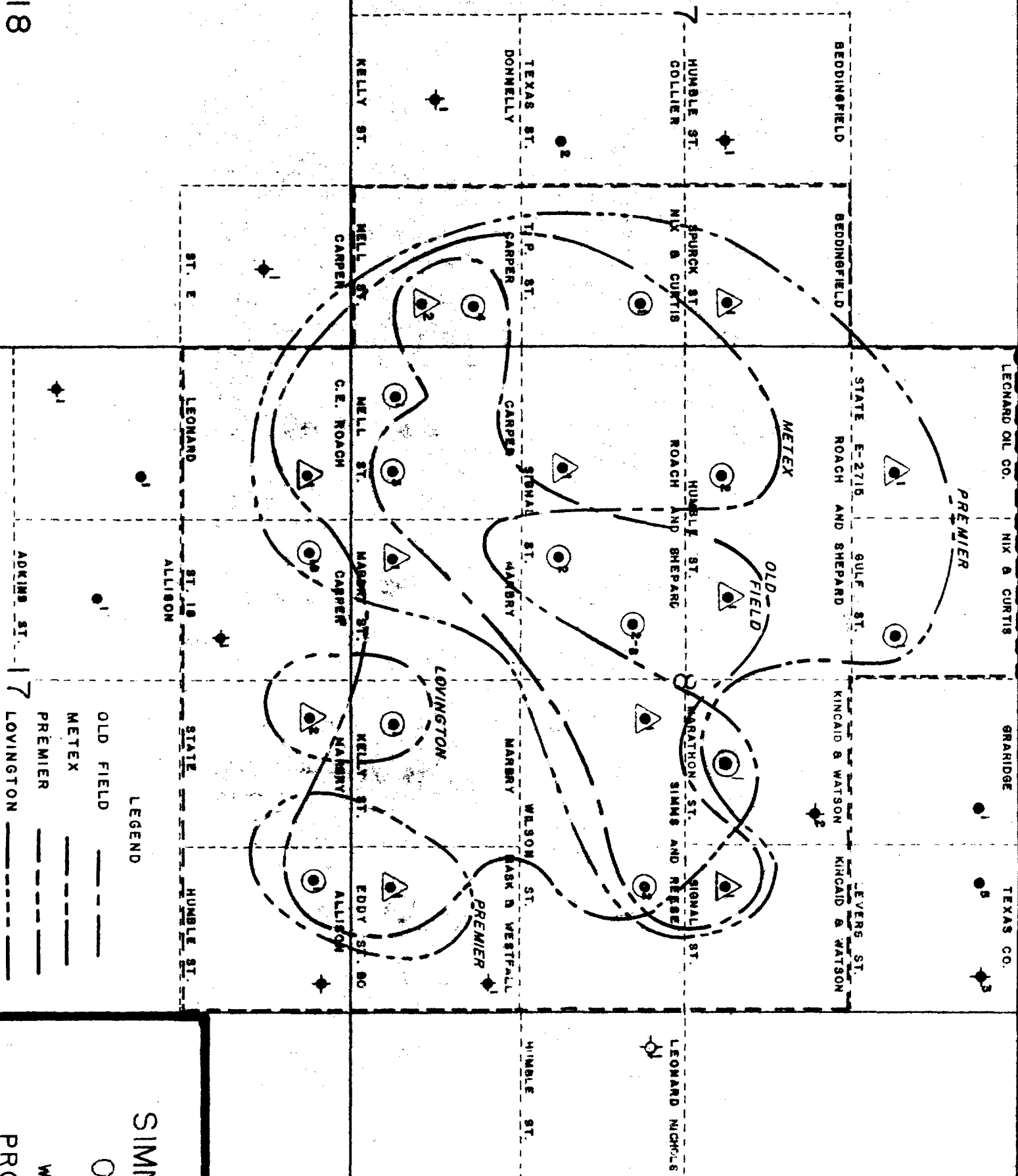
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R-28-E

#3699

T-18-S

18



SIMMS AND REECE
OIL COMPANY
WEST ARTESIA POOL
PRODUCTIVE LIMITS

--- PROPOSED UNITIZED AREA
● PRODUCING WELLS
▲ PROPOSED INJECTION WELLS

FIGURE III

TABLE VIII
SECONDARY RECOVERY ECONOMICS - LEASES
West Artesia Pool

Fred M. ALLISON Humble State		J. E. BEDDINGFIELD Spurck		CARPER DRILLING CO. Moll State 18		DONNELLY DRILLING CO. Eddy State 1 Eddy State 2		KELLY STATE State E-2175		LEONARD OIL CO. Eddy State BO		MASK & WESTALL Gulf State D T.P. State		NIX & CURTIS Humble State Leonard State		RACH DRILLING CO. Signal State		SIMMS & REESE Wilson State		KINCAID & WATSON DRILLING CO Marathon State Signal State		POOL TOTAL	
GROSS INCOME																							
Phase I 1965(6 mo.)		887	442	655	302	814	1,821	-0-	419	186	146	618	2,403	-0-	4,033	4,335	1,924	4,815	23,800				
1966		4,810	2,397	3,553	1,635	4,410	9,872	-0-	2,272	1,005	794	3,348	13,024	-0-	21,860	23,494	10,430	26,096	129,000				
Phase II 1967		10,960	17,354	35,134	13,997	20,385	27,690	3,411	7,099	4,915	7,434	14,450	55,265	4,047	66,363	60,744	5,397	19,355	374,000				
1968		8,250	13,062	26,444	10,535	15,343	20,842	2,569	5,343	3,699	5,595	10,876	41,596	3,046	49,950	45,720	4,062	14,568	281,500				
1969		4,073	6,450	13,058	5,202	7,576	10,291	1,268	2,638	1,827	2,763	5,371	20,540	1,504	24,665	22,576	2,006	7,192	139,000				
1970		2,359	3,735	7,562	3,013	4,388	5,960	734	1,528	1,058	1,600	3,110	11,895	871	14,284	13,075	1,162	4,166	80,500				
1971		1,594	2,524	5,110	2,036	2,965	4,028	496	1,033	715	1,081	2,102	8,039	589	9,653	8,835	785	2,815	54,400				
1972		1,101	1,745	3,532	1,407	2,049	2,784	343	714	494	747	1,453	5,566	407	6,672	6,107	543	1,946	37,600				
1973		832	1,318	2,668	1,063	1,548	2,107	259	539	373	565	1,097	4,195	307	5,036	4,613	410	1,470	28,400				
TOTAL		34,866	49,027	97,716	39,190	59,478	85,395	9,080	21,585	14,272	20,725	42,425	162,513	10,771	202,516	189,499	26,719	82,423	1,148,200				
TOTAL COSTS																							
Phase I 1965(6 mo.)		483	241	357	165	443	992	-0-	228	101	80	336	1,308	-0-	2,196	2,360	1,048	2,622	12,960				
II 1966		1,384	2,192	4,438	1,768	2,575	3,486	431	897	621	939	1,825	6,981	511	8,382	7,673	682	2,445	47,240				
Phase I 1967		967	482	714	328	886	1,984	-0-	456	202	160	673	2,617	-0-	4,392	4,721	2,096	5,242	25,920				
II 1968		2,159	3,419	6,922	2,757	4,016	5,455	672	1,399	968	1,465	2,947	10,888	797	13,074	11,967	1,063	3,812	73,680				
Phase II 1967		3,030	4,798	9,714	3,870	5,636	7,655	943	1,963	1,359	2,055	3,994	15,279	1,119	18,348	16,794	1,492	5,351	103,400				
1968		2,210	3,499	7,083	2,822	4,110	5,582	688	1,431	991	1,499	2,913	11,142	816	13,378	12,246	1,088	3,902	75,400				
1969		1,758	2,784	5,636	2,245	3,270	4,442	547	1,139	788	1,193	2,318	8,866	649	10,647	9,747	866	3,105	60,000				
1970		1,635	2,589	5,242	2,088	3,041	4,131	509	1,059	733	1,109	2,156	8,245	604	9,903	9,063	805	2,888	55,800				
1971		1,178	1,865	3,776	1,504	2,191	2,976	367	763	528	799	1,553	5,941	435	7,134	6,530	580	2,080	40,200				
1972		920	1,457	2,951	1,175	1,712	2,326	286	596	413	624	1,214	4,641	340	5,574	5,102	453	1,626	31,410				
1973		680	1,077	2,181	869	1,266	1,719	212	441	305	462	897	3,432	251	4,120	3,771	335	1,202	23,220				
TOTAL		16,404	24,403	49,014	19,591	29,146	40,758	4,655	10,372	7,009	10,385	20,726	79,340	5,522	97,148	89,974	10,508	34,275	549,230				
NET INCOME																							
1965(6mo.)		(- 980)	(-1,991)	(-4,140)	(-1,631)	(-2,204)	(-2,667)	(- 431)	(- 706)	(- 536)	(- 873)	(-1,543)	(-5,886)	(- 511)	(-6,545)	(-5,698)	194	(- 252)	(-36,400)				
1966		1,684	(-1,504)	(-4,083)	(-1,450)	(- 482)	2,433	(- 672)	417	3,556	5,379	10,456	39,986	2,928	4,394	6,806	7,271	17,042	29,400				
1967		7,930	12,556	25,420	10,127	14,749	20,035	2,468	5,136	2,708	4,096	7,963	30,454	2,928	36,672	33,974	3,905	14,004	270,600				
1968		6,040	9,563	19,361	7,713	11,233	15,260	1,881	3,912	1,039	1,570	3,053	11,674	855	14,018	12,829	1,140	10,666	206,100				
1969		2,315	3,666	7,422	2,957	4,306	5,849	721	1,499	325	491	954	3,650	267	4,381	4,012	357	4,087	79,000				
1970		724	1,146	2,320	925	1,347	1,829	225	469	91	123	239	2,098	154	2,519	2,305	205	735	24,700				
1971		416	659	1,334	532	774	1,052	129	270	187	282	549	915	67	1,098	1,005	90	320	14,200				
1972		181	238	581	232	337	458	57	118	81	103	200	763	56	916	842	75	268	6,190				
1973		152	241	487	194	282	388	47	98	68	103	200	763	56	916	842	75	268	5,180				
TOTAL		18,462	24,624	48,702	19,599	30,332	44,637	4,425	11,213	7,263	10,340	21,699	83,173	5,249	105,368	99,525	16,211	48,148	598,970				

3699