1R- 185

REPORTS

DATE:

5/12/1978

H. MOORE WATER CONTAMINATION STUDY

MOORE DEVONIAN POOL

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

John W. Runyan - Geologist
O.C.D. in cooperation with
Water Resources Division
Roswell, New Mexico

May 12, 1978

APPENDIX

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

Results of Survey

General Data

Water Analysis and Test Well Data

Well Numbering System

Daily Field Reports

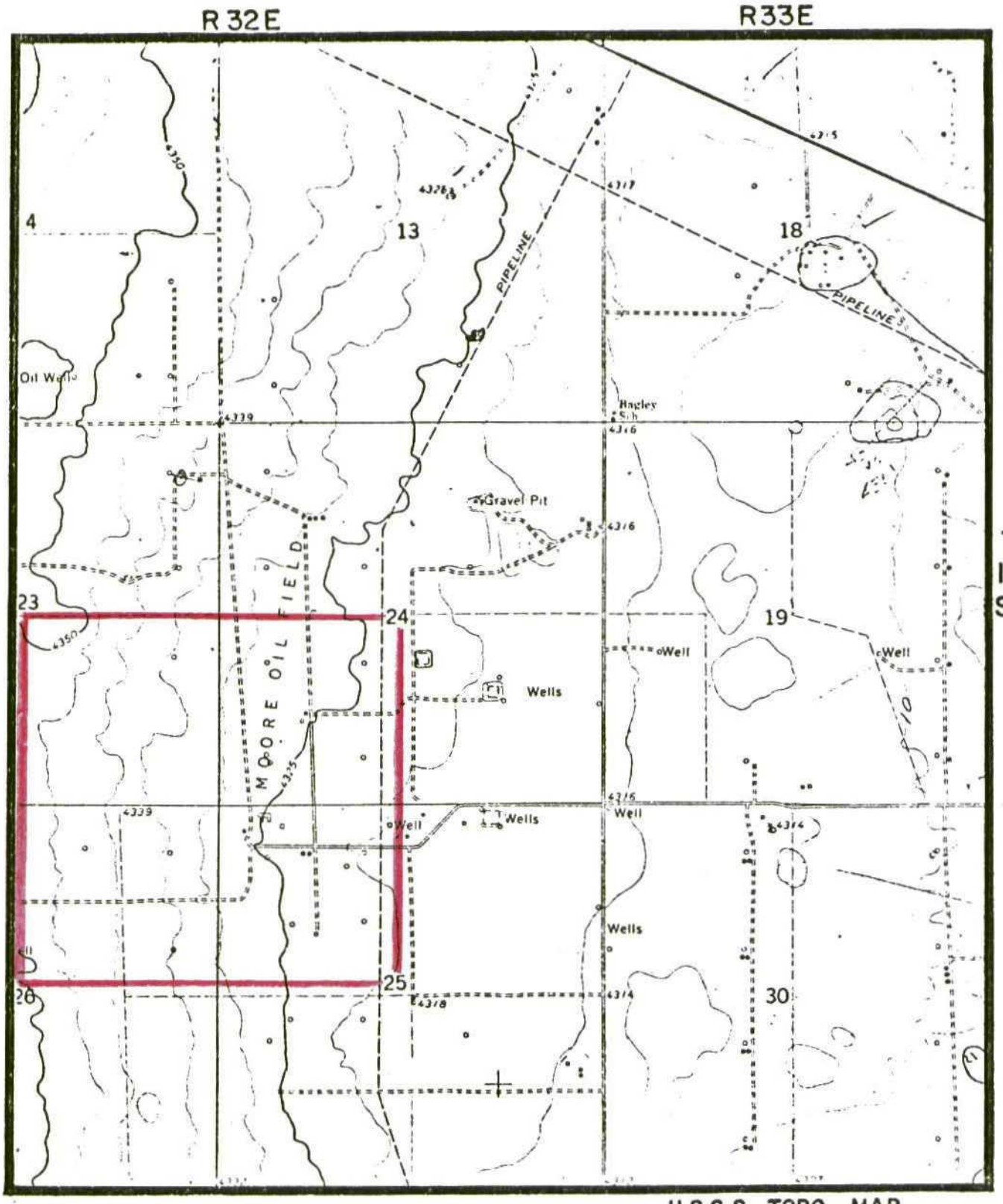
Water Analysis Sheets

Driller Logs

Maps --------- "Water Contamination and Water Rate Map"

Redbed "Triassic" Map

Crossection A--A'



U.S.G.S TOPO. MAP

MOORE WATER CONTAMINATION STUDY

—— Area of study.

RESULTS OF SURVEY

Mr. H. Moore first requested that four test wells be drilled around his house area on December 30, 1977. His house water well was 530 ppm Cl at this time. A total of seven test wells were drilled.

These seven wells established that the water movement is from west to east at a very low gradient across his house area. The house is actually located on an old buried playa lake bed.

Since the first water was tested December 30, 1977, at 530 ppm Cl, the chloride content is slowly rising. In January 1978, the chloride content has increased to 610 ppm. Also, test well #2 has increased from 792 to 1532 ppm Cl in 2 months, indicating it is on the east edge of a chloride-high moving east.

The Chloride Rate Map definitely shows the area of contamination to be moving from west to east and the source of contamination appears to be coming from the west of Mr. Moore's house. Texaco was/is the only operator west of Moore's house.

The pit located in Unit A, Section 26, did have water placed in it for 3 years; and the rate of lateral water movement for the immediate area places the calculated rate-distance almost the same as the actual map distance (.2 f/d x 25.75 years x 365). Refer to chloride-rate movement map.

All of the information available to date indicates that the Texaco pit, located in Unit A, Section 22, T11S, R32E, could have been the origin of the contaminated water in the immediate area of Moore's house.

GENERAL DATA

The Moore Devonian Pool was discovered April 5, 1952, by Texaco, Inc. Moore Well #1 located in Unit D, Section 25, Township 11 South, Range 32 East.

Texaco, Inc. completed their State New Mexico "BP" NCT-1 Well #1 located in Unit B, Section 26, T11S, R32, August 29, 1952, and plugged same August 8, 1956. They completed their New Mexico "BJ" NCT-1 Well #1 located in Unit A, Section 26, T11S, R32E, September 3, 1952, and plugged same in October 24, 1955. The production from the above went into a central battery located in Unit A of Section 26.

A pit was in existence on this lease by October 10, 1952, and produced water was put in this pit, some reported 8,865 bbls. plus as follows:

	STATE "BJ" #1	STATE "BP" #1
1952	0 bbls.	219 bbls.
1953	155 bbls.	8491 bbls.
1954	0 bbls.	not reported
1955	S.I.	not reported
1956	P&A	S.I. & P&A

Pit size was 30' x 30', located 650'/N & 960'/E of Section 26, T11S, R32E. Size and location taken from aerial photographs dated May 16, 1955. Pit was in existence and use for 3 years. It has been 25.75 years since the pit was first used.

The Texaco, Inc. New Mexico "BJ" Well #1 was reported to have holes in upper 0 -- 33 feet of 8 5/8" casing (13 3/8" surface casing) when well was plugged. It is most unlikely that this casing leak caused any of the contamination existing to date.

RATE CALCULATION

The following rate calculation is based on best information available to date. The State Engineers estimate the rate of water movement in the immediate area of Moore's house to be .2 feet/day, gradient of 1' dip to east for each 98' across Moore's area (from crossection).

The distance of water movement from Texaco's pit to front of contamination is 1925 feet. Calculations are: 365 x .2 x 25.75 = 1880 feet, almost the exact same distance. Refer to chloride-rate map.

Due to the low volumes of water involved and long period of time since the contamination began, the chloride content of the water is low and has cleared up somewhat behind the tail of the contamination.

Respectfully submitted,

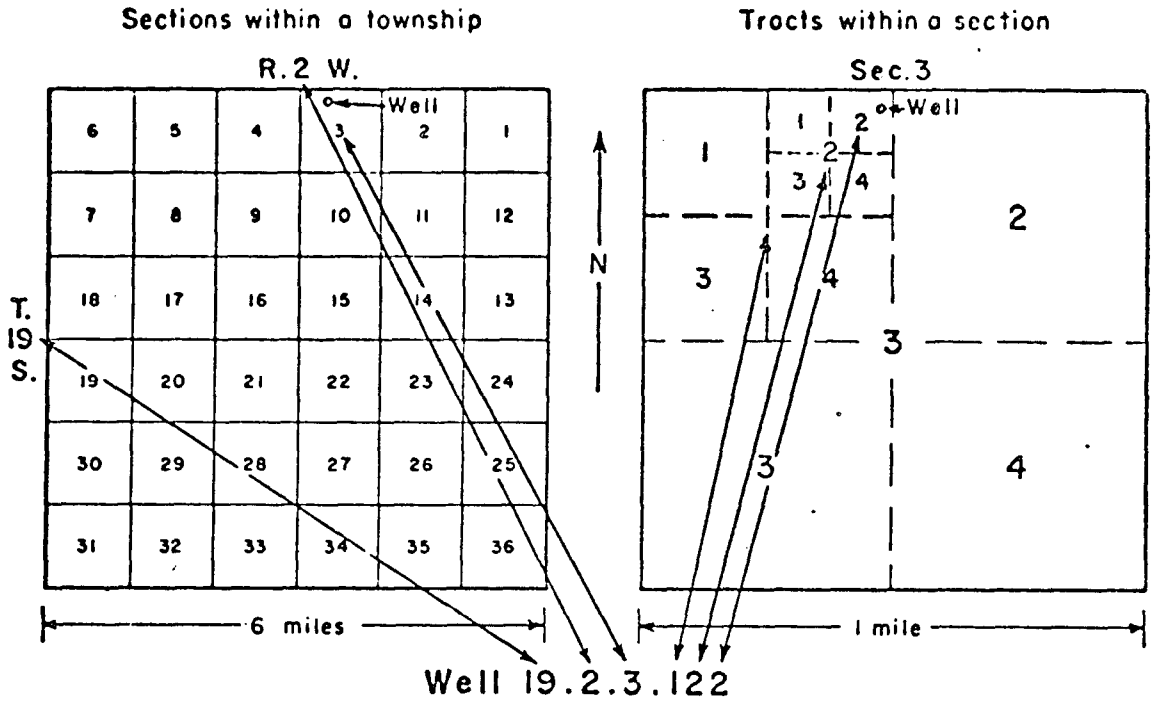
John W. Runyan

John W. Runyan, Geologist
Oil Conservation Division
Hobbs, New Mexico
May 12, 1978

MOORE CONTAMINATION STUDY
WATER ANALYSIS & TEST WELL DATA

Test Well	Well Location	By	Agency	Date	Chlorides PPM	T.D.	Top Redbed	Surface Elevation
#1	11.32.25.11230	Jetted	O.C.D.	1-4-78	113.6	90'	84'	4324'
#1		Trip Sample	W.R.D.	1-9-78	72.0			
#2	11.32.25.11131	Jetted	O.C.D.	1-5-78	792.0	86'	82'	4329'
#2		Trip Sample	W.R.D.	1-9-78	1072.0			
#2		Trip Sample	W.R.D.	1-20-78	1521.0			
#2		Trip Sample	W.R.D.	1-30-78	1620.0			
#2		Trip Sample	W.R.D.	2-13-78	1532.0			
#3	11.32.25.11142	Jetted	O.C.D.	1-5-78	258.0	90'	86'	4325'
#3		Trip Sample	W.R.D.	1-9-78	545.0			
#4	11.32.25.111214	Jetted	O.C.D.	1-6-78	156.0	90'	85'	4326'
#4		Trip Sample	W.R.D.	1-9-78	191.0			
#5	11.32.26.222334	Jetted	O.C.D.	1-12-78	71.0	170'	167'	4333'
#5		Trip Sample	W.R.D.	1-16-78	102.0			
#5		Trip Sample	W.R.D.	1-20-78	112.0			
#5		Trip Sample	W.R.D.	1-30-78	125.0			
#5		Trip Sample	W.R.D.	2-13-78	116.0			
#6	11.32.26.222343	Jetted	O.C.D.	1-17-78	99.8	90'	83'	4333'
#6		Trip Sample	W.R.D.	1-20-78	78.0			
#6		Trip Sample	W.R.D.	1-30-78	74.0			
#6		Trip Sample	W.R.D.	2-13-78	70.0			
#6		Trip Sample	W.R.D.	3-20-78	102.0			
#7	11.32.23.442334	Jetted	O.C.D.	1-17-78	99.4	82'	78'	4332'
#7		Trip Sample	W.R.D.	1-20-78	50.0			

Moore Windmill	Nov.1977	510.0
Moore Windmill	Jan.1978	560.0
Moore House well	Nov.1977	530.0
Moore House well	Jan.1978	610.0



Well 19.2.3.122

.-- System of numbering wells in New Mexico.

NEW MEXICO OIL CONSERVATION COMMISSION

FIELD TRIP REPORT

Name JOHN W. RUNYAN Date 12-30-77 Miles 135 District 1

Time of Departure 7:30 a.m. Time of Return 3:45 p.m. Car No. 4972

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

Signature John W. Runyan

CLASSIFICATION	FACILITY	HOURS	QUARTER HOURS
0	0	7	1

Went to Moore Devonian Pool in Section 24, T11S, R32E, to witness the drilling of water test well #13 in Hamilton Water contamination Study.

Mr. Moore asked that we drill 4 test wells at his house to see if we can find the source of his water contamination problem. Will start Wednesday Jan. 4, 1978.

TYPE INSPECTION PERFORMED

H = Housekeeping
W = Water Contamination
D = Drilling Operation
T = Well Test
P = Plugging
C = Plugging Cleanup
M = Mishap or Spill
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

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

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPORT

Name JOHN W. RUNYAN Date 1-4-78 Miles 139 District I

Time of Departure 8 am Time of Return 1:45 pm Car No. 497

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

Signature John W. Runyan

	CLASSIFICATION	FACILITY	HOURS	QUARTER HOURS
W	O	O	5	3

D-25-11-32 went to Moore Devonian Pool to begin water test wells on Moore property.
Test well #1 was drilled 165' due south of Texaco's TA well #3.
Top redbed at 84', drilled to TD of 90'. Chlorides = 114 ppm.

Test Well #1 was drilled between Mr. Moore's house and old abandoned pit of Texaco.

Both Eddy Seay and myself went to Mr. Moore's after getting location for test well #1 set. I came back to Hobbs and Eddy took test well sample and analyzed same.

TYPE INSPECTION PERFORMED

H = Housekeeping
W = Water Contamination
D = Drilling Operation
T = Well Test
P = Plugging
C = Plugging Cleanup
M = Mishap or Spill
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

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

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPORT

Name EDDIE SEAY Date 1-4-78 Miles 226 District 1

Time of Departure 8 am Time of Return 4 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
0	0	8	-

To West Tatum to drill water contamination well on Moore ranch.
Test Well #1 11-25-33 southeast of Moore Ranch house.
Top of redbed 84 feet
TD 90 feet
Sample circulated - 113.6 ppm

Rig down and moved 300 feet west of Moore ranch house to start drilling test well #2 11-25-33.

TYPE INSPECTION PERFORMED

- 1 = Housekeeping
- 2 = Water Contamination
- 3 = Drilling Operation
- 4 = Well Test
- 5 = Plugging
- 6 = Plugging Cleanup
- 7 = Mishap or Spill

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

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

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPOP

Name EDDIE SEAY Date 1-6-78 Miles 237 District 1

Time of Departure 8 am Time of Return 4 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	
S	S	8	-	Dropped trip sampler into test well #2 Moore contamination study chloride -- 792 ppm. Started drilling test well #4 northeast of Moore ranch house 250 feet in 11-25-33. west of Tatum. Top Redbed -- 85 feet TD -- 90 feet Chloride sample -- 156 ppm

TYPE INSPECTION PERFORMED

H = Housekeeping
W = Water Contamination
D = Drilling Operation
T = Well Test
P = Plugging
C = Plugging Cleanup

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

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

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPORT

Name EDDIE SEAY Date 1-10-78 Miles 242 District 1

Time of Departure 8 am Time of Return 4 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 [signature]

CLASSIFICATION	FACILITY	HOURS	QUARTER HOURS
O	S	8	

11-25-33 to West Tatum to meet with Mr. Moore to discuss results of Moore contamination study. The contamination was determined to have come from a P&A well west of Moore house. After discussion it was determined that 2 moore wells were needed to pinpoint trouble.

Meet with Mr. Paul Hamilton to discuss contamination study which was done in December 1977. Source of contamination was caused by Texaco SWD well.

TYPE INSPECTION PERFORMED

- Housekeeping
- Water Contamination
- Drilling Operation
- Well Test
- Plugging
- Plugging Cleanup
- Mishap or Spill
- 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

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

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPORT

Name EDDIE SEAY Date 1-10-78 Miles 242 District 1

Time of Departure 8 am Time of Return 4 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 [signature]

CLASSIFICATION	FACILITY	HOURS	QUARTER HOURS
O	S	8	

11-25-33 to West Tatum to meet with Mr. Moore to discuss results of Moore contamination study. The contamination was determined to have come from a P&A well west of Moore house. After discussion it was determined that 2 moore wells were needed to pinpoint trouble.

Meet with Mr. Paul Hamilton to discuss contamination study which was done in December 1977. Source of contamination was caused by Texaco SWD well.

TYPE INSPECTION PERFORMED

- Housekeeping
- Water Contamination
- Drilling Operation
- Well Test
- Plugging
- Plugging Cleanup
- Mishap or Spill
- 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

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

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPORT

Name JOHN W. RUNYAN Date 1-12-78 Miles 140 District I

Time of Departure 7:30 am Time of Return 7:45 pm Car No. OF-497

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

Signature John W. Runyan

INSPECTION	CLASSIFICATION	FACILITY	HOURS	QUARTER HOURS
W	0	0	12	1

A-26-11-32 To Moore Devonian Pool to witness the drilling of test well #5, Moore water contamination study.
TW #5 located 200' ENE from Texaco's P&A well in A-26-11-32, in line from Texaco P&A well and Moore's house.

Top redbed stringer at 82½ feet, base 84 feet.
84 -- 167' Cretaceous washin. This well hit dead center of a redbed gulley. Top redbed 167' TD 170'

1st sample chlorides = 71.0 ppm
2nd sample chlorides = 56.8 ppm (10 min later)

Those present: Mr. Jim Wright, state Engineer
Mr. Moore, John W. Runyan, OCC and Mr. Sumruld, Driller.

TYPE INSPECTION PERFORMED

H = Housekeeping
W = Water Contamination
D = Drilling Operation
T = Well Test
P = Plugging
C = Plugging Cleanup
M = Mishap or Spill
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

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

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPORT

Name EDDIE SEAY Date 1-16-78 Miles 373 District 1

Time of Departure 7:30 a.m. Time of Return 4 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	4		11-25-33 to West Tatum to catch and run water sample from Test Well #5 Moore contamination study. Sample 50 feet -- 128 ppm 56 feet -- 130 ppm 84 feet -- 113 ppm 156 feet -- 110 ppm
O	P	4	-	

TYPE INSPECTION PERFORMED

H = Housekeeping
W = Water Contamination
D = Drilling Operation
T = Well Test
P = Plugging
C = Plugging Cleanup
M = Mishap or Spill

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

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

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPORT

Name EDDIE SEAY Date 1-17-78 Miles 226 District 1

Time of Departure 3 am Time of Return 3 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	6	-	11-25-33 to West Tatum to begin drilling test well #6 in Moore Contamination Study. Set location 100 feet east of well #5 -- rig up and started drilling -- started snowing and raining -- rig shut down until next day.

TYPE INSPECTION REPORTED

- = Housekeeping
- = Water Contamination
- = Drilling Operation
- = Well Test
- = Plugging
- = Plugging Cleanup
- = Mishap or Spill

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

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

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPORT

Name EDDIE SEAY Date 1-18-78 Miles 222 District I

Time of Departure 8 am Time of Return 3 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 [signature]

CLASSIFICATION	FACILITY	HOURS	QUARTER HOURS
U	S	7	-

11-25-33 to West Tatum to finish drilling test well #6 in Moore Contamination Study.
Top redbed -- 83 feet
TD -- 90 feet
Water sample -- 99.4 ppm

TYPE INSPECTION PERFORMED

H = Housekeeping
W = Water Contamination
D = Drilling Operation
T = Well Test
P = Plugging
C = Plugging Cleanup
M = Mishap or Spill
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.)

S = Inspections not related to injection

NATURE OF SPECIFIC WELL OR FACILITY INSPECTED

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

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: MOORE CONTAMINATION STUDY **Well No.** TW #1

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit D, Section 25, T 11 S - R 32 E 11:32:25:11230

165' due south of Texaco TA Well #3

Type Well: Water Test Well **Depth:** 90 feet.

Well Use: Water Analysis

Sample Number: #1 **Date Taken:** 1-4-78 Eddy Seay

Specific Conductance: _____ m/ɔ

Total dissolved Solids: _____ PPM.

Chlorides: 113.6 PPM.

Sulfates: _____ PPM.

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

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 1-4-78 **By:** Eddie Seay
N.M.O.C.C.

Remarks: _____

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: MOORE CONTAMINATION STUDY Well No. TW #2

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit D, Section 25, T 11 S - R 32 E 11.32.25.11131

located 300' due west of Moore's house

Type Well: Water Test Well Depth: 86 feet.

Well Use: Water analysis

Sample Number: #1 Date Taken: 1-5-78

Specific Conductance: _____ m/ohm

Total dissolved Solids: _____ PPM.

Chlorides: 792 PPM.

Sulfates: _____ PPM.

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

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 1-5-78 By: John W. Runyan
N.M.O.C.C.

Remarks: _____

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: MOORE **Well No.** TW #2

Land Status: ☐ State ☐ Federal ☒ Fee

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

Type Well: Test Well **Depth:** ____ feet.

Well Use: Water Contamination Test

Sample Number: #2 **Date Taken:** 1-19-78 (Chaves - St. Engr.)

Specific Conductance: ____ m/ℳ

Total dissolved Solids: ____ PPM.

Chlorides: 1427 PPM.

Sulfates: ____ PPM.

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

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

____ : ____

Date Analized: 1-19-78 **By:** John W. Runyan
N.M.O.C.C.

Remarks: Sample taken from 62' with trip sampler

50 ml sample = 71.0 factor x 20.1 titration = 1427.1 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: MOORE CONTAMINATION STUDY Well No. TW #3

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit D, Section 25, T 11 S - R 32 E 11.32.25.11142

180 feet northeast of windmill at house

Type Well: Water test well Depth: 90 feet.

Well Use: Water analysis

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

Specific Conductance: _____ m/ℓ

Total dissolved Solids: _____ PPM.

Chlorides: 258 PPM.

Sulfates: _____ PPM.

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

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 1-5-78 By: Eddie Seay
N.M.O.C.C.

Remarks: _____

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: MOORE WATER STUDY Well No. TW #4

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit D, Section 25, T 11 S - R 32 E 11.32.25.111214

250 feet northeast of Moore house

Type Well: Water test well Depth: 90 feet.

Well Use: Water analysis

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

Specific Conductance: _____ m/ohm

Total dissolved Solids: _____ PPM.

Chlorides: 156 PPM.

Sulfates: _____ PPM.

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

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 1-6-78 By: Eddie Seay
N.M.O.C.C.

Remarks: _____

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: MOORE CONTAMINATION STUDY Well No. TW #5

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit A, Section 26, T 11 S - R 32 E 11.32.26.222334

200 feet ENE from Texaco's P&A well in A-26-11-32

Type Well: Water test well Depth: 167 feet.

Well Use: water analysis

Sample Number: #1 Date Taken: 1-12-78 John W. Runyan

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: 1-12-78 By: John W. Runyan
N.M.O.C.C.

Remarks: _____

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: MOORE CONTAMINATION STUDY Well No. TW #5

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit A, Section 26, T 11 S - R 32 E 11.32.26.222334

Type Well: Water test well Depth: 167 feet.

Well Use: Water analysis

Sample Number: #2 Date Taken: 1-12-78

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: 1-12-78 By: John W. Runyan
N.M.O.C.C.

Remarks: Sample #2 taken 10 minutes after sample #1

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: MOORE WATER CONTAMINATION STUDY Well No. TW #5

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit A, Section 26, T 11 S - R 32 E

located 200' ENE of Texaco's P&A well #1 in A-26-11-32

Type Well: Test well Depth: 170 feet.

Well Use: Water contamination test

Sample Number: #3 Date Taken: 1-19-78 Chaves, State Engr.

Specific Conductance: _____ m/ohm

Total dissolved Solids: _____ PPM.

Chlorides: 113.6 PPM.

Sulfates: _____ PPM.

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

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 1-19-78 By: John W. Runyan
N.M.O.C.C.

Remarks: Sample taken from 56' with trip sampler

50 ml sample = 71.0 factor x 1.6 titration = 113.6 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: MOORE WATER CONTAMINATION STUDY Well No. TW #5

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit A, Section 26, T 11 S - R 32 E

located 200 feet ENE of Texaco well #1 in A-26-11-32

Type Well: Test well Depth: 110 feet.

Well Use: Water contamination test

Sample Number: #3A Date Taken: 1-19-78 Chaves St. Engr.

Specific Conductance: _____ m/ℳ

Total dissolved Solids: _____ PPM.

Chlorides: 127.8 PPM.

Sulfates: _____ PPM.

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

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 1-19-78 By: John W. Runyan
N.M.O.C.C.

Remarks:
Sample taken at 80 feet with trip sampler

50 ml sample = 71.0 factor x 1.8 titration = 127.8

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: MOORE WATER CONTAMINATION STUDY Well No. TW #6

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit A, Section 26, T 11 S - R 32 E 11.32.26.2
located 100 feet east of TW #5

Type Well: Water test well Depth: 90 feet.

Well Use: Water analysis

Sample Number: #1 Date Taken: 1-17-78, Eddie Seay

Specific Conductance: _____ m/ohm

Total dissolved Solids: _____ PPM.

Chlorides: 99.8 PPM.

Sulfates: _____ PPM.

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

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 1-17-78 By: Eddie Seay
N.M.O.C.C.

Remarks: _____

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: MOORE WATER CONTAMINATION STUDY Well No. TW #6

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit A, Section 26, T 11 S - R 32 E

located 250 feet ENE of Texaco's P&A well in A-26-11-32

Type Well: Water test well Depth: ____ feet.

Well Use: contaminated water test

Sample Number: #2 Date Taken: 1-19-78 Chaves St. Engr.

Specific Conductance: _____ m/ℳ

Total dissolved Solids: _____ PPM.

Chlorides: 92.3 PPM.

Sulfates: _____ PPM.

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

Sulfides: ☐ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: 1-19-78 By: John W. Runyan
N.M.O.C.C.

Remarks:

Sample taken with trip sampler at 50 feet

50 ml sample = 71.0 factor x 1.3 titration = 92.3 ppm

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: MOORE WATER CONTAMINATION STUDY Well No. TW #7

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit ___, Section 23, T 11 S - R 32 E 11.32.23.442334

Type Well: Water test well Depth: 32 feet.

Well Use: Water analysis

Sample Number: #2 Date Taken: 3-17-78, State Engr.

Specific Conductance: _____ m/ℓ

Total dissolved Solids: _____ PPM.

Chlorides: 99.4 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 #1 discarded - contaminated with drilling water.

25 ml sample = 142.0 factor x .7 titration = 99.4 ppm

Moore Water Study

Hole # 1

0	2	surface soil
2	27	caliche
27	61	sand & sandstone layers
61	84	layers of gravel, sandy clay & sandstone
84	90	red clay

Hole # 2

0	1	surface
1	26	caliche
26	58	sand & sandstone layers
58	62	sand & gravel
62	64	brown clay
64	67	sandstone
67	82	sandy clay, gravel, sandstone.
82	86	red clay

Hole # 3

0	3	surface
3	25	caliche
25	60	sand & Sandstone layers
60	67	sand
67	86	gravel & sandy clay layers
86	90	red clay

Hole # 4

0	26	caliche
26	62	sand & sandstone layers
62	65	cemented gravel(conglomerate)
65	85	layers of sandy clay, gravel & sandstone
85	90	red clay

Hole # 5

0	1	surface soil
1	23	caliche
23	55	sand & sandstone
55	57	sandy clay
57	74	sandstone & gravel layers
74	84	sandy clay & sandstone layers
84	116	sandy clay(various colors)with stringers of gravel & sandstone
116	143	sandstone(and-or cemented gravel) with stringers of sandy clay.
143	167	sandy clay with stringers of sandstone.
167	170	red clay

Hole # 6

0	1	surface soil
1	23	caliche
23	57	sand & sandstone layers
57	74	sandstone(cemented gravel) & loose gravel
74	83	grey & blue sandy clay with stringers of sandstone
83	90	red clay

R 32 E

T 11 S

23 SE/4

24 SW/4

26 NE/4

25 NW/4

T 11 S

McClellan 1

McClellan 1Y

100'x 60'

Texaco 3

60x60

Texaco 2

Amerada 1

WW 333212 60

Texaco 1

TW 7 50

TW 4 156

WW 122231 50

Disposal into pit = 8865 + bbls prod. water

30'x 30'

100

400

800

1200

1600

TW 2 792 + 1530

WW 610

Moore

WW 560

TW 3 258

Texaco 3

TW 114

1200

800

400

100

Texaco 1

TW 5 128

TW 6 99.8

Texaco 1

Texaco 1

Battery

50'x 40'

Texaco 2

At .2 f/d rate– max. distance in 25.75 yrs. = 1880 feet.

Texaco 4

Samadan 1

Samadan 2

80'x 50'

WW 411111 68

MOORE WATER CONTAMINATION STUDY

CAPROCK, NEW MEXICO AREA

MAP SCALE: 1 inch = 250 feet

LEGEND:

- △ = WATER TEST WELLS.
- ◎ = WATER WELL.
- ⊟ = HOUSE
- -x-x- = FENCE.
- ○○ = BATTERY TANKS.
- = ABD. PIT COVERED.
- ● = OIL WELL.
- ⌀ = TEMP. ABD. OIL WELL.
- ✣ = P&A OIL WELL.

CHLORIDE & RATE MAP

CONTOUR INTERVAL = 400 PPM CL.*

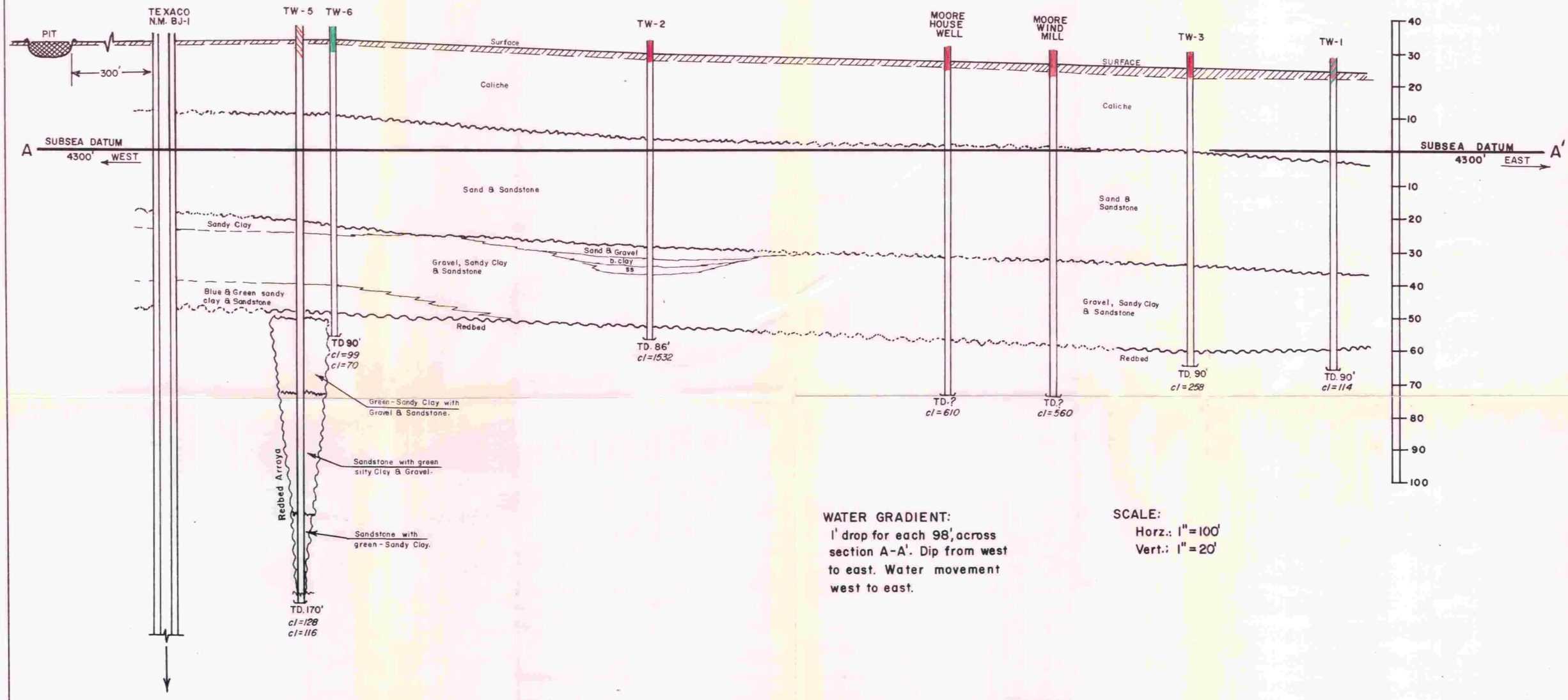
*UNLESS OTHERWISE NOTED.

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

JOHN W. RUNYAN – GEOLOGIST

MAY. 10, 1978

BASE MAP: J.W.R.- N.M.O.C.C. 1/11/78



WATER GRADIENT:
1' drop for each 98', across section A-A'. Dip from west to east. Water movement west to east.

SCALE:
Horz.: 1" = 100'
Vert.: 1" = 20'

MOORE WATER CONTAMINATION STUDY

MOORE DEVONIAN POOL

CROSSECTION A-A'

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