1R - 160

REPORTS

DATE:

5/25/1978

PUAL HAMILTON
WATER CONTAMINATION STUDY
MOORE DEVONIAN POOL

REPORT II

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS, NEW MEXICO

John W. Runyan, Geologist
Oil Conservation Division
in cooperation with the
Water Resources Division
Roswell, New Mexico

May 25, 1978

APPENDIX

Location Plat and U.S.G.S. Topo Map

Results of Report II

General Data

Water Rate-Movement Calculations

Test Well Statistics

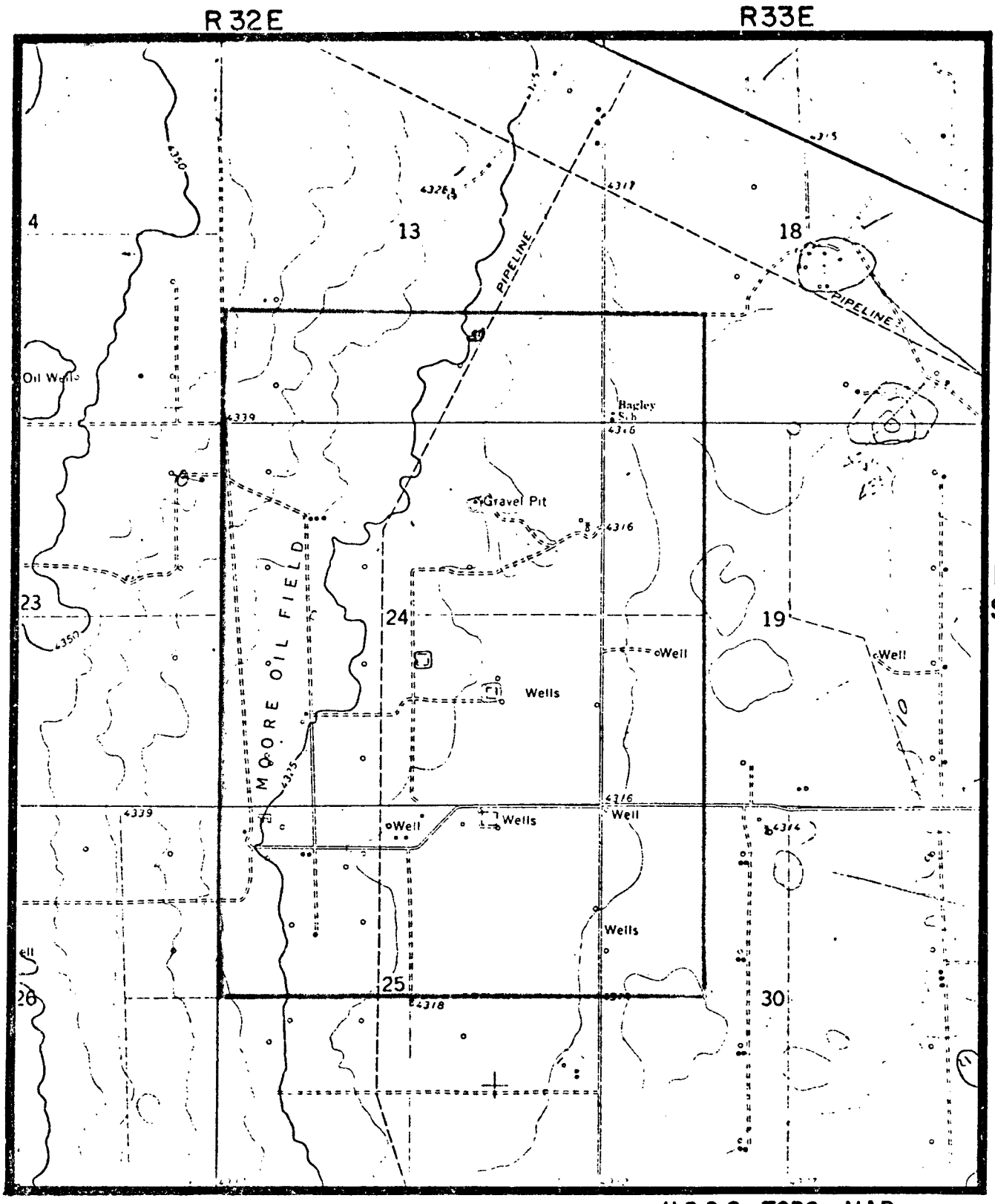
Well Numbering System

Daily Field Reports

Water Analysis

Drillers Logs

Maps -- Water Chloride Map
Water Rate-Movement Map



U.S.G.S TOPO. MAP

PAUL HAMILTON WATER CONTAMINATION STUDY

—— Area of study.

PAUL HAMILTON
WATER CONTAMINATION STUDY
REPORT II

The revised chloride map with the rate-movement map indicates that possibly both the Texaco Inc. SWD well #3 (D-24-11-32) and the Amerada C.W. Robinson lease pit (A-23-11-32) have caused the water contamination problem that exists.

The first water contamination movement has been masked by a second period of contamination which superimposed additional water into an already existing contaminated water flow.

The rate-movement map is based on the estimated lateral water movement (by Water Resources Division) of .8 feet per day x time x distance that contamination has moved. This map shows that Amerada's pit could have caused the original contamination because of the time (25.5 years) and rate (.8 f/d) is almost the same distance (calculation) as the front of the contamination which exists some $\pm$ 8100 feet from the pit, plus the pit had approximately 752,045 barrels of produced water placed in it over a period of 5.5 years. The second chloride contamination period could not have been caused by Amerada's pit; at a rate of .8 f/d the water from the pit should be some $\pm$ 5840 feet away in the 20 years that the pit has not been in use. A chloride high of 28,613 ppm lies 300 feet from the pit and at a rate of .8 f/d this distance computes 1.03 years from pit to TW #12. This high of 28,613 ppm in Texaco's test well #12 is 1075 feet from Texaco's SWD Well #3 and at the rate of .8 f/d it would take 3.7 years to reach this point. This is within the time span of 5.6 years which the SWD well #3 has been operating, and the chloride map shows the main high to be mainly south but around the SWD #3 well.

Refer to Rate-Movement Map and Rate-Movement Calculation Sheet in this report. The above rates are plotted on chloride map.

Texaco's SWD well, the New Mexico "BO" State #3, located in Unit D of Section 24, T11S, R32E, to date,has had two casing leak tests and one tracer survey run. These tests as well as the chloride map and rate-movement map indicate that this well is not leaking at this time.

Texaco, Inc. has re-entered several of their original test wells, such as #4, #5, #15 and #16, and the chloride values of these samples vary greatly in relation to the original chloride analysis on these test hole. This difference is basically due to the fact that these samples were obtained from various depths above TD, not at TD where most of the original samples were obtained.

The data for this report was obtained from the Water Resources Division, Amerada Hess Corporation, Texaco, Inc., and Oil Conservation Division. The Water Resources Division ran water levels, elevations, and back-up water analysis on each test well. Water samples were taken by O.C.D. field people and were analyzed in the Hobbs Office. Amerada Hess Corporation and Texaco, Inc. furnished some data on dates of well completions and beginning dates of SWD operations.

GENERAL DATA

The original report on the Paul Hamilton Water Study was completed on January 9, 1978. Texaco subsequently decided to drill an additional series of test wells, 21 in all. Drilling began February 6, 1978, and was completed April 10, 1978. Several test wells were re-entered and last work by Texaco was May 12, 1978. The bulk of this report is concerned with information obtained, to date, from the additional test wells, as well as, revised maps and data from the original report.

The Moore Devonian Pool was discovered April 5, 1952, by Texaco, Inc. Moore Well #1 located in Unit D of Section 25, T11S, R32E.

The Amerada Petroleum Company completed their C.W. Robinson #1 December 14, 1952, and their C.W. Robinson #2 in April 1953. The pit on this lease was apparently in operation from January 1953 until about May 1958 when water production went into Texaco's SWD system. Pit size was 75' x 80' (from area photographs dated 5-16-55), located 1000'/N & 250'/E of Section 23, T11S, R32E. Amerada's Robinson lease produced water was put into this pit for 5 years and 5 months for a total of 752,045 bbls. (from O.C.D. Stat. Reports).

Texaco's New Mexico "BO" State #4, located in Unit M of Section 13, T11S, R32E, was converted to a SWD well October 1972, under R-4422, and is still being used to date as a SWD well.

Texaco SWD #1, the New Mexico "BN" State #1, located 1434'/S and 896'/W of Section 25, T11S, R32E, was completed as a SWD well in November 1957 and started injection May 25, 1958, under O.C.C. SWD Order #7 (perfs 1260' -- 1440') and was plugged April 20, 1964.

Texaco Inc. New Mexico "BO" State Well #1 located 1980'/S & 660'/W in Section 25, T11S, R32E, was recompleted to a SWD well January 10, 1964, under R-1547 and was plugged February 11, 1969.

Elmer Sumruld, Lovington, water well driller, has drilled all the test wells, to date, in the Paul Hamilton Water Study.

Mr. Hamilton has drilled an additional 3 test wells, at the request of the Water Resources Division. These three test wells did add much to existing report, particularly to chloride contour map. The three additional test wells were drilled May 19, 20, and 21, 1978.

WATER MOVEMENT AND RATE CALCULATIONS

The water movement as shown by the chloride map is east and southeast, the direction being controlled by Triassic "Redbed" structure, dip and drainage patterns as well as surface topography dip.

The rate of .8 feet per day lateral water movement is estimated and is based on best information available to date by the Water Resources Division Office, Roswell, New Mexico, for the immediate area of the Paul Hamilton Water Contamination Study.

The following calculations are based on distances from the two possible sources of water contamination in relation to the contaminated area as shown on the chloride map and dates established on events of well completions.

I. Distance from Amerada's old Robinson lease pit (A-23-11-32) to the southern front of the water contamination is ± 8100 feet, map distance. The date of pit completion December 1953, to date is a total of 25.5 years (water movement is aquifer).

25.5 x 365 x .7 = 6515 feet
25.5 x 365 x .8 = 7446 feet
25.5 x 365 x .9 = 8377 feet

II. Maximum possible distance of water movement from Texaco's SWD #3 well; assuming that the SWD #3 well possibly leaked when water injection first began, October 1972 to April 1978 is 5.6 years.

365 x 5.6 x .7 = 1431 feet
365 x 5.6 x .8 = 1635 feet
365 x 5.6 x .9 = 1840 feet

Note: distance to nearest contaminated irrigation well is 3050'.

III. (a) Distance from SWD #3 to irrigation well in 11.32.24.412224 is 3050 feet, the rate would have to be 3050 ÷ 365 x 5.6 = 1.9 f/d or 2+ times the estimated rate of .8 f/d in order to cover this distance in 5.6 years (total years SWD #3 has been in operation).

III. (b) Distance from SWD #3 to southern front of water contamination is 5250 feet (map distance), rate would have to be 5250 ÷ 365 X 5.6 = 2.6 f/d or 3 times the estimated rate of .8 f/d, to cover distance in 5.6 years.

IV. Amerada's pit has not been in use for the past 20 years. The high slug of contamination from the pit should be located east of pit by:

20 x 365 x .7 = 5110 feet
20 x 365 x .8 = 5840 feet
20 x 365 x .9 = 6570 feet

Note: The second period of contamination has been superimposed over original contamination distorting the original flow.

V. The distance from Texaco's SWD #3 to Texaco Test Well #12 (the highest chloride value the farthest away) is 1075 feet. At 1075 feet the time needed to move this distance is:

1075 ÷ 365 x .7 = 4.2 years
1075 ÷ 365 x .8 = 3.7 years
1075 ÷ 365 x .9 = 3.3 years

VI. (a) The distance from Amerada's pit to Texaco Test Well #12 (the highest chloride value closest to pit) is 300 feet. The time needed to travel this distance is:

300 x 365 x .7 = 1.17 years
300 x 365 x .8 = 1.03 years
300 x 365 x .9 = 0.91 years

(b) The rate to move from Amerada's pit to Test Well #12 would be:

300 ÷ 365 x 25.5 = 0.032 f/d

To have a high of 28,513 ppm after 25.5 years and moving at .032 f/d while the remainder of the water moves at an estimated .8 f/d would be a very odd situation.

Most of the above calculations have been plotted over the chloride contours on the chloride map and help explain that two sources of contamination did occur, each at a different time period.

Respectfully submitted,

John W. Runyan, Geologist
Oil Conservation Division

May 25, 1978

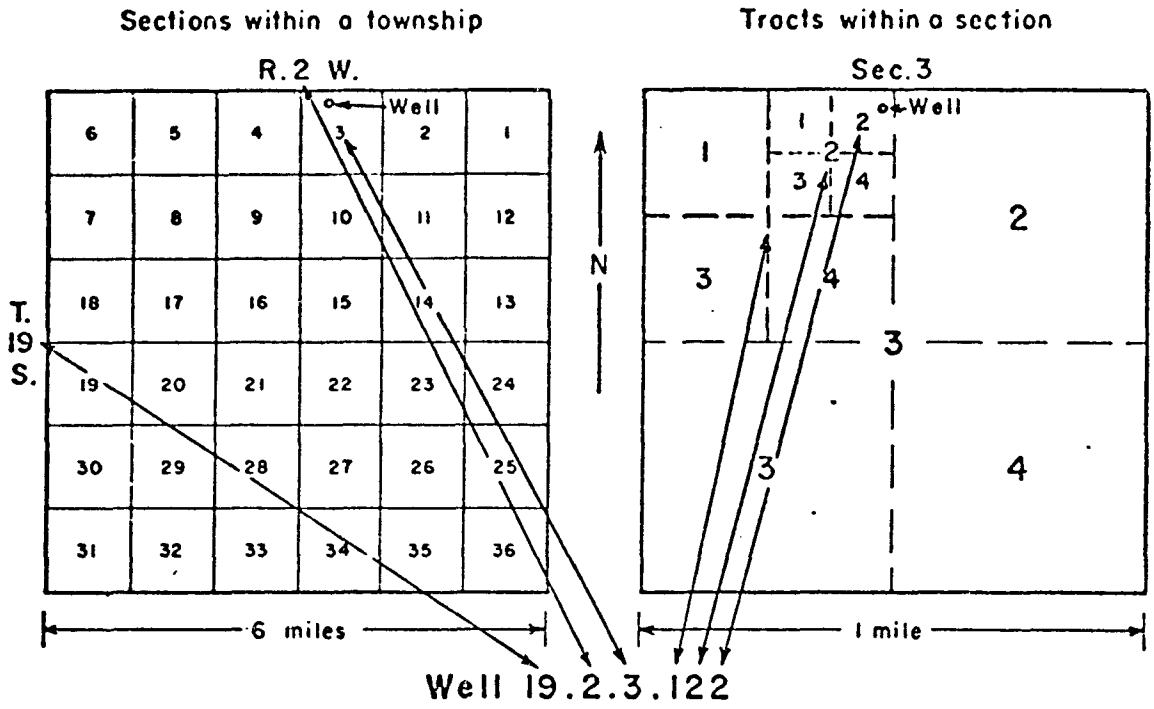
TEXACO TEST WELL DATA

TEST WELL	LOCATION	CHLORIDE SAMPLE #1	CHLORIDE SAMPLE #2	TOP REDBED	T.D.
TW #1	500/N & 250/W 24-11-33	1- 1,633 2- 2,059	R1- 9,154 R2- 8,946	111	120
TW #2	700/N & 250/W 24-11-33	1- 5,112 2- 4,260	R1-11,644 R2-11,644	108	112
TW #3	925/N & 200/W 24-11-33	1- 25,134 2- 24,566	3 -24,282	108	110
TW #4	695/N & 695/W 24-11-33	25,844 R1- 3,621	26,128 R2- 1,845	108	109
TW #5	970/N & 660/W 24-11-33	1,107 R1-13,348	20,590	126	128
TW #6	660/N & 1460/W 24-11-33	5,325	6,390*	117	117
TW #7	1150/N & 1400/W 24-11-33	14,910	14,910	106	107
TW #8	1060/N & 150/E 23-11-33	22,812	22,812	107	109
TW #9	376/E & 644/N 23-11-33	71	85.2	119	120
TW #10	150/N & 150/W 24-11-33	1 - 71 2 - 71	R1- 71 R2- 71	137	140
TW #11	1100/N & 410/E 23-11-32	24,992	22,720	106	108
TW #12	1260/N & 250/E 23-11-32	22,152	28,613	108	110
TW #13	1525/N & 200/W 24-11-32	28,542	28,542	98	110
TW #14	1525/N & 700/W 24-11-32	20,874	22,720	97	100
TW #15	840/N & 400/W 24-11-32	19,738 R1-21,726	23,998	108	110
TW #16	810/N & 660/N 24-11-32	24,424 R1-23,004	25,276	108	110
TW #17	810/N & 820/W 24-11-32	15,620	15,762	108	110
TW #18	950/N & 1970/W 24-11-32	12,212	12,212	118	120
TW #19	1250/N & 1920/W 24-11-32	10,295	10,437	117	120
TW #20	2220/N & 1880/E 24-11-32	11,928	11,502	123	125
TW #21	2470/N & 1660/E 24-11-32	1,420	1,998	144	146

ADDED TEST WELLS
by Paul Hamilton

TEST WELL	LOCATION	CHLORIDE SAMPLE #1	CHLORIDE SAMPLE #2	TOP REDBED	T.D.
#14	11.32.14.444411	7,620	7,740	125	140
#15	11.32.23.222141	60	60	117	120
#16	11.32.24.1143412	23,400 #3 24,520 #5 24,400	24,490 #4 24,540	103	106

Drilling water from 11.32.25.212122 = 235 ppm Cl



.-- System of numbering wells in New Mexico.

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPORT

Name EDDIE SEAY Date 3-6-78 Miles 171 District I

Time of Departure 7 am Time of Return 5:30 pm Car No. 331

In the space below indicate the purpose of the trip and the duties performed, listing wells or leases visited and any action taken.

Signature Eddie Seay

CLASSIFICATION	FACILITY	HOURS	QUARTER HOURS
U	S	7	

D-24-11-32 Texaco BO Test Well #2
700 feet from North line
250' feet fron West Line
To west Tatum to drill test well for Texaco in Moore Pool for water contamination study.
Top red bed -- 108 feet
TD -- 112 feet
Caught circulation sample at TD -- 2 samples 30 minutes apart

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPORT

Name EDDIE SEAY Date 3-7-78 Miles 196 District I

Time of Departure 7 am Time of Return 5 pm Car No. 331

In the space below indicate the purpose of the trip and the duties performed, listing wells or leases visited and any action taken.

Signature Eddie Seay

CLASSIFICATION	FACILITY	HOURS	QUARTER HOURS
U	S	10	

D=24=11-33 to West Tatum to drill contamination study test wells for Texaco.
Test well #1 500 feet from North line and 250 feet from West line.
Top redbed -- 111 feet
TD -- 120 feet

Took circulation sample at TD -- 2 samples 30 minutes apart.

D-24-11-33 Texaco Test Well #10 150 feet from North Line and 150 Feet from West Line.
Top Redbed -- 137 feet
TD -- 140 feet

Circulation samples taken at TD -- 2 samples 30 minutes apart.

TYPE INSPECTION PERFORMED

H = Housekeeping
P = Plugging
C = Plugging Cleanup
T = Well Test
F = Waterflow
M = Mishap or Spill
W = Water Contamination
O = Other

INSPECTION CLASSIFICATION

U = Underground Injection Control - Any inspection of or related to injection project, facility, or well or resulting from injection into any well. (SWD, 2ndry injection and production wells, water flows or pressure tests, surface injection equipment, plugging, etc.)

O = Other - Inspections not related to injection

NATURE OF SPECIFIC WELL OR FACILITY INSPECTED

D = Drilling
P = Production
I = Injection
S = SWD
U = Underground Storage
G = General Operation
O = Other

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPORT

Name EDDIE SEAY Date 3-8-78 Miles _____ District I

Time of Departure 7 am Time of Return 4:30 pm Car No. 331

In the space below indicate the purpose of the trip and the duties performed, listing wells or leases visited and any action taken.

Signature Eddie Seay

CLASSIFICATION	FACILITY	HOURS	QUARTER HOURS
U	S	9	2

D-24-11-33 to West Tatum to drill contamination test well for Texaco
Test well #3 located 925 feet from North line and 200 feet from west line.
Top redbed -- 108 feet
TD -- 110 feet
Toop circulation sample at TD -- 2 samples 30 minutes apart.

Texaco wanted to re-enter previously drilled test hole with new pipe.
Re-enter test well #2 run new pipe and caught circulation sample at
TD -- 2 samples 30 minutes apart.

TYPE INSPECTION PERFORMED

H = Housekeeping
P = Plugging
C = Plugging Cleanup
T = Well Test
F = Waterflow
M = Mishap or Spill
W = Water Contamination
O = Other

INSPECTION CLASSIFICATION

U = Underground Injection Control - Any inspection of or related to injection project, facility, or well or resulting from injection into any well. (SWD, 2ndry injection and production wells, water flows or pressure tests, surface injection equipment, plugging, etc.)

O = Other - Inspections not related to injection

NATURE OF SPECIFIC WELL OR FACILITY INSPECTED

D = Drilling
P = Production
I = Injection
S = SWD
U = Underground Storage
G = General Operation
O = Other

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPORT

Name EDDIE SEAY Date 3-9-78 Miles 143 District 1

Time of Departure 7 a.m. Time of Return 5 p.m. Car No. 331

In the space below indicate the purpose of the trip and the duties performed, listing wells or leases visited and any action taken.

Signature Eddie Seay

CLASSIFICATION	FACILITY	HOURS	QUARTER HOURS
U	S	10	

24-11-33 To West Tatum to drill contamination wells for Texaco.
Test well #5 located 970 feet from North line and 660 feet from west line.
Top redbed -- 126 feet
TD -- 128 feet
Take 2 samples at TD 30 minutes apart.

Re-entry test well #1 -- ran new 2 7/8" tubing and caught circulation sample at TD -- 2 samples 30 minutes apart.

TYPE INSPECTION PERFORMED

H = Housekeeping
P = Plugging
C = Plugging Cleanup
T = Well Test
F = Waterflow
M = Mishap or Spill
W = Water Contamination
O = Other

INSPECTION CLASSIFICATION

U = Underground Injection Control - Any inspection of or related to injection project, facility, or well or resulting from injection into any well. (SWD, 2ndry injection and production wells, water flows or pressure tests, surface injection equipment, plugging, etc.)

O = Other - Inspections not related to injection

NATURE OF SPECIFIC WELL OR FACILITY INSPECTED

D = Drilling
P = Production
I = Injection
S = SWD
U = Underground Storage
G = General Operation
O = Other

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPORT

Name EDDIE SEAY Date 3-10-78 Miles 151 District I

Time of Departure 7 am Time of Return 5 pm Car No. 331

In the space below indicate the purpose of the trip and the duties performed, listing wells or leases visited and any action taken.

Signature Eddie Seay

CLASSIFICATION	FACILITY	HOURS	QUARTER HOURS
U	S	10	

23-11-32 to West Tatum to drill contamination wells for Texaco.
Test well #8 located 1060 feet from north line and 150 feet from east line.
Top redbed -- 107 feet
TD -- 109 feet

Took 2 samples at TD 30 minutes apart.

Re-entry test well #10 ran new tubing and caught circulation sample at TD.

TYPE INSPECTION PERFORMED

H = Housekeeping
P = Plugging
C = Plugging Cleanup
T = Well Test
F = Waterflow
M = Mishap or Spill
W = Water Contamination
O = Other

INSPECTION CLASSIFICATION

U = Underground Injection Control - Any inspection of or related to injection project, facility, or well or resulting from injection into any well. (SWD, 2ndry injection and production wells, water flows or pressure tests, surface injection equipment, plugging, etc.)

O = Other - Inspections not related to injection

NATURE OF SPECIFIC WELL OR FACILITY INSPECTED

D = Drilling
P = Production
I = Injection
S = SWD
U = Underground Storage
G = General Operation
O = Other

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPORT

Name EDDIE SEAY Date 3-13-78 Miles 139 District 1

Time of Departure 7 am Time of Return 5 p.m. Car No. 331

In the space below indicate the purpose of the trip and the duties performed, listing wells or leases visited and any action taken.

Signature Eddie Seay

CLASSIFICATION	FACILITY	HOURS	QUARTER HOURS
U	S	10	

23-11-32 to West Tatum to drill contamination wells for Texaco.
Test well #9 located 376 feet from east line and 644 feet from north line.

Top redbed 119 feet
TD 120 feet
Caught 2 circulation samples at TD 30 minutes apart.

24-11-33 Texaco Inc. Test well #4 695 feet from north line and 695 feet from west line.
Top redbed 108 feet
TD 109 feet

Caught 2 circulation samples at TD 30 minutes apart.

TYPE INSPECTION PERFORMED

H = Housekeeping
P = Plugging
C = Plugging Cleanup
T = Well Test
F = Waterflow
M = Mishap or Spill
W = Water Contamination
O = Other

INSPECTION CLASSIFICATION

U = Underground Injection Control - Any inspection of or related to injection project, facility, or well or resulting from injection into any well. (SWD, 2ndry injection and production wells, water flows or pressure tests, surface injection equipment, plugging, etc.)

NATURE OF SPECIFIC WELL OR FACILITY INSPECTED

D = Drilling
P = Production
I = Injection
S = SWD
U = Underground Storage
G = General Operation

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPORT

File Copy

Name M.G. CROSSLAND Date 4-3-78 Miles 152 District I

Time of Departure 7:45 a.m. Time of Return 5 p.m. Car No. 329

In the space below indicate the purpose of the trip and the duties performed, listing wells or leases visited and any action taken.

Signature M. G. Crossland

CLASSIFICATION	FACILITY	HOURS	QUARTER HOURS	
U	D	5		23-11-32 Texaco Inc. C.W. Robinson Test well#11 1100' FNL & 410' FEL, Test well #11 -- Top red bed 106', TD 108', #1 water sample took #2 water sample 30 minutes later.
U	D	3		23-11-32, Texaco Inc. C.W. Robinson Test well #12, top redbed 108', TD 110', water sample #1, water one hour for water sample #2

TYPE INSPECTION PERFORMED

H = Housekeeping
P = Plugging
C = Plugging Cleanup
T = Well Test
F = Waterflow
M = Mishap or Spill
W = Water Contamination
O = Other

INSPECTION CLASSIFICATION

U = Underground Injection Control - Any inspection of or related to injection project, facility, or well or resulting from injection into any well. (SWD, Indry injection and production wells, water flows or pressure tests, surface injection equipment, plugging, etc.)

O = Other - Inspections not related to injection

NATURE OF SPECIFIC WELL OR FACILITY INSPECTED

D = Drilling
P = Production
I = Injection
S = SWD
U = Underground Storage
G = General Operation
O = Other

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPORT

Name M.G. CROSSLAND Date 4-4-78 Miles 175 District I

Time of Departure 7:30 a.m. Time of Return 5 p.m. Car No. 329

In the space below indicate the purpose of the trip and the duties performed, listing wells or leases visited and any action taken.

Signature M. G. Crossland

CLASSIFICATION	FACILITY	HOURS	QUARTER HOURS	
U	D	4		24-11-32, Texaco Inc. New Mexico BO St. 1525' FNL & 200' FWL, test well #13. Got water sample #1 and 30 minutes later got water sample #2. Top red bed 98 feet, TD 100 feet.
U	D	4		24-11-32 Texaco Inc. New Mexico BO State 1525' FNL & 700' FWL, test well #14, got water sample #1 and 35 minutes later took water sample #2. Top red bed 97 feet, TD 100 feet.

TYPE INSPECTION PERFORMED

H = Housekeeping
P = Plugging
C = Plugging Cleanup
T = Well Test
F = Waterflow
M = Mishap or Spill
W = Water Contamination
O = Other

INSPECTION CLASSIFICATION

U = Underground Injection Control - Any inspection of or related to injection project, facility, or well or resulting from injection into any well. (SWD, 2ndry injection and production wells, water flows or pressure tests, surface injection equipment, plugging, etc.)

NATURE OF SPECIFIC WELL OR FACILITY INSPECTED

D = Drilling
P = Production
I = Injection
S = SWD
U = Underground Storage
G = General Operation
O = Other

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPORT

Name M.G. CROSSLAND Date 4-5-78 Miles 196 District I

Time of Departure 7:30 a.m. Time of Return 5:30 p.m. Car No. 329

In the space below indicate the purpose of the trip and the duties performed, listing wells or leases visited and any action taken.

Signature M. G. Crossland

NO.	CLASSIFICATION	FACILITY	HOURS	QUARTER HOURS	
W	U	D	3		24-11-32 Texaco Inc. New Mexico BO State Test Well #15 840' FNL & 400' FWL top red bed 108 feet, TD 110 feet, Took Water sample #1 and waited 30 minutes and took water sample #2.
W	U	D	3		24-11-32 Texaco Inc. New Mexico BO State Test Well #16, 810'FNL & 660' FEL, top red bed 108 feet, TD 110 feet, Took sample #1 and waited 30 minutes and took sample #2.

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPORT

Name M.G. CROSSLAND Date 4-6-78 Miles 259 District I

Time of Departure 7:30 a.m. Time of Return 5 p.m. Car No. 329

In the space below indicate the purpose of the trip and the duties performed, listing wells or leases visited and any action taken.

Signature M. G. Crossland

CLASSIFICATION	FACILITY	HOURS	QUARTER HOURS	
O	P	4		
U	D	4		14-12-32 Texaco Inc. New Mexico BO State -- top red bed 108 feet, TD 110 feet. 810' FNL & 820' FWL -- took sample #1 and lone hour later took sample #2. Test Well #17

TYPE INSPECTION PERFORMED

- H = Housekeeping
- P = Plugging
- C = Plugging Cleanup
- T = Well Test
- F = Waterflow
- M = Mishap or Spill
- W = Water Contamination
- O = Other

INSPECTION CLASSIFICATION

- U = Underground Injection Control - Any inspection of or related to injection project, facility, or well or resulting from injection into any well. (SWD, 2ndry injection and production wells, water flows or pressure tests, surface injection equipment, plugging, etc.)
- O = Other - Inspections not related to injection

NATURE OF SPECIFIC WELL OR FACILITY INSPECTED

- D = Drilling
- P = Production
- I = Injection
- S = SWD
- U = Underground Storage
- G = General Operation
- O = Other

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPORT

Name M. G. CROSSLAND Date 4-7-78 Miles 146 District I

Time of Departure 7:25 a.m. Time of Return 3:30 p.m. Car No. 329

In the space below indicate the purpose of the trip and the duties performed, listing wells or leases visited and any action taken.

Signature M. G. Crossland

INSPECTION	CLASSIFICATION	FACILITY	HOURS	QUARTER HOURS	
N	U	D	4		24-11-32 Texaco Inc. New Mexico BO State least Test Well #18 -- 950' FNL and 1970' FWL, took water sample #1 and waited 30 minutes and took water sample #2. Top redbed 118 feet and TD 120 feet.
N	U	D	3		24-11-32 Texaco Inc. New Mexico BO State least Test well #19 1250' FNL and 1920' FWL top redbed 118 feet, TD 120 feet, took sample #1 and waited 40 minutes and took sample #2.

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPORT

Name M.G. CROSSLAND Date 4-10-78 Miles 207 District I

Time of Departure 7:45 a.m. Time of Return 6 p.m. Car No. 329

In the space below indicate the purpose of the trip and the duties performed, listing wells or leases visited and any action taken.

Signature M G Crossland

CLASSIFICATION	FACILITY	HOURS	QUARTER HOURS	
U	D	4		24-11-32 Texaco Inc. Gulf S.P. Johnson Lease, test well #20 --2220' FNL and 1880' FEL, top red bed 123 feet, TD 125 feet -- took water sample #1 and waited 40 minutes and took water sample #2.
U	D	4		24-11-32, Texaco Inc. Gulf S.P. Johnson Lease Test Well #21 -- 2470' FNL and 1660' FEL, 400' NW from irrigation well. Top Redbed 144 feet, TD 146 feet, took water sample #1 and waited 45 minutes and took water sample #2.

TYPE INSPECTION PERFORMED

H = Housekeeping
P = Plugging
C = Plugging Cleanup
T = Well Test
F = Waterflow
M = Mishap or Spill
W = Water Contamination
O = Other

INSPECTION CLASSIFICATION

U = Underground Injection Control - Any inspection of or related to injection project, facility, or well or resulting from injection into any well. (SWD, 2ndry injection and production wells, water flows or pressure tests, surface injection equipment, plugging, etc.)

O = Other - Inspections not related to injection

NATURE OF SPECIFIC WELL OR FACILITY INSPECTED

D = Drilling
P = Production
I = Injection
S = SWD
U = Underground Storage
G = General Operation
O = Other

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Paul Hamilton Water Study

Well Ownership: TEXACO Well No. #3

Land Status: [X] State [ ] Federal [ ] Fee

Well Location: Unit D, Section 24, T 11 S - R 32 E Lea County

New Mexico "BO" State #3 SWD

Type Well: Injection well Depth: ____ feet.

Well Use: SWD

Sample Number: #1 Date Taken: 5-23-78 Les Clements

Specific Conductance: _____ m/ɔ

Total dissolved Solids: _____ PPM.

Chlorides: 2144 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: [ ] V. low [ ] Low [ ] Med. [ ] High

Sulfides: [ ] None [ ] Low [ ] Med. [ ] High

_____ : _____

Date Analized: 5-24-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

Sample from 5½" casing. Treated water.

50 ml sample = 71.0 factor x 30.2 titration = 2144.2

11.32.14.44441

Jetted 45

ANALYTICAL STATEMENT – GW COUNTY Lea

LAB NO. RSEO – 11 0 77

Location

Source (type of well)

Owner Test Hole #14
Paul Hamilton

Date drld 5-18-78 Cased to ft

Depth 140 Diam

WRF

Water level ft

Sampled after pumping hrs

Yield GPM (meas or est)

Pt of coll Jetted

Appearance

Temp (°F) Use

Collector

Chemist Bradley & Chavez

Date completed 5-22-78

Checked by

Date transmitted

Date of collection

Ignition Loss Color

Dissolved Solids:

Residue at 180°C

Calculated (Sum)

Tons per Acre Foot

Hardness as $CaCO_3$

Non-carbonate Hardness

% Na SAR pH

Specific Conductance

(micromhos at 25°C) 20336

	epm	ppm
SiO_2		
Fe		
Ca		
Mg		
Na		
K		
Na+K		
HCO_3		
CO_3		
SO_4		
Cl		7620
F		
NO_3		

TW#14

11.32.14.44411

Jetted 60

ANALYTICAL STATEMENT – GW COUNTY Lea

LAB NO RSEO – 11 012

Location

TH #14

Source (type of well)

Owner Paul Hamilton Test
Hole #14

Date drld 5-19-78 Cased to ft

Depth 140 Diam

WRF

Water level ft

Sampled after pumping hrs

Yield GPM (meas or est)

Pt of coll Jetted

Appearance

Temp (°F) Use

Collector

Chemist Bradley & Chavez

Date completed 5-22-78

Checked by

Date transmitted

Date of collection

Ignition Loss Color

Dissolved Solids:

Residue at 180°C

Calculated (Sum)

Tons per Acre Foot

Hardness as $CaCO_3$

Non-carbonate Hardness

% Na SAR pH

Specific Conductance

(micromhos at 25°C) 20469

	epm	ppm
SiO_2		
Fe		
Ca		
Mg		
Na		
K		
Na+K		
HCO_3		
CO_3		
SO_4		
Cl		7740
F		
NO_3		

11.32.23, ~~222132~~ 222141

ANALYTICAL STATEMENT – GW COUNTY LEA

LAB NO. RSEO– 11033

Location TH # 15

Date of collection 5-19-78

Source (type of well) drill

Owner Hamilton

Date drld 5-22-78 Cased to ____ ft

Depth 120 Diam ____

WRF ____

Water level ____ ft

Sampled after pumping 1/2 hrs

Yield ____ GPM (meas or est)

Pt of coll drlrs. ditch – jetted, tubing @ TD

Appearance Sl. murky

Temp (°F) — Use OBS.

Collector JI Wright

Chemist Chavez

Date completed 5-22-78

Checked by ____

Date transmitted ____

Ignition Loss ____ Color ____

Dissolved Solids:

Residue at 180°C ____

Calculated (Sum) ____

Tons per Acre Foot ____

Hardness as $CaCO_3$ ____

Non-carbonate Hardness ____

% Na ____ SAR ____ pH ____

Specific Conductance (micromhos at 25°C) 831

	epm	ppm
SiO_2		
Fe		
Ca		
Mg		
Na		
K		
Na+K		
HCO_3		
CO_3		
SO_4		
Cl		60
F		
NO_3		

TW #5

11.32.23, ~~222132~~ 222141

ANALYTICAL STATEMENT – GW COUNTY LEA

LAB NO. RSEO– 11034

Location TH # 15

Date of collection 5-19-78

Source (type of well) drill

Owner Hamilton

Date drld 5-22-78 Cased to ____ ft

Depth 120 Diam ____

WRF ____

Water level ____ ft

Sampled after pumping 1 hrs

Yield ____ GPM (meas or est)

Pt of coll drlrs ditch – jetted, tubing @ TD

Appearance Clear

Temp (°F) — Use OBS.

Collector JI Wright

Chemist Chavez

Date completed 5-22-78

Checked by ____

Date transmitted ____

Ignition Loss ____ Color ____

Dissolved Solids:

Residue at 180°C ____

Calculated (Sum) ____

Tons per Acre Foot ____

Hardness as $CaCO_3$ ____

Non-carbonate Hardness ____

% Na ____ SAR ____ pH ____

Specific Conductance (micromhos at 25°C) 834

	epm	ppm
SiO_2		
Fe		
Ca		
Mg		
Na		
K		
Na+K		
HCO_3		
CO_3		
SO_4		
Cl		56
F		
NO_3		

11.32.24.11434212

ANALYTICAL STATEMENT – GW COUNTY LEA

LAB NO. RSEO – 11025 (A)

Location TH #16

Date of collection 5-22-78

Source (type of well) drld.

Owner Hamilton

Date drld 5-22-78 Cased to ____ ft

Depth 106 Diam ____

WSF ____

Water level ____ ft

Sampled after pumping ____ hrs

Yield ____ GPM (meas or est)

Pt of coll tubing @ 99', jetted 30 min.

Appearance Clear to sl. murky

Temp (°F) — Use obs.

Collector Wright

Chemist Chavez

Date completed 5-22-78

Checked by ____

Date transmitted ____

Ignition Loss ____ Color ____

Dissolved Solids:

Residue at 180°C ____

Calculated (Sum) ____

Tons per Acre Foot ____

Hardness as $CaCO_3$ ____

Non-carbonate Hardness ____

% Na ____ SAR ____ pH ____

Specific Conductance

(micromhos at 25°C) 54899

	epm	ppm
SiO_2		
Fe		
Ca		
Mg		
Na		
K		
Na + K		
HCO_3		
CO_3		
SO_4		
Cl		23400
F		
NO_3		

TW #16

11.32.24.11434212

ANALYTICAL STATEMENT – GW COUNTY LEA

LAB NO. RSEO – 11036 (B)

Location TH #16

Date of collection 5-22-78

Source (type of well) drld

Owner Hamilton

Date drld 5-22-78 Cased to ____ ft

Depth 106 Diam ____

WSF ____

Water level ____ ft

Sampled after pumping ____ hrs

Yield ____ GPM (meas or est)

Pt of coll drlrs ditch, jetted 1 hour

Appearance Clear to sl. murky

Temp (°F) — Use obs.

Collector Wright

Chemist Chavez

Date completed 5-22-78

Checked by ____

Date transmitted ____

Ignition Loss ____ Color ____

Dissolved Solids:

Residue at 180°C ____

Calculated (Sum) ____

Tons per Acre Foot ____

Hardness as $CaCO_3$ ____

Non-carbonate Hardness ____

% Na ____ SAR ____ pH ____

Specific Conductance

(micromhos at 25°C) 56494

	epm	ppm
SiO_2		
Fe		
Ca		
Mg		
Na		
K		
Na + K		
HCO_3		
CO_3		
SO_4		
Cl		24490
F		
NO_3		

11.32.24 114342

ANALYTICAL STATEMENT – GW COUNTY LEA

LAB NO. RSEQ- 11037 (C)

Location 1 H 15

Date of collection 5-22-78

Ignition Loss _____ Color _____

Dissolved Solids:

Residue at 180°C _____

Calculated (Sum) _____

Tons per Acre Foot _____

Hardness as $CaCO_3$ _____

Non-carbonate Hardness _____

% Na _____ SAR _____ pH _____

Specific Conductance (micromhos at 25°C) 56511

Source (type of well) drld

Owner Hamilton

Date drld 5-22-78 Cased to _____ ft

Depth 106 Diam _____

WRF _____

Water level _____ ft

Sampled after pumping _____ hrs

Yield _____ GPM (meas or est) Flwg

Pt of coll ~~drlg ditch~~, jetted 1½ hrs.

Appearance Clear

Temp (°F) — Use obs.

Collector Wright

Chemist Chavez

Date completed 5-22-78

Checked by _____

Date transmitted _____

	epm	ppm
SiO_2		
Fe		
Ca		
Mg		
Na		
K		
Na+K		
HCO_3		
CO_3		
SO_4		
Cl		24520
F		
NO_3		

T.W #16

11.32.24.114342

ANALYTICAL STATEMENT – GW COUNTY LEA

LAB NO. RSEQ- 11038 (D)

Location TH #16

Date of collection 5-22-78

Ignition Loss _____ Color _____

Dissolved Solids:

Residue at 180°C _____

Calculated (Sum) _____

Tons per Acre Foot _____

Hardness as $CaCO_3$ _____

Non-carbonate Hardness _____

% Na _____ SAR _____ pH _____

Specific Conductance (micromhos at 25°C) 56495

Source (type of well) drld

Owner Hamilton

Date drld 5-22-78 Cased to _____ ft

Depth 113 Diam _____

WRF _____

Water level _____ ft

Sampled after pumping _____ hrs

Yield _____ GPM (meas or est)

Pt of coll drlg ditch - jetted 1¾ hrs.

Appearance Clear w/sli. sediment

Temp (°F) — Use obs.

Collector Wright

Chemist Chavez

Date completed 5-22-78

Checked by _____

Date transmitted _____

	epm	ppm
SiO_2		
Fe		
Ca		
Mg		
Na		
K		
Na+K		
HCO_3		
CO_3		
SO_4		
Cl		24540
F		
NO_3		

11.32.24.114342.

ANALYTICAL STATEMENT – GW COUNTY LEA

LAB NO. RSEO – 11039 (E)

Location TH 16

Source (type of well) Dyld

Owner Hamilton

Date drld 5-22-78 Cased to ____ ft

Depth 126 Diam ____

WRF ____

Water level ____ ft

Sampled after pumping ____ hrs

Yield ____ GPM (meas or est)

Ft of coll ~~Interval~~, gelled 24hr. 10 mm.

Appearance Clear

Temp (°F) — Use Obs.

Collector Wright

Chemist Chavez

Date completed 5-22-78

Checked by ____

Date transmitted ____

Date of collection 5-22-78

Ignition Loss ____ Color ____

Dissolved Solids:

Residue at 180°C ____

Calculated (Sum) ____

Tons per Acre Foot ____

Hardness as $CaCO_3$ ____

Non-carbonate Hardness ____

% Na ____ SAR ____ pH ____

Specific Conductance (micromhos at 25°C) 56544

	epm	ppm
SiO_2		
Fe		
Ca		
Mg		
Na		
K		
Na+K		
HCO_3		
CO_3		
SO_4		
Cl		24400
F		
NO_3		

TW#16 ↑

11.32.25.~~122233~~ 212122

ANALYTICAL STATEMENT – GW COUNTY Lea

Drilling water

LAB NO. RSEO 11016

Location Sec TH #1

Source (type of well) ____

Owner P. Hamilton

Date drld ____ Cased to ____ ft

Depth ____ Diam 16"?

WRF ____

Water level ____ ft

Sampled after pumping ____ hrs

Yield ____ GPM (meas or est)

Ft of coll ____

Appearance ____

Temp (°F) ____ Use ____

Collector ____

Chemist Bradley & Chavez

Date completed 5-22-78

Checked by ____

Date transmitted ____

Date of collection ____

Ignition Loss ____ Color ____

Dissolved Solids:

Residue at 180°C ____

Calculated (Sum) ____

Tons per Acre Foot ____

Hardness as $CaCO_3$ ____

Non-carbonate Hardness ____

% Na ____ SAR ____ pH ____

Specific Conductance (micromhos at 25°C) 1586

	epm	ppm
SiO_2		
Fe		
Ca		
Mg		
Na		
K		
Na+K		
HCO_3		
CO_3		
SO_4		
Cl		235
F		
NO_3		

Drilling water 5/22/78

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON STUDY Well No. Texaco TW #1

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 500/N & 250/W

Blew thru tubing

Type Well: Water test well Depth: ____ feet.

Well Use: Chloride Analysis

Sample Number: #1 Date Taken: 3-7-78 (Eddie Seay)

Specific Conductance: _____ m/ℳ

Total dissolved Solids: _____ PPM.

Chlorides: 1633.0 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-8-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

10 ml sample = 355.0 x 4.6 = 1633.0

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON STUDY Well No. Texaco TW #1

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 500/N & 250/W

Blew through tubing

Type Well: Water test well Depth: ___ feet.

Well Use: Chloride analysis

Sample Number: #2 Date Taken: 3-7-78 (Eddie Seay)

Specific Conductance: _____ m/ohm

Total dissolved Solids: _____ PPM.

Chlorides: 2059.0 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-8-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

10 ml sample = 355.0 x 5.8 = 2059.0

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON STUDY Well No. Texaco TW #1 (Re-entry

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 500/N & 250/W

Blew through tubing

Type Well: Water test well Depth: ____ feet.

Well Use: Chloride Analysis

Sample Number: #1-R Date Taken: 3-9-78 (Eddie Seay)

Specific Conductance: _____ m/ℓ

Total dissolved Solids: _____ PPM.

Chlorides: 9159.0 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-10-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

10 ml sample = 355.0 x 25.8 = 9159.0

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON STUDY Well No. Texaco TW #1 (Re-entry

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 550/N & 250/W

Blew through tubing

Type Well: Water test well Depth: ____ feet.

Well Use: Chloride Analysis

Sample Number: #2-R Date Taken: 3-10-78 (Eddie Seay)

Specific Conductance: _____ m/_

Total dissolved Solids: _____ PPM.

Chlorides: 8946.0 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-10-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

10 ml sample = 355.0 x 25.2 = 8946.0 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON STUDY Well No. Texaco TW #2

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 700/N & 250/W

CIRCULATION SAMPLE - SAMPLE BY BLOWING

Type Well: TEST WELL Depth: 112 feet.

Well Use: Chloride Analysis

Sample Number: #1 Date Taken: 3-6-78 (Eddie Seay)

Specific Conductance: _____ m/

Total dissolved Solids: _____ PPM.

Chlorides: 4260 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-8-78 By: John W. Runyan
N.M.O.C.C.

Remarks: _____

5 ml sample = 710.0 x 60.0 titration = 4260 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON STUDY Well No. Texaco TW #2

Land Status: ☐ State ☐ Federal ☐ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 700/N & 250/W

Circulation sample

Type Well: Water test well Depth: 112 feet.

Well Use: Chloride Analysis

Sample Number: #2 Date Taken: 3-6-78

Specific Conductance: _____ m/...

Total dissolved Solids: _____ PPM.

Chlorides: 5112.0 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-8-78 By: John W. Runyan
N.M.O.C.C.

Remarks: _____

5 ml sample = 710.0 factor x 7.2 titration = 5112.0 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON STUDY Well No. Texaco TW #2 (Re-entry)

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 700'/N & 250'/W

Sample by blowing

Type Well: Water test well Depth: 112 feet.

Well Use: Water analysis

Sample Number: R-1 Date Taken: 3-8-78 (Eddie Seay)

Specific Conductance: _____ m/ɔ

Total dissolved Solids: _____ PPM.

Chlorides: 11,644 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: _____ By: John W. Runyan
N.M.O.C.C.

Remarks: _____

5 ml sample = 710.0 factor x 16.4 titration = 11,644 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON STUDY Well No. Texaco TW #2 (Re-entry

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 700'/N & 250'/W

Sample by blowing

Type Well: Water test well Depth: 112 feet.

Well Use: Water analysis

Sample Number: R-2 Date Taken: 3-8-78

Specific Conductance: _____ m/ɾ

Total dissolved Solids: _____ PPM.

Chlorides: 11,644 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: _____ By: John W. Runyan
N.M.O.C.C.

Remarks: _____

5 ml sample = 710.0 factor x 16.4 titration = 11,644 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON STUDY Well No. Texaco TW #3

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 925'/N & 200'/W

Blew thru tubing

Type Well: water test well Depth: ___ feet.

Well Use: chloride analysis

Sample Number: Sample #1 Date Taken: 3-8-78 Eddie Seay

Specific Conductance: _____ m/ℓ

Total dissolved Solids: _____ PPM.

Chlorides: 25,134 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-10-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

Circulate 30 minutes after TD well

5 ml sample = 710.0 x 35.4 = 25,134.0 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PUAL HAMILTON STUDY Well No. Texaco TW #3

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 925'/N & 200'/W

Blew thru tubing

Type Well: Test well Depth: ___ feet.

Well Use: Chloride analysis

Sample Number: #2 Date Taken: 3-8-78 (Eddie Seay)

Specific Conductance: _____ m/

Total dissolved Solids: _____ PPM.

Chlorides: 24,566.0 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-10-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

Sample taken 30 minutes after sample #1

5 ml sample = 710.0 x 34.6 = 24,566 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON STUDY Well No. Texaco TW #3

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 925'/N & 200'/W

Blew thru tubing

Type Well: Water test well Depth: ___ feet.

Well Use: Chloride analysis

Sample Number: #3 Date Taken: 3-8-78 (Eddie Seay)

Specific Conductance: _____ m/ℓ

Total dissolved Solids: _____ PPM.

Chlorides: 24,282 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-10-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

Circ sample 30 minutes after sample #2

5 ml sample = 710 x 34.2 = 24,282.0 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: HAMILTON WATER STUDY Well No. Texaco TW #4

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 695'/N & 695'/W

Sample by blowing

Type Well: Water test well Depth: ____ feet.

Well Use: Water analysis

Sample Number: #1 Date Taken: 3-13-78 (Eddie Seay)

Specific Conductance: _____ m/

Total dissolved Solids: _____ PPM.

Chlorides: 25,844 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-15-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

5 ml sample = 710.0 factor x 36.4 titration = 25,844.0 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: HAMILTON WATER STUDY Well No. Texaco TW #4

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 695'/N & 695'/W

Sample by blowing

Type Well: water test well Depth: ____ feet.

Well Use: water analysis

Sample Number: #2 * Date Taken: 3-13-78 (Eddie Seay)

Specific Conductance: _____ m/ohm

Total dissolved Solids: _____ PPM.

Chlorides: 26,128 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-15-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

* sample #2 taken 30 minutes after sample #1

5 ml sample = 710.0 factor x 36.8 titration = 26,128 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Re-entry Texaco TW #4

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit D, Section 24, T 11 S - R 32 E re-entry
695/N & 695/W Section 24

Type Well: water test well Depth: 108 feet.

Well Use: Water analysis

Sample Number: R #1 Date Taken: 5-10-78 Eddie Seay

Specific Conductance: _____ m/ℳ

Total dissolved Solids: _____ PPM.

Chlorides: 3621 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 5-16-78 By: John W. Runyan
N.M.O.C.C.

Remarks: Re-entry TW #4 (Texaco) Sample after pumping for 30 minutes at 75 feet.

5 ml sample = 710.0 x 5.1 titration = 3621 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Re-entry Texaco TW #4

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit D, Section 24, T 11 S - R 32 E Re-entry
695/N & 695/W Section 24

Type Well: Water test well Depth: 103 feet.

Well Use: Water analysis

Sample Number: R-#2 Date Taken: 5-10-78 Eddie Seay

Specific Conductance: _____ m/ɷ

Total dissolved Solids: _____ PPM.

Chlorides: 1845 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 5-16-78 By: John W. Runyan
N.M.O.C.C.

Remarks: Sample taken at 85 feet, pumped for 30 minutes

5 ml sample = 710.0 x 2.6 titration = 1845 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON STUDY Well No. Texaco TW #5

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 970'/N & 660'/W

Blowing thru tubing

Type Well: Water test well Depth: ____ feet.

Well Use: Chloride analysis

Sample Number: #1 Date Taken: 3-9-78 (Eddie Seay

Specific Conductance: _____ m/ℓ

Total dissolved Solids: _____ PPM.

Chlorides: 1107.5 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-10-78 By: John W. Runyan
N.M.O.C.C.

Remarks: _____

5 ml sample = 710.0 factor x 15.6 titration = 1107.5 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Texaco TW #5

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 770'/N & 660'/W

Blew thru tubing

Type Well: Water test well Depth: ___ feet.

Well Use: Water analysis

Sample Number: #2 Date Taken: 3-9-78 (Eddie Seay)

Specific Conductance: _____ m/ℓ

Total dissolved Solids: _____ PPM.

Chlorides: 20,590 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-10-78 By: John W. Runyan
N.M.O.C.C.

Remarks: _____

5 ml sample = 710.0 factor x 29.0 titration = 20,590.0 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Texaco TW #5

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 770'/N & 660'/W

Blew thru tubing

Type Well: Water test well Depth: ____ feet.

Well Use: Water analysis

Sample Number: #2 Date Taken: 3-9-78 (Eddie Seay)

Specific Conductance: _____ m/ℓ

Total dissolved Solids: _____ PPM.

Chlorides: 20,590 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-10-78 By: John W. Runyan
N.M.O.C.C.

Remarks: _____

5 ml sample = 710.0 factor x 29.0 titration = 20,590.0 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY **Well No.** Re-entry Texaco TW #5

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit D, Section 24, T 11 S - R 32 E Lea County
970/N & 660/W

Type Well: Water test well **Depth:** 128 feet.

Well Use: Water analysis

Sample Number: R-#1 **Date Taken:** 5-12-78 Eddie Seay

Specific Conductance: _____ m/

Total dissolved Solids: _____ PPM.

Chlorides: 13,348 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 5-16-78 **By:** John W. Runyan
N.M.O.C.C.

Remarks:

sample from 94 feet -- caught after 75 minutes pumping

5 ml sample = 710.0 x 18.8 titration = 13,348 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: HAMILTON WATER STUDY Well No. Texaco TW #6

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 660/N & 1460/W

Sample by blowing

Type Well: Water test well Depth: 117 feet.

Well Use: Water analysis

Sample Number: #1 Date Taken: 3-14-78 (JWR)

Specific Conductance: _____ m/

Total dissolved Solids: _____ PPM.

Chlorides: 5325.0 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-15-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

5 ml sample = 710.0 factor x 7.5 titration = 5325.0 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: HAMILTON WATER STUDY Well No. Texaco TW #6

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 660'/N & 1460'/W

Sample by blowing

Type Well: Water test well Depth: 117 feet.

Well Use: water analysis

Sample Number: #2 Date Taken: 3-14-78 JWR

Specific Conductance: _____ m/ɾ

Total dissolved Solids: _____ PPM.

Chlorides: 6390.0 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-15-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

Sample #2 taken 15 minutes after sample #1

5 ml sample = 510.0 factor x 9.0 titration = 6390.0 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: HAMILTON WATER STUDY Well No. Texaco TW #6

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 660'/N & 1460'/W

Sample by blowing

Type Well: water test well Depth: 117 feet.

Well Use: water analysis

Sample Number: #3 Date Taken: 3-14-78 JWR

Specific Conductance: _____ m/ohms

Total dissolved Solids: _____ PPM.

Chlorides: 355.0 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-15-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

Sample #3 taken at 87 feet (30' above TD)

5 ml sample = 710.0 factor x .5 titration = 355.0

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: HAMILTON WATER STUDY Well No. Texaco TW #7

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 1150/N & 1400/W

sample by blowing

Type Well: water test well Depth: 107 feet.

Well Use: water analysis

Sample Number: #1 Date Taken: 3-14-78 JWR

Specific Conductance: _____ m/

Total dissolved Solids: _____ PPM.

Chlorides: 14,910 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-15-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

5 ml sample = 710.0 factor x 21.0 titration = 14,910 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: HAMILTON WATER STUDY Well No. Texaco TR #7

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 1150'/N & 1400'/W

Sample by blowing

Type Well: water test well Depth: 107 feet.

Well Use: water analysis

Sample Number: #2 Date Taken: 3-14-78 JWR

Specific Conductance: _____ m/

Total dissolved Solids: _____ PPM.

Chlorides: 14,910 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-15-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

sample #2 taken 15 minutes after sample #1

5 ml sample = 710.0 factor x 21.0 titration = 14,910 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: HAMILTON WATER STUDY Well No. Texaco TW #8

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 23, T 11 S - R 32 E 1060'/N & 150'/E

sample by blowing

Type Well: Water test well Depth: 109 feet.

Well Use: water analysis

Sample Number: #1 Date Taken: 3-10-78 Eddie Seay

Specific Conductance: _____ m/ℳ

Total dissolved Solids: _____ PPM.

Chlorides: 22862.0 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-15-78 By: John W. Runyan
N.M.O.C.C.

Remarks: _____

5 ml sample = 710.0 factor x 32.2 titration = 22862.0 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: HAMILTON WATER SUPPLY Well No. Texaco TW #8

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit 23, Section 23, T 11 S - R 32 E 1060'/N & 150'/E

Sample by blowing

Type Well: Water test well Depth: 109 feet.

Well Use: water analysis

Sample Number: #2 Date Taken: 3-10-78 Eddie Seay

Specific Conductance: _____ m/ₒ

Total dissolved Solids: _____ PPM.

Chlorides: 22862.0 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-15-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

5 ml sample - 710.0 factor x 32.2 titration - 22,862.0 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: HAMILTON WATER STUDY Well No. Texaco TW #9

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 23, T 11 S - R 32 E 376'/E & 644'/N

Sample by blowing

Type Well: water test well Depth: 120 feet.

Well Use: water analysis

Sample Number: #1 Date Taken: 3-13-78 Eddie Seay

Specific Conductance: _____ m/ɔ

Total dissolved Solids: _____ PPM.

Chlorides: 71.0 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-15-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

5 ml sample - 142.0 factor x .5 titration - 71.0

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: HAMILTON WATER PROBLEM Well No. Texaco TW #9

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 23, T 11 S - R 32 E 376'/E & 644'/N

Sample by blowing

Type Well: Water test well Depth: 120 feet.

Well Use: water analysis

Sample Number: #2 Date Taken: 3-13-78 Eddie Seay

Specific Conductance: _____ m/ohm

Total dissolved Solids: _____ PPM.

Chlorides: 85.2 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-15-78 By: John W. Runyan
N.M.O.C.C.

Remarks: _____

5 ml sample = 142.0 factor x .6 titration - 85.2

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Texaco TW #10

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 150'/N & 150'/W

Blew thru tubing

Type Well: Water test well Depth: ___ feet.

Well Use: Chloride analysis

Sample Number: #2 Date Taken: 3-7-78 Eddie Seay

Specific Conductance: ___ m/ohm

Total dissolved Solids: ___ PPM.

Chlorides: 71.0 PPM.

Sulfates: ___ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

___ : ___

Date Analized: 3-8-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

10 ml sample = 355.0 factor x .2 titration = 71.0 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Texaco TW #10

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 150'/N & 150'/W

Blew thru tubing

Type Well: Water test well Depth: ____ feet.

Well Use: Chloride analysis

Sample Number: #1 Date Taken: 3-7-78 Eddie Seay

Specific Conductance: _____ m/_

Total dissolved Solids: _____ PPM.

Chlorides: 71.0 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-8-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

10 ml sample = 355.0 factor x .2 titration = 71.0

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Texaco TW #10 (re-entry

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 150'/N & 150'/W

sample by blowing

Type Well: water test well Depth: 140 feet.

Well Use: water analysis

Sample Number: R-1 Date Taken: 3-8-78 Eddie Seay

Specific Conductance: _____ m/ohms

Total dissolved Solids: _____ PPM.

Chlorides: 71.0 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: _____ By: John W. Runyan
N.M.O.C.C.

Remarks: _____

25 ml sample = 152 factor x .5 titration = 71.0 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Texaco TW #10

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 150'/N & 150'/W

Sample by blowing

Type Well: Water test well Depth: 120 feet.

Well Use: water analysis

Sample Number: R-2 Date Taken: 3-8-78 Eddie Seay

Specific Conductance: _____ m/ohms

Total dissolved Solids: _____ PPM.

Chlorides: 71.0 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: _____ By: John W. Runyan
N.M.O.C.C.

Remarks: _____

25 ml sample = 142.0 factor x .5 titration = 71.0 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON STUDY Well No. Texaco TW #11

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 23, T 11 S - R 32 E 1100'/N & 410'/E

Type Well: water test well Depth: 108 feet.

Well Use: water analysis

Sample Number: #1 Date Taken: 4-3-78 Eddie Seay

Specific Conductance: _____ m/ɔ

Total dissolved Solids: _____ PPM.

Chlorides: 24,992 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: Re 4-24-78 By: John W. Runyan
N.M.O.C.C.

Remarks: _____

5 ml sample = 710.0 factor x 35.2 titration - 24,992.0 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Texaco TW #11

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 23, T 11 S - R 32 E 1100'/N & 410'/E

Type Well: Water Test well Depth: ____ feet.

Well Use: water analysis

Sample Number: #2 Date Taken: 4-3-78 Eddie Seay

Specific Conductance: _____ m/

Total dissolved Solids: _____ PPM.

Chlorides: 23,720.0 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: Re 4-24-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

Sample #2 taken 30 minutes after #1

4 ml sample = 710.0 factor x 32.0 titration - 22,720.0 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Texaco TW #12

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 23, T 11 S - R 32 E 1260'/N & 250'/E

Type Well: Water test well Depth: 110 feet.

Well Use: Water analysis

Sample Number: #1 Date Taken: 4-3-78 (Melvin Crossland)

Specific Conductance: _____ m/ɔ

Total dissolved Solids: _____ PPM.

Chlorides: 22,152 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: Re 4-24-78 By: John W. Runyan
N.M.O.C.C.

Remarks: _____

5 ml sample = 710.0 factor x 31.2 titration - 22,152.0 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON STUDY Well No. Texaco TW #12

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 23, T 11 S - R 32 E 1260'/N & 250'/E

Type Well: Water test well Depth: 110 feet.

Well Use: water analysis

Sample Number: #2 Date Taken: 4-3-78 Melvin Crossland

Specific Conductance: _____ m/

Total dissolved Solids: _____ PPM.

Chlorides: 28,613 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: Re 4-24-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

sample #2 taken 30 minutes after #1

5 ml sample = 710.0 factor x 40.3 titration - 28,613 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON STUDY Well No. Texaco TW #12

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 23, T 11 S - R 32 E 1260'/N & 250'/E

Type Well: Water test well Depth: 110 feet.

Well Use: water analysis

Sample Number: #2 Date Taken: 4-3-78 Melvin Crossland

Specific Conductance: _____ m/ℓ

Total dissolved Solids: _____ PPM.

Chlorides: 28,613 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: Re 4-24-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

sample #2 taken 30 minutes after #1

5 ml sample = 710.0 factor x 40.3 titration - 28,613 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Texaco TW #13

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 1525'/N & 200'/W

Type Well: water test well Depth: 110 feet.

Well Use: water analysis

Sample Number: #1 Date Taken: 4-4-78 Melvin Crossland

Specific Conductance: _____ m/ℓ

Total dissolved Solids: _____ PPM.

Chlorides: 28,542 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: Re 4-24-78 By: John W. Runyan
N.M.O.C.C.

Remarks: _____

5 ml sample = 710 factor x 40.2 titration = 28,542 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Texaco TW #13

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 1525/N & 200/W

Type Well: Water test well Depth: 110 feet.

Well Use: Water analysis

Sample Number: #2 Date Taken: 4-4-78 Melvin Crossland

Specific Conductance: _____ m/ℳ

Total dissolved Solids: _____ PPM.

Chlorides: 28,542 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: Re 4-24-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

Sample #2 taken 30 minutes after sample #1

5 ml sample = 710.0 factor x 40.2 titration = 28,542 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON STUDY Well No. Texaco TW #14

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 1525'/N & 700'/W

Type Well: Water test well Depth: 100 feet.

Well Use: water analysis

Sample Number: #1 Date Taken: 4-4-78 Melvin Crossland

Specific Conductance: _____ m/

Total dissolved Solids: _____ PPM.

Chlorides: 20,874 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: Re 4-24-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

5 ml sample - 710.0 factor x 29.4 titration = 20,874 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Texaco TW #14

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 1525'/N 7 700'/W

Type Well: Water test well Depth: 100 feet.

Well Use: water analysis

Sample Number: #2 Date Taken: 4-4-78 Melvin Crossland

Specific Conductance: _____ m/ℳ

Total dissolved Solids: _____ PPM.

Chlorides: 22,720 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: Re 4-24-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

sample #2 taken 30 minutes after #1

5 ml sample - 710.0 factor x 32.0 titration = 22,720 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Texaco TW #15

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 840/N & 400/W

Type Well: Water test well Depth: 110 feet.

Well Use: water analysis

Sample Number: #1 Date Taken: 4-5-78 Melvin Crossland

Specific Conductance: _____ m/ɔ

Total dissolved Solids: _____ PPM.

Chlorides: 19,738 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: Re 4-24-78 By: John W. Runyan
N.M.O.C.C.

Remarks: _____

5 ml sample = 710.0 factor x 27.8 titration = 19,738 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Texaco TW #15

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E 840'/N & 400'/W

Type Well: Water test well Depth: 110 feet.

Well Use: Water analysis

Sample Number: #2 Date Taken: 4-5-78 Melvin Crossland

Specific Conductance: _____ m/

Total dissolved Solids: _____ PPM.

Chlorides: 23,998 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: Re 4-22-78 By: John W. Runyan
N.M.O.C.C.

Remarks: _____

5 ml sample = 710.0 factor x 33.8 titration - 23,998 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Re-entry Texaco TW #15

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit D, Section 24, T 11 S - R 32 E Lea County

840/N & 400/W Section 24

Type Well: Water test well Depth: 110 feet.

Well Use: Water analysis

Sample Number: #1 Date Taken: 5-10-78 Eddie Seay

Specific Conductance: _____ m/ɔ

Total dissolved Solids: _____ PPM.

Chlorides: 21,726 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 5-16-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

Sample taken from 96 feet, caught after 60 minutes pumping.

5 ml sample = 710.0 factor x 30.6 titration = 21,726 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON STUDY Well No. Texaco TW #16

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 23, T 11 S - R 32 E 810'/N & 660'/W
could be sec. 24??

Type Well: water test well Depth: 110 feet.

Well Use: water analysis

Sample Number: #1 Date Taken: 4-5-78 Melvin Crossland

Specific Conductance: _____ m/ω

Total dissolved Solids: _____ PPM.

Chlorides: 24,424 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: Re 4-24-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

5 ml sample - 710.0 factor x 34.4 titration = 24,424 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Texaco TW #16

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 23, T 11 S - R 32 E 810'/N & 660'/W

could be sec. 24??

Type Well: water test well Depth: 110 feet.

Well Use: water analysis

Sample Number: #2 Date Taken: 4-5-78 Melvin Crossland

Specific Conductance: _____ m/ℓ

Total dissolved Solids: _____ PPM.

Chlorides: 25,276 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: Re 4-24-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

Sample #2 taken 30 minutes after sample #1

5 ml sample = 710.0 factor x 35.6 titration - 25,276 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Re-entry TEXACO TW #16

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit D, Section 24, T 11 S - R 32 E Lea County
810/N & 660/W Section 24

Type Well: Water test well Depth: 110 feet.

Well Use: Water analysis

Sample Number: #R-1 Date Taken: 5-9-78 Eddie Seay

Specific Conductance: _____ m/ℓ

Total dissolved Solids: _____ PPM.

Chlorides: 23,004 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 5-16-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

sample from 104 feet, caught after 45 minutes pumping.

5 ml sample = 710.0 factor x 32.4 titration = 21,726 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Texaco TW #17

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E Lea County

810'/N & 820'/W

Type Well: Water Test well Depth: 110 feet.

Well Use: water analysis

Sample Number: #1 Date Taken: 4-6-78 Melvin Crossland

Specific Conductance: _____ m/ɾ

Total dissolved Solids: _____ PPM.

Chlorides: 15,620 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 4-17-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

Top red bed 108, TD 110

5 ml sample = 710.0 factor x 22.0 titration - 15,620

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Texaco TW #17

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E Lea County
810'/N & 820'/W

Type Well: Water test well Depth: 110 feet.

Well Use: water analysis

Sample Number: #2 Date Taken: 4-6-78 Melvin Crossland

Specific Conductance: _____ m/ɾ

Total dissolved Solids: _____ PPM.

Chlorides: 15,762 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 4-17-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

sample #2 taken 70 minutes after sample #1

5 ml sample - 710.0 factor x 22.2 titration = 15,762 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Texaco TW #18

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E Lea County

950'/N & 1970'/W

Type Well: Water test well Depth: 120 feet.

Well Use: water analysis

Sample Number: #1 Date Taken: 4-7-78 Melvin Crossland

Specific Conductance: _____ m/ℓ

Total dissolved Solids: _____ PPM.

Chlorides: 12,212 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 4-17-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

Top redbed 118' TD 120'

5 ml sample = 710.0 factor x 17.2 titration - 12,212 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Texaco TW #18

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E Lea County

950'/N & 1970'/W

Type Well: Water test well Depth: 120 feet.

Well Use: water analysis

Sample Number: #2 Date Taken: 4-7-78 Melvin Crossland

Specific Conductance: _____ m/

Total dissolved Solids: _____ PPM.

Chlorides: 12,212 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 4-17-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

Sample #2 taken 30 minutes after sample #1

5 ml sample = 710.0 factor x 17.2 titration = 12,212 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Texaco TW #19

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E Lea County
1250'/N & 1920'/W

Type Well: water test well Depth: 120 feet.

Well Use: water analysis

Sample Number: #1 Date Taken: 4-7-78 Melvin Crossland

Specific Conductance: _____ m/ℓ

Total dissolved Solids: _____ PPM.

Chlorides: 10,295 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 4-17-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

Top redbed 119 feet

5 ml sample = 710.0 factor x 14.5 titration = 10,295 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Texaco TW #19

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E Lea County
1250'/N & 1920'/W

Type Well: water test well Depth: 120 feet.

Well Use: water analysis

Sample Number: #2 Date Taken: 4-7-78 Melvin Crossland

Specific Conductance: _____ m/ω

Total dissolved Solids: _____ PPM.

Chlorides: 10,437 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 4-17-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

5 ml sample - 710.0 factor x 14.7 titration = 10,437 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Texaco TW #20

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E Lea County
2220'/N & 1880'/E

Type Well: water test well Depth: 125 feet.

Well Use: water analysis

Sample Number: #1 Date Taken: 4-10-78 Melvin Crossland

Specific Conductance: _____ m/ℓ

Total dissolved Solids: _____ PPM.

Chlorides: 11,928 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 4-17-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

Top red bed 123 feet

5 ml sample = 710.0 factor x 16.8 titration = 11,928 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Texaco TW #20

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E Lea County

2220'/N & 1880'/E

Type Well: Water test well Depth: 125 feet.

Well Use: Water analysis

Sample Number: #2 Date Taken: 4-10-78 Melvin Crossland

Specific Conductance: _____ m/ohm

Total dissolved Solids: _____ PPM.

Chlorides: 11,502 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 4-17-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

5 ml sample = 710.0 factor x 16.2 titration = 11,502 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Texaco TW #21

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E Lea County
2470'/N & 1660'/E

Type Well: Water test well Depth: 146 feet.

Well Use: water analysis

Sample Number: #1 Date Taken: 4-10-78 Melvin Crossland

Specific Conductance: _____ m/ℳ

Total dissolved Solids: _____ PPM.

Chlorides: 1,420 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 4-17-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

Top red bed 144 feet

5 ml sample - 710.0 factor x 2.0 titration = 1420 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Texaco TW #21

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 24, T 11 S - R 32 E Lea County

2470'/N & 1660'/E

Type Well: Water test well Depth: 146 feet.

Well Use: water analysis

Sample Number: #2 Date Taken: 4=10-78 Melvin Crossland

Specific Conductance: _____ m/ɾ.

Total dissolved Solids: _____ PPM.

Chlorides: 1998 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 4-17-78 By: John W. Runyan
N.M.O.C.C.

Remarks: _____

5 ml sample - 710.0 factor x 2.8 titration = 1998 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. Drilling water

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 25, T 11 S - R 32 E 11.32.25.1222311

Texaco drilling additional test wells

Type Well: from house supply well Depth: ___ feet.

Well Use: drilling water

Sample Number: ___ Date Taken: 3-6-78 Melvin Crossland

Specific Conductance: ___ m/ɔ

Total dissolved Solids: ___ PPM.

Chlorides: 56.8 PPM.

Sulfates: ___ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

___ : ___

Date Analized: 3-8-78 By: John W. Runyan
N.M.O.C.C.

Remarks: ___

25 ml sample = 142 factor x .4 titration - 56.8

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: PAUL HAMILTON WATER STUDY Well No. _____

Land Status: ☐ State ☐ Federal ☐ Fee

Well Location: Unit D, Section 24, T 11 S - R 32 E _____

Texaco SWD Well #3 (State New Mexico "BO")

Type Well: _____ Depth: _____ feet.

Well Use: _____

Sample Number: #1 Date Taken: 3-2-78 Nathan Clegg

Specific Conductance: _____ m/ohm

Total dissolved Solids: _____ PPM.

Chlorides: 4260.0 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 3-22-78 By: John W. Runyan
N.M.O.C.C.

Remarks: _____

sample also contains some other chemical

sample has bubble head when stirred

5 ml sample = 710.0 factor x 6.0 titration = 4260.0 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

PAUL HAMILTON WATER STUDY

Well Ownership: AMERADA HESS Well No. #1

Land Status: ☐ State ☐ Federal ☐ Fee

Well Location: Unit A, Section 23, T 11 S - R 32 E

Producing oil well - water from wellhead

Type Well: oil well - pump Depth: ____ feet.

Well Use: ____

Sample Number: #1 Date Taken: 3-14-78 JWR

Specific Conductance: ____ m/ohm

Total dissolved Solids: ____ PPM.

Chlorides: 26,696 PPM.

Sulfates: ____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

____ : ____

Date Analized: 3-23-78 By: John W. Runyan
N.M.O.C.C.

Remarks: ____

5 ml sample = 710.0 factor x 37.6 titration - 26,696 ppm

Texico Inc. Water Study

Hole # 1

0	1	surface
1	24	caliche
24	72	sand & sandstone layers
72	111	sand & gravel
111	118	various colors sandy clay
118	120	clay

Hole # 2

0	1	surface soil
1	21	caliche
21	67	sand & sandstone
67	100	sand & gravel
100	106	brown clay
106	111	red sandy clay
111	112	red clay

Hole # 3

0	2	surface
2	21	caliche
21	60	sand & sandstone
60	99	sand with gravel
99	108	sandy clay & gravel
108	110	red clay

Hole # 4

0	1	surface soil
1	20	caliche
20	67	sand & sandstone
67	105	sand,sandy clay layers
105	108	colored gravel
108	109	clay

Hole # 5

0	21	caliche
21	62	sand & sandstone
62	94	sand, sand & gravel
94	105	sandy clay
105	126	sandstone & sandy clay layers
126	128	clay

Hole # 6

0	1	surface soil
1	22	caliche
22	68	sand & sandstone
68	109	sand, sand & gravel,sandy clay
109	117	layers of sand & gravel, sandy clay

Hole # 7

0	2	surface
2	23	caliche
23	72	sand & sandstone
72	103	sand, sand & gravel
103	106	sandstone,sandy clay
106	107	clay

Hole # 8

0	1	surface soil
1	23	caliche
23	64	sand & sandstone
64	101	sand, sand & gravel
101	107	sandy clay
107	109	clay

Hole # 9

0	1	surface
1	24	caliche
24	65	sand & sandstone
65	113	sand, sand & gravel
113	119	sandy clay
119	120	clay

Hole # 10

0	1½	surface soil
1½	24	caliche
24	75	sand, sandstone, sandy clay layers
75	104	sand with stringers of clay
104	111	sand & gravel
111	137	sandy clay & gravel
137	140	clay

copy to.
Texico, Inc.
Oil Comm.
State Engineer

Texaco, Inc.

Hole # 11

0	2	surface
2	18	caliche
18	59	clayey sand
59	72	sand with sandy clay
72	103	sand with sand gravel
103	106	sandy clay
106	108	red clay

Hole # 12

0	2	surface soil
2	21	caliche
21	62	sand, sandstone, sandy clay layers.
62	103	sand & sandstone layers
103	108	sandy clay
108	110	red clay

Hole # 13

0	2	surface
2	27	caliche & sand
27	44	sand & sandstone
44	65	sandy clay
65	96	sand
96	98	quartzite
98	100	red clay

Hole # 14

0	28	caliche
28	69	sand, sandy clay, sandstone layers.
69	75	sand
75	85	sandy clay & sandstone(quartzite) layers.
85	97	yellow, grey, sandy clay
97	100	red clay

Hole # 15

0	2	surface
2	21	caliche
21	60	sandstone with sand layers
60	96	sand with sand gravel
96	108	grey clay with stringers of hard sandstone.
108	110	red clay

Hole # 16

0	1	surface
1	20	caliche
20	61	sand, sandstone, sandy clay layers.
61	104	sand with sand gravel & sandstone stringers
104	108	sandy clay & sandstone
108	110	red clay

Hole # 17

0	1	surface
1	22	caliche
22	64	sand & sandstone
64	105	sand, sand gravel, sandy clay layers
105	108	sandy clay with sandstone stringers
108	110	red clay

Hole # 18

0	2	surface
2	19	caliche
19	65	sand & sandstone
65	108	sand with sand gravel
108	114	sandy clay & colored gravel
114	118	sandy clay
118	120	red clay

Hole # 19

0	2	surface soil
2	26	caliche & sand
26	66	sand & sandstone
66	106	sand with sand gravel
106	110	colored gravel
110	117	sandy clay & gravel
117	120	red clay

Hole # 20

0	2	surface
2	22	caliche
22	67	sand & sandstone
67	109	sand & sand gravel
109	123	sandy clay & gravel
123	125	red clay

Hole # 21

0	3	surface soil
3	19	caliche & sandstone
19	69	sand, sandstone, sandy clay
69	86	sand
86	107	sandy clay with sand stringers.
107	119	sandy clay(yellow, & grey, with gravel
119	144	various colors of sandy clay
144	146	red clay

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	1		Surface
1	18		Caliche
18	61		Sand and sandstone
61	70		Loose sand
70	120		Sand and sandstone
120	122		Sand and gravel
122	125		Sandy clay
125	140		Red clay and white clay

Section 7. REMARKS AND ADDITIONAL INFORMATION

Location: 11.32.14.444411
Owner: Paul Hamilton -- Test Hole #14
Date Drilled: May 18, 1973
Depth of Hole: 140'

Elevation: 4343.0

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Sumruld Drilling Service
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	1		Surface
1	23		Caliche
23	106		Sand and sandstone with sandy clay
106	110		Sandy clay
110	115		Sand and gravel
115	117		Sandy clay
117	120		Red clay

Section 7. REMARKS AND ADDITIONAL INFORMATION

Location: 11.32.23.222141 Elevation: 4341.4
Owner: Paul Hamilton -- Test Well #15
Date Drilled: March 22, 1978
Depth of Hole: 120'

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Sumruld Drilling Service
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	1		Surface
1	19		Caliche
19	55		Sand and sandstone
55	95		Sand with stringers of sandstone
95	99		Yellow clay
99	103		Brown sandy clay
103	106		Red clay, white clay, sandstone

Section 7. REMARKS AND ADDITIONAL INFORMATION

Location: 11.32.24.1143412
Owner: Paul Hamilton -- Test Hole #16
Date Drilled: May 22, 1978
Depth of Hole: 106'

Elevation: 4332.3

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Sumruld Drilling Service
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

R 32E

R 33E

T 11 S

14 13 18

23 24 19

26 25 30

Amerada Pit
1000'N-200'E
23-11-32
Size: 75'x80'

Amerada 2
Amerada 3
Amerada 1
Texaco 5
P&A
Texas Gulf 1
Tip 1
Amerada 1
Amerada 2
Texaco 2
Texaco 1
Penrose 1
Texaco SWD 4
P&A
McClellan 1
McClellan 1Y
Texaco 2
Texaco 2
Beal 1
Amerada 1
Texaco 1
Texaco 1
Texaco 3
Texaco 1
Texaco 2
Magnolia
Samadan 1
Samadan
Ring 1
Texaco 3
Texaco 2
Texaco 1
Roberts 1
Roberts 1
Roberts 1
Boren 1
Texaco SWD
P&A

TW 1 — 30
TW 13 — 71
TW 14 — 7740
TW 11 — 142
TW 12 — 2618
TW 8 — 19,170
TW 9 — 85
TW 5
TW 10 — 14,555
TW 7 — 198
TW 3 — 256
TW 6 — 539
TW 4 — 85

1 — 9,154
2 — 11,611
3 — 25,134
4 — 26,778
5 — 20,590
6 — 24,540
7 — 14,910
8 — 22,882
9 — 24,932
10 — 62,665
11 — 10,437
12 — 28,613
13 — 28,542
14 — 22,720
15 — 23,990
16 — 25,276
17 — 15,762
18 — 12,212
19 — 10,437
20 — 11,320
21 — 1,998

WW 333212 — 60
WW 412224 — Cl. = 1286 / 3940
WW 411333 — Cl. = 258
WW 42444 — Cl. = 693
WW 111242
WW 112132
WW 122231 — 50
WW 211113 — 184
WW 212122 — Cl. = 124
WW 111111 — 120
WW 24222 — Cl. = 86
WW 411111
WW 44444
WW 242212 — 70
33333 WW — 32

100
5000
10,000
15,000
17,500
1000

60'x60'
50'x50'
100'x100'
75'x80'

LEGEND.
- WATER TEST WELL - HAMILTON.
- WATER TEST WELL - TEXACO.
- WATER WELL.
- HOUSE.
- OIL WELL.
- TEMP ABD. OIL WELL.
- P&A OIL WELL.
- P&A SWD WELL.
- SWD WELL.
- OPEN BATTERY.
- ABD. (Covered) BATT. PIT.

PAUL HAMILTON WATER CONTAMINATION STUDY

MOORE DEVONIAN POOL

MAP SCALE: 1 inch = 500 feet

CHLORIDE MAP

CONTOUR INTERVAL- 5000 PPM*

*UNLESS OTHERWISE NOTED.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS, NEW MEXICO

JOHN W. RUNYAN – GEOLOGIST

May 1, 1978
Revised May 24, 1978

R 32E

R 33E

T 11 S

T 11 S

14

13

18

23

24

19

26

25

30

Amerada 2

Amerada 3

Amerada 1

Tip 1

Texas Gulf 1

P.&A.

Amerada 2

Texaco 2

Texaco 1

Penrose

McClellan 1

McClellan 1Y

Texaco 2

Texaco 2

Beal 1

Amerada 1

Texaco 1

Boren 1

Texaco 1

Texaco 1

Texaco 3

Magnolia

Roberts 1

Samadan 1

Samadan

Ring 1

Roberts 1

Texaco 3

Texaco 2

Texaco 1

Roberts 1

Texuco SWD

P.&A.

Roberts 1

4275

4270

4265

4260

4255

4250

4245

4240

4275.4

4278.8

4279.1

4275.1

4273.3

4277.2

4284

4277.9

4277.2

4278.5

4277.6

4276.5

4276.2

4275.4

4276.2

4275.2

4274.1

4273.0

4274.4

4273.3

4273.2

4271.0

4269.0

4266.1

4262.1

4260.9

4275.5

4272.9

4266.0

4270.2

4258.8

4254.0

4255.4

4253.2

4249.3

4255.0

4244.1

4244.1

4238.8

4241.4

4246.2 (71)

4257.8

4276.5

4277.6

4272.9

4271.4

4272.4

4280.9

4281.4

4240.0

4238.4

4285.3

4252.8

4269.2

4278.6

4248.0

PAUL HAMILTON WATER CONTAMINATION STUDY

MOORE DEVONIAN POOL

ALTITUDE AND CONFIGURATION OF WATER TABLE IN VICINITY OF SECTION 24, TOWNSHIP 11 SOUTH, RANGE 32 EAST, N.M.P.M.

MAP SCALE: 1 inch = 500 feet

R 32E

R 33E

T 11 S

T 11 S

Amerada's Pit
1000'/N - 200'/E
23 - 11 - 32
Size; 75'x80'

Max. movement from SWD 3, in 5.6 years, at .8 & .9 ft. day.

Max. movement from pit in 25.5 years at .8 & .9 ft. day.

8100' from pit

8377'

1075'

1635'

1840'

7446'

.8 = 3.7 M
.9 = 3.3 M

PAUL HAMILTON WATER CONTAMINATION STUDY

MOORE DEVONIAN POOL

MAP SCALE: 1 inch = 500 feet

LEGEND.

- WATER TEST WELL - HAMILTON.
- WATER TEST WELL - TEXACO.
- WATER WELL.
- HOUSE.
- OIL WELL.
- TEMP. ABD. OIL WELL.
- P&A OIL WELL.
- P & A SWD WELL.
- SWD WELL.
- OPEN BATTERY.
- ABD. (Covered) BATT. PIT.

WATER RATE & MOVEMENT MAP

BASED ON WATER MOVEMENT RATES OF .8 & .9 FEET PER DAY FROM TWO POSSIBLE SOURCES OF CONTAMINATION

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS, NEW MEXICO

JOHN W. RUNYAN - GEOLOGIST

May 1, 1978
Revised May 24, 1978