#### STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT

XIV.

Certification

to the best of my knowledge and belief.

# OIL CONSERVATION DIVISION

POST DEFICE BOX 2088 STATE LAND OFFICE BUILDING SANTA FE NEW MEXICO 87501

	FORM C-108	
	Revised 7-1-81	
WAX	12/10/97	!
** / / F .	7337 ( ( ( ) )	

ADDL TO	TION FOR AUTHORIZATION TO INJECT				
I.	Purpose: Secondary Recovery Pressure Maintenance Disposal Storage  Application qualifies for administrative approval? Xyes Ino				
II.	Operator: Texaco Exploration & Production Inc.				
	Address: 205 E. Bender Blvd., Hobbs, New Mexico 88240				
	Contact party: Siamak Safargar Phone: (505)3970429				
III.	Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.				
IV.	Is this an expansion of an existing project?				
٧.	Attach a map that identifies all wells and leases within two miles of any proposed $^{ m Expansion}$ injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.				
* VI.	Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.				
VII.	Attach data on the proposed operation, including:				
	<ol> <li>Proposed average and maximum daily rate and volume of fluids to be injected;</li> <li>Whether the system is open or closed;</li> <li>Proposed average and maximum injection pressure;</li> <li>Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and</li> <li>If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).</li> </ol>				
*VIII.	Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.				
IX.	Describe the proposed stimulation program, if any.				
* X.	Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.)				
* XI.	Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.				
XII.	Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.				
XIII.	Applicants must complete the "Proof of Notice" section on the reverse side of this form.				

\_\_\_ Title \_Production Engineer Name: Siamak Safargar Date: November 24, 1997 Signature:

I hereby certify that the information submitted with this application is true and correct

\* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not/be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal. R=3008, 12/3/65, Commission Hearing, R=4234, 12/15/71 Administrative

#### III. WELL DATA

- A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:
  - (1) Lease name; Well No.; location by Section, Township, and Range; and footage location within the section.
  - (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
  - (3) A description of the tubing to be used including its size, lining material, and setting depth.
  - (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

- 8. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.
  - (1) The name of the injection formation and, if applicable, the field or pool name.
  - (2) The injection interval and whether it is perforated or open-hole.
  - (3) State if the well was drilled for injection or, if not, the eriginal purpose of the well.
  - (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
  - (5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

#### XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;
- (3) the formation name and depth with expected maximum injection rates and pressures; and
- (4) a notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.

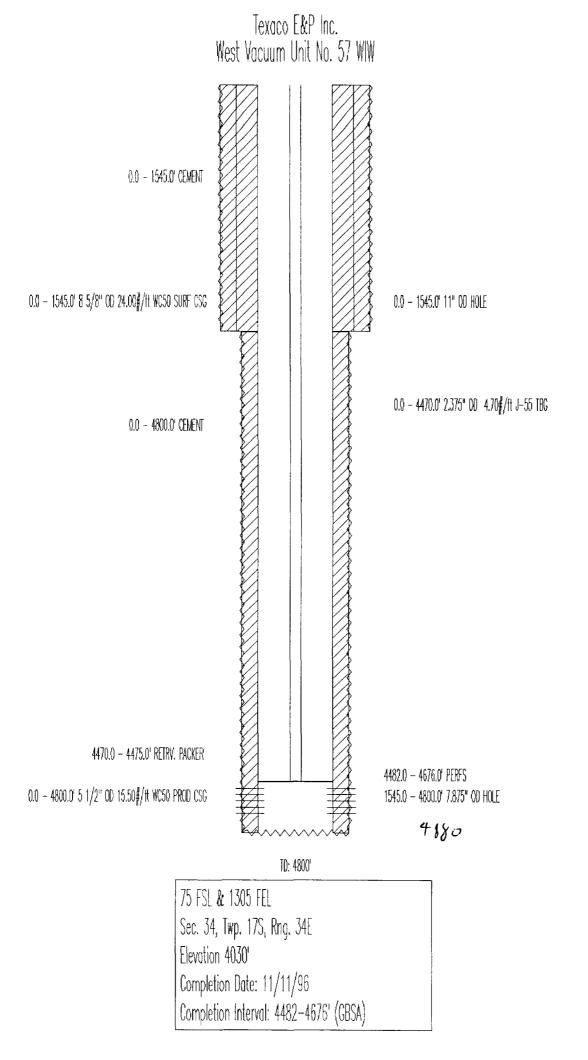
NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

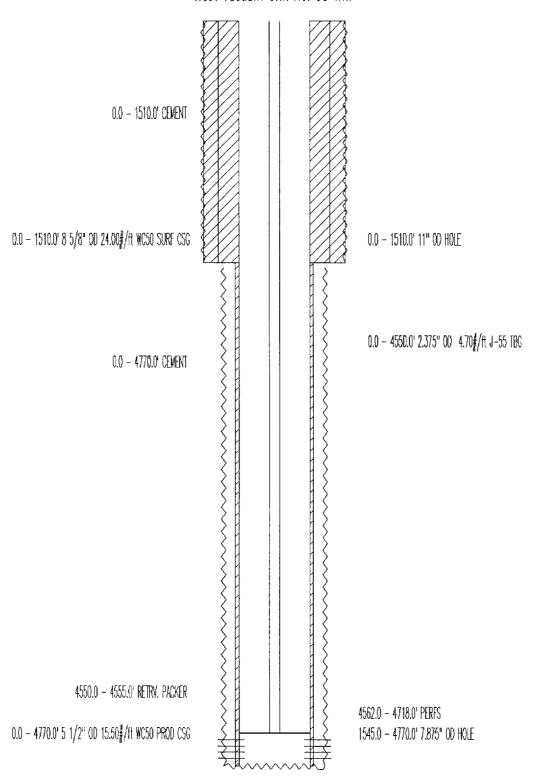
## **NEW Mexico Conservation Division – Form C-108**

West Vacuum Unit - Vacuum Grayberg-San Andres

- VII. Proposed average daily injection rate per well is 1000 Bbls per day and anticipated maximum rate is 2000 Bbls per day. Maximum pressure will not exceed 1450 psi system working pressure. The initial injection pressure will be limited to about 820 psi (0.2 psi/ft). Step rate tests will be run to establish higher limits with the authorization of the NMOCD. The system will be closed.
- IX. The subjected wells will be stimulated in stages with 7000-14000 gallons 15% NEFE and surfactants as needed. Rock salt blocks and ball sealers will be used for diversion.
- XII. Based on current geological and engineering data, no evidence of natural or artificially induced open faults occur within the unitized interval or above. No known communication has been observed between the injection zone and any subsurface source of drinking water.
- XIII. A copy of the legal notice is attached.



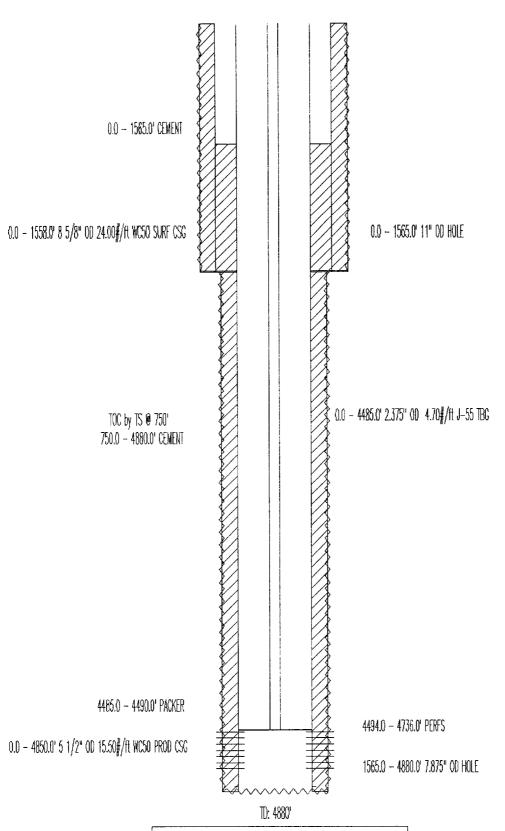
lexaco E&P Inc. West Vacuum Unit No. 58 WIW



TD: 4800'

1330' FNL & 1330' FEL
Sec. 3, Twp. 18S, Rng. 34E
Elevation 4030'
Completion Date:
Completion Interval: 4562—4718' (GBSA)

Texaco E&P Inc. West Vacuum Unit No. 60 WIW



2470 FSL & 1100 FEL

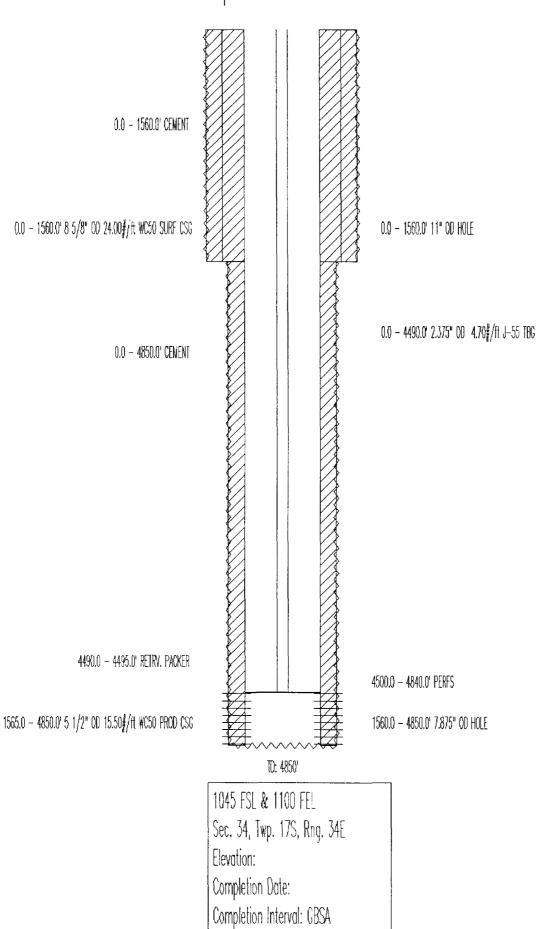
Sec. 34, Twp. 17S, Rng. 34E

Elevation 4027'

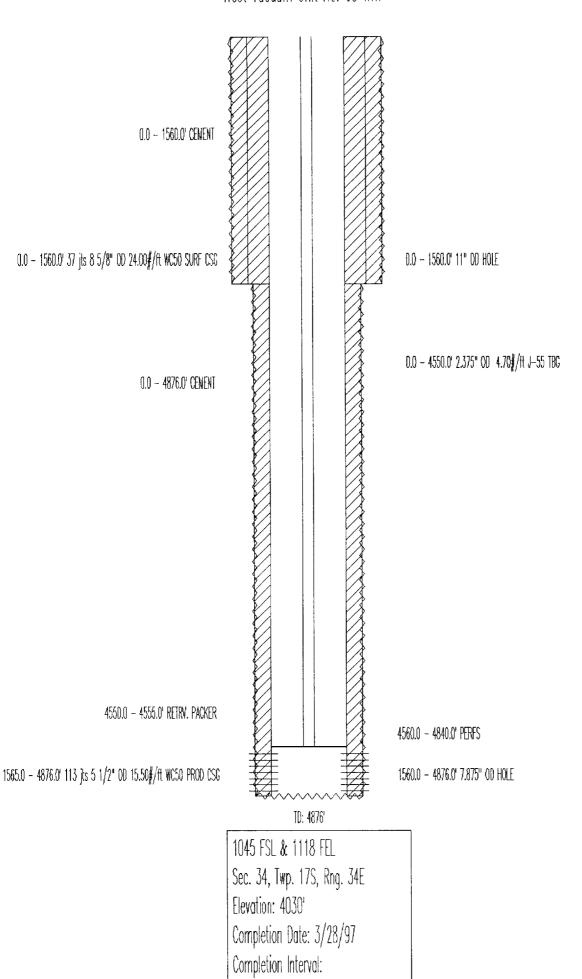
Completion Date: 4/15/97

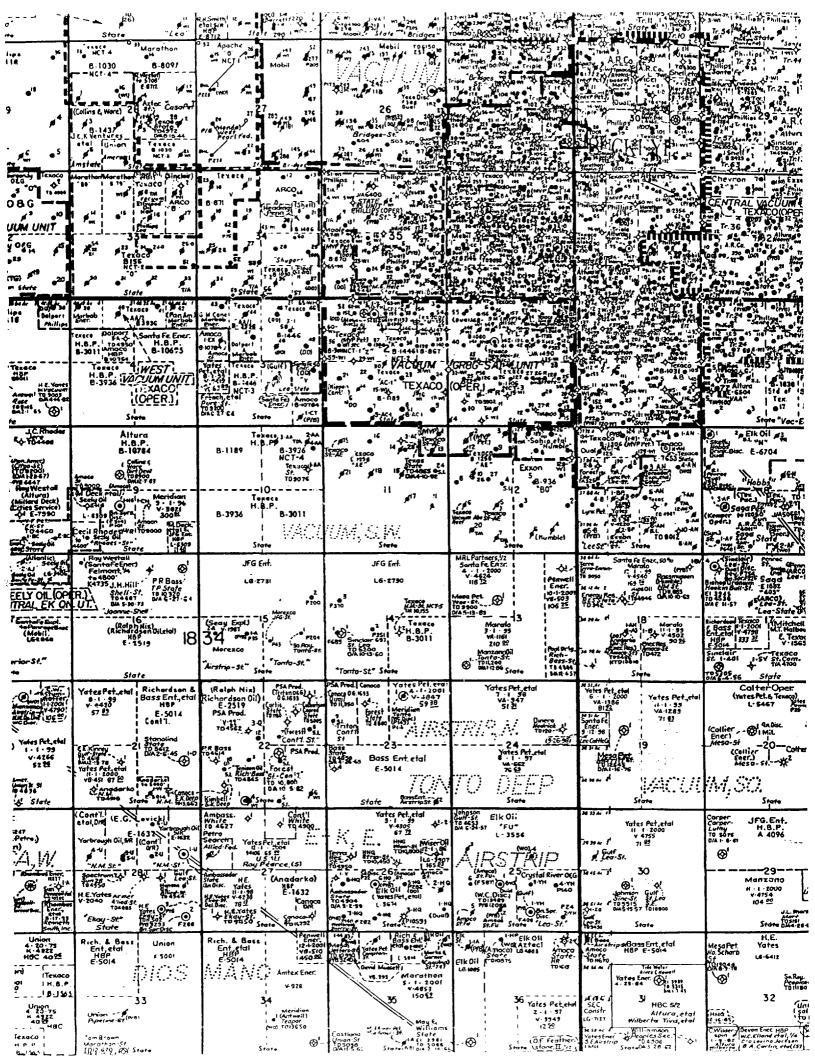
Completion Interval: 4494-4736' (GBSA)

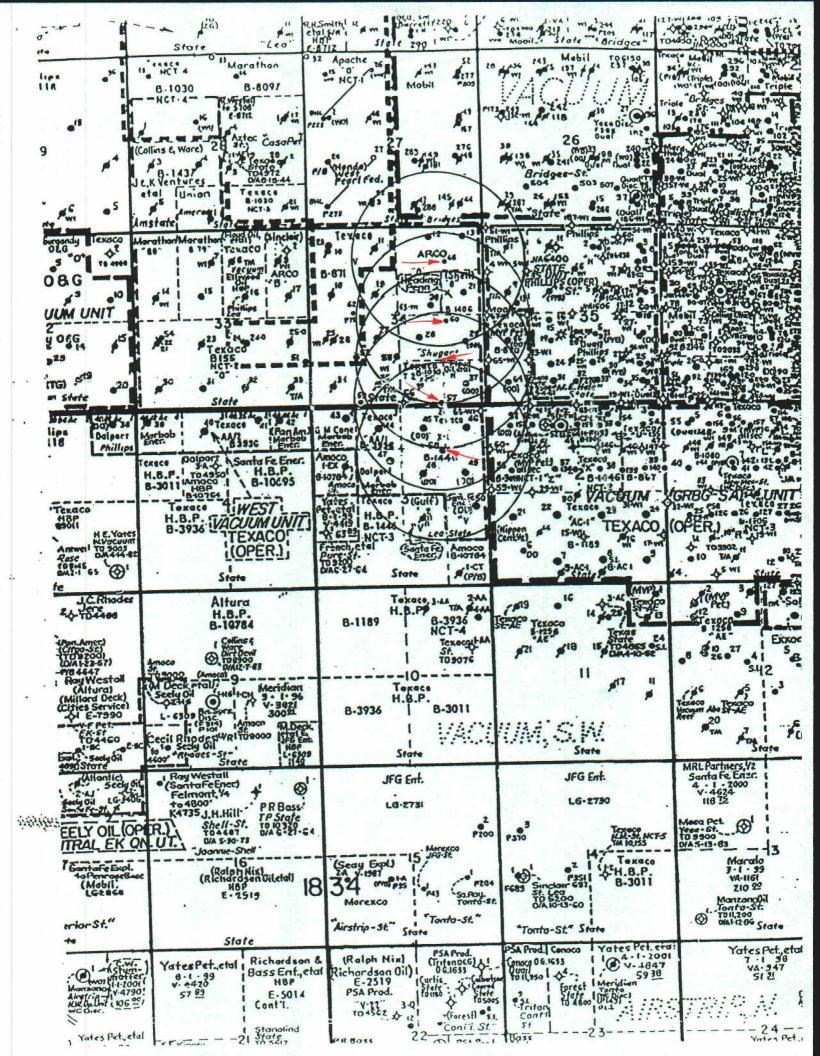
Texaco E&P Inc. West Vacuum Unit No. 64 WIW Proposed Wellbore Schematic



Texaco E&P Inc. West Vacuum Unit No. 68 WIW







Landowners were notified by certified mail:

# **Surface Landowner**

State of New Mexico P.O. Box 1148 Santa Fe, NM 87504-1148

# Surface Leased by

Roy Pearce, Jr. 1717 S. Jackson St. Pecos, TX 79772

# Offset operators were notified by certified mail:

# **Atlantic Richfield Company**

P.O. Box 1610 Midland, TX 79702

# Conoco Inc.

P.O. Box 1959 Midland, TX 79702

# Floyed Oil Co.

711 Louisiana, Suite 1740 Houston, TX 77002

# Headington Penn Corp.

7557 Rambler Road, Suite 1150 Dallas, TX 75231

# Philips Petroleum Co.

4001 Penbrook Odessa, TX 79762 **US Postal Service** 

# Receipt for Certified Mail

No Insurance Coverage Provided.

	Do not use for International Mail (See reverse)				
	Sent to Conoco Inc.				
	Street Number X 1959				
	Post Office, Bylate, & ZIP Code Midland, TX 79702				
	Postage	\$			
	Certified Fee				
	Special Delivery Fee				
2	Restricted Delivery Fee				
199	Return Receipt Showing to Whorn & Date Delivered				
Form <b>3800</b> , April 1995	Return Receipt Showing to Whom, Date, & Addressee's Address				
	TOTAL Postage & Fees	\$			
E 3	Postmark or Date				
요					

Fold at line over top of envelope to the right of the return address

CERTIFIED

442 355 527

MAIL

P 442 355 530

**US Postal Service** 

**Receipt for Certified Mail** 

No Insurance Coverage Provided.

D	Do not use for International Mail (See reverse)				
	Sent to Headington Your Corp.				
5	Street & Number Ramblet Rd. White				
Į	Poet Office State, & ZIP Gode 75231				
1	Postage	\$			
	Certified Fee				
Ī	Special Delivery Fee				
	Restricted Delivery Fee				
1995	Return Receipt Showing to Whom & Date Delivered				
PS Form <b>3800</b> , April 1995	Return Receipt Showing to Whom Date, & Addressee's Address				
300,	TOTAL Postage & Fees	\$			
జ	Postmark or Date				
Ę					
ŭ.					
S					

Fold at line over top of envelope the right of the return address

CERTIFIED

**US Postal Service** 

# **Receipt for Certified Mail**

No Insurance Coverage Provided. Do not use for International Mail (See reverse)

Ī	Sent Atlantic Richard	chfield Company			
Strept & Number X 1610					
	Post Office State, & ZIP Code 79702				
	Postage	\$			
	Certified Fee				
	Special Delivery Fee				
	Restricted Delivery Fee				
1995	Return Receipt Showing to Whom & Date Delivered				
April	Return Receipt Showing to Whom, Date, & Addressee's Address				
800,	TOTAL Postage & Fees	\$			
Form 3800, April 1995	Postmark or Date				

Fold at line over top of envelope to the right of the return address

CERTIFIED

442 355 526

MAIL

P442 355 525

US Postal Service

8

# Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

Postage

Certified Fee Special Delivery Fee

Restricted Delivery Fee

Return Receipt Showing to Whom & Date Delivered Return Receipt Showing to Whom,

Date, & Addressee's Address TOTAL Postage & Fees

Postmark or Date

3800

Form

S

Fold at line over top of envelope to the right of the return address

\$

**US Postal Service** 

# Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

	De Het add for Internation	iai maii (000 reveloo)		
	Sent to Roy Peake, Jr. Street & Number: Jackson St.			
	Street & Number, Tackson St.			
	Post Office, State, & ZIP Code Tecas, IX 79772			
	Postage	\$		
	Certified Fee			
	Special Delivery Fee			
2	Restricted Delivery Fee			
April 1995	Return Receipt Showing to Whom & Date Delivered			
Apri	Return Receipt Showing to Whom. Date, & Addressee's Address			
800	TOTAL Postage & Fees	\$		
E C	Postmark or Date			
S Form 3800				

Fold at line over top of envelope to the right of the return address

CERTIFIED

442 355 525

MAIL

442 355 528

**US Postal Service** 

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail (See reverse) Tettaleum (d.

Postage

Certified Fee Special Delivery Fee

Restricted Delivery Fee Return Receipt Showing to

Whom & Date Delivered Return Receipt Showing to Whom Date, & Addressee's Address TOTAL Postage & Fees

Postmark or Date

3800

Form

PS

Fold at line over top of envelope to the right of the return address

**CERTIFIED** 



RE: West Vacuum Unit No. 57, No. 58, No. 60, No. 64 and No. 68 Lea County, New Mexico Notification of Expansion of Waterflood (C-108)

This letter is to notify all offset operators and landowners that Texaco E&P Inc. is amending NMOCD order Nos. R-3007-A, R-4234, and WFX-507 on the West Vacuum Unit in Lea County, New Mexico. The following Producing wells will be converted to water injection wells for the purpose of injection pattern enhancement:

No. 57, Unit Letter P, 75' FSL & 1305' FEL, Section 34, Township 17-S, Range 34E
No. 58, Unit Letter B, 1330' FNL & 1330' FEL, Section 3, Township 18-S, Range 34E
No. 60, Unit Letter I, 2470' FSL & 1100' FEL, Section 34, Township 17-S, Range 34E
No. 68, Unit Letter A, 1045' FNL & 1118' FEL, Section 34, Township 17-S, Range 34E

The following water injection well will be drilled for the purpose of pressure maintenance:

No. 64, Unit Letter P, 1045' FSL & 1100' FEL, Section 34, Township 17-S, Range 34E

Proposed average daily injection rate per well is 1000 Bbls per day and anticipated maximum rate is 1500 Bbls per day. The initial injection pressure will be limited to 800 psi (0.2 psi/ft). Attached are maps showing the location of the above wells and schematics of the pertinent wellbore data.

Interested parties must file objections or request for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico, 87501, within fifteen (15) days of receipt of this letter.

Sincerely,

Production Engineer

attachments

## AFFIDAVIT OF PUBLICATION

State of New Mexico, County of Lea.

#### I, KATHI BEARDEN

#### **Publisher**

of the Hobbs Daily News-Sun, a daily newspaper published at Hobbs, New Mexico, do solemnly swear that the clipping attached hereto was published once a week in the regular and entire issue of said paper, and not a supplement thereof for a period.

of1	
	weeks.
Beginning with the i	ssue dated
November 14 and ending with the	1997
November 14	1997
Publish Sworn and subscri	
me this 14th	day of
November Mon	—— 1997 MOU

My Commission expires October 18, 2000 (Seal)

Notary Public.

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937, and payment of fees for said publication has been made.

#### **LEGAL NOTICE** November 14, 1997

Notice is hereby given of the application of Texaco Exploration and Production Inc., Attention: Area Manager, 205 E. Bender Blvd., Hobbs, New Mexico, 88240, Telephone (505) 393-7191, to the New Mexico Oil Conservation, Energy and Minerals Department, for approval to convert four producing wells to injectors for the purpose of injection pattern improvement.

West Vacuum Unit, Lea County, New Mexico

Well Numbers and Locations:

57-Unit letter P, 75 FSL & 1305 FEL, Sec. 34, Twp. 17S, Rng. 34E

58-Unit letter B, 1330 FNL & 1330 FEL, Sec. 3, Twp. 18S, Rng. 34E

60-Unit letter I, 2470 FSL & 1100 FEL, Sec. 34, Twp. 17S, Rng. 34E

68-Unit letter A, 1045 FNL & 1118 FEL, Sec. 34, Twp. 17S, Rng. 34E And to drill one water injection well for the purpose of pressure maintenance: 64, Unit letter P, 1045 FSL & 1100 FEL, Section 34, Twp 17S, Rng 34E

The injection formation is Vacuum Grayberg - San Andres at a depth of 4100 feet below the surface of the ground. Expected maximum injection rate is 1500 barrels per day and expected maximum injection pressure is 1450 pounds per square inch. Interested parties must file objections or request for hearing with the Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico, 87501 within fifteen (15) days of this publication.

01101308000

01514043

Texaco Inc. 205 E. Bender a/c# 386561 Hobbs, NM 88240

# OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF NEW MEXICO FOR THE PURPOSE OF CONSIDERING:

> CASE NO. 4634 Order No. R-4234

APPLICATION OF TEXACO INC. FOR A WATERFLOOD EXPANSION, LEA COUNTY, NEW MEXICO.

# ORDER OL' THE COMMISSION

#### BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on December 15, 1971, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 4th day of January, 1972, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

#### FINDS:

- (1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.
- (2) That the applicant, Texaco Inc., seeks permission to expand the West Vacuum Unit Waterflood Project in the West Vacuum Unit Area, Vacuum Pool, by the injection of water into the Grayburg-San Andres formation through eleven additional injection wells located in Sections 28, 33, and 34 of Township 17 South, Range 34 East, and Sections 3 and 4 of Township 18 South, Range 34 East, NMPM, Lea County, New Mexico, as follows:

Well No.		Unit	Section	Township and Range
Well No.	4	ĸ	28	17 South, 34 East
Well No.	7	Ç	<b>3</b> 3	17 South, 34 East
Well No.	16	G	33	17 South, 34 East
Well No.	18	E	34	17 South, 34 East
Well No.	20	G	34	17 South, 34 East
Well No.	23	ĸ	33	17 South, 34 East
Well No.	32	0	33	17 South, 34 East
Well No.	34	M	34	17 South, 34 East
Well No.	36	0	34	17 South, 34 East
Well No.	40	С	4	18 South, 34 East
Well No.	46	G	3	18 South, 34 East

- (3) That the wells in the project area are in an advanced state of depletion and should properly be classified as "stripper" wells.
- (4) That the proposed expansion of the West Vacuum Unit Waterflood Project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.
- (5) That an administrative procedure should be adopted whereby the Secretary-Director of the Commission may authorize additional injection wells within said waterflood project as may be necessary to complete an efficient injection pattern.
- (6) That the subject application should be approved and the expanded project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations; provided, however, that the showing of well response as required by Rule 701 E-5 should not be necessary before obtaining administrative approval for the conversion of additional wells to water injection.

# IT IS THEREFORE ORDERED:

(1) That the applicant, Texaco Inc., is hereby authorized to expand its West Vacuum Unit Waterflood Project, Vacuum Pool, by the injection of water into the Grayburg-San Andres formations through the following-described wells at locations in Sections 28, 33, and 34 of Township 17 South, Range 34 East, and Sections 3 and 4 of Township 18 South, Range 34 East, NMPM, West Vacuum Unit, Lea County, New Mexico:

Well No.	Unit	Section	Township and Range
<u></u>			
Well No. 4	ĸ	28	17 South, 34 East
Well No. 7	C	33	17 South, 34 East
Well No. 16	G	33	17 South, 34 East
Well No. 18	£	34	17 South, 34 East
Well No. 20	G	34	17 South, 34 East
Well No. 23	ĸ	33	17 South, 34 East
Well No. 32	0	33	17 South, 34 East
Well No. 34	M	34	17 South, 34 East
Well No. 36	0	34	17 South, 34 East
Well No. 40	C	4	18 South, 34 East
Well No. 48	G	3	18 South, 34 East

(2) That the expanded waterflood project shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations;

PROVIDED HOWEVER, that the Secretary-Director of the Commission may approve such additional injection wells within said project area as may be necessary to complete an efficient injection pattern, and that the showing of well response as required by Rule 701 E-5 shall not be necessary before obtaining administrative approval for the conversion of additional wells to water injection.

- (3) That monthly progress reports of the expanded water-flood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.
- (4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

> STATE OF NEW MEXICO OIL CONSERVATION COMMISSION

BRUCE KING, Chairman

ALEX J. ARMIJO, Member

SEAL

dr/

A. L. PORTER, Jr., Member & Secretary

APPLICATION OF TEXACO, U.S.A.
TO EXPAND ITS WATERFLOOD PROJECT
IN THE VACUUM GRAYBURG-SAN ANDRES
POOL IN LEA COUNTY, NEW MEXICO

ORDER No. WFX-507

# ADMINISTRATIVE ORDER OF THE OIL CONSERVATION DIVISION

Under the provisions of Order No. R-4234 Texaco has made application to the Division on March 7, 1983, for permission to expand its West Vacuum Unit Waterflood Project in the Vacuum Grayburg-San Andres Pool in Lea County, New Mexico.

NOW, on this 11th day of March, 1983, the Division Director finds:

- 1. That application has been filed in due form.
- 2. That satisfactory information has been provided that all offset operators have been duly notified of the application.
- 3. That no objection has been received within the waiting period as prescribed by Rule 701B.
- 4. That the proposed injection well is eligible for conversion to water injection under the terms of Rule 701.
- 5. That the proposed expansion of the above referenced waterflood project will not cause waste nor impair correlative rights.
  - That the application should be approved.

## IT IS THEREFORE ORDERED:

That the applicant, Texaco, U.S.A., be and the same is hereby authorized to inject water into the Vacuum Grayburg-San Andres formations through plastic-lined tubing set in a packer at approximately 4480 feet in the following described well for purposes of secondary recovery to wit:

West Vacuum Unit Well No. 55
Section 3, Township 18 South,
Range 34 East, NMPM, Lea County,
New Mexico

#### IT IS FURTHER ORDERED:

That the operator shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

That the casing-tubing annulus (in each well) shall be loaded with an inert fluid and equipped with a pressure gauge at the surface or left open to the atmosphere to facilitate detection of leakage in the casing, tubing, or packer.

That the injection well or system shall be equipped with a pressure limiting device which will limit the wellhead pressure to a maximum of 924 pounds per square inch; provided however that the Division Director may administratively authorize a pressure limitation in excess of the above upon the operator's establishing that such higher pressure will not result in fracturing of the confining strata. This can be accomplished by providing the Oil Conservation Division office with step-rate data satisfactory to this office.

That the operator shall notify the supervisor of the Division's Hobbs District Office before injection is commenced through said well.

That the operator shall immediately notify the Supervisor of the Division's Hobbs District Office of the failure of the tubing, casing, or packer in said well or the leakage of water from or around said well and shall take such steps as may be timely or necessary to correct such failure or leakage.

That the subject well shall be governed by all provisions of Division Order No. R-4234 and Rules 702, 703, 704, 705, and 706 not inconsistent herewith.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO

dil conservation division

JOE D. RAMEY,

Division Director