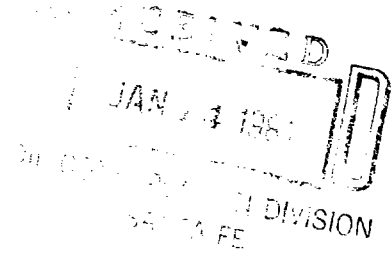




PETROLEUM PRODUCTS



January 12, 1981

TEXACO INC.  
DRAWER 728  
HOBBS, NEW MEXICO 88240

CENTRAL VACUUM UNIT WATERFLOOD PROJECT  
CASE NO. 6008 - ORDER NO. R-5530

State of New Mexico  
Energy and Minerals Department  
Oil Conservation Division  
P. O. Box 2088  
Santa Fe, New Mexico 87501

Gentlemen:

In accordance with Paragraph (6) of NMOCED Order No. R-5530, Texaco respectfully requests Administrative approval to increase the maximum wellhead injection pressure from 883 psi to 1400 psi in the Texaco Central Vacuum Unit Well No. 108.

A step-rate test was recently conducted on Central Vacuum Unit Well No. 108. The fracture pressure for the Vacuum Grayburg-San Andres formation was determined to be 3250 psi at a depth of 4200', corresponding to a wellhead pressure of 1480 psi, at an injection rate of 1835 BWPD.

The procedure for conducting the step-rate test was as follows:

- 1.) Injection was shut-in to allow the bottom hole pressure to approach formation pressure.
- 2.) A bottom hole pressure bomb was installed in the well.
- 3.) Injection was resumed with surface and bottom hole pressures at various injection rates recorded. Injection was held constant at each rate for 15 minutes. The pressure at the end of each 15-minute period was used in determining the fracture pressure.

January 12, 1981

A copy of the chronological data and a graphical presentation of the pressures vs. injection rates are attached. The fracture rate and pressure was determined by extrapolation of the linear rate vs. pressure relationship above and below the fracture pressure to their intersection. The intersection of the two lines is interpreted as the fracture rate and pressure.

Injection at maximum permissible rates will provide high operating efficiency, ensure that all pay zones are properly flooded, and maximize recovery of reserves from this project.

The requested 1400 psi pressure limit will provide a margin of safety below the measured fractured pressure. Your early consideration will be appreciated.

Yours very truly,

TEXACO INC.  
PRODUCING DEPARTMENT-WEST U. S.

RJB:JEB

J. V. Gannon  
District Superintendent

MD-518

STEP RATE TESTERS INC.  
P.O. BOX 6414  
ODESSA, TEXAS 79762

COMPANY Texaco DATE 12-9-80

ADDRESS \_\_\_\_\_

WELL# 108 LEASE Central Vacuum Unit

WELL FILE DATA:

T.D. \_\_\_\_\_ PACKER@ \_\_\_\_\_ PERFS. \_\_\_\_\_  
TBG. ID. \_\_\_\_\_ TBG. COATING \_\_\_\_\_ DEPTH SN. \_\_\_\_\_ BHP@ 4200

STABILIZATION:

RATE 0 BWPD PRES. 0 PSIG. CUMULATIVE \_\_\_\_\_ BBLs.

INCREMENTS:

RATE 100 BWPD PRES. \_\_\_\_\_ PSIG. STEP LENGTH 15 MINS.

TEST RESULTS:

FORMATION PARTING POINT 1480 <sup>surf</sup> PSIG. @ 1035 BWPD  
3230 (bhp)

	RATE BWPD	PRESSURE SURFACE PSIG.	PRESSURE MINUS FRICTION PSIG.	PRESSURE BOTTOM HOLE PSIG.
1.	0	0		1840
2.	200	72		1855
3.	300	130		1904
4.	400	200		1956
5.	500	265		2017
6.	600	345		2090
7.	700	425		2165
8.	800	515		2249
9.	900	620		2336
10.	1000	725		2424
11.	1100	825		2530
12.	1200	930		2625
13.	1300	1030		2719
14.	1400	1140		2820
15.	1500	1255		2918
16.	1600	1360		3011
17.	1700	1470		3100
18.	1800	1575		3191
19.	1900	1685		3250
20.	2000	1780		3301
21.	2100	1880		3350

REMARKS \_\_\_\_\_

TESTER ATG COMPANY REP. \_\_\_\_\_

BILLING 1075.00

STEP RATE TEST

#108

DATE 12-9-80

STABILIZATION:

Rate 0 BHPD

Press. 0 PSI (Surface)

Cumulative Bbls.

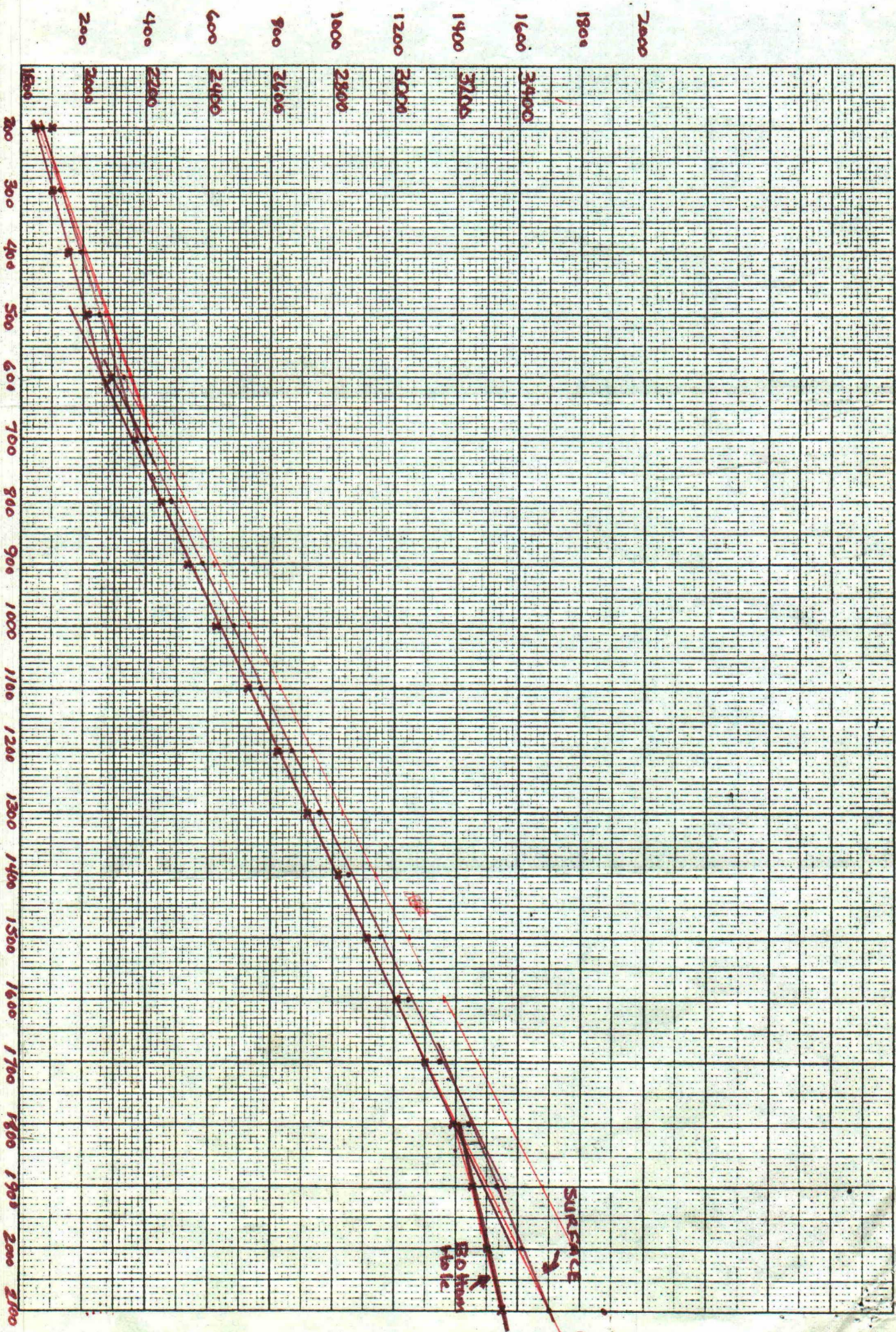
INCREMENTS:

Rate 100 BHPD

Pressure PSI

Time .25 Hrs.

BOTTOM HOLE OR SURFACE PRESSURE (PSI) ~ @



INJECTION RATE ~ BHPD



PETROLEUM PRODUCTS



TEXACO INC.  
DRAWER 428

HOBBS, NEW MEXICO 88240

January 12, 1981

CENTRAL VACUUM UNIT WATERFLOOD PROJECT  
CASE NO. 6008 - ORDER NO. R-5530

State of New Mexico  
Energy and Minerals Department  
Oil Conservation Division  
P. O. Box 2088  
Santa Fe, New Mexico 87501

Gentlemen:

In accordance with Paragraph (6) of NMOCD Order No. R-5530, Texaco respectfully requests Administrative approval to increase the maximum wellhead injection pressure from 922 psi to 1100 psi in the Texaco Central Vacuum Unit Well No. 121.

A step-rate test was recently conducted on Central Vacuum Unit Well No. 121. The fracture pressure for the Vacuum Grayburg-San Andres Formation was determined to be 2908 psi at a depth of 4200', corresponding to a wellhead pressure of 1140 psi, at an injection rate of 1077 BWPD.

The procedure for conducting the step-rate test was as follows:

- 1.) Injection was shut-in to allow the bottom hole pressure to approach formation pressure.
- 2.) A bottom hole pressure bomb was installed in the well.
- 3.) Injection was resumed with surface and bottom hole pressures at various injection rates recorded. Injection was held constant at each rate for 15 minutes. The pressure at the end of each 15-minute period was used in determining the fracture pressure.

State of New Mexico  
Energy & Minerals Department

- 2 -

January 12, 1981

A copy of the chronological data and a graphical presentation of the pressures vs. injection rates are attached. The fracture rate and pressure was determined by extrapolation of the linear rate vs. pressure relationship above and below the fracture pressure to their intersection. The intersection of the two lines is interpreted as the fracture rate and pressure.

Injection at maximum permissible rates will provide high operating efficiency, ensure that all pay zones are properly flooded, and maximize recovery of reserves from this project.

The requested 1100 psi pressure limit will provide a margin of safety below the measured fractured pressure. Your early consideration will be appreciated.

Yours very truly,

TEXACO INC.  
PRODUCING DEPARTMENT-WEST U. S.

RJB:JEB

J. V. Gannon  
District Superintendent

MD-516

STEP RATE TESTERS INC.  
P.O. BOX 6414  
ODESSA, TEXAS 79762

COMPANY Texaco DATE 12-12-80

ADDRESS \_\_\_\_\_

WELL# 121 LEASE Central Vacuum Unit

WELL FILE DATA:

T.D. \_\_\_\_\_ PACKER@ \_\_\_\_\_ PERFS. \_\_\_\_\_  
TBG.ID. \_\_\_\_\_ TBG.COATING \_\_\_\_\_ DEPTH SN. \_\_\_\_\_ BHP@ L200

STABILIZATION:

RATE 0 BHPD PRES. 250 PSIG. CUMULATIVE \_\_\_\_\_ BBLS.

INCREMENTS:

RATE 200 BHPD PRES. \_\_\_\_\_ PSIG. STEP LENGTH 15 MINS.

TEST RESULTS:

FORMATION PARTING POINT 1140 SURF 2908.5 PSIG.@ 1077 BHPD

	RATE BHPD	PRESSURE SURFACE PSIG.	PRESSURE MINUS FRICTION PSIG.	PRESSURE BOTTOM HOLE PSIG.
1.	<u>0</u>	<u>250</u>	<u>          </u>	<u>2087</u>
2.	<u>200</u>	<u>415</u>	<u>          </u>	<u>2224</u>
3.	<u>400</u>	<u>625</u>	<u>          </u>	<u>2410</u>
4.	<u>600</u>	<u>788</u>	<u>          </u>	<u>2561</u>
5.	<u>800</u>	<u>910</u>	<u>          </u>	<u>2682</u>
6.	<u>1000</u>	<u>1030</u>	<u>          </u>	<u>2804</u>
7.	<u>1200</u>	<u>1125</u>	<u>          </u>	<u>2876</u>
8.	<u>1400</u>	<u>1240</u>	<u>          </u>	<u>2969</u>
9.	<u>1600</u>	<u>1310</u>	<u>          </u>	<u>3002</u>
10.	<u>1800</u>	<u>1410</u>	<u>          </u>	<u>3064</u>
11.	<u>2000</u>	<u>1495</u>	<u>          </u>	<u>3111</u>
12.	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
13.	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
14.	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
15.	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
16.	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
17.	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
18.	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
19.	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
20.	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>

REMARKS \_\_\_\_\_

TESTER ABC COMPANY REP. \_\_\_\_\_

BILLING \$624.00

# STEP RATE TEST

# 121

DATE 12-12-80

## STABILIZATION:

Rate 0 BHPD

Press. 250 PSI (Surface)

Cumulative \_\_\_\_\_ Bbls.

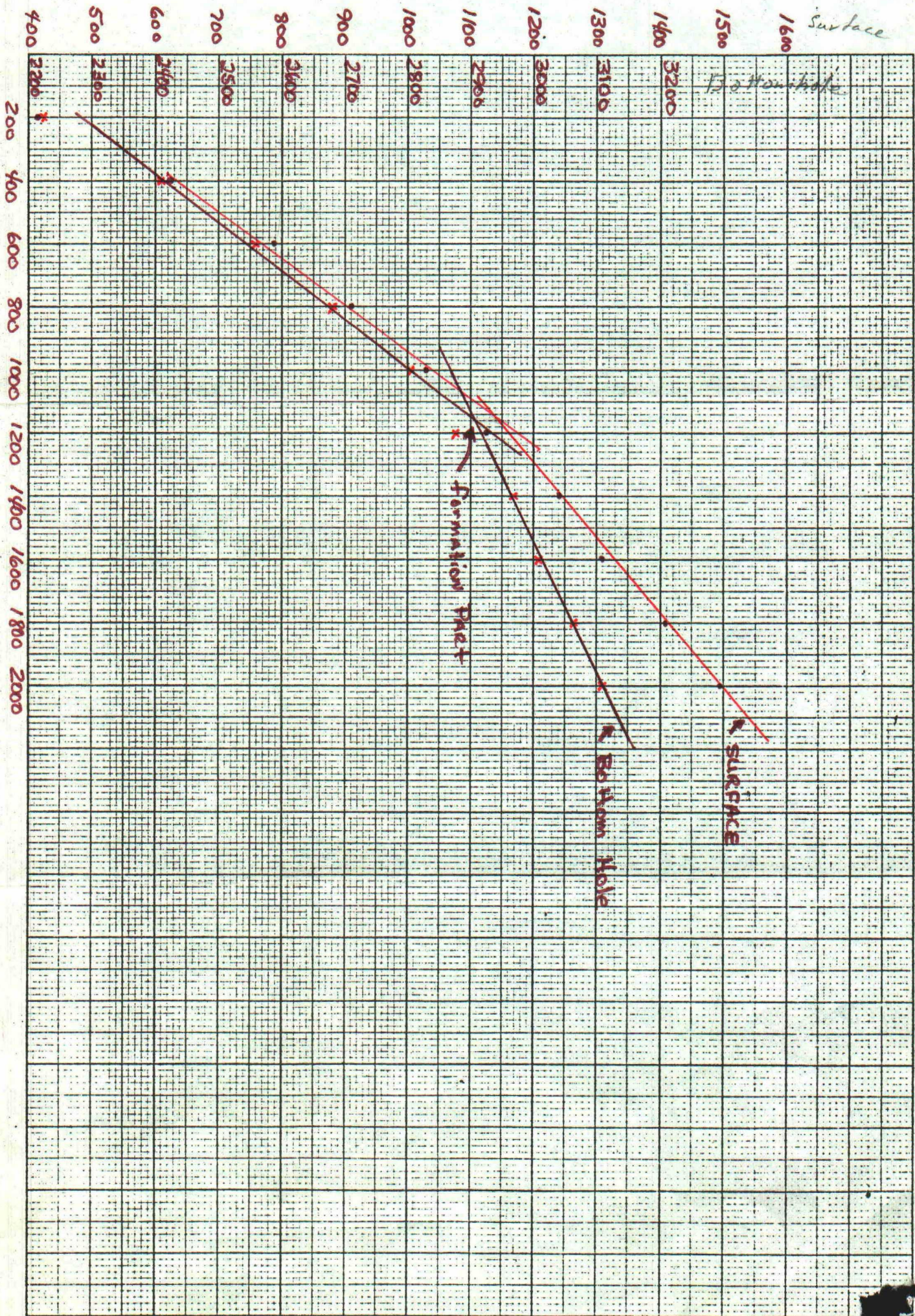
## INCREMENTS:

Rate 200 BHPD

Pressure \_\_\_\_\_ PSI

Time 0.25 Hrs.

BOTTOM HOLE OR SURFACE PRESSURE (PSI) ~ @



INJECTION RATE ~ BHPD



PETROLEUM PRODUCTS

January 22, 1981

TEXACO INC.  
DRAWER 728  
HOBBS, NEW MEXICO 88240

JAN 23 1981

JAN 23 1981

AMENDMENT TO ADMINISTRATIVE  
ORDER PMX-86

APPLICATION TO DRILL UNORTHODOX  
LOCATION INJECTION WELLS

CENTRAL VACUUM UNIT  
LEA COUNTY, NEW MEXICO

State of New Mexico  
Energy and Minerals Department  
Oil Conservation Division  
P. O. Box 2088  
Santa Fe, New Mexico, 87501

Attention: Mr. R. L. Stamets  
Technical Support Chief

*Amend PMX-86 Exhibit A  
by substituting Well No 154  
for well No 151 (a junked and  
abandoned hole)*

*location of 154 on next page*

*2-15-81*

Gentlemen:

Texaco requests your approval to amend Administrative Order PMX-86 by replacing Central Vacuum Unit Well No. 151 with Central Vacuum Unit Well No. 154.

Well No. 151 was spudded on December 17, 1980. A 17-1/2" hole was drilled to 355' and 13-3/8" casing was run and cemented at that depth. A 12-1/4" hole was drilled to 1605' and 8-5/8" casing was run and cemented. A 7-7/8" hole was then drilled to 1918' at which time the drill string twisted off and was pulled. Left in the hole were eight 6-1/4" drill collars and a 7-7/8" bit. An Impression Block was then run which indicated the 8-5/8" casing had parted and fallen in the washed-out 7-7/8" hole. A subsequent Collar Log indicated that the 8-5/8" casing had parted three joints up. The fish was left in the hole and the rig moved off on December 29, 1980. The well was plugged and abandoned on January 21, 1981 in accordance with NMOCD Rules.

January 22, 1981

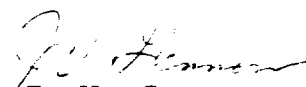
Central Vacuum Unit Well No. 151 was located 45' FNL and 1310' FWL, Section 30, T-17-S, R-35-E. We propose to amend Administrative Order PMX-86 by replacing No. 151 with No. 154 located 125' west (45' FNL and 1185' FWL, Section 30, T-17-S, R-35-E). Attached are:

- A.) A plat showing the location of the proposed well as well as the abandoned Well No. 151.
- B.) A plat showing all wells within the Project Area with offset wells and offset Operators.
- C.) A schematic of the proposed well completion for Central Vacuum Unit Well No. 154.

Phillips Petroleum Company, as Operator of the offset East Vacuum Unit, has been notified of the proposed change with a copy of this Application and Request for Waiver of Objection sent by Registered Mail.

Yours very truly,

TEXACO INC.  
PRODUCING DEPARTMENT-WEST U. S.

  
J. V. Gannon

District Superintendent

RSL:JEB

Attachments

Copy to: Phillips Petroleum Company  
Phillips Building  
4th & Washington Streets  
Odessa, Texas, 79760  
Attention: Mr. G. R. Smith

Oil Conservation Division  
P. O. Box 1980  
Hobbs, New Mexico, 88240

NEW MEXICO OIL CONSERVATION COMMISSION  
WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102  
Supersedes C-128  
Effective 1-1-65

All distances must be from the outer boundaries of the Section.

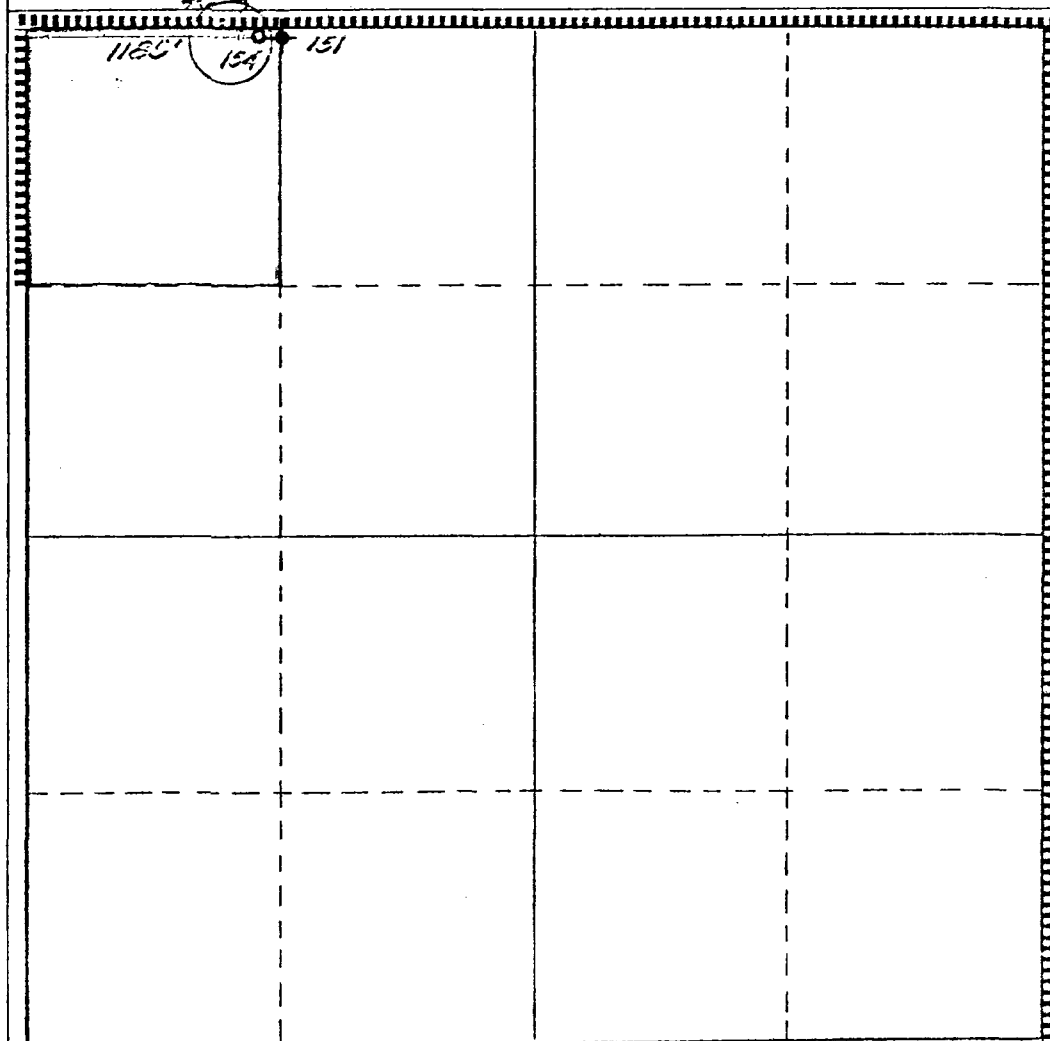
Operator <b>Texaco Inc.</b>			Lease <b>Central Vacuum Unit</b>			Well No. <b>154</b>		
Unit Letter <b>D</b>	Section <b>30</b>	Township <b>17-S</b>	Range <b>35-E</b>	County <b>Lea</b>				
Actual Footage Location of Well: <b>45</b> feet from the <b>North</b> line and <b>1185'</b> feet from the <b>West</b> line								
Ground Level Elev. <b>3987'</b>	Producing Formation <b>Vacuum San Andres</b>		Pool <b>Vacuum (Grayburg-San Andres)</b>			Dedicated Acreage: <b>40</b> Acres		

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation \_\_\_\_\_

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) \_\_\_\_\_

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

*B. L. Eiland*  
Name

**B. L. Eiland**  
Position  
Division Surveyor

Company  
**Texaco Inc.**

Date  
**Jan. 20, 1981**

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

**Jan. 20, 1981**  
Date Surveyed

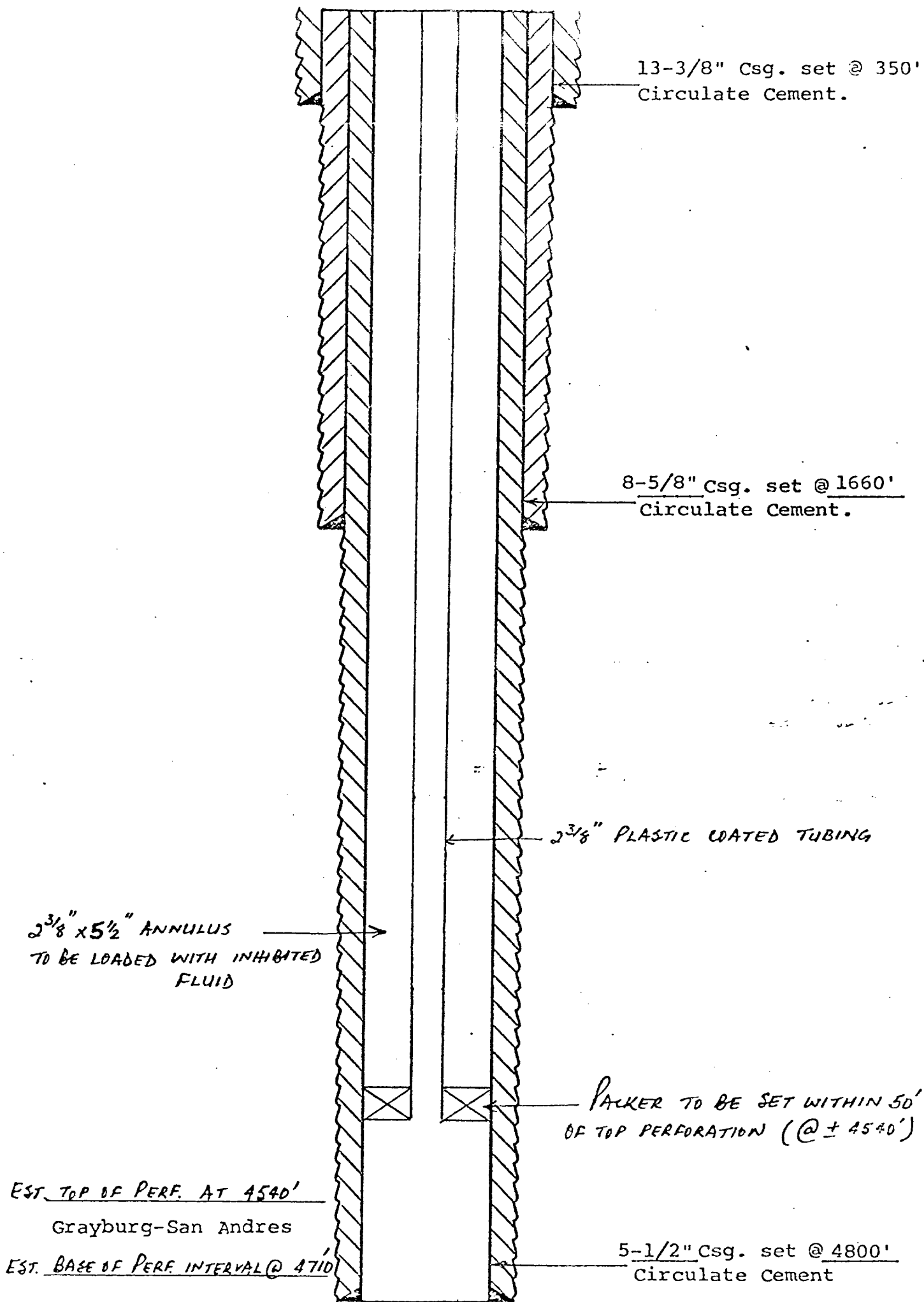
Registered Professional Engineer  
and/or Land Surveyor

*B. L. Eiland*  
**B. L. Eiland**

Certificate No.  
**4386**

0 330 660 990 1320 1650 1980 2310 2640 2000 1500 1000 500 0





PROPOSED INJECTION WELLS

CENTRAL VACUUM UNIT

WELL NO. 154

VACUUM GRAYBURG-SAN ANDRES FIELD

LEA COUNTY, NEW MEXICO

CENTRAL VACUUM UNIT  
LEA COUNTY, NEW MEXICO

<u>Central Vacuum Unit Well No.</u>	<u>Unit Letter</u>	<u>Location</u>
142	I	1680' FSL, 300' FEL, Section 6, TWP-18-S, R-35-E.
143	A	1310' FNL, 50' FEL, Section 6, TWP-18-S, R-35-E.
144	B	35' FNL, 1330' FEL, Section 6, TWP-18-S, R-35-E.
145	N	1310' FSL, 2475' FWL, Section 31, TWP-17-S, R-35-E.
146	G	2465' FNL, 1335' FEL, Section 31, TWP-17-S, R-35-E.
147	A	1310' FNL, 200' FEL, Section 31, TWP-17-S, R-35-E.
148	P	1310' FSL, 50' FEL, Section 30, TWP-17-S, R-35-E.
149	H	1330' FNL, 50' FEL, Section 30, TWP-17-S, R-35-E.
150	B	10' FNL, 1330' FEL, Section 30, TWP-17-S, R-35-E.
151	D	45' FNL, 1185' FWL, Section 30, TWP-17-S, R-35-E.



STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION

BRUCE KING  
GOVERNOR  
LARRY KEHOE  
SECRETARY

POST OFFICE BOX 2088  
STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO 87501  
(505) 827-2434

February 16, 1981

Texaco Inc.  
Drawer 728  
Hobbs, New Mexico 88240

Attention: Mr. J. V. Gannon

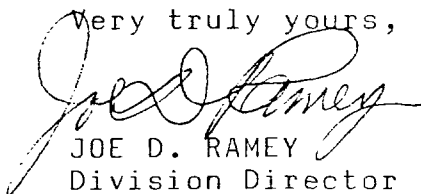
Re: PMX-86, Amendment No. 1

Dear Mr. Gannon:

Division Administrative Order No. PMX-86 dated May 26, 1980, is hereby amended by substituting Central Vacuum Unit Well No. 154 located 45 feet from the North line and 1185 feet from the West line of Section 30, Township 17 South, Range 35 East, Lea County, New Mexico, for Unit Well No. 151 as originally authorized therein.

This amendment results from the loss of Well No. 151 during drilling and is done under authority of Rule 20, Division Order No. R-5530.

Very truly yours,

  
JOE D. RAMEY  
Division Director

JDR/RLS/og

cc: Oil Conservation Division  
Box 1980  
Hobbs, New Mexico



STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION

BRUCE KING  
GOVERNOR

LARRY KEHOE  
SECRETARY

POST OFFICE BOX 2088  
STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO 87501  
(505) 827-2434

October 6, 1981

Texaco, Inc.  
P. O. Drawer 728  
Hobbs, New Mexico 88240

Attention: J. V. Gannon

Re: Central Vacuum Unit  
Waterflood Project, Well  
No. 108 - Case No. 6008,  
Order No. R-5530

Dear Mr. Gannon:

Based upon information and test data submitted by your letter of January 12, 1981, the maximum authorized wellhead injection pressure for the subject well is hereby increased from 883 to 1350 psi.

Please note that it remains the responsibility of the well operator to promptly report any disposal well factors or indications that injected fluid is "out of zone" to the supervisor of the Division's Hobbs District Office.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Joe D. Ramey".

JOE D. RAMEY  
Division Director

JDR/og



STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION

BRUCE KING  
GOVERNOR

LARRY KEHOE  
SECRETARY

POST OFFICE BOX 2088  
STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO 87501  
(505) 827-2434

October 6, 1981

Texaco, Inc.  
P. O. Drawer 728  
Hobbs, New Mexico

Attention: J. V. Gannon

Re: Central Vacuum Unit  
Waterflood Project  
Well No. 121,  
Order No. R-5530

Dear Mr. Gannon:

Based upon information and test data submitted by your letter of January 12, 1981, the maximum authorized wellhead injection pressure for the subject well is hereby increased from 922 psi to 1100 psi.

Please note that it remains the responsibility of the well operator to promptly report any disposal well factors or indications that injected fluid is "out of zone" to the supervisor of the Division's Hobbs District Office.

Very truly yours,

JOE D. RAMEY  
Division Director

JDR/og



STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION

BRUCE KING  
GOVERNOR  
LARRY KEHOE  
SECRETARY

POST OFFICE BOX 2088  
STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO 87501  
(505) 827-2434

October 6, 1981

Texaco, Inc.  
P. O. Drawer 728  
Hobbs, New Mexico

Attention: J. V. Gannon

Re: Central Vacuum Unit  
Waterflood Project  
Well No. 121,  
Order No. R-5530

Dear Mr. Gannon:

Based upon information and test data submitted by your letter of January 12, 1981, the maximum authorized wellhead injection pressure for the subject well is hereby increased from 922 psi to 1100 psi.

Please note that it remains the responsibility of the well operator to promptly report any disposal well factors or indications that injected fluid is "out of zone" to the supervisor of the Division's Hobbs District Office.

Very truly yours,

A handwritten signature in dark ink, appearing to read "Joe D. Ramey", written over a light-colored background.

JOE D. RAMEY  
Division Director

JDR/og