1R - 279

REPORTS

DATE:

1992-1991

VACUUM FIELD WATERFLOW COMMITTEE

1991 TECHNICAL REPORT

and

1992 CONTINGENCY PLAN

Committee Member Companies:

ARCO OIL AND GAS COMPANY

CONOCO, INC.

MARATHON OIL COMPANY

MOBIL PRODUCING TEXAS AND NEW MEXICO

PHILLIPS PETROLEUM COMPANY

TEXACO EXPLORATION AND PRODUCTION, INC.

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LIST OF ATTACHMENTS

VACUUM FIELD WATERFLOW COMMITTEE

In accordance with the 1991 Contingency Plan for Subsurface Environment Protection, the Vacuum Field Waterflow Technical Committee has monitored all active and accessible Vacuum Field fresh water wells during the past year. It is the Committee's intention to continue the data collection as outlined in the 1992 Contingency Plan.

As outlined in the Contingency Plan, corrective actions have continued since 1989 for the increased chlorides noted in Texaco's CVU WSW #3 lowering the chloride content over 10-fold. Phillips also continued their efforts into the first quarter regarding SPS Well #28 located within Phillips' EVGSAU acreage. Further details follow in both Phillips' and Texaco's individual company summaries.

No significant pressure changes were noted during the year in the three Salado monitor wells. One of these wells, Texaco's CVU #91, was plugged and abandoned mid-year due to downhole casing problems. Pressure in the salt section is now being monitored by two wells only.

The surveys conducted by each operator on Vacuum Field injection wells are summarized in the table below. Other surveys conducted are so noted in the individual company summaries. Also listed are the 1991 wells drilled in the Vacuum area.

Operator	Wells Examined	Falloffs	Surveys Inj. Profiles	Step-Rate Tests	Wells Drilled
ARCO	0	-	-	-	0
Conoco	1	0	1	1	0
Mobil	33	0	0	33	0
Phillips	25	4	22	0	1
Texaco	7	0	6	1	8
TOTALS	66	4	29	35	9

The map prior to the Attachments section highlights the above drilling activity and details casing point information, particularly Rustler leak-off test data. Those wells with casing set in the Rustler were drilled out (10+ feet) and pressured until fluid leak-off or to a predetermined surface pressure limit as a means of quantifying the anhydrite's integrity. The one waterflow encountered is also noted.

ARCO OIL AND GAS COMPANY

ARCO Oil and Gas Company fully supports the work of the Vacuum Waterflow Committees in their effort to monitor and preserve the water quality in the Ogallala aquifer. ARCO's involvement in addressing the Vacuum waterflow situation is primarily as a non-operating working interest owner. However, ARCO does operate the State Vacuum Unit, a small 800 acre waterflood on the western edge of the field. During 1991, ARCO has injected only produced water at the State Vacuum Unit. ARCO also monitors a fresh water well within the Vacuum Field.

CONOCO, INC.

In support of the Vacuum Field Waterflow Committee efforts to monitor and preserve the water quality in the Ogallala aquifer, Conoco completed the following work on its sole injector in 1991:

On January 3, 1991, a step rate test was performed on the State H-35 No. 15 injector to determine the optimum injection rate and pressure. Based on the results of the test, the formation parted at a wellhead pressure of 1880 psig. Subsequently, the NMOCD authorized Conoco to increase the surface pressure on State H-35 No. 15 to 1800 psig, thereby allowing an increase in injection rate.

Additionally, State H-35 No. 15 was surveyed on August 6, 1991 to verify that the injection profile is within the San Andres interval. The results of the survey showed all injection going in zone. The shut-in survey showed no channeling above the perforations and no packer leak.

MOBIL PRODUCING TEXAS AND NEW MEXICO

Mobil has been an active member of the Vacuum Waterflow Committee since 1977. To continue the preservation of the Ogallala Aquifer water quality, tests were conducted in three technical categories during 1991 to monitor the conditions of the salt section waterflow. These tests include step-rate tests, fresh water sampling, and salt section pressure monitor wells.

Step-rate tests were conducted on 33 Abo injection wells. Each test indicated that the surface injection pressures were below the formation parting pressure. Thus, out-of-zone injection is not suspected in these wells.

At the end of each quarter, 13 active water supply wells on Mobil acreage were sampled for chloride content. To date, the recorded chloride levels do not indicate any fresh water contamination. A year-end analysis was also run to look for any other contaminants. These tests did not indicate any hydrocarbon or other chemical intrusion.

Bridges State #6, located in Section 23, T-17-S, R-34-E, is the Mobil salt section monitor well. During 1991, the tubing pressure averaged 820 psi and the casing pressure averaged 0 psi.

During 1991, Mobil continued a program to P&A or temporarily abandon idle wellbores on the Bridges State lease. During 1991, ten wells were plugged and abandoned.

Mobil presented a plan in 1987 to reduce the water injection in the Bridges State San Andres Waterflood to a volume no greater than the volume of produced water. A disposal permit for the State Sec 27 #2 SWD was granted and water disposal commenced in June, 1990. Currently 9000 BWPD from Mobil operated leases in the Vacuum Field are being disposed into the SWD well. This has allowed the injection-to-withdrawal ratio on the Bridges State San Andres COOP waterflood to be reduced to a 1:1 ratio. This ratio was maintained through October, 1991, when all injection ceased into the San Andres.

Mobil began to depressurize the San Andres underlying the Bridges State lease with the backflow of Bridges State Nos. 56 and 64 WIW. Throughout 1991, additional wells have been added until currently all San Andres WIW wells are being backflowed. The current withdrawal rate from the 21 wells is 950 BWPD. Total cumulative barrels of salt water backflowed from the Bridges State San Andres lease is approximately 500,000 barrels.

PHILLIPS PETROLEUM COMPANY

Phillips actively supports the monitoring of our East Vacuum Grayburg/San Andres Unit (EVGSAU), Vacuum Abo Unit (VAU), Hale and Mable Lease injection wells to preserve the water quality in the Ogallala aquifer. Phillips has seen no material changes in the identified fresh water well chlorides and will continue its current testing and quality control practices.

Phillips drilled one new well in the Vacuum Field, EVGSAU 3332-003, as a monitor well for the unit's current foam-injectant project. No Salado waterflow was encountered while drilling this well and the Rustler leak-off test exceeded the 2000 psi pressure limit.

Injection profiles were run on 22 EVGSAU wells and confirmed the injectant remained in zone without severe behind-pipe channelling or packer leakage. Pressure falloff tests, four total, were done in conjunction with the above noted project and in efforts to evaluate changes in the reservoir pressure. Other well work to preserve the Salado integrity included a shallow-depth casing repair job in one EVGSAU well. No remedial work of this nature was required in VAU, Hale, or Mable wells.

Efforts were continued into the first quarter concerning the Southwest Public Service (SPS) Well No. 28 located within the EVGSAU boundaries. At this point, the chloride content has been sufficiently reduced and the well is shut-in pending further disposition arrangements between SPS and Phillips.

TEXACO, INC.

Texaco remained actively involved in the Vacuum Field Waterflow Committee during 1991 in order to insure the integrity of the fresh water aquifer is maintained. To this end, Texaco continued the monitoring of 26 fresh water wells, ran six injection well profiles, and one step-rate-test in the Vacuum Field area in 1991.

The injection surveys did not indicate that any water was channeling upwards behind the casing. Six injection wells in the Vacuum Grayburg San Andres Unit were given increased injection pressure allowables based on step rate test results.

Texaco continued production from its two recovery wells which were drilled in 1990. Chloride concentrations have continued to decline, and are presently measuring approximately 4000 ppm.

Texaco drilled eight wells in the Vacuum Field during 1991. No major waterflows were encountered. Twelve wells were plugged and abandoned during the past year, including monitor well CVU No. 91.

LEA

17S-34E

17S-35E

18S-34E

18S-35E

MOBIL BRIDGES STATE

ARCO STATE VACUUM

TEXACO WEST VACUUM

TEXACO CENTRAL VACUUM

PHILLIPS EAST VACUUM (GRAYBURG/SAN ANDRES)

TEXACO (GRAYBURG/SAN ANDRES) UNIT

2100 2200 2300 2400 2500 2600

A B C D E F G H

1

KEY TO LEAK-OFF TEST WELLS

A = 2812#BHP
B = 1604#BHP
C = 1604#BHP
D = 1580#BHP
E = 1583#BHP
F = 1596#BHP
G = 1612#BHP
H = 1644#BHP

KEY TO WATERFLOW WELLS

1 = 2085'/30 BWPH

Mobil 86/12/04 PRELIMINARY TOP RUSTLER

LAST 5 DIGITS OF API # POSTED ABOVE WELL SYMBOL

RUSTLER STRUCTURE VALUES POSTED BELOW WELL SYMBOL

LEGEND

- OIL & GAS COMP.
- GAS WELL
- DRY HOLE
- OIL WELL
- WATER INJECTION WELL
- PLUGGED AND ABANDONED
- UNKNOWN

INDEX

● 1991 DRILL WELLS WITH RUSTLER LEAK-OFF TEST RUN.
(MAXIMUM BOTTOM HOLE PRESSURE TEST INDICATED)

■ 1991 DRILL WELLS WITH WATER FLOWS
(DEPTH AND MAXIMUM RATE INDICATED)

[redacted]

VACUUM FIELD WATERFLOW
GEOLOGICAL-GEOPHYSICAL COMMITTEE

VACUUM FIELD AREA
Lea County, New Mexico
1991 ACTIVITY
PRELIMINARY TOP RUSTLER
C.I. : 20'

1/92

L-MD-17,266-C

ATTACHMENT NO. 1

VACUUM FIELD
LEA COUNTY, NEW MEXICO

1992 CONTINGENCY PLAN FOR SUBSURFACE ENVIRONMENT PROTECTION

PREFACE

The water injection project operators in the Vacuum Field plan to monitor the integrity of the Ogallala formation water to protect the subsurface environment of the field from possible degradation caused by pressured water in the Salado formation. This monitoring program should promptly identify subsurface problems.

Geological investigations, as well as NMOCD regulated well completion techniques, give evidence that there is minimal likelihood of contamination of the Ogallala formation by the water in the Salado. However, in the unlikely event that the pressured water escapes from the Salado formation, the plan also lays out active steps to confine the problem area, to identify and rectify the cause, and to restore the area.

VACUUM FIELD
LEA COUNTY, NEW MEXICO

CONTINGENCY PLAN FOR SUBSURFACE ENVIRONMENT PROTECTION

I. MONITOR

A. Sample and analyze all active and accessible fresh water wells quarterly. (Attachment No. 5 is a field plat showing the approximate location of these wells.)

(Attachment No. 2 is 1991 fresh water well chloride data.)

1. Wells will be produced prior to sampling to insure a representative sample is obtained.

2. Analysis will be performed by an independent lab or chemical company.

B. Conduct quarterly surface pressure checks of monitor wells completed in the Salado Section (Attachment No. 3).

C. Report drilling activity quarterly, specifically as to the existence or nonexistence of waterflows and their shut-in surface pressure. Rustler leak-off test data will also be reported (Attachment No. 4).

D. Submit all data to the Technical Committee for compilation and comparison. A quarterly report will be sent to the OCD Director, the Hobbs District Supervisor of the OCD and the Management Committee members.

VACUUM FIELD
LEA COUNTY, NEW MEXICO

CONTINGENCY PLAN FOR SUBSURFACE ENVIRONMENT PROTECTION

II. ACTION

If a fresh water sample shows an abnormal increase in chlorides, the following actions are to be taken:

A. Notify OCD and all Field Project Operators.

B. Begin producing contaminated water at maximum rate and retest for verification.

C. Sample and shut in all uncontaminated offset fresh water wells; obtain shut-in fluid level.

D. Reduce surface fluid injection pressures on all injection wells within a half-mile radius to 0 psi.

E. Begin testing the areal extent of the contamination and searching for the source.

Options available:

1. Perforate existing nearby wellbores opposite Ogallala.

2. Drill test wells.

F. Identify source and repair or eliminate.

G. Deplete area of contaminated water:

1. Produce to surface with following disposal options:

a. Existing disposal wells and systems.

b. Current injection projects.

c. Perforate existing wellbores in the lower San Andres for additional disposal capacity.

2. Subsurface depletion and disposal by simultaneous completions in common wellbores of the Ogallala, Santa Rosa, Dewey Lake and/or Salado with the lower San Andres disposal zone.

H. Increase fresh water well sampling frequency in and around the contaminated area.

1992

VACUUM FIELD INJECTION PROJECT OPERATORS

TELEPHONE LIST

ARCO OIL AND GAS COMPANY	OFFICE	HOME
1. K. L. Sherman	505-392-1620	505-392-2336
2. C. D. Owens	915-688-5344	915-694-2946
3. D. K. Newell	915-688-5446	915-694-2748
CONOCO, INC.		
1. D. Rogers	505-676-2375	915-684-7457
2. F. E. Patton	915-686-6569	
3. J. B. Bradberry	915-686-5437	
MOBIL PRODUCING TEXAS AND NEW MEXICO		
1. D. L. Phipps	505-393-3315	505-396-6169
2. R. P. Pratt	915-524-1800	915-524-5554
PHILLIPS PETROLEUM COMPANY		
1. D. T. Thorp	505-397-5710	505-397-1662
2. S. H. Oden	505-397-5539	505-392-1159
3. R. M. Sulak	915-368-1650	915-683-7971
TEXACO, INC.		
1. P. W. Minchew	505-393-4031	505-392-5703
2. J. A. Head	505-393-7191	505-392-2961
3. R. S. Pool	505-393-7191	505-392-4642

Fresh Water Wells
Location
Vacuum Field
Lea County, New Mexico 1992

I.D.	WELL DESCRIPTION	APPROXIMATE WELL LOCATION
1.	Texaco VGSAU Supply Well #1	1380' FNL & 1980' FEL Sec02-18S-34E
2.	*Texaco VGSAU Supply Well #2	1120' FNL & 1520' FEL Sec02-18S-34E
3.	*Texaco VGSAU Supply Well #3	1100' FNL & 210' FWL Sec01-18S-34E
4.	Texaco VGSAU Supply Well #4	700' FSL & 1500' FWL Sec02-18S-34E
5.	Texaco CVU Supply Well #1 (redrill)	236' FSL & 325' FWL Sec30-17S-35E
6.	Texaco CVU Supply Well #2	330' FNL & 1980' FWL Sec06-18S-35E
7.	*Texaco CVU Supply Well #3	10' FNL & 160' FWL Sec06-18S-35E
8.	Texaco Buckeye Office Well	330' FNL & 1980' FEL Sec01-18S-34E
9.	Texaco Gas Plant Water Well	500' FSL & 1900' FEL Sec36-17S-34E
10.	Buckeye Store Water Well	800' FSL & 300' FEL Sec25-17S-34E
11.	Forklift Ent. Buckeye Station	940' FNL & 380' FWL Sec30-17S-35E
12.	Ranch Windmill	1980' FNL & 2180' FEL Sec06-18S-35E
13.	Ranch Windmill	200' FNL & 2640' FWL Sec12-18S-34E
14.	N.M. Potash Corp. Well #1	1320' FSL & 1520' FWL Sec36-17S-34E
15.	N.M. Potash Corp. Well #5	660' FSL & 1680' FEL Sec34-17S-34E
16.	*N.M. Potash Corp. Well #6	2400' FNL & 1550' FWL Sec27-17S-34E
17.	*N.M. Potash Corp. Well #7	660' FSL & 2180' FWL Sec22-17S-34E
18.	N.M. Potash Corp. Well #8	1320' FSL & 400' FWL Sec31-17S-35E
19.	*Amax Water Well	2500' FNL & 1150' FEL Sec28-17S-34E
20.	Western AG Minerals Well #1	660' FSL & 700' FWL Sec21-17S-34E
21.	Western AG Minerals Well #4	1980' FSL & 300' FEL Sec21-17S-34E
22.	Western AG Minerals Well #5	1700' FNL & 2300' FWL Sec22-17S-34E
23.	Western AG Minerals Well #6	2550' FSL & 1220' FWL Sec22-17S-34E
24.	Western AG Minerals Well #7	400' FSL & 2400' FEL Sec21-17S-34E
25.	*Natl. Potash Water Well #7	1650' FSL & 2600' FWL Sec09-18S-35E
26.	*Natl. Potash Water Well #2	550' FSL & 2050' FEL Sec11-18S-34E
27.	Ranch Windmill 'A'	2550' FSL & 1250' FEL Sec15-17S-34E
28.	Western AG Minerals Well #9	200' FNL & 330' FEL Sec22-17S-34E
29.	NVAU #100	2000' FSL & 2100' FEL Sec14-17S-34E
30.	NVAU #101	10' FSL & 330' FWL Sec11-17S-34E
31.	BS #179	700' FSL & 1320' FEL Sec14-17S-34E
32.	BS #94	2550' FNL & 2550' FEL Sec14-17S-34E
33.	Ranch Windmill North	300' FSL & 1600' FEL Sec22-17S-34E
34.	Amax #7	800' FNL & 1850' FEL Sec27-17S-34E
35.	Amax #6	900' FNL & 450' FWL Sec26-17S-34E
36.	Mobil Office Water Well	700' FNL & 2640' FWL Sec25-17S-34E
37.	N.M. Potash Water Well #9	300' FSL & 330' FEL Sec27-17S-34E
38.	*No Name, No Pump	450' FNL & 2250' FEL Sec24-17S-34E
39.	Ranch Windmill 'M'	660' FSL & 2100' FWL Sec07-17S-35E
40.	*No Name, No Pump	600' FSL & 2300' FEL Sec23-17S-34E
41.	*Ranch Windmill	2310' FSL & 760' FWL Sec32-17S-35E
42.	*Ranch Well	2310' FSL & 560' FWL Sec32-17S-35E
43.	*Ranch Well	1090' FNL & 1650' FWL Sec32-17S-34E
44.	*Ranch Well	890' FSL & 990' FWL Sec32-17S-34E

*Inactive Well

Fresh Water Wells
Location
Vacuum Field
Lea County, New Mexico 1992

I.D.	WELL DESCRIPTION	APPROXIMATE WELL LOCATION
45.	Lee Plant Supply Well #1	75' FSL & 2425' FEL Sec30-17S-35E
46.	*Lee Plant Supply Well #2	75' FSL & 1930' FEL Sec30-17S-35E
47.	Lee Plant Supply Well #3	825' FNL & 2310' FEL Sec31-17S-35E
48.	*Lee Plant Supply Well #4	1280' FNL & 1320' FWL Sec31-17S-35E
49.	*Lee Plant Monitor Well #1	260' FSL & 1668' FEL Sec30-17S-35E
50.	*Lee Plant Monitor Well #2	75' FSL & 1426' FEL Sec30-17S-35E
51.	*Lee Plant Monitor Well #3	79' FNL & 1542' FEL Sec31-17S-35E
52.	*Lee Plant Monitor Well #4	53' FNL & 1647' FEL Sec31-17S-35E
53.	Hale Mable Supply Well #SO-1	150' FSL & 2065' FWL Sec31-16S-35E
54.	Hale Mable Supply Well #SO-2	2240' FSL & 2180' FEL Sec35-17S-34E
55.	Ranch Windmill	1100' FNL & 1400' FWL Sec33-17S-35E
56.	Ranch Windmill	450' FSL & 1550' FWL Sec23-17S-35E
57.	EVGSAU Supply Well #2721-SO4	550' FSL & 1850' FWL Sec27-17S-35E
58.	*EVGSAU Supply Well #2941-SO5	1900' FSL & 1900' FWL Sec29-17S-35E
59.	EVGSAU Supply Well #3366-SO6	2100' FNL & 550' FWL Sec33-17S-35E
60.	EVGSAU Supply Well #3202-SO7	600' FSL & 1650' FEL Sec32-17S-35E
61.	EVGSAU Supply Well #2060-SO1	1886' FSL & 2083' FEL Sec20-17S-35E
62.	EVGSAU Supply Well #2865-SO2	1900' FNL & 600' FWL Sec28-17S-35E
63.	*Mobil Supply Well #SO8	300' FNL & 1900' FEL Sec05-18S-35E
64.	*Mobil Supply Well #S09	2300' FNL & 700' FEL Sec24-17S-34E
65.	Ranch Windmill	2300' FNL & 1300' FEL Sec22-17S-35E
66.	*Ranch Windmill	1980' FNL & 660' FEL Sec21-17S-35E
67.	Ranch Windmill	300' FSL & 2100' FWL Sec18-17S-35E
68.	*Water Well	2100' FNL & 660' FWL Sec20-17S-35E
69.	Chevron Doghouse	500' FNL & 660' FWL Sec32-17S-35E
70.	*Exxon Doghouse	500' FNL & 2400' FEL Sec32-17S-35E
71.	Ranch Windmill	2640' FNL & 2640' FWL Sec16-18S-35E
72.	*State Observation Well #1	850' FNL & 475' FEL Sec33-17S-35E
73.	*State Observation Well #4	860' FSL & 1550' FWL Sec35-17S-35E
74.	*State Observation Well #5	1300' FSL & 840' FWL Sec34-17S-35E
75.	*SW Public Service Well #26	1950' FSL & 185' FEL Sec34-17S-35E
76.	*SW Public Service Well #27	2000' FSL & 2625' FEL Sec34-17S-35E
77.	*SW Public Service Well #28	2055' FSL & 100' FEL Sec33-17S-35E
78.	*Phillips Monitor Well #2	Unit I Sec33-17S-35E
79.	*Phillips Monitor Well #4A	Unit L Sec34-17S-35E
80.	Texaco Recovery Well #1	515' FNL & 759' FEL Sec01-18S-34E
81.	Texaco Recovery Well #2	596' FNL & 313' FEL Sec01-18S-34E
82.	NVAU #304	395' FSL & 1076' FWL Sec11-17S-34E

*Inactive Well

ATTACHMENT NO. 2

Fresh Water Wells
Chloride Content
Vacuum Field
Lea County, New Mexico — December, 1991

I.D.	WELL DESCRIPTION	1991 CHLORIDE CONTENT IN PPM 1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
1.	Texaco VGSAU Supply Well #1	296	220	258	284
2.	*Texaco VGSAU Supply Well #2	82			
3.	*Texaco VGSAU Supply Well #3				
4.	Texaco VGSAU Supply Well #4	44	50	36	34
5.	Texaco CVU Supply Well #1	500	460	482	526
6.	Texaco CVU Supply Well #2	55	98	78	114
7.	*Texaco CVU Supply Well #3				
8.	Texaco Buckeye Office Well	88	94	80	97
9.	Texaco Gas Plant Water Well	134	110	90	92
10.	Buckeye Store Water Well	44	55	32	31
11.	Forklift Ent. Buckeye Station	1500	2100	950	1406
12.	Ranch Windmill	28	30	36	30
13.	Ranch Windmill	34	30	40	33
14.	N.M. Potash Corp. Well #1	134	114	106	182
15.	N.M. Potash Corp. Well #5	96	105	70	91
16.	*N.M. Potash Corp. Well #6				
17.	*N.M. Potash Corp. Well #7				
18.	N.M. Potash Corp. Well #8	268	190	230	291
19.	*Amax Water Well				
20.	Western AG Minerals Well #1	76	90	46	68
21.	Western AG Minerals Well #4	28	35	32	30
22.	Western AG Minerals Well #5	80	80	62	75
23.	Western AG Minerals Well #6	42	40	40	41
24.	Western AG Minerals Well #7	36	40	44	30
25.	*Natl. Potash Water Well #7				
26.	*Natl. Potash Water Well #2				
27.	Ranch Windmill 'A'	41	54	5	40
28.	Western AG Minerals Well #9	60	69	55	100
29.	NVAU #100	156	166	190	180
30.	NVAU #101	140	129	140	48
31.	Bridges State #179	43	55	58	57
32.	Bridges State #94	90	90	119	118
33.	Ranch Windmill North	31	39	45	31
34.	Amax #7	58		72	100
35.	Amax #6	59	76	76	74
36.	Mobil Office Water Well	40	49	62	78
37.	N.M. Potash Water Well #9	62	69	80	83
38.	*No Name, No Pump				
39.	Ranch Windmill 'M'	31	42	56	47
40.	*No Name, No Pump				
41.	*Ranch Windmill				
42.	*Ranch Well				
43.	*Ranch Well				
44.	*Ranch Well				

*Inactive Well

Fresh Water Wells
Chloride Content
Vacuum Field
Lea County, New Mexico — December, 1991

Page 2

I.D.	WELL DESCRIPTION	1991 CHLORIDE CONTENT IN PPM 1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
45.	Lee Plant Supply Well #1	86	74	78	74
46.	*Lee Plant Supply Well #2				
47.	Lee Plant Supply Well #3	240	180	208	228
48.	Lee Plant Supply Well #4		90	114	78
49.	*Lee Plant Monitor Well #1				
50.	*Lee Plant Monitor Well #2				
51.	*Lee Plant Monitor Well #3				
52.	*Lee Plant Monitor Well #4				
53.	Hale Mable Supply Well #SO-1	36	36	32	36
54.	Hale Mable Supply Well #SO-2	72	60	78	78
55.	Ranch Windmill	38	34	30	28
56.	Ranch Windmill	32	30	30	30
57.	EVGSAU Supply Well #2721-SO4	58	56		
58.	*EVGSAU Supply Well #2941-SO5				
59.	EVGSAU Supply Well #3366-SO6	56	54	80	66
60.	EVGSAU Supply Well #3202-SO7	50	50	54	54
61.	EVGSAU Supply Well #2060-SO1	74	58	60	52
62.	EVGSAU Supply Well #2865-SO2	46	68	42	48
63.	*Mobil Supply Well #SO8				
64.	*Mobil Supply Well #SO9				
65.	Ranch Windmill	76	74	74	90
66.	*Ranch Windmill				
67.	Ranch Windmill	44	40	40	40
68.	*Water Well				
69.	Chevron Doghouse	34	30	22	22
70.	*Exxon Doghouse				
71.	Ranch Windmill	24	23	26	24
72.	*State Observation Well #1				
73.	*State Observation Well #4				
74.	*State Observation Well #5				
75.	*SW Public Service Well #26	26			
76.	*SW Public Service Well #27	30			
77.	*SW Public Service Well #28	124			
78.	*Phillips Monitor Well #2				
79.	*Phillips Monitor Well #4A				
80.	Texaco Recovery Well #1	24000	5200	5000	3409
81.	Texaco Recovery Well #2	27000	2300	4900	4616
82.	NVAU #304		39	39	39

*Inactive Well

Salado Monitor Wells
Vacuum Field Area
Lea County, New Mexico

December, 1991

OPERATOR	WELL NAME	WELL LOCATION	1991 SURFACE PRESSURE IN PSIG 1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Mobil	Bridges State #6	1980' FSL & 660' FWL Sec. 26-17S-34E	860	860	820	820
Texaco	Central Vacuum Unit Well #91	660' FSL & 1980' FWL Sec. 36-17S-34E	900	800	P&A'd	-
	State "P" Well #1	1980' FSL & 1980' FEL Sec. 7-18S-35E	0	0	0	0

ATTACHMENT NO. 3

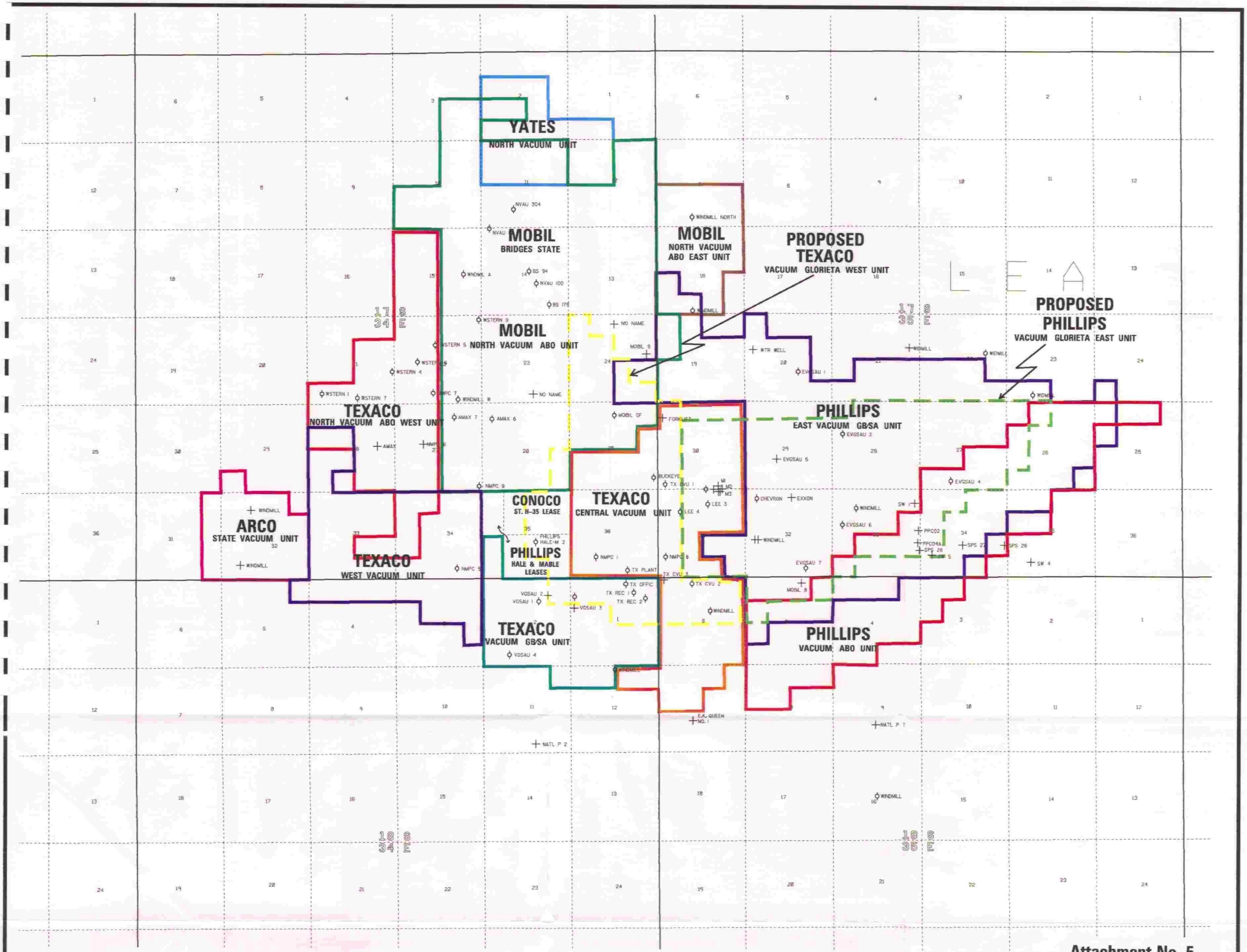
Drilling Activity
Vacuum Field
Lea County, New Mexico

December, 1991

1991 RUSTLER LEAK-OFF TEST RESULTS

OPERATOR	WELL NAME	WELL LOCATION	SURFACE PRES(PSI)	BOTTOM HOLE PRES(PSI)	CASING DEPTH(FT)	ACTUAL TEST TO LEAKOFF
ARCO	-	-	-	-	-	
Conoco	-	-	-	-	-	
Marathon	-	-	-	-	-	
Mobil	-	-	-	-	-	
Phillips	EVGSAU 3332-003	135' FNL & 1534' FEL Sec 33-17S-35E	2000	2812	1617	NO
Texaco	CVU 290	670' FSL & 2630' FWL Sec 36-17S-34E	1000	1596	1550	NO
	CVU 291	660' FSL & 1330' FWL Sec 36-17S-34E	1000	1583	1530	NO
	CVU 345	1310' FSL & 1850' FWL Sec 31-17S-35E	1000	1604	1550	NO
	NM 'L' St. 10	280' FNL & 2080' FEL Sec 01-18S-34E	1000	1612	1550	NO
	NM 'L' St. 11	604' FNL & 856' FEL Sec 01-18S-34E	1000	1644	1550	NO
	NM 'O' St. (NCT-1) 33	2310' FNL & 990' FEL Sec 36-17S-34E	1000	1604	1550	NO
	NM 'N' St. 10	990' FSL & 895' FWL Sec 30-17S-35E	1000	1580	1550	NO
	NM 'R' St. (NCT-1) 12	660' FNL & 2135' FEL Sec 06-18S-35E	1000	1585	1547	NO

ATTACHMENT NO. 4


YATES
NORTH VACUUM UNIT
MOBIL
BRIDGES STATE
MOBIL
NORTH VACUUM ABO EAST UNIT
PROPOSED
TEXACO
VACUUM GLORIETA WEST UNIT
PROPOSED
PHILLIPS
VACUUM GLORIETA EAST UNIT
LEA
17 S
34 E
17 S
35 E
MOBIL
NORTH VACUUM ABO UNIT
TEXACO
NORTH VACUUM ABO WEST UNIT
PHILLIPS
EAST VACUUM GB/SA UNIT
CONOCO
ST. H-35 LEASE
TEXACO
CENTRAL VACUUM UNIT
ARCO
STATE VACUUM UNIT
TEXACO
WEST VACUUM UNIT
PHILLIPS
HALE & MABLE
LEASES
TEXACO
VACUUM GB/SA UNIT
PHILLIPS
VACUUM ABO UNIT
18 S
34 E
18 S
35 E
COPY RIGHTS TOBIN SURVEYS INC.
REPRODUCTION RIGHTS RESTRICTED
OIL WELL
INJECTION
PLUGGED & ABANDONED
SERVICE
ABANDONED W/OIL SHOWS
LOCATION, DRILLING
GAS WELL
OIL AND GAS WELL
PLUGGED & ABANDONED
ABANDONED W/ GAS SHOWS
DRY HOLE
OLD WELL
SCALE
0 2000 4000 1 MI.

Attachment No. 5

Legend	Mobil Exploration & Producing U.S. Inc. Midland
FRESH WATER WELL LOCATIONS ACTIVE INACTIVE	VACUUM FIELD WATERFLOW COMMITTEE LEA COUNTY, NEW MEXICO UNIT BOUNDARY MAP

DB 01/09/92

ATTACHMENT NO. 6

1992

VACUUM FIELD WATERFLOW
MANAGEMENT COMMITTEE

ARCO Oil & Gas Company
C. D. Owens
P. O. Box 1610
Midland, Texas 79702

Conoco, Inc.
Jerry Hoover
10 Desta Drive West
Midland, Texas 79705

Mobil Producing Texas and New Mexico
Guy Miller
P. O. Box 633
Midland, Texas 79702

Phillips Petroleum Company
Bill Mueller
4001 Penbrook
Odessa, Texas 79762

Texaco, Inc.
James Head
P. O. Box 730
Hobbs, New Mexico 88240

ATTACHMENT NO. 7

1992

VACUUM FIELD WATERFLOW
TECHNICAL COMMITTEE

ARCO Oil and Gas Company
David Newell
P. O. Box 1610
Midland, Texas 79702

Conoco, Inc.
Cary Bounds
10 Desta Drive West
Midland, Texas 79705

Marathon Oil Company
Robin Tracy
P. O. Box 552
Midland, Texas 79702

Mobil Producing Texas and New Mexico
Keith Bingham
P. O. Box 633
Midland, Texas 79702

Phillips Petroleum Company
Keith Maberry
4001 Penbrook
Odessa, Texas 79762

Texaco Inc.
Darlene deAragao
David Demel
Russell Pool
P. O. Box 730
Hobbs, New Mexico 88240

Texaco Inc.
HRC (Brian Park)
George Kokolis
P. O. Box 770070
Houston, Texas 77215-0070

ATTACHMENT NO. 8

1992

VACUUM FIELD WATERFLOW
GEOLOGICAL-GEOPHYSICAL COMMITTEE

ARCO Oil and Gas Company
Tim Altum
P. O. Box 1610
Midland, Texas 79702

Mobil Producing Texas and New Mexico
Carl Rounding
P. O. Box 633
Midland, Texas 79702

Phillips Petroleum Company
Jim Brown
4001 Penbrook
Odessa, Texas 79762

Texaco Inc.
Julie Gibbs
P. O. Box 3109
Midland, Texas 79702