

DATE IN 11/17/98	SUSPENSE 12/7/98	ENGINEER MS	LOGGED BY RW	TYPE NSL
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ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
- Engineering Bureau -

ADMINISTRATIVE APPLICATION COVER SHEET

THIS COVERSHEET IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS

Application Acronyms:

- [NSP-Non-Standard Proration Unit] [NSL-Non-Standard Location]
- [DD-Directional Drilling] [SD-Simultaneous Dedication]
- [DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
- [PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
- [WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
- [SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
- [EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

[1] **TYPE OF APPLICATION - Check Those Which Apply for [A]**

- [A] Location - Spacing Unit - Directional Drilling
 NSL NSP DD SD

Check One Only for [B] and [C]

- [B] Commingling - Storage - Measurement
 DHC CTB PLC PC OLS OLM

- [C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
 WFX PMX SWD IPI EOR PPR

[2] **NOTIFICATION REQUIRED TO: - Check Those Which Apply, or Does Not Apply**

- [A] Working, Royalty or Overriding Royalty Interest Owners
- [B] Offset Operators, Leaseholders or Surface Owner
- [C] Application is One Which Requires Published Legal Notice
- [D] Notification and/or Concurrent Approval by BLM or SLO
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office
- [E] For all of the above, Proof of Notification or Publication is Attached, and/or,
- [F] Waivers are Attached

98 NOV 17 PM 3:38
OIL CONSERVATION DIV

[3] **INFORMATION / DATA SUBMITTED IS COMPLETE - Statement of Understanding**

I hereby certify that I, or personnel under my supervision, have read and complied with all applicable Rules and Regulations of the Oil Conservation Division. Further, I assert that the attached application for administrative approval is accurate and complete to the best of my knowledge and where applicable, verify that all interest (WI, RI, ORRI) is common. I understand that any omission of data (including API numbers, pool codes, etc.), pertinent information and any required notification is cause to have the application package returned with no action taken.

Note: Statement must be completed by an individual with supervisory capacity.

William F. Carr
Print or Type Name

William F. Carr
Signature

Attorney at Law
Title

11/14/98
Date

CAMPBELL, CARR, BERGE
& SHERIDAN, P.A.
LAWYERS

MICHAEL B. CAMPBELL
WILLIAM F. CARR
BRADFORD C. BERGE
MARK F. SHERIDAN
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POST OFFICE BOX 2208
SANTA FE, NEW MEXICO 87504-2208
TELEPHONE: (505) 988-4421
FACSIMILE: (505) 983-6043
E-MAIL: ccbspa@ix.netcom.com

November 17, 1998

HAND-DELIVERED

Lori Wrotenbery, Director
Oil Conservation Division
New Mexico Department of Energy,
Minerals and Natural Resources
2040 South Pacheco Street
Santa Fe, New Mexico 87505

Re: *Application of Texaco Exploration and Production Inc. for Administrative Approval of Unorthodox Well Locations, Lea County, New Mexico.*

Dear Ms. Wrotenbery:

Texaco Exploration and Production Inc. ("Texaco") as operator and on behalf of the working interest owners in the Central Vacuum Unit hereby seeks administrative approval pursuant to the provisions of Division Rule 104 F (2) adopted on January 18, 1996, of unorthodox well locations in the Grayburg and San Andres formations, Vacuum Grayburg-San Andres Pool, for the following wells:

Central Vacuum Unit Well No. 292, to be drilled 820 feet from the South line and 46 feet from the West line of Section 36, Township 17 South, Range 34 East, NMPM, Lea County, New Mexico, and the

Central Vacuum Unit Well No. 280 to be drilled 2038 feet from the South line and 10 feet from the West line of Section 36, Township 17 South, Range 34 East, NMPM, Lea County, New Mexico.

These wells are located on the western boundary of the Central Vacuum Unit which was created pursuant to the Statutory Unitization Act by Order No. R-5496 dated August 9, 1977.

Lori Wrotenbery, Director
Oil Conservation Division
New Mexico Department of Energy,
Minerals and Natural Resources
November 17, 1998
Page 2

By Order No. R-5530 dated September 20, 1977, waterflood operations in this unit were authorized in the Central Vacuum Unit and a tertiary recovery polymer-augmented waterflood project in this unit approved by Order No. R-5530-D dated April 5, 1983. Carbon dioxide injection was authorized in this unit and The Central Vacuum Unit Tertiary Recovery Project was approved by order No. R-5530-E dated April 30, 1997. Each of the proposed unorthodox well locations is offset to the West by the Phillips Petroleum Company ("Phillips") State 35 Unit which was approved by Order No. R-10599 dated May 10, 1996. By Order No. R-10599-B dated September 27, 1996, carbon dioxide injection was authorized in the Grayburg and San Andres Tertiary Recovery/Pressure Maintenance Project in the State 35 Unit. Attached hereto as Exhibit A is a plat which shows the proposed unorthodox well locations, the offsetting wells and unit boundaries. Exhibit B is a copy of Division Form C-102 which shows the 40-acre tract on which each well is located, the survey location and the distance between the subject well and all other wells on the 40-acre tract.

These locations are unorthodox because they are governed by the Division's General Rule 104 C(1) which provide for wells on 40-spacing units to be located no closer than 330 feet to any boundary of the dedicated tract.

These unorthodox locations are required to complete an efficient production pattern within these adjoining Tertiary Recovery Projects. Attached hereto as Exhibit C is a copy of the Central Vacuum Unit/State 35 Unit Producers Cooperative Unit Line Agreement which has been executed by both Phillips and Texaco. As you will note, all costs and all revenues associated with these wells will be divided equally between the units.

Since Texaco and Phillips operate of all adjoining acreage offsetting the proposed unorthodox well locations, there are no affected parties to whom notification of the application should be provided.

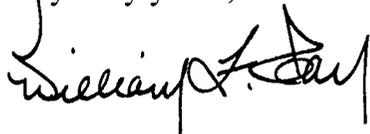
Copies of letters approving these well proposals from the working interest owners and the royalty owners in the Central Vacuum Unit are attached as Exhibit D. Over 86.42% of the working interest owners in the Central Vacuum Unit have approved these wells. Phillips did not sign a waiver letter but instead executed the Agreement attached hereto as Exhibit C.

Lori Wrotenbery, Director
Oil Conservation Division
New Mexico Department of Energy,
Minerals and Natural Resources
November 17, 1998
Page 3

With the Phillips interest, over 94% of the working interest owners in the Central Vacuum Unit have approved and no working interest owner has voted against these well proposals. Over 99% of the royalty owners have approved these wells including the Commissioner of Public Lands. Phillips is the only working interest owner in the State 35 Unit and the Commissioner of Public Lands the only royalty owner. Accordingly there is 100% support for these wells from the owners of the State 35 Unit.

Your attention to this application is appreciated.

Very truly yours,

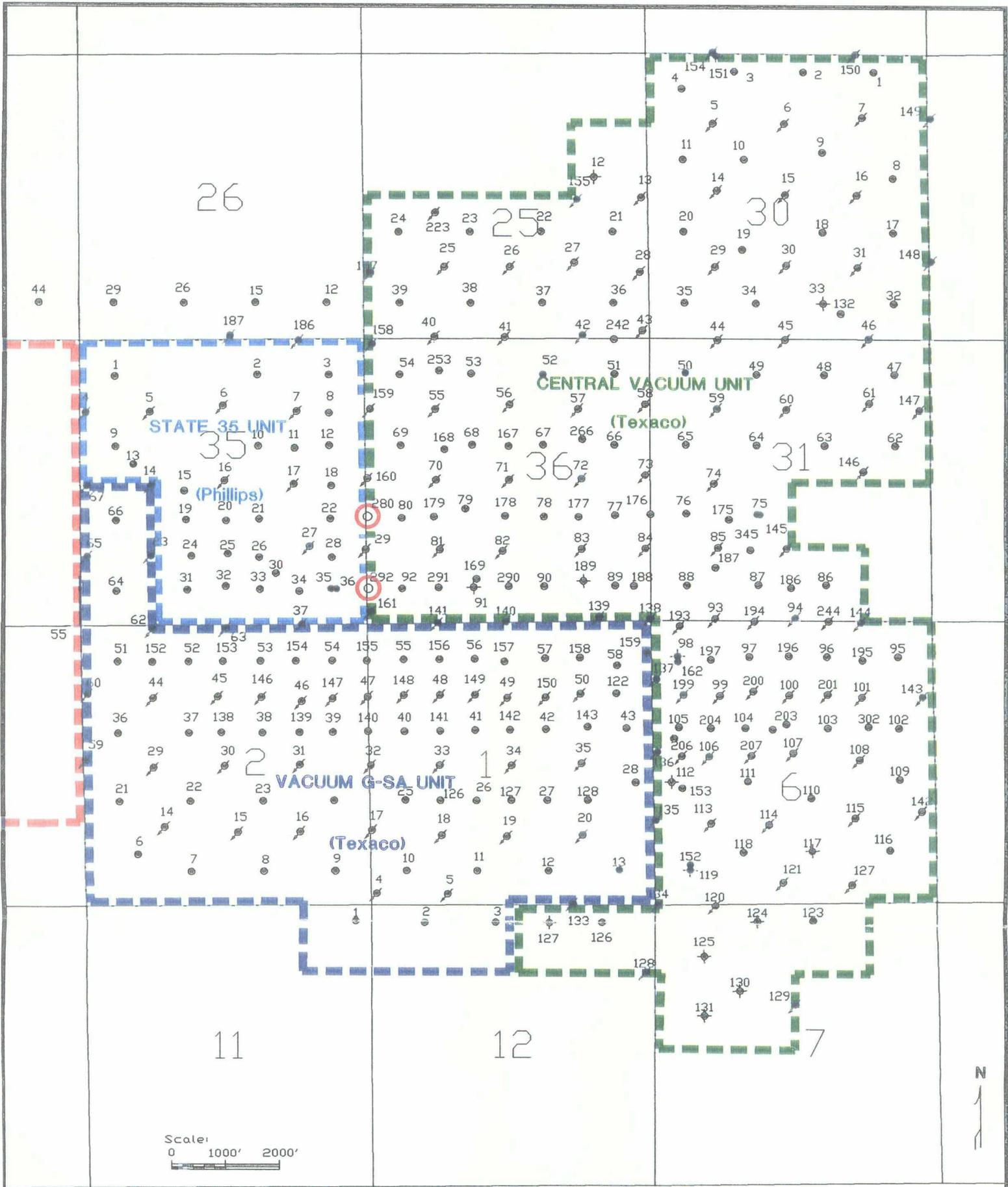
A handwritten signature in black ink, appearing to read "William F. Carr". The signature is written in a cursive style with a large initial "W".

WILLIAM F. CARR
Attorney for Texaco Exploration and Production Inc.

Enclosures

cc: Ronald W. Lanning

EXHIBIT "A"



LEGEND:

- PRODUCING WELL
- ⊙ INJECTION WELL



PROPOSED LEASELINE PRODUCING WELL

TEXACO

CENTRAL VACUUM UNIT
VACUUM GRAYBURG - SAN ANDRES FIELD
 LEA COUNTY, NEW MEXICO

**CENTRAL VACUUM UNIT / STATE 35 UNIT PRODUCERS
COOPERATIVE UNIT LINE AGREEMENT**

THIS AGREEMENT, is entered into between Texaco Exploration and Production Inc. (TEPI) as Operator and on behalf of all working interest owners in the Central Vacuum Unit, and Phillips Petroleum Company (Phillips) as Operator and sole working interest owner in the State 35 Unit.

WITNESSETH:

WHEREAS, TEPI and Phillips represent that the Central Vacuum Unit and the State 35 Unit, as shown on Exhibit "A" attached hereto and made a part hereof, are currently producing oil and gas from the Grayburg and San Andres formations in Lea County, New Mexico; and

WHEREAS, in the interest of more properly producing and conserving the oil and gas from the Central Vacuum Unit and the State 35 Unit, the parties hereto desire to enter into and operate a cooperative program in order to obtain the maximum economic recovery of oil and gas from the Grayburg and San Andres formations.

NOW THEREFORE, in consideration of the premises and the mutual covenants and agreements hereinafter contained, the parties hereto agree as follows:

I.

TEPI, for the joint account, will drill, equip, operate and maintain the wells listed below for the purpose of production of oil and gas from the Grayburg and San Andres formations. The drilling of the subject wells shall be commenced on or before February 1, 1999, and completed no later than April 1, 1999.

- Central Vacuum Unit Well No. 292, located 820 feet FSL, 46 feet FWL of Section 36, T17S, R34E.
- Central Vacuum Unit Well No. 280, located 2038 feet FSL, 10 feet FWL of Section 36, T17S, R34E.

The above wells are located in Lea County, New Mexico as shown on Exhibit "A" attached hereto. Unless mutually agreed to by the undersigned, all wells drilled subject to the terms of this agreement shall be drilled from a surface location within 25 feet of the locations stated above.

II.

Except as otherwise provided herein, all operations hereunder will be governed by the applicable terms of the Operating Agreement for the Central Vacuum Unit, which is incorporated herein by reference. In the event there is a conflict between this Agreement, the Exhibits attached hereto and the Operating Agreement for the Central Vacuum Unit, the provisions of this Agreement shall prevail. All costs to drill, equip, operate, plug and abandon the wells, and all revenue therefrom will be allocated and the wells will be owned as follows:

Central Vacuum Unit	50%
State 35 Unit	50%

III.

Volumes of oil and gas produced hereunder shall be computed in barrels per day, and thousands of cubic feet, respectively, and shall be measured on an allocated well-by-well basis at a base pressure of 14.65 psia and a base temperature of 60 degrees Fahrenheit by standard metering equipment installed, operated and maintained by TEPI. A monthly report shall be supplied by TEPI to Phillips stating monthly production volumes for each well.

IV.

Royalties, overriding royalties, production payments and similar burdens for the wells set forth in Article I, shall be borne by the owner of the lease within each unit to which the production is allocated pursuant to Article II.

V.

This agreement shall remain in full force and effect for as long as there is commercial production from any of the wells provided for in Article I. However, if the subject wells are not drilled and completed by April 1, 1999, this Agreement shall terminate and be of no force and effect unless the undersigned mutually agree to extend this Agreement for a period not to exceed three (3) months.

VI.

The parties hereto agree that the drilling of the above described wells will facilitate protection of their correlative rights and increase the ultimate recovery of oil and gas from both the Central Vacuum Unit and the State 35 Unit.

DISTRICT I
P. O. Box 1980, Hobbs, NM 88240

DISTRICT II
P. O. Drawer 10, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV
P. O. Box 2088, Santa Fe, NM 87504-2088

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised February 10, 1994

OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

Instructions on back
Submit to Appropriate District Office
State Lease-4 copies
Fee Lease-3 copies

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

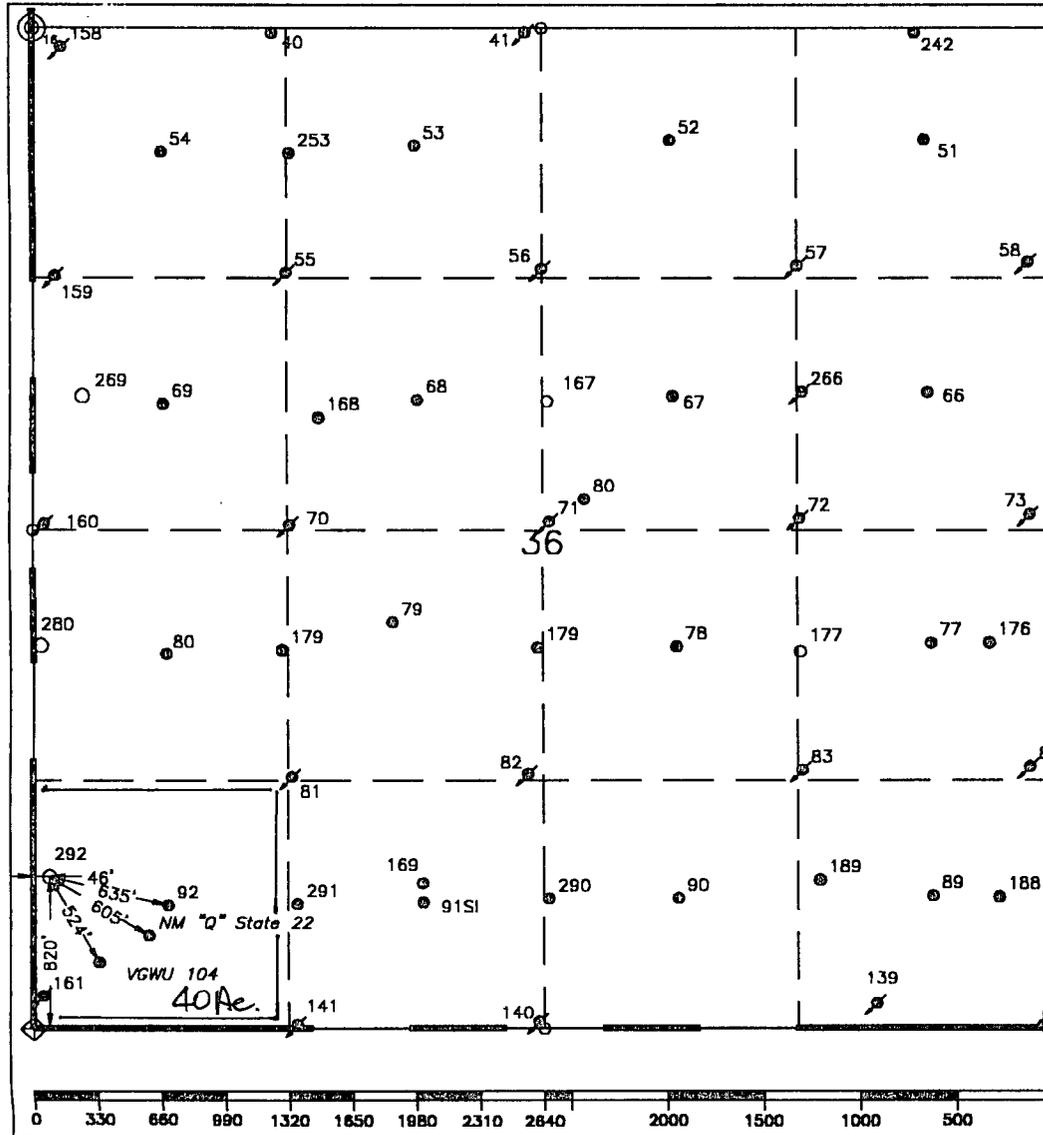
¹ API Number		² Pool Code		³ Pool Name Grayburg/San Andres	
⁴ Property Code 11122		⁵ Property Name Central Vacuum Unit			⁶ Well Number 292
⁷ OGRID No. 22351		⁸ Operator Name TEXACO EXPLORATION & PRODUCTION, INC.			⁹ Elevation 4004'

¹⁰ Surface Location									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	⁷ County
M	36	17-S	34-E		820'	South	46'	West	Lea

¹¹ Bottom Hole Location If Different From Surface									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	⁷ County

¹² Dedicated Acres 40	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION.



¹⁶ OPERATOR CERTIFICATION	
I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.	
Signature	<i>C. Wade Howard</i>
Printed Name	C. Wade Howard
Position	Engineer's Assistant
Company	Texaco Expl. & Prod. Inc.
Date	August 4, 1997
¹⁷ SURVEYOR CERTIFICATION	
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.	
Date Surveyed	July 30, 1997
Signature & Seal of Professional Surveyor	<i>John S. Piper</i>
Certificate No.	7254 John S. Piper
Sheet	

○ = Staked Location ● = Producing Well ↗ = Injection Well ⊕ = Water Supply Well ⊛ = Plugged & Abandon Well
 ⊙ = Found Section Corner, 2 or 3" Iron Pipe & GLO B.C. ○ = Found /4 Section Corner, 1" Iron Pipe & GLO B.C.

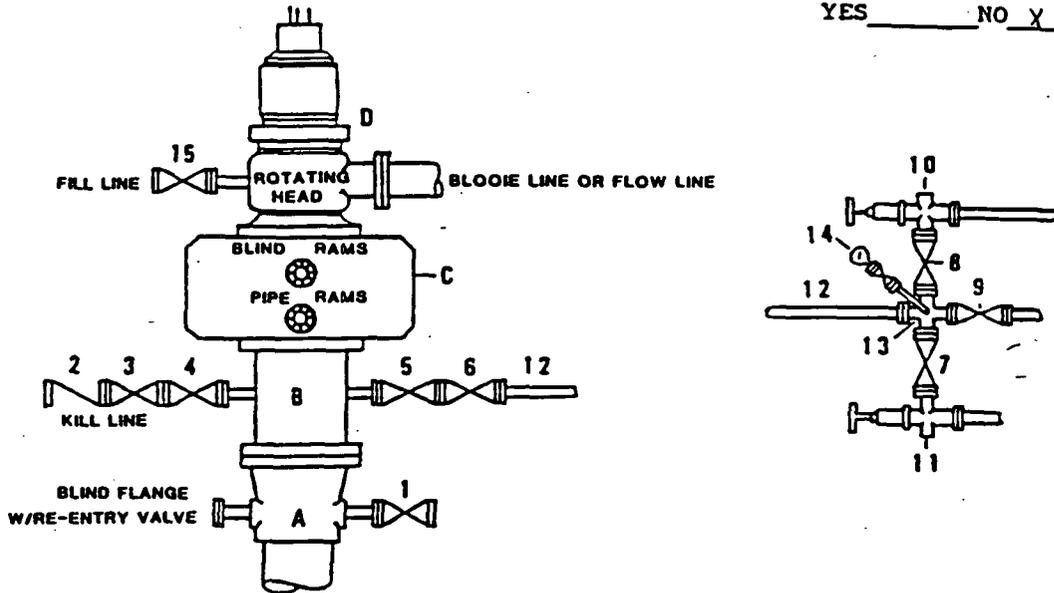
ADDITIONAL INFORMATION ON THE LOCATION

State Plane Coordinates	
Northing 650800.17	Easting 790539.74
Latitude 32°47'11.244"	Longitude 103°31'20.775"
Zone North American Datum	Combined Grid Factor
East 1983	0.99979145
Drawing File	Coordinate File
CVU_292.dwg	Buckeye.cr5
	Field Book
	Lea Co. 16, Pg. 77

EXHIBIT B

**DRILLING CONTROL
CONDITION II-B 3000 WP
FOR AIR DRILLING OR
WHERE NITROGEN OR AIR BLOWS ARE EXPECTED**

H₂S TRIM REQUIRED
YES _____ NO X



DRILLING CONTROL

MATERIAL LIST - CONDITION II - B

- A Texaco Wellhead
- B 3000# W.P. drilling spool with a 2" minimum flanged outlet for Kill line and 3" minimum flanged outlet for choke line.
- C 3000# W.P. Dual ram type preventer, hydraulic operated with 1" steel, 3000# W.P. control lines (where sub-structure height is adequate, 2 - 3000# W.P. single ram type preventers may be utilized).
- D Rotating Head with fill up outlet and extended Bleed Line.
- 1,3,4, 7,8, 2" minimum 3000# W.P. flanged full opening steel gate valve, or Halliburton Lo Torc Plug valve.
- 2 2" minimum 3000# W.P. back pressure valve.
- 5,6,9 3" minimum 3000# W.P. flanged full opening steel gate valve, or Halliburton Lo Torc Plug valve.
- 12 3" minimum schedule 80, Grade "B", seamless line pipe.
- 13 2" minimum x 3" minimum 3000# W.P. flanged cross.
- 10,11 2" minimum 3000# W.P. adjustable choke bodies.
- 14 Cameron Mud Gauge or equivalent (location optional in choke line).
- 15 2" minimum 3000# W.P. flanged or threaded full opening steel gate valve, or Halliburton Lo Torc Plug valve.



TEXACO, INC.
MIDLAND DIVISION
MIDLAND, TEXAS



SCALE:	DATE	EST. NO.	DRG. NO.
DRAWN BY:			
CHECKED BY:			
APPROVED BY:			

EXHIBIT C

ANTICIPATED DRILLING PROGRAM

Date 8-15-97

Est. No. _____

Field Vacuum Grayburg/San Andres

Lease Central Vacuum Unit

Well No. #292

Surface Location Surface: 820' FSL, 46' FWL, Section 36, T17S, R34E

Approved Total Depth	Estimated Cost	Dry Hole Cost	7 Days Drill	<input checked="" type="checkbox"/> Single	Dev. <input checked="" type="checkbox"/>
+/- <u>4850'</u> TVD	<u>\$157,000</u>	Completion Cost	<u>5</u> Days Compl.	<input type="checkbox"/> Dual	Res. <input type="checkbox"/>
+/- <u>4850'</u> MD	<u>\$95,000</u>	Total	<u>12</u> Days Total	<u>30</u> % Tx. Int.	OSWC <input type="checkbox"/>
Est <u>4000'</u> DF ELEV	<u>\$252,000</u>				RWC <input type="checkbox"/>

ANTICIPATED FORMATION TOPS

Formation Name	Depth (TVD) Expected	Press Grad. (psi/ft)	B H P	P P	G a u g e	K i c k	Equiv. Mud Wt.	Antcpd. Prod.	Antcpd. SITP
Salado	1700'	0.52				X	10		
Grayburg Dolomite	4250' Pay	0.433						Oil	
TD	4850'								

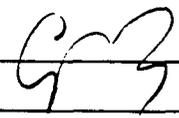
CASING AND CEMENTING DATA

SIZE		Depth	FW	--Surface	Sacks	Wt. (PPG)	Instructions
Hole	Csg.						
11"	8 5/8"	1550'	FW	x	L 400sxs	13.5	Class "C" with 2% gel, 2% CaCl2
					T 150 sxs	14.8	Class "C" with 2% CaCl2
7.875"	5 1/2"	4850'	Brine	x	L 800 sxs	12.8	Class "H" 35/65 poz with 6% gel, 5% salt, 1/4 # cell.
					T 100 sxs	15.6	Class "H"

Prepared by: R. Scott Elkington 8/15/97

Reviewed by: _____

Approved by: _____



PRELIMINARY DRILLING PROGRAM

Lease and Well No. Central Vacuum Unit # 292

LAND INFORMATION

Distance to Nearest Lease Line _____
 No. Acres in Lease _____
 No. Acres Assigned to Well _____
 Distance to Nearest Well _____

MUD PROGRAM

Depth	Type	Weight	Remarks
1550'	Fresh Water	8.4	Circulate pits or reserves, visc. 28
1550-4700	Brine	10	Circulate reserves, Lime pH 9, visc. 29
4700-4850	Brine	10	Starch for seepage, visc. 31
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

TUBULAR PROGRAM

String Type	Hole Size	Depth	Feet	Casing Diameter	Weight	Grade	Connect. Type	ERW/Seamless	Critical Inspectn
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Surface	11"	1550'	1550'	8 5/8"	24 #	WC-50	STC	ERW	No
Prod.	7 7/8"	4850'	4850'	5 1/2"	15.5#	WC-50	LTC	ERW	No
Tubing	Prod.	4750'	4750'	2 7/8"	6.5#	WC-50	EUE	ERW	No
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

Note: Pipe to end up in hole from top to bottom as shown.

CEMENT PROGRAM

String Type	DV Depth	Stage Lead/Tail	Cement Bottom	Cement Top	No Sacks	Cement Type	Cement Yield	Cement Weight
Surface	_____	Lead	1150'	Surface	400	"C"	1.69	13.5
		Tail	1550'	1150'	150	"C"/gel	1.34	14.8
Production	_____	Lead	4550'	Surface	800	35/65po	1.94	12.8
		Tail	4850'	4550'	100	"H"	1.18	15.6
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

BOP PROGRAM

Hole Size	Exhibit	Pressure Rating
_____	_____	_____
_____	See Exhibit C (drill manual)	3M
_____	_____	_____
_____	_____	_____

Remarks: Potential water flows from the Salado at +/- 1700'
Install H2S equipment from 1550' - TD

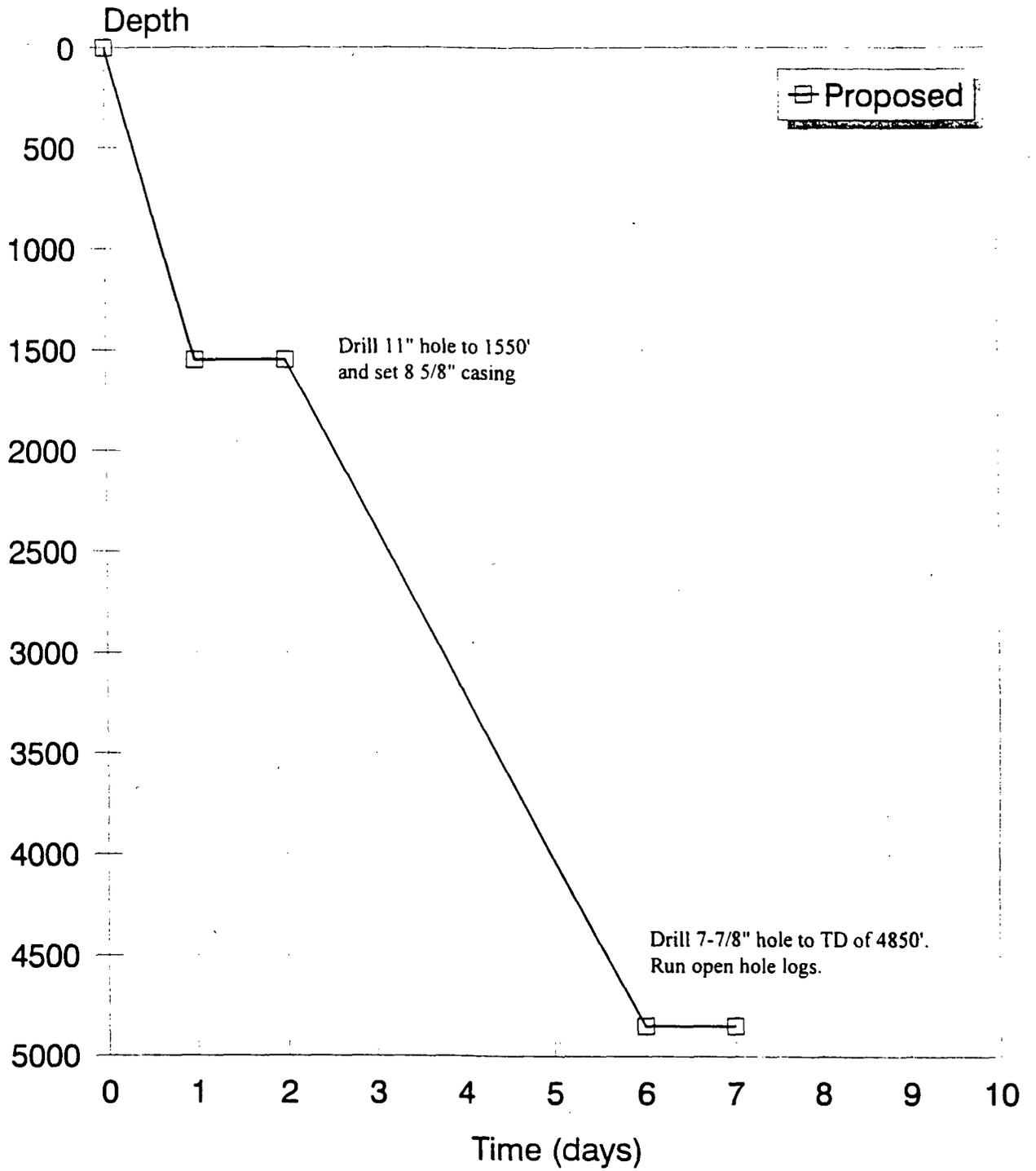
Prepared By:

R. Scott Elkington

Date: 8/15/97

DRILLING CURVE

Central Vacuum Unit #292



DISTRICT I
P. O. Box 1980, Hobbs, NM 88240

DISTRICT II
P. O. Drawer 010, Artesia, NM 88210

DISTRICT III
1000 Rio Br. Ave Rd., Aztec, NM 87410

DISTRICT IV
P. O. Box 2088, Santa Fe, NM 87504-2088

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised February 10, 1994

Instructions on back

OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

Submit to Appropriate District Office

State Lease-4 copies
Fee Lease-3 copies

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

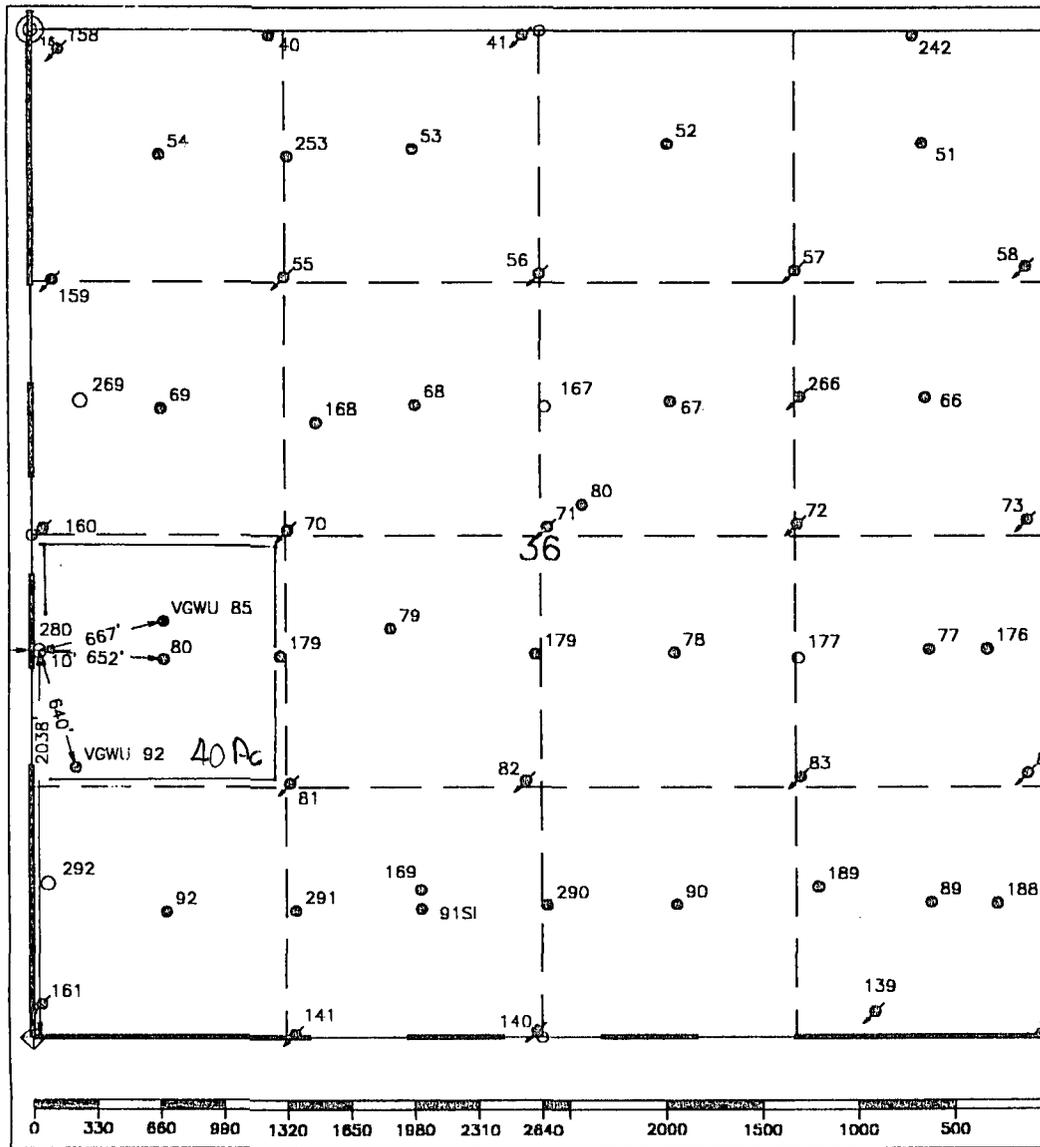
¹ API Number		² Pool Code		³ Pool Name Grayburg/San Andres	
⁴ Property Code 1122		⁵ Property Name Central Vacuum Unit			⁶ Well Number 280
⁷ OGRID No. 22351		⁸ Operator Name TEXACO EXPLORATION & PRODUCTION, INC.			⁹ Elevation 3998'

¹⁰ Surface Location										
UL or lot no. L	Section 36	Township 17-S	Range 34-E	Lot Idn	Feet from the 2038'	North/South line South	Feet from the 10'	East/West line West	⁷ County Lea	

¹¹ Bottom Hole Location If Different From Surface										
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	⁷ County	

¹² Dedicated Acres 40	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.		
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION.



¹⁰ OPERATOR CERTIFICATION	
I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.	
Signature	<i>C. Wade Howard</i>
Printed Name	C. Wade Howard
Position	Engineer's Assistant
Company	Texaco Expl. & Prod. Inc.
Date	August 4, 1997
¹⁶ SURVEYOR CERTIFICATION	
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.	
Date Surveyed	July 30, 1997
Signature & Seal of Professional Surveyor	<i>John S. Piper</i>
Certificate No.	7254 John S. Piper
Sheet	

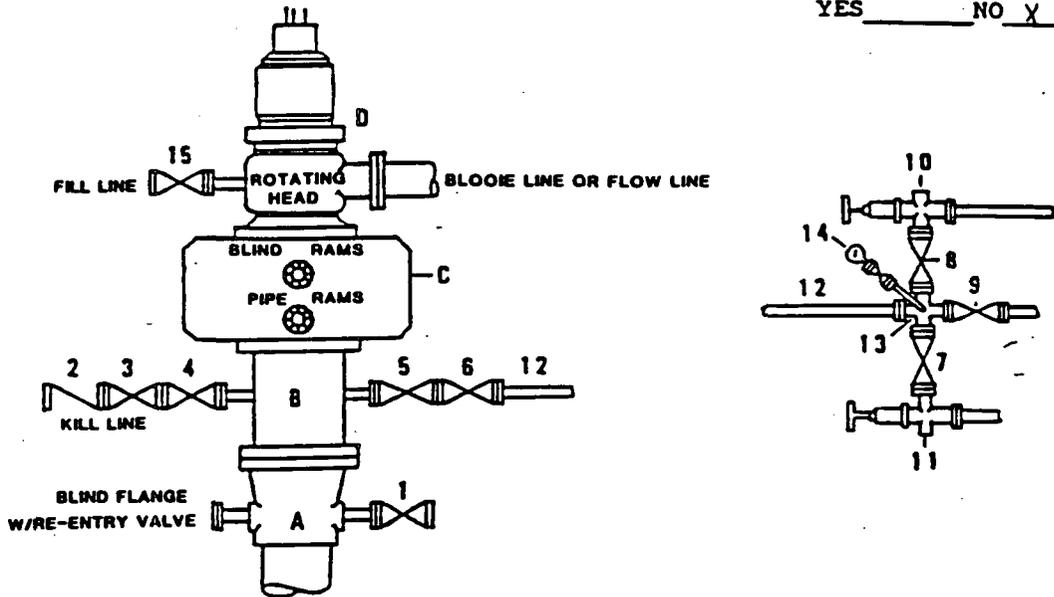
○ = Staked Location ● = Producing Well ⦿ = Injection Well ◊ = Water Supply Well ⊕ = Plugged & Abandon Well
 ⊙ = Found Section Corner, 2 or 3" Iron Pipe & GLO B.C. ○ = Found /4 Section Corner, 1" Iron Pipe & GLO B.C.

ADDITIONAL INFORMATION ON THE LOCATION

State Plane Coordinates			
Northing 652017.65		Easting 790493.50	
Latitude 32°47'23.294"		Longitude 103°31'21.208"	
Zone North American Datum		Combined Grid Factor	Coordinate File
East 1983		0.99979145	Buckeye.cr5
Drawing File		Field Book	
CVU_280.dwg		Lea Co. 16, Pg. 76	

**DRILLING CONTROL
CONDITION II-B 3000 WP
FOR AIR DRILLING OR
WHERE NITROGEN OR AIR BLOWS ARE EXPECTED**

H₂S TRIM REQUIRED
YES _____ NO X



DRILLING CONTROL

MATERIAL LIST - CONDITION II - B

- | | |
|----------------|---|
| A | Texaco Wellhead |
| B | 3000# W.P. drilling spool with a 2" minimum flanged outlet for kill line and 3" minimum flanged outlet for choke line. |
| C | 3000# W.P. Dual ram type preventer, hydraulic operated with 1" steel, 3000# W.P. control lines (where sub-structure height is adequate, 2 - 3000# W.P. single ram type preventers may be utilized). |
| D | Rotating Head with fill up outlet and extended Bloop Line. |
| 1,3,4,
7,8, | 2" minimum 3000# W.P. flanged full opening steel gate valve, or Halliburton Lo Torc Plug valve. |
| 2 | 2" minimum 3000# W.P. back pressure valve. |
| 5,6,9 | 3" minimum 3000# W.P. flanged full opening steel gate valve, or Halliburton Lo Torc Plug valve. |
| 12 | 3" minimum schedule 80, Grade "B", seamless line pipe. |
| 13 | 2" minimum x 3" minimum 3000# W.P. flanged cross. |
| 10,11 | 2" minimum 3000# W.P. adjustable choke bodies. |
| 14 | Cameron Mud Gauge or equivalent (location optional in choke line). |
| 15 | 2" minimum 3000# W.P. flanged or threaded full opening steel gate valve, or Halliburton Lo Torc Plug valve. |



TEXACO, INC.
MIDLAND DIVISION
MIDLAND, TEXAS



SCALE	DATE	EST. NO.	DRG. NO.
DRAWN BY			
CHECKED BY			
APPROVED BY			

EXHIBIT C

ANTICIPATED DRILLING PROGRAM

Date 8-15-97

Est. No. _____

Field Vacuum Grayburg/San Andres

Lease Central Vacuum Unit Well No. #280

Surface Location 2038' FSL, 10' FWL, Section 36, T17S, R34E

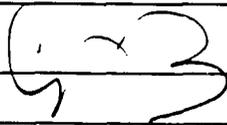
Approved Total Depth	Estimated Cost	Dry Hole Cost	7 Days Drill	<input checked="" type="checkbox"/> Single	Dev. <input checked="" type="checkbox"/>
+/- <u>4850'</u> TVD	<u>\$142,000</u>	Completion Cost	<u>5</u> Days Compl.	<input type="checkbox"/> Dual	Res. <input type="checkbox"/>
+/- <u>4850'</u> MD	<u>\$95,000</u>	Total	<u>12</u> Days Total	<u>30</u> % Tx. Int.	OSWC <input type="checkbox"/>
Est <u>4000'</u> DF ELEV	<u>\$237,000</u>				RWC <input type="checkbox"/>

ANTICIPATED FORMATION TOPS

Formation Name	Depth (TVD) Expected	Press Grad. (psi/ft)	B H P	P P	G a u g e	K i c k	Equiv. Mud Wt.	Antcpd. Prod.	Antcpd. SITP
Salado	1700'	0.52				X	10		
Grayburg Dolomite	4250' Pay	0.433						Oil	
TD	4850'								

CASING AND CEMENTING DATA

SIZE		Depth	FW	--Surface	Sacks	Wt. (PPG)	Instructions
Hole	Csg.						
11"	8 5/8"	1550'	FW	x	L 400sxs	13.5	Class "C" with 2% gel, 2% CaCl2
					T 150 sxs	14.8	Class "C" with 2% CaCl2
7.875"	5 1/2"	4850'	Brine	x	L 800 sxs	12.8	Class "H" 35/65 poz with 6% gel, 5% salt, 1/4 # cell.
					T 100 sxs	15.6	Class "H"

Prepared by: R. Scott Elkington 8/15/97 Reviewed by: 

Approved by: _____

ANTICIPATED DRILLING PROGRAM

Date: 8-15-97

Est. No. _____

Field Vacuum Grayburg/San Andres

Lease Central Vacuum Unit Well No. #280

Surface Location 2038' FSL, 10' FWL, Section 36, T17S, R34E

Approved Total Depth	Estimated Cost	Dry Hole Cost	7 Days Drill	Dev. <input checked="" type="checkbox"/>
+/- <u>4850'</u> TVD	<u>\$157,000</u>	Completion Cost	<u>5</u> Days Compl.	Res. <input type="checkbox"/>
+/- <u>4850'</u> MD	<u>\$95,000</u>	Total	<u>12</u> Days Total	OSWC <input type="checkbox"/>
Est <u>4000'</u> DF ELEV	<u>\$252,000</u>			RWC <input type="checkbox"/>
				30 % Tx. Int.

ANTICIPATED FORMATION TOPS

Formation Name	Depth (TVD) Expected	Press Grad. (psi/ft)	B H P	P P	G a u g e	K i c k	Equiv. Mud Wt.	Antcpd. Prod.	Antcpd. SITP
Salado	1700'	0.52				X	10		
Grayburg Dolomite	4250' Pay	0.433						Oil	
TD	4850'								

CASING AND CEMENTING DATA

SIZE		Depth	Csg.	FW	Brine	Sacks	Wt. (PPG)	Instructions
Hole	Csg.							
11"	8 5/8"	1550'	x	--Surface	L 400sxs	13.5	Class "C" with 2% gel, 2% CaCl2	
					T 150 sxs	14.8	Class "C" with 2% CaCl2	
7.875"	5 1/2"	4850'	x	- Production	L 800 sxs	12.8	Class "H" 35/65 poz with 6% gel, 5% salt, 1/4 # cell.	
					T 100 sxs	15.6	Class "H"	

Prepared by: R. Scott Elkington 8/15/97 Reviewed by: _____

Approved by: _____

PRELIMINARY DRILLING PROGRAM

Lease and Well No. Central Vacuum Unit # 280

LAND INFORMATION

Distance to Nearest Lease Line _____
 No. Acres in Lease _____
 No. Acres Assigned to Well _____
 Distance to Nearest Well _____

MUD PROGRAM

Depth	Type	Weight	Remarks
1550'	Fresh Water	8.4	Circulate pits or reserves, visc. 28
1550-4700	Brine	10	Circulate reserves, Lime pH 9, visc. 29
4700-4850	Brine	10	Starch for seepage, visc. 31
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

TUBULAR PROGRAM

String Type	Hole Size	Depth	Feet	Casing Diameter	Weight	Grade	Connect. Type	ERW/Seamless	Critical Inspectn
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Surface	11"	1550'	1550'	8 5/8"	24 #	WC-50	STC	ERW	No
Prod.	7 7/8"	4850'	4850'	5 1/2"	15.5#	WC-50	LTC	ERW	No
Tubing	Prod.	4750'	4750'	2 7/8"	6.5#	WC-50	EUE	ERW	No
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

Note: Pipe to end up in hole from top to bottom as shown.

CEMENT PROGRAM

String Type	DV Depth	Stage Lead/Tail	Cement Bottom	Cement Top	No Sacks	Cement Type	Cement Yield	Cement Weight
Surface	_____	Lead	1150'	Surface	400	"C"	1.69	13.5
		Tail	1550'	1150'	150	"C"/gel	1.34	14.8
Production	_____	Lead	4550'	Surface	800	35/65po	1.94	12.8
		Tail	4850'	4550'	100	"H"	1.18	15.6
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

BOP PROGRAM

Hole Size	Exhibit	Pressure Rating
_____	_____	_____
_____	See Exhibit C (drill manual)	3M
_____	_____	_____
_____	_____	_____

Remarks: Potential water flows from the Salado at +/- 1700'
Install H2S equipment from 1550' - TD

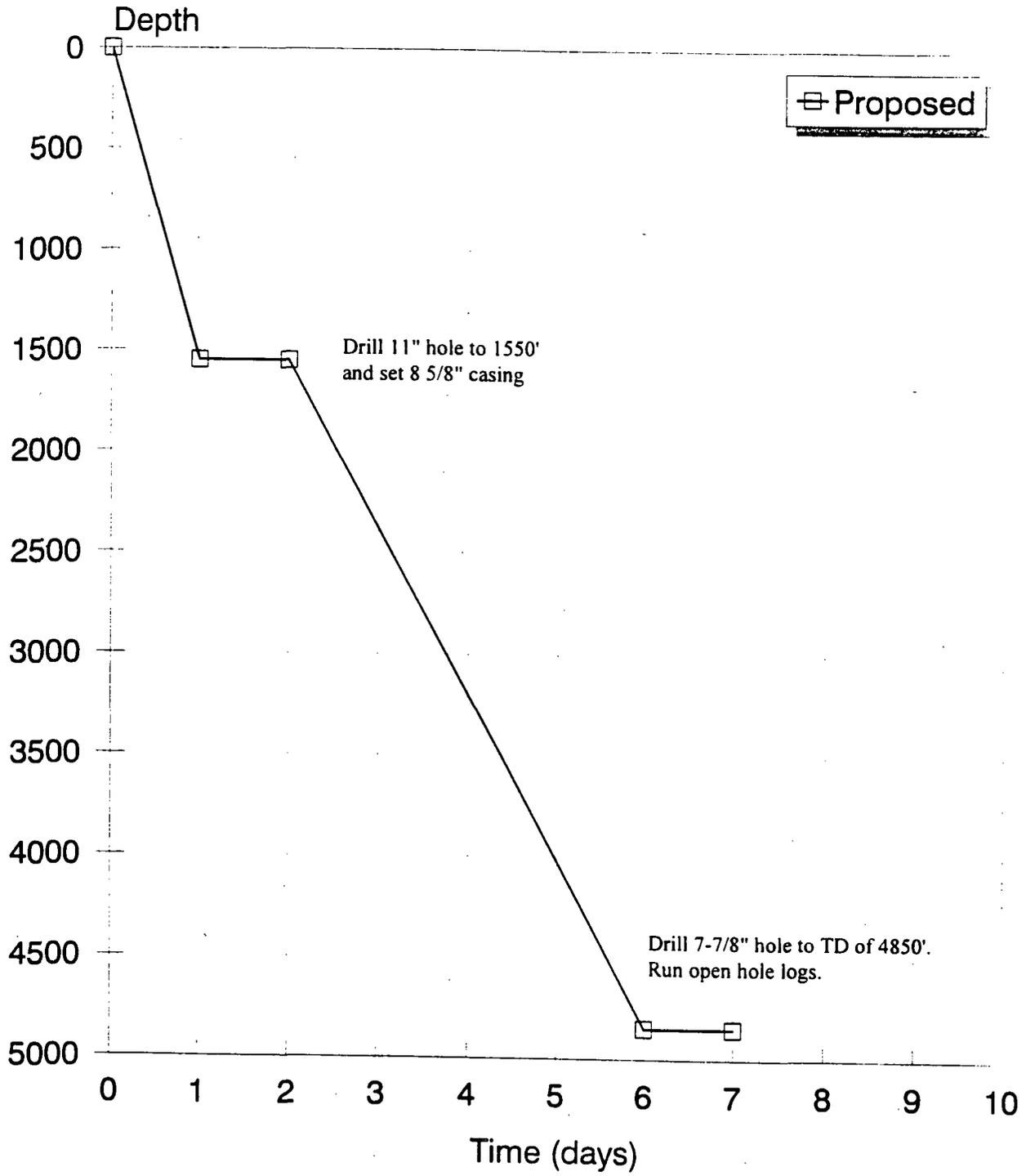
Prepared By:

R. Scott Elkington

Date: 8/15/97

DRILLING CURVE

Central Vacuum Unit #280





Texaco Exploration
and Production Inc

500 North Loraine
Midland TX 79701

P.O. Box 3109
Midland TX 79702

April 14, 1997

To: Working Interest Owners

NM255100 - Central Vacuum Unit

Lea County, New Mexico

Gentlemen:

Texaco and Phillips Petroleum Company have been discussing the need to drill lease line producers between the Central Vacuum Unit (CVU) and Phillips' State 35 Unit (on the West line of the CVU) and between the CVU and Phillips' East Vacuum Grayburg San Andres Unit (on the East line of the CVU).

Current plans are for Texaco to drill and operate three wells along the west line as CVU wells. Production and costs will be shared equally between the CVU and the State 35 Unit. Phillips will drill and operate four wells along the east line as EVGSAU wells. Costs and production will be shared equally between the CVU and the EVGSAU. A plat showing approximate locations is enclosed for your review.

Article 38 of the Central Vacuum Unit Agreement provides for Border Agreements. Please grant your approval in the space provided below for Texaco, as Operator of the Central Vacuum Unit, to enter into two border agreements with Phillips Petroleum Company for the drilling of the lease line producers outlined above and return one original of this letter to me at your earliest convenience.

Sincerely,

Ronald W. Lanning
915-688-4445

APPROVED THIS 16 DAY OF April, 1997.

By: Michael A. McBee, Jr.

Company: The McBee Company

Title: Operations



Texaco Exploration
and Production Inc

500 North Loraine
Midland TX 79701

P O Box 3109
Midland TX 79702

April 14, 1997

To: Working Interest Owners

NM255100 - Central Vacuum Unit

Lea County, New Mexico

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Sincerely,

Ronald W. Lanning
915-688-4445

APPROVED THIS 17th DAY OF APR, 1997.

By: Bettis Boyce

Company: BETTIS BOYCE & STOVALL

Title: PRES.



Texaco Exploration
and Production Inc

Mid-Continent
Region

P.O. Box 1102
Houston, TX 77202

April 14, 1997

To: Working Interest Owners

Marathon Oil Company

NM255100 - Central Vacuum Unit
Lea County, New Mexico

APR 17 1997

JOINT INTEREST OPERATIONS
MID-CONTINENT REGION

Gentlemen:

Texaco and Phillips Petroleum Company have been discussing the need to drill lease line producers between the Central Vacuum Unit (CVU) and Phillips' State 35 Unit (on the West line of the CVU) and between the CVU and Phillips' East Vacuum Grayburg San Andres Unit (on the East line of the CVU).

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Sincerely,

Ronald W. Lanning
915-688-4445

APPROVED THIS 18th DAY OF April, 1997.

By: Joseph L Madron

Company: MARATHON OIL CO.

Title: Joint Interest Supervisor



Texaco Exploration
and Production Inc

500 North Loraine
Midland TX 79701

P O Box 3109
Midland TX 79702

April 14, 1997

To: Working Interest Owners

NM255100 - Central Vacuum Unit

Lea County, New Mexico

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Sincerely,

Ronald W. Lanning
915-688-4445

APPROVED THIS 16th DAY OF April, 1997.

By: August Boyle

Company: W. T. Boyle & Co.

Title: Vice-President



Texaco Exploration
and Production Inc

500 North Loraine
Midland TX 79701

P O Box 3109
Midland TX 79702

April 14, 1997

To: Working Interest Owners

NM255100 - Central Vacuum Unit

Lea County, New Mexico

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Sincerely,

Ronald W. Lanning
915-688-4445

APPROVED THIS 12th DAY OF APRIL, 1997.

By: [Handwritten Signature]

Company: TORRADOR EXPLORATION & PRODUCTION INC.

Title: PRESIDENT



Texaco Exploration
and Production Inc

500 North Loraine
Midland TX 79701

P O Box 3109
Midland TX 79702

April 14, 1997

To: Working Interest Owners

NM255100 - Central Vacuum Unit
Lea County, New Mexico

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Sincerely,

Ronald W. Lanning
915-688-4445

APPROVED THIS 18 DAY OF April, 1997.

By: Herman D. Howell

Company: _____

Title: _____



Texaco Exploration
and Production Inc

500 North Loraine
Midland TX 79701

P O Box 3109
Midland TX 79702

April 14, 1997

To: Working Interest Owners

NM255100 - Central Vacuum Unit
Lea County, New Mexico

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Sincerely,

Ronald W. Lanning
915-688-4445

APPROVED THIS 21st DAY OF April, 1997.

By: William O. Coats

Company: Bank One - Martha Leonard Trust

Title: Vice-President



Texaco Exploration
and Production Inc

500 North Loraine
Midland TX 79701

P O Box 3109
Midland TX 79702

April 14, 1997

To: Working Interest Owners

NM255100 - Central Vacuum Unit

Lea County, New Mexico

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Ronald W. Lanning
915-688-4445

APPROVED THIS 21st DAY OF April, 1997.

By: William D. Coats

Company: Bank One - Mary Leonard Childers Trust

Title: Vice-President



Texaco Exploration
and Production Inc

500 North Loraine
Midland TX 79701

P O Box 3109
Midland TX 79702

April 14, 1997

To: Working Interest Owners

NM255100 - Central Vacuum Unit

Lea County, New Mexico

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Sincerely,

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915-688-4445

APPROVED THIS 21st DAY OF April, 1997.

By: William O. Coats
Company: Bank One - Miranda Leonard Trust
Title: Vice-President



Texaco Exploration
and Production Inc

500 North Loraine
Midland TX 79701

P O Box 3109
Midland TX 79702

April 14, 1997

To: Working Interest Owners

NM255100 - Central Vacuum Unit
Lea County, New Mexico

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Sincerely,

Ronald W. Lanning
915-688-4445

APPROVED THIS 21 DAY OF April, 1997.

By:

Company:

S. B. Street & Co.

Title:

Pres.



Texaco Exploration
and Production Inc

500 North Loraine
Midland TX 79701

P O Box 3109
Midland TX 79702

April 14, 1997

To: Working Interest Owners

NM255100 - Central Vacuum Unit
Lea County, New Mexico

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Sincerely,

Ronald W. Lanning
915-688-4445

APPROVED THIS 17 DAY OF APRIL, 1997.

By: Madelon L. Bradshaw

Company: MADELON L. BRADSHAW

Title: OWNER



Texaco Exploration
and Production Inc

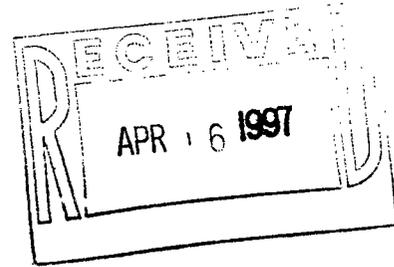
500 North Loraine
Midland TX 79701

P O Box 3109
Midland TX 79702

April 14, 1997

To: Working Interest Owners

NM255100 - Central Vacuum Unit
Lea County, New Mexico



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Sincerely,

Ronald W. Lanning
915-688-4445

APPROVED THIS 23 DAY OF APRIL, 1997.

By: Burt Smith

Company: HAWKINS OIL & GAS, INC.

Title: VICE PRESIDENT



Texaco Exploration
and Production Inc

500 North Loraine
Midland TX 79701

P O Box 3109
Midland TX 79702

April 14, 1997

To: Working Interest Owners

NM255100 - Central Vacuum Unit
Lea County, New Mexico

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Sincerely,

Ronald W. Lanning
915-688-4445

APPROVED THIS 18 DAY OF April, 1997.

By: [Signature]

Company: LARRY O. HILTSLEY & Co.

Title: Production Engineer



COMMERCIAL RESOURCES
(505)-827-5724

SURFACE RESOURCES
(505)-827-5795

MINERAL RESOURCES
(505)-827-5744

ROYALTY
(505)-827-5772

State of New Mexico
Commissioner of Public Lands

Ray Powell, M.S., D.V.M.
310 Old Santa Fe Trall, P. O. Box 1148
Santa Fe, New Mexico 87504-1148
Phone (505)-827-5760, Fax (505)-827-5766

PUBLIC AFFAIRS
(505)-827-5765

ADMINISTRATIVE MGMT.
(505)-827-5700

LEGAL
(505)-827-5715

PLANNING
(505)-827-5752

June 25, 1997

Texaco Exploration and Production Inc.
P.O. Box 3109
Midland, Texas 79702

Attn: Mr. Ronald W. Lanning

Re: Central Vacuum Unit
State 35 Unit
1997 Plan of Development

Dear Mr. Lanning:

We received your letter of June 17, 1997, wherein you requested our approval of your plans to drill three lease line producers between the above-captioned units. We understand that the Central Vacuum Unit Well Nos. 269, 280 and 292 will be drilled in Section 36-17S-34E.

The Commissioner of Public Lands has this date approved the above-mentioned plan.

If you have any questions or if we may be of further help, please contact Pete Martinez at (505) 827-5791.

Very truly yours,

RAY POWELL, M.S., D.V.M.
COMMISSIONER OF PUBLIC LANDS

BY:

Jami Bailey by Pete Martinez
JAMI BAILEY, Director
Oil, Gas and Minerals Division
(505) 827-5744

RP/JB/cpm
Enclosure
cc: Reader File



Texaco Exploration
and Production Inc

500 North Loraine
Midland TX 79701

P O Box 3109
Midland TX 79702

June 18, 1997

Royalty Owners
Central Vacuum Unit
(See Attached List)

NM255100 - Central Vacuum Unit
Lea County, New Mexico

Ladies and Gentlemen:

Texaco and Phillips have been discussing the need to drill lease-line producers between the Texaco operated Central Vacuum Unit and the Phillips operated State 35 Unit (on the west boundary of the CVU) and the East Vacuum Grayburg San Andres Unit (on the east boundary of the CVU). Current plans are for Texaco to drill and operate three wells along the west boundary of the CVU, and for Phillips to drill and operate four wells along the east boundary of the CVU.

One half of the production from each well will be credited to the CVU and you would receive your proportionate part of the royalties. CVU's share could easily exceed one million barrels of oil.

Please give your approval in the space provided below for Texaco and Phillips to drill these wells.

Give me a call at 915-688-4445 if you have any questions.

Sincerely,

Ronald W. Lanning

RWL:

APPROVED, this 22 day of June, 1997.

Signature: _____

Printed Name: Ronald C. Robbins



Texaco Exploration
and Production Inc

500 North Loraine
Midland TX 79701

P O Box 3109
Midland TX 79702

June 18, 1997

Royalty Owners
Central Vacuum Unit
(See Attached List)

NM255100 - Central Vacuum Unit
Lea County, New Mexico

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Give me a call at 915-688-4445 if you have any questions.

Sincerely,

Ronald W. Lanning

RWL:

APPROVED, this 20th day of June, 1997.

Signature: Christine E Campos

Printed Name: Christine E. CAMPOS



1-915-688-4445
Mr. Lanning - R.W. Lanning

Texaco Exploration
and Production Inc

500 North Loraine
Midland TX 79701

P O Box 3109
Midland TX 79702

June 18, 1997

Royalty Owners
Central Vacuum Unit
(See Attached List)

NM255100 - Central Vacuum Unit
Lea County, New Mexico

Ladies and Gentlemen:

Texaco and Phillips have been discussing the need to drill lease line producers between the Texaco operated Central Vacuum Unit and the Phillips operated State 35 Unit (on the west boundary of the CVU) and the East Vacuum Grayburg San Andres Unit (on the east boundary of the CVU). Current plans are for Texaco to drill and operate three wells along the west boundary of the CVU, and for Phillips to drill and operate four wells along the east boundary of the CVU.

One half of the production from each well will be credited to the CVU and you would receive your proportionate part of the royalties. CVU's share could easily exceed one million barrels of oil.

Please give your approval in the space provided below for Texaco and Phillips to drill these wells.

Give me a call at 915-688-4445 if you have any questions.

Sincerely,

Ronald W. Lanning

RWL:

APPROVED, this 23 day of June, 1997.

Signature:

Printed Name:

Marjorie G. Gross

Greenham R. G. Trust
2611 North Kentucky - #107
ROSWELL, N.M. 88201



Texaco Exploration
and Production Inc

500 North Loraine
Midland TX 79701

P O Box 3109
Midland TX 79702

June 18, 1997

Royalty Owners
Central Vacuum Unit
(See Attached List)

NM255100 - Central Vacuum Unit
Lea County, New Mexico

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One half of the production from each well will be credited to the CVU and you would receive your proportionate part of the royalties. CVU's share could easily exceed one million barrels of oil.

Please give your approval in the space provided below for Texaco and Phillips to drill these wells.

Give me a call at 915-688-4445 if you have any questions.

Sincerely,

Ronald W. Lanning

RWL:

APPROVED, this 21 day of June, 1997.

Signature:

Printed Name:

SARA C BURNS



Texaco Exploration
and Production Inc

500 North Loraine
Midland TX 79701

P O Box 3109
Midland TX 79702

June 18, 1997

Royalty Owners
Central Vacuum Unit
(See Attached List)

NM255100 - Central Vacuum Unit
Lea County, New Mexico

Ladies and Gentlemen:

Texaco and Phillips have been discussing the need to drill lease line producers between the Texaco operated Central Vacuum Unit and the Phillips operated State 35 Unit (on the west boundary of the CVU) and the East Vacuum Grayburg San Andres Unit (on the east boundary of the CVU). Current plans are for Texaco to drill and operate three wells along the west boundary of the CVU, and for Phillips to drill and operate four wells along the east boundary of the CVU.

One half of the production from each well will be credited to the CVU and you would receive your proportionate part of the royalties. CVU's share could easily exceed one million barrels of oil.

Please give your approval in the space provided below for Texaco and Phillips to drill these wells.

Give me a call at 915-688-4445 if you have any questions.

Sincerely,

Ronald W. Lanning

RWL:

APPROVED, this 18th day of Aug, 1997.

Signature:

Printed Name:

JUDITH ANDERSON



Texaco Exploration
and Production Inc

500 North Lorraine
Midland TX 79701

P.O. Box 3109
Midland TX 79702

June 18, 1997

Royalty Owners
Central Vacuum Unit
(See Attached List)

NM255100 - Central Vacuum Unit
Lea County, New Mexico

Ladies and Gentlemen:

Texaco and Phillips have been discussing the need to drill lease line producers between the Texaco operated Central Vacuum Unit and the Phillips operated State 35 Unit (on the west boundary of the CVU) and the East Vacuum Grayburg San Andres Unit (on the east boundary of the CVU). Current plans are for Texaco to drill and operate three wells along the west boundary of the CVU, and for Phillips to drill and operate four wells along the east boundary of the CVU.

One half of the production from each well will be credited to the CVU and you would receive your proportionate part of the royalties. CVU's share could easily exceed one million barrels of oil.

Please give your approval in the space provided below for Texaco and Phillips to drill these wells.

Give me a call at 915-688-4445 if you have any questions.

Sincerely,

Ronald W. Lanning

RWL:

APPROVED, this 21ST day of AUGUST, 1997.

Signature:

Printed Name:

DEBORAH W. CONWAY

22725 TORERO CT.
SALINAS, CA 93908 -

PHONE: (408) 484-2521

EMAIL: JDDECONWAY@THEGRID.NET

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7426
Order No. R-6856

APPLICATION OF PHILLIPS PETROLEUM
COMPANY FOR AMENDMENT OF DIVISION ORDER
NO. R-5897 AND APPROVAL OF A QUALIFIED
TERTIARY OIL RECOVERY PROJECT UNDER THE
CRUDE OIL WINDFALL PROFITS TAX ACT OF
1980, LEA COUNTY, NEW MEXICO.

*See Also Order
R-6856-A*

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9:00 a.m. on November 19, 1981, at Santa Fe, New Mexico, before Examiner Richard J. Stamets.

NOW, on this 16th day of December, 1981, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.
- (2) That the applicant, Phillips Petroleum Company, seeks the Amendment of Division Order No. R-5897, to include the injection of carbon dioxide in its previously authorized pressure maintenance project in the East Vacuum Grayburg-San Andres Unit, for conversion of existing injectors to water/carbon dioxide injection, and for the approval of a portion of the East Vacuum Grayburg-San Andres Unit as a Qualified Tertiary Oil Recovery Project under the Crude Oil Windfall Profits Tax Act of 1980.
- (3) That said pressure maintenance project lies within the Vacuum Grayburg-San Andres Pool, Lea County, New Mexico.
- (4) That said pool was discovered May 5, 1924, by Socony Vacuum Oil Company, experienced substantial development thereafter with waterflooding being initiated in a project during 1958.

(5) That the Phillips Petroleum Company East Vacuum Unit Pressure Maintenance Project consisting of approximately 7025 acres was approved by said Division Order No. R-5897 on January 16, 1979, and water injection was commenced within said project during December, 1979.

(6) That the applicant now seeks approval for the injection of carbon dioxide and water into 45 project wells and the designation of a qualifying tertiary recovery project area within said pressure maintenance project.

(7) That the proposed Qualifying Tertiary Project Area (QTP Area) lies wholly within said East Vacuum Unit Pressure Maintenance Project and consists of the following described acreage:

TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM

Section 26: W/2; NE/4; W/2 SE/4; and NE/4 SE/4
Section 27: All
Section 28: All
Section 29: All
Section 31: N/2 SE/4 and SE/4 SE/4
Section 32: All
Section 33: All
Section 34: N/2; SW/4; and NW/4 SE/4
Section 35: N/2 NW/4

TOWNSHIP 18 SOUTH, RANGE 35 EAST, NMPM

Section 4: N/2 NW/4 and NW/4 NE/4
Section 5: N/2 and NW/4 SW/4

containing 4997 acres more or less.

(8) That the QTP Area is adequately delineated and that the entire area will be affected.

(9) That the New Mexico Oil Conservation Division has been designated by the Governor of the State of New Mexico as the appropriate agency to approve Qualified Tertiary Recovery Projects in New Mexico for purposes of the Crude Oil Windfall Profits Tax Act of 1980.

(10) That the tertiary oil recovery method used in the Phillips QTP Area is a carbon dioxide miscible displacement method which is a recognized tertiary oil recovery method described in Section 212.78(c) of the Department of Energy Regulations in effect in June, 1979.

(11) That the Tertiary Recovery method includes overinjection of voidage with water at maximum rates to achieve a miscibility pressure in the formation.

(12) That slim-tube tests have determined such miscibility pressure to be approximately 1369 psia.

(13) That overinjection began on February 1, 1981, and carbon dioxide injection will begin after miscibility pressure has been achieved.

(14) That under the tertiary recovery method to be used, it is anticipated that the volume of injected carbon dioxide measured at reservoir temperature and pressure will be more than 10 percent of the reservoir pore volume being served by the injection wells.

(15) That because of the geological and reservoir characteristics of the effected reservoir, the OTP Area is well suited for miscible fluid displacement by carbon dioxide as an enhanced recovery process.

(16) That the estimated primary production from the East Vacuum Unit Pressure Maintenance Project Area is 72 million barrels and that water flooding secondary recovery operations will recover an additional 38 million barrels.

(17) That an estimated 26 million barrels of additional oil (which is 10 percent of the original oil in place within the project area) will be recovered as a result of the tertiary recovery operations, which is more than an insignificant increase in the amount of crude oil which will ultimately be recovered.

(18) That the OTP Area tertiary recovery operations beginning date is after May, 1979.

(19) That the OTP Area tertiary recovery operations beginning date (i.e., the date on which the injection of liquids, gases or other matter begins) was February 1, 1981.

(20) That the proposed tertiary recovery operations within said OTP Area meet all requirements of Section 4993 of the Internal Revenue Code.

(21) That the Phillips OTP Area project is designated in accordance with sound engineering principles.

(22) That the approval of this application will prevent waste, protect correlative rights and promote conservation.

IT IS THEREFORE ORDERED:

(1) That effective December 1, 1981, the Qualifying Tertiary Recovery Project Area, described in Finding No. (7) of this Order, of the Phillips Petroleum Company East Vacuum Unit Pressure Maintenance Project, Vacuum Grayburg-San Andres Pool, Lea County, New Mexico, is hereby approved as a Qualified Tertiary Recovery Project under the Crude Oil Windfall Profits Tax Act of 1980.

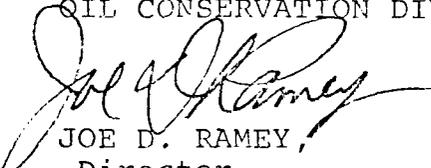
(2) That the applicant, Phillips Petroleum Company, is hereby authorized to inject water and carbon dioxide into the 45 wells listed on Exhibit "A" attached to this Order.

(3) That Order No. R-5897 is hereby amended to authorize injection of carbon dioxide up to an average maximum bottom hole pressure of 3150 psi.

(4) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION


JOE D. RAMEY,
Director

S E A J,

EXHIBIT A

Approved Water-Alternate-
Carbon Dioxide Injectors

Tract 2622 - Well 004 Well 006	Tract 3202 - Well 008 Well 009 Well 010 Well 013
Tract 2717 - Well 003 Well 005 Well 007	Tract 3229 - Well 006 Well 008
Tract 2720 - Well 006	Tract 3236 - Well 006
Tract 2721 - Well 001 Well 002	Tract 3315 - Well 006 Well 008
Tract 2738 - Well 007 Well 008 Well 009	Tract 3328 - Well 003
Tract 2801 - Well 005 Well 006 Well 007 Well 012 Well 015	Tract 3332 - Well 001
Tract 2865 - Well 001	Tract 3333 - Well 005 Well 006
Tract 2913 - Well 007 Well 008 Well 009	Tract 3373 - Well 001
Tract 2941 - Well 001	Tract 3374 - Well 002
Tract 2947 - Well 001	Tract 3456 - Well 006 Well 007 Well 009
Tract 2963 - Well 004	Tract 0524 - Well 001 Well 006
Tract 2980 - Well 003	
Tract 3127 - Well 004	

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

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7426 (REOPENED)
Order No. R-6856-A

APPLICATION OF PHILLIPS PETROLEUM
COMPANY FOR AMENDMENT OF DIVISION
ORDER NO. R-5897 AND CERTIFICATION
OF A TERTIARY RECOVERY PROJECT, LEA
COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on August 22, 1990, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 19th day of September, 1990, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

(1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) By Order No. R-5897, dated January 16, 1979, issued in Case No. 6367, the Division authorized Phillips Petroleum Corporation to institute a pressure maintenance project by the injection of water into the San Andres formation, Vacuum Grayburg-San Andres Pool, through certain wells on its East Vacuum Grayburg San Andres Unit, Lea County, New Mexico.

CASE NO. 7426 (REOPENED)
Order No. R-6856-A
Page -2-

(3) By Order No. R-6856, dated December 16, 1981, issued in Case No. 7426, the Division amended Order No. R-5897 by authorizing Phillips Petroleum Corporation to inject water and carbon dioxide into the San Andres formation, Vacuum Grayburg-San Andres Pool, through certain wells on said East Vacuum Grayburg San Andres Unit.

(4) The applicant, Phillips Petroleum Corporation, seeks the further amendment of Order No. R-5897, as amended, to retroactively authorize injection of hydrocarbon gas into the Vacuum Grayburg-San Andres Pool through approved injection wells within the unit.

(5) Injection of carbon dioxide gas commenced within the East Vacuum Grayburg San Andres Unit during September, 1985.

(6) As a result of carbon dioxide gas injection into the reservoir, a portion of the hydrocarbon gas produced within the unit has contained, since approximately 1986, varying amounts of carbon dioxide.

(7) The produced gas from the East Vacuum Grayburg San Andres Unit is processed and marketed through the Phillips Petroleum Corporation Lea Gas Processing Plant, which, according to evidence and testimony, will not accept for processing gas containing 15 percent or greater carbon dioxide.

(8) In November, 1986, the applicant began reinjecting that portion of the unit's produced gas which contained approximately 15 percent or greater carbon dioxide.

(9) To date, approximately 3.2 BCF of hydrocarbon/carbon dioxide gas has been reinjected into the subject reservoir.

(10) According to evidence and testimony, the applicant is currently evaluating the economic viability of constructing a recovery plant whereby the associated liquids contained within the hydrocarbon/carbon dioxide gas stream may be recovered and marketed.

CASE NO. 7426 (REOPENED)
Order No. R-6856-A
Page -3-

(11) The applicant's further testimony indicates that construction of facilities to separate the methane gas from the hydrocarbon/carbon dioxide gas stream is not economically viable at the present time.

(12) Injection of the hydrocarbon/carbon dioxide gas stream will not reduce the effectiveness of the project and will not reduce ultimate oil recovery from the subject reservoir.

(13) The applicant's current method of disposition of the hydrocarbon/carbon dioxide gas is in the best interest of conservation, protection of correlative rights, and prevention of waste.

(14) The application should be approved by amending Division Order No. R-5897, as amended by Order No. R-6856.

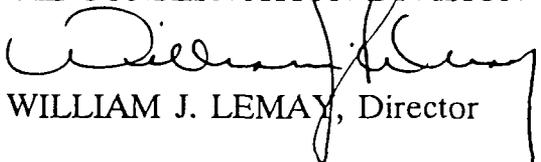
IT IS THEREFORE ORDERED THAT:

(1) Ordering Paragraph No. (2) of Division Order No. R-6856 is hereby amended to read in its entirety as follows:

"(2) That the applicant, Phillips Petroleum Company, is hereby authorized to inject water, carbon dioxide, and hydrocarbon/carbon dioxide gas stream into the 45 wells listed on Exhibit "A" attached to this order."

(2) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

WILLIAM J. LEMAY, Director

S E A L

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

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 11522
ORDER NO. R-10599

APPLICATION OF PHILLIPS PETROLEUM COMPANY FOR A UNIT
AGREEMENT, LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on May 2, 1996, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this ~~10th~~ day of May, 1996, the Division Director, having considered the record and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

- (1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.
- (2) At the time of the hearing Division Case Nos. 11522 and 11523 were consolidated for the purpose of testimony.
- (3) The applicant, Phillips Petroleum Company ("Phillips"), seeks approval of the State-35 Unit Agreement for an area comprising 560 acres, more or less, of State lands in Lea County, New Mexico, described as follows and hereinafter referred to as the "Unit Area":

TOWNSHIP 18 SOUTH, RANGE 33 EAST, NMPM

Section 35: N/2, E/2 SW/4, and SE/4.

- (4) The "Unitized Formation", as described within the State-35 Unit Agreement, should comprise the stratigraphic interval underlying the Unit Area in the Vacuum-Grayburg-San Andres Pool that extends from a measured depth of 4,000 feet (+

21 feet sub-sea datum) to 4,950 feet (-929 feet sub-sea datum), both depths as identified on the Lane Wells Acoustic Log, dated March 12, 1964, for the Phillips M. E. Hale Well No. 8 (API No. 30-025-20780), located 660 feet from the South line and 560 feet from the East line (Unit P) of Section 35, Township 17 South, Range 34 East, NMPM, Lea County, New Mexico.

(5) Within the State-35 Unit Area, the applicant proposes to initiate an enhanced oil recovery project for the tertiary recovery of oil and gas from that portion of the Vacuum-Grayburg-San Andres Pool designated the Unitized Formation within the Unitized Area (being the subject of companion Case No. 11523).

(6) At the time of the hearing Phillips had obtained preliminary approval of the State-35 Unit from the Commissioner of Public Lands for the State of New Mexico.

(7) No interested party appeared and objected to the proposed unit agreement.

(8) All plans of development and operation, and creations, expansions or contractions of participating areas, or expansions or contractions of the Unit Area should be submitted to the Director of the Division for approval.

(9) Approval of the proposed unit agreement should promote the prevention of waste and protection of correlative rights within the Unit Area.

IT IS THEREFORE ORDERED THAT:

(1) The application of Phillips Petroleum Company ("Phillips") for the State-35 Unit Agreement and Area comprising 560 acres, more or less, of State lands in Lea County, New Mexico, described as follows and hereinafter referred to as the "Unit Area", for the purpose of establishing an enhanced oil recovery project is hereby approved:

TOWNSHIP 18 SOUTH, RANGE 33 EAST, NMPM

Section 35: N/2, E/2 SW/4, and SE/4.

(2) The "Unitized Formation or Interval" shall include that stratigraphic interval underlying the Unit Area in the Vacuum-Grayburg-San Andres Pool that extends from a measured depth of 4,000 feet (+ 21 feet sub-sea datum) to 4,950 feet (-929 feet sub-sea datum), both depths as identified on the Lane Wells Acoustic Log, dated March 12, 1964, for the Phillips M. E. Hale Well No. 8 (API No. 30-025-20780), located 660 feet from the South line and 560 feet from the East line (Unit P) of Section 35, Township 17 South, Range 34 East, NMPM, Lea County, New Mexico.

(3) The plan contained in said unit agreement for the development and operation of the unit area is hereby approved in principle as a proper conservation measure; provided however, notwithstanding any of the provisions contained in said unit agreement, this approval shall not be considered as waiving or relinquishing, in any manner, any right, duty or obligation which is now, or may hereafter be, vested in the Division to supervise and control operations for the unit and production of oil and gas therefrom.

(4) The unit operator shall file with the Division an executed original or executed counterpart of the unit agreement within 30 days after the effective date thereof; in the event of subsequent joinder by any other party or expansion or contraction of the unit area, the unit operator shall file with the Division, within 30 days thereafter, counterparts of the unit agreement reflecting the subscription of those interests having joined or ratified.

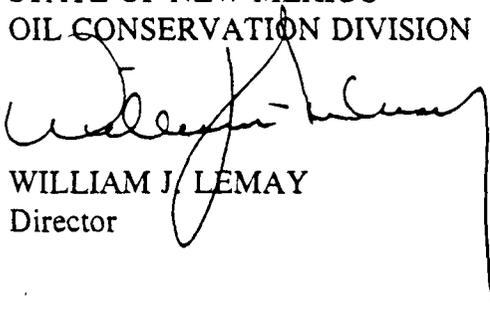
(5) All plans of development and operation, all unit participating areas and expansions or contractions of the unit area, shall be submitted to the Director of the Oil Conservation Division for approval.

(6) This order shall become effective upon the approval of said unit agreement by the Commissioner of Public Lands for the State of New Mexico; this order shall terminate ipso facto upon the termination of said unit agreement; and the last unit operator shall notify the Division immediately in writing of such termination.

(7) Jurisdiction is hereby retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION


WILLIAM J. LEMAY
Director

S E A L

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

CASE NO. 11522
ORDER NO. R-10599-A

APPLICATION OF PHILLIPS PETROLEUM COMPANY FOR A UNIT
AGREEMENT, LEA COUNTY, NEW MEXICO.

NUNC PRO TUNC ORDER

BY THE DIVISION:

It appearing to the New Mexico Oil Conservation Division ("Division") that Order No. R-10599, dated May 10, 1996, does not correctly state the intended order of the Division.

IT IS THEREFORE ORDERED THAT:

(1) Finding Paragraph No. (3) on page 1 of said Order No. R-10599, is hereby amended to read in its entirety as follows:

" (3) The applicant, Phillips Petroleum Company ("Phillips"), seeks approval of the State-35 Unit Agreement for an area comprising 560 acres, more or less, of State lands in Lea County, New Mexico, described as follows and hereinafter referred to as the "Unit Area":

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM

Section 35: N/2, E/2 SW/4, and SE/4."

(2) Decretory Paragraph No. (1) on page 2 of said Order No. R-10599, is hereby amended to read in its entirety as follows:

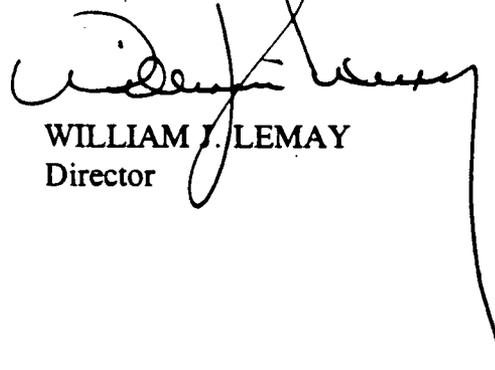
" (1) The application of Phillips Petroleum Company ("Phillips") for the State-35 Unit Agreement and Area comprising 560 acres, more or less, of State lands in Lea County, New Mexico, described as follows and hereinafter referred to as the "Unit Area", for the purpose of establishing an enhanced oil recovery project is hereby approved:

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM
Section 35: N/2, E/2 SW/4, and SE/4."

(3) The corrections set forth in this order be entered nunc pro tunc as of May 10, 1996.

DONE at Santa Fe, New Mexico, on this 16th day of September, 1996.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



WILLIAM J. LEMAY
Director

SEAL

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

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 11523
ORDER NO. R-10599-B

APPLICATION OF PHILLIPS PETROLEUM COMPANY FOR APPROVAL OF A
PRESSURE MAINTENANCE PROJECT, TO QUALIFY SAID PROJECT FOR THE
RECOVERED OIL TAX CREDIT PURSUANT TO THE "NEW MEXICO
ENHANCED OIL RECOVERY ACT", AND FOR THREE UNORTHODOX OIL
WELL LOCATIONS, LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on May 2, 1996, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 27th day of September, 1996, the Division Director, having considered the record and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

- (1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.
- (2) At the time of the hearing Division Case Nos. 11522 and 11523 were consolidated for the purpose of testimony.
- (3) By Division Order No. R-10599, issued in Case 11522 and dated May 10, 1996, as amended by Division Nunc Pro Tunc Order No. R-10599-A, dated September 16, 1996, the State-35 Unit Agreement and Area was approved for an area comprising 560 acres, more or less, of State lands underlying the N/2, E/2 SW/4, and SE/4 of Section 35, Township 17 South, Range 34 East, NMPM, Lea County, New Mexico. The "Unitized Formation" for this unit includes that stratigraphic interval underlying the Unit Area in the Vacuum-Grayburg San Andres Pool that extends from a measured depth of 4,000 feet (+ 21 feet sub-sea datum) to 4,950 feet (-929 feet sub-sea datum), both depths

as identified on the Lane Wells Acoustic Log, dated March 12, 1964, for the Phillips M. E. Hale Well No. 8 (API No. 30-025-20780), located 660 feet from the South line and 560 feet from the East line (Unit P) of Section 35, Township 17 South, Range 34 East, NMPM, Lea County, New Mexico.

(4) The applicant in this matter, Phillips Petroleum Company ("Phillips"), seeks the following:

(a) authority to institute a tertiary recovery project or pressure maintenance project within its aforementioned State-35 Unit by the injection of water and carbon dioxide ("CO₂") into both the Grayburg and San Andres formations of the Vacuum Grayburg-San Andres Pool through sixteen (16) certain wells;

(b) approval for the drilling of three producing wells within said Unit Area at unorthodox oil well locations; and,

(c) to qualify this project for the recovered oil tax rate pursuant to the "New Mexico Enhanced Oil Recovery Act" (Law 1992, Chapter 38, Sections 1 through 5).

(5) Phillips as the proposed operator of the State-35 Unit Tertiary Recovery/Pressure Maintenance Project Area ("EOR Project Area") intends to recover additional oil by means of combined water and CO₂ gas injection ("WAG") into the Grayburg and San Andres formations of the Vacuum Grayburg-San Andres Pool within said Unit Area with seven (7) interior injection wells, nine (9) leaseline injection wells and sixteen (16) producing wells.

(6) Within the proposed 560-acre EOR Project Area:

(a) the Phillips operated Mable lease comprising the W/2 NW/4 of said Section 35 and the Phillips operated Hale lease comprising the E/2 SW/4 and SE/4 of said Section 35 were the subject of Division Order Nos. R-7103, which order authorized the Phillips Hale-Mable Vacuum Pressure Maintenance Project by means of water injection within this 320 acres, and R-7103-A, which authorized the injection of polyacrylamide polymers into the Phillips Hale-Mable Vacuum Pressure Maintenance Project Area; and,

(b) Conoco, Inc. was granted similar approval for its Conoco State H-35 Vacuum Pressure Maintenance Project comprising the NE/4 and E/2 NW/4 of said Section 35 by Division Order Nos. R-7182 and R-7182-A (Phillips has since become operator of the H-35 lease).

(7) There are currently four active secondary recovery projects within the Vacuum Grayburg-San Andres Pool that immediately offset the proposed 560-acre EOR Project Area:

(a) the Texaco Exploration and Production, Inc. Central Vacuum Unit Pressure Maintenance Project (see Division Order Nos. R-5530, R-5530-A, R-5530-B, and R-5530-C), which is also a tertiary recovery project (see Division Order No. R-5530-D) in the S/2 of Section 25 and all of Section 30, both in Township 17 South, Range 34 East, NMPM, Central Vacuum Unit Area (approved by Division Order No. R-5496), Lea County, New Mexico;

(b) the Texaco Exploration and Production, Inc. Vacuum Grayburg-San Andres Pressure Maintenance Project (see Division Order Nos. R-4442 and R-6094), which is also a tertiary recovery project (see Division Order Nos. R-7010 and R-7010-A) comprising the W/2 SW/4 of Section 35, Township 17 South, Range 34 East, NMPM, and Sections 1, 2, the NE/4 NE/4 of Section 11, and the N/2 NW/4 of Section 12, Township 18 South, Range 34 East, NMPM, all within the Vacuum Grayburg San Andres Unit Area (approved by Division Order Nos. R-4433 and R-4433-A, as expanded by letter from the New Mexico Oil Conservation Division dated December 9, 1980 and by letter from the new Mexico State Land Office dated February 2, 1981), Lea County, New Mexico;

(c) the Mobil Producing Texas and New Mexico, Inc. Bridges-State Waterflood Project (see Division Order Nos. R-1244, R-3496, R-3984, R-3984-A, R-4385, R-7361, and R-7361-A), a portion of which is also a tertiary recovery project (see Division Order No. R-7405) comprising in part all of Section 26 and the E/2 of Section 27, both in Township 17 South, Range 34 East, NMPM, Lea County,

New Mexico; and,

(d) the Texaco Exploration and Production, Inc. West Vacuum Unit Waterflood Project (see Division Order Nos. R-3008 and R-4234) comprising in part all of Section 34, Township 17 South, Range 34 East, NMPM, West Vacuum Unit Area (approved by Division Order No. R-3007, as amended by Order No. R-3007-A), Lea County, New Mexico.

(8) Testimony presented by Phillips indicates that as of December 31, 1995, cumulative primary and secondary oil recovery from the proposed EOR Project Area had been 17,207,369 barrels of oil with an estimated additional one million barrels of oil to be recovered under the current mode of operations.

(9) Phillips further testified that the proposed EOR Project Area is currently producing at a rate of approximately 420 BOPD with approximately 95% watercut from sixteen (16) active producers. Further, there are currently ten (10) active lease line and four (4) active interior injector wells contributing to the current mode of operations within the two existing pressure maintenance projects within the subject 560 acres.

(10) Phillips seeks to institute tertiary recovery operations within the proposed EOR Project Area by means of a significant change in the process used for the displacement of crude oil by the initiation of the injection of water-alternate-gas injection ("WAG") by using water and carbon dioxide ("CO₂") in alternating slugs of produced gas and CO₂ and slugs of water to be injected at a 1.4 to 1 ratio with an estimated total of 45 BCF of CO₂ gas to be utilized or 40% pore volume ("PV") slug.

(11) As part of this EOR Project, Phillips intends to drill another six infill producing wells of which three are to be located at locations considered to be unorthodox pursuant to Rule 104.C(1) of the General Rules and Regulations of the New Mexico Oil Conservation Division ("Division"), revised by Division Order No. R-10533, issued by the Oil Conservation Commission in Case 11,351 on January 18, 1996, however Rule 104.F(1) provides for an administrative process whereby any well within an active secondary, enhanced, or pressure maintenance project can be granted authorization in most instances by submitting a Division Form C-102; therefore, that portion of this application for unorthodox locations should be dismissed at this time and Phillips can resubmit to the supervisor of the Hobbs District Office of the Division those requests for unorthodox locations applicable to said General Rule 104.F(1).

(12) The estimated amount of recoverable oil attributed to a positive production response from the expanded use of enhanced oil recovery technology for this proposed EOR Project is an estimated 7,122,000 barrels of additional oil.

(13) The applicant testified that the initiation of pressure maintenance operations utilizing the methodology set forth in Finding Paragraph No. (10) above, should result in the recovery of an additional 7,122,000 barrels of oil for a projected cost of approximately \$8,130,000.00 which includes the drilling of the 6 additional infill producing wells and 2 replacement wells, converting 7 interior and 9 lease-line wells to water-alternate-gas (WAG) injection, construction of CO₂ compression and distribution facilities and upgrading of the present production and water injection facilities.

(14) At the time of the hearing Phillips requested a project allowable for the H-35 Unit of 5,000 barrels of oil per day in order to provide operational flexibility to maximize recovery from the unit and thereby prevent waste and protect correlative rights.

(15) In accordance with Division General Rule 701, the applicant provided evidence, exhibits and testimony which justifies the approval of the 16 proposed WAG injection wells all as identified on Exhibit "A" attached hereto and made a part hereof.

(16) Maximum injection pressures have been established for this project based upon actual San Andres fracture gradients and therefore the injection wells or pressurization system should be initially equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 1850 psig.

(17) Further evidence presented by Phillips indicated that the subject "Project Area" meets all the criteria for certification by the Division as a qualified "Enhanced Oil Recovery Project" pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5).

(18) The certified "EOR Project Area" should initially comprise the area within the H-35 Unit Area as described in Finding Paragraph No. (3) above, provided, however, that the "Project Area" eligible for the recovered oil tax rate may be contracted and reduced dependent upon the evidence presented by the applicant in its demonstration of the occurrence of a positive production response.

(19) To be eligible for the EOR tax credit, the operator should advise the Division when WAG injection commences in the project area and requests the Division certify such phases or area to the New Mexico Taxation and Revenue Department.

(20) At such time as a positive production response occurs from WAG injection operations and within five years from the date of the Certificate of Qualification, the applicant must apply to the Division for certification of positive production response, which application shall identify the area actually benefitting from enhanced recovery operations. The Division may review the application administratively or set it for hearing. Based upon evidence presented, the Division will certify to the Department of Taxation and Revenue those lands with are eligible for the credit.

(21) The proposed tertiary recovery/pressure maintenance project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(22) The applicant testified that there are no "problem wells" within the one-half mile "area of review" and a review of applicant's Form C-108 confirms that all plugged and abandoned wells and all producing wells are cemented in a manner adequate to confine the injected fluid to the proposed injection interval.

(23) Prior to commencing injection operations, the applicant should be required to submit to the Santa Fe Office of the Division an executed copy of an Injection Lease-Line Agreement with the offset projects currently operated by Texaco in the West Vacuum Unit, the Vacuum Grayburg San Andres Unit and the Central Vacuum Unit.

(24) If not previously equipped each of the injection wells shown on Exhibit "A" should be accomplished through internally plastic-lined tubing installed in a packer set within 100 feet of the uppermost injection perforation or casing shoe; the casing-tubing annulus should be filled with an inert fluid; and a gauge or approved leak-detection device should be attached to the annulus in order to determine leakage in the casing, tubing or packer.

(25) The operator should give advance notification to the supervisor of the Hobbs District Office of the Division if applicable of the date and time of the installation of any new injection equipment and if applicable of the mechanical integrity pressure tests in order that the same may be witnessed.

(26) The application should be approved and the project should be governed by the provisions of Rule Nos. 701 through 708 of the Oil Conservation Division Rules and Regulations.

(27) Approval of this application will prevent waste, result in the recovery of hydrocarbons which might not otherwise be recovered, protect corrective rights and promote the interests of conservation.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Phillips Petroleum Company ("Phillips"), is hereby authorized to institute a tertiary recovery/pressure maintenance project by means of combined water and carbon dioxide ("CO₂") gas injection ("WAG") in its State-35 Unit Area (approved by Division Order Nos. R-10599 and R-10599-A) comprising 560 acres, more or less, underlying the N/2, E/2 SW/4, and SE/4 of Section 35, Township 17 South, Range 34 East, NMPM, Lea County, New Mexico, by the injection of water and carbon dioxide ("CO₂") into the Grayburg and San Andres formations of the Vacuum Grayburg-San Andres Pool, through the gross perforated and/or open hole interval that extends from a measured depth of 4,000 feet (+ 21 feet sub-sea datum) to 4,950 feet (-929 feet sub-sea datum), both depths as identified on the Lane Wells Acoustic Log, dated March 12, 1964, for the Phillips M. E. Hale Well No. 8 (API No. 30-025-20780), located 660 feet from the South line and 560 feet from the East line (Unit P) of Section 35, Township 17 South, Range 34 East, NMPM, Lea County, New Mexico, into sixteen (16) certain wells, all of which are existing, as shown on Exhibit "A", attached hereto and made a part hereof.

IT IS FURTHER ORDERED THAT:

(2) Any previous injection authority not in conflict with the provisions set forth in this order shall remain in full force and effect.

(3) WAG injection operations for the 16 subject injection wells shown on Exhibit "A" shall be accomplished through plastic lined tubing installed in a packer set within approximately 100 feet of the uppermost injection perforation or casing shoe; the casing-tubing annulus shall be filled with an inert fluid and a gauge or approved leak-detection device shall be attached to the annulus in order to determine leakage in the casing, tubing or packer.

(4) The 16 WAG injection wells or pressurization system shall be equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to not more than 1850 psig.

(5) The Division Director shall have the authority to administratively authorize a pressure limitation in excess of the above pressure limit upon a showing by the operator that such higher pressure will not result in the fracturing of the injection formation or confining strata.

(6) Prior to commencing injection operations into the wells identified on Exhibit "A", the casing in each well shall be pressure-tested throughout the interval from the surface down to the proposed packer setting depth, to assure the integrity of such casing.

(7) Prior to commencing WAG injection operations, the applicant shall submit to the Santa Fe Office of the Division an executed copy of an Injection Lease-Line Agreement with Texaco Exploration and Producing, Inc., the operator of the offsetting waterflood/pressure maintenance project.

(8) The operator shall give advance notification to the Supervisor of the Hobbs District Office of the Division of the date and time of the installation of any applicable WAG injection equipment and of the mechanical integrity pressure tests, in order that the same may be witnessed.

(9) The operator shall immediately notify the supervisor of the Hobbs District Office of the Division of the failure of the tubing, casing or packer in any of the injection wells, the leakage of water, natural gas, CO₂, or oil from or around any producing well, or the leakage of water, natural gas, CO₂, or oil from any plugged and abandoned well within the project area, and shall take such steps as may be necessary to correct such failure or leakage.

(10) The subject tertiary recovery/pressure maintenance project is hereby designated the State-35 Unit Tertiary Recovery/Pressure Maintenance Project and shall be governed by the provisions of Rules Nos. 701 through 708 of the Oil Conservation Division Rules and Regulations.

(11) Monthly progress reports of the tertiary recovery/pressure maintenance project herein authorized shall be submitted to the Division in accordance with Rules 706 and 1115 of the Division Rules and Regulations.

(12) The project allowable shall be established at 5,000 barrels of oil per day which may be produced from any combination of wells in the unit including the transfer of allowables between or among wells within the project area.

(13) The subject tertiary recovery/pressure maintenance project is hereby certified as a qualified "Enhanced Oil Recovery Project" pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5).

(14) The certified and approved "EOR Project Area" shall initially coincide with the boundaries of the State-35 Unit, described in Decretory Paragraph No. (1), above, provided however, the "EOR Project Area" eligible for the recovered oil tax rate may be contracted and reduced dependent upon the evidence presented by the applicant in its demonstration of the occurrence of a positive production response.

(15) To be eligible for the EOR credit, prior to commencing WAG injection operations, the operator must request from the Division a Certificate of Qualification, which certificate will specify the proposed project area as described above.

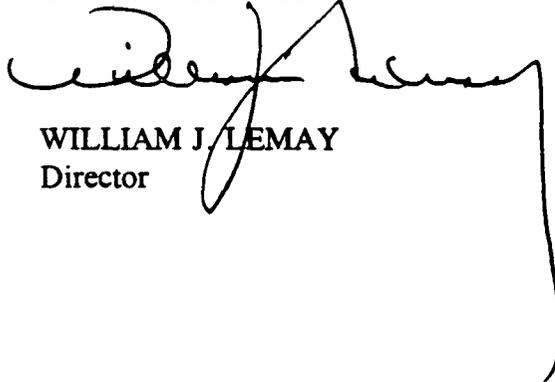
(16) At such time as a positive production response occurs and within five years from the date of the Certificate of Qualification, the operator must apply to the Division for certification of positive production response, which application shall identify the area actually benefitting from enhanced recovery operations. The Division may review the application administratively or set it for hearing. Based upon evidence presented, the Division will certify to the Department of Taxation and Revenue those lands and wells which are eligible for the credit.

(17) The injection authority granted herein for the 16 WAG injection wells shall terminate one year after the effective date of this order if the operator has not commenced WAG injection operations into these wells, provided however, the Division, upon written request by the operator, may grant an extension thereof for good cause shown.

(18) Jurisdiction is hereby retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



WILLIAM J. LEMAY
Director

SEAL

EXHIBIT "A"
CASE NO. 11523
ORDER NO. R-10599-A
PHILLIPS PETROLEUM COMPANY
STATE -35 UNIT TERTIARY RECOVERY/PRESSUREMAINTENANCEE REPORT

PROPOSED STATE-35 UNIT "WAG" INJECTION WELLS TO BE OPERATED BY PHILLIPS PETROLEUM COMPANY LOCATED IN SECTION 35, TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM, VACUUM GRA YBURG SAN ANDRES POOL, LEA COUNTY, NEW MEXIC.

FORMER WELL NAME AND NUMBER	API NO.	NEW WELL DESIGNATION	LOCATION FOOTAGE (UNIT)	CURRENT STATUS	PREVIOUS INJECTION AUTHORITY
STATE "H-35" NO. 15	30-025-28047	STATE "35" NO. 6W	1295' FNL - 2615' FWL (C)	TA INJ.	R-7182
STATE "H-35" NO. 14	30-025-28046	STATE "35" NO. 7W	1345' FNL - 1210' FEL (H)	PRODUCING	R-7182
M.E. HALE NO. 14	30-025-28057	STATE "35" NO. 14W	2630' FSL - 1330' FWL (K)	INJECTION	R-7103
M.E. HALE NO. 15	30-025-28058	STATE "35" NO. 16W	2630' FS & WL (K)	INJECTION	R-7103
M.E. HALE NO. 16	30-025-28059	STATE "35" NO. 17W	2630' FSL - 1330' FEL (J)	INJECTION	R-7103
M.E. HALE NO. 17	30-025-28060	STATE "35" NO. 23W	1310' FSL - 1330' FWL (N)	INJECTION	R-7103
M.E. HALE NO. 12	30-025-28055	STATE "35" NO. 25W	1260' FSL - 2630' FEL (O)	INJECTION	PMX-170
M.E. HALE NO. 21	30-025-30615	STATE "35" NO. 26W	1194' FSL - 2040' FEL (O)	PRODUCING	N/A
M.E. HALE NO. 13	30-025-28056	STATE "35" NO. 27W	1360' FSL - 1210' FEL (I)	INJECTION	PMX-170
M.E. HALE NO. 18	30-025-28061	STATE "35" NO. 29W	1410' FSL - 10' FEL (I)	INJECTION	R-7103
M.E. HALE NO. 19	30-025-28062	STATE "35" NO. 37W	10' FSL - 1210' FEL (P)	INJECTION	R-7103

PROPOSED NON-UNIT "WAG" INJECTION WELLS TO BE OPERATED BY TEXACO EXPLORATION AND PRODUCING, INC. LOCATED IN EITHER SECTION 36, TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM OR IN SECTION 2, TOWNSHIP 18 SOUTH, RANGE 34 EAST, NMPM, VACUUM GRAYBURG SAN ANDRES POOL, LEA COUNTY, NEW MEXICO:

WELL NAME AND NUMBER	API NO.	LOCATION	UNIT SECTION	CURRENT STATUS	PREVIOUS INJECTION AUTHORITY
CENTRAL VACUUM UNIT WELL NO. 159W	30-025-27969	1310' FNL - 100' FWL	(D) 36	INJECTION	PMX-121
CENTRAL VACUUM UNIT WELL NO. 160W	30-025-27970	2602' FNL - 35' FWL	(E) 36	INJECTION	PMX-121
CENTRAL VACUUM UNIT WELL NO. 161W	30-025-27971	180' FSL - 10' FWL	(M) 36	INJECTION	PMX-121
VACUUM GRAYBURG SAN ANDRES UNIT WELL NO. 62W	30-025-27973	65' FNL - 1330' FWL	(C) 2	INJECTION	PMX-120
VACUUM GRAYBURG SAN ANDRES UNIT WELL NO. 63W	30-025-27974	50' FNL - 2630' FEL	(B) 2	INJECTION	PMX-120

BEFORE THE OIL CONSERVATION COMMISSION
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. 5970
Order No. R-5496

APPLICATION OF TEXACO INC. FOR
STATUTORY UNITIZATION AND PRESSURE
MAINTENANCE, VACUUM-GRAYBURG-SAN ANDRES
POOL, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on June 22, 1977,
at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 9th day of August, 1977, 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 the statutory
unitization, pursuant to the "Statutory Unitization Act,"
Sections 65-14-1 through 65-14-21, NMSA, 1953 Compilation, of
3,046.2 acres, more or less, of State and fee lands, being a
portion of the Vacuum-Grayburg-San Andres Pool, Lea County,
New Mexico, and approval of the plan of unitization and the
proposed operating plan.

(3) That the proposed unit area would be designated the
Central Vacuum Unit Area; that the vertical limits of said
unit area would be the subsurface formation commonly known as
the Grayburg-San Andres formation identified between the depths
of 3,858 feet (plus 144 feet sub-sea) and 4,858 feet (minus 856
feet sub-sea) on the Welex Acoustic Velocity Log, run on
November 15, 1963, in Texaco's State of New Mexico "O" (NCT-1).

Well No. 23, located in the SW/4 SE/4 of Section 36, Township 17 South, Range 34 East, NMPM, Lea County, New Mexico, and is to include all subsurface points throughout the Unit area correlative to those identified depths, and that the unit area would comprise the following described lands:

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM
Section 25: S/2 and SE/4 NE/4
Section 36: All

TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM
Section 30: All
Section 31: N/2, SW/4, and SW/4 SE/4

TOWNSHIP 18 SOUTH, RANGE 34 EAST, NMPM
Section 12: N/2 NE/4

TOWNSHIP 18 SOUTH, RANGE 35 EAST, NMPM
Section 6: All
Section 7: NW/4 and NW/4 NE/4

(4) That the portion of the Vacuum-Grayburg-San Andres Pool proposed to be included in the aforesaid Central Vacuum Unit Area has been reasonably defined by development.

(5) That the applicant proposes to institute a pressure maintenance project for the secondary recovery of oil and gas in the proposed unit area.

(6) That the unitized management, operation and further development of the subject portion of the Vacuum-Grayburg-San Andres Pool, as proposed, is reasonably necessary in order to effectively carry on secondary recovery operations and to substantially increase the ultimate recovery of oil from the pool.

(7) That the proposed unitized method of operation as applied to the Central Vacuum Unit Area is feasible, will prevent waste, and will result with reasonable probability in the increased recovery of substantially more oil from the pool than would otherwise be recovered.

(8) That the estimated additional costs of such operations will not exceed the estimated value of the additional oil so recovered plus a reasonable profit.

(9) That such unitization and adoption of the proposed unitized method of operation will benefit the working interest owners and royalty owners of the oil and gas rights within the Central Vacuum Unit Area.

(10) That the applicant has made a good faith effort to secure voluntary unitization within the Vacuum Grayburg-San Andres Pool.

(11) That the participation formula contained in the unitization agreement allocates the produced and saved unitized hydrocarbons to the separately owned tracts in the unit area on a fair, reasonable and equitable basis, and protects the correlative rights of all owners of interest within the unit area.

(12) That applicant's Exhibits Nos. 8 and 9 in this case, being the Unit Agreement and the Unit Operating Agreement should be incorporated by reference into this order.

(13) That the Statutory Unitization of the Central Vacuum Unit Area, in conformance to the above findings, will prevent waste and protect correlative rights and should be approved.

IT IS THEREFORE ORDERED:

(1) That the Central Vacuum Unit Agreement, covering 3,046.2 acres, more or less, of State and fee lands in the Vacuum-Grayburg-San Andres Pool, Lea County, New Mexico, is hereby approved for statutory unitization pursuant to the Statutory Unitization Act, Sections 65-14-1 through 65-14-21, NMSA, 1953 Compilation.

(2) That the lands covered by said Central Vacuum Unit Agreement shall be designated the Central Vacuum Unit Area and shall comprise:

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM
Section 25: S/2 and SE/4 NE/4
Section 36: All

TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM
Section 30: All
Section 31: N/2, SW/4, and SW/4 SE/4

TOWNSHIP 18 SOUTH, RANGE 34 EAST, NMPM
Section 12: N/2 NE/4

TOWNSHIP 18 SOUTH, RANGE 35 EAST, NMPM
Section 6: All
Section 7: NW/4 and NW/4 NE/4

(3) That the vertical limits of the Central Vacuum Unit Area shall be the Grayburg-San Andres formation identified between the depths of 3,858 feet (plus 144 feet sub-sea) and 4,858 feet (minus 856 feet sub-sea) on the Welex Acoustic Velocity Log, run on November 15, 1963, in Texaco's State of New Mexico "O" (NCT-1) Well No. 23, located in the SW/4 SE/4 of Section 36, Township 17 South, Range 34 East, NMPM, Lea County, New Mexico, and is to include all subsurface points throughout the Unit area correlative to those identified depths.

(4) That applicant's Exhibit No. 8 in this case, being the Central Vacuum Unit Agreement, is hereby incorporated by reference into this order.

(5) That applicant's Exhibit No. 9 in this case, being the Central Vacuum Unit Operating Agreement, is hereby incorporated by reference into this order.

(6) That the Central Vacuum Unit Agreement and the Central Vacuum Unit Operating Agreement provide for unitization and unit operation of the subject portion of the Vacuum-Grayburg-San Andres Pool upon terms and conditions that are fair, reasonable and equitable and include:

an allocation to the separately owned tracts in the unit area of all the oil and gas that is produced from the unit area and is saved, being the production that is not used in the conduct of operations on the unit area or not unavoidably lost;

a provision for the credits and charges to be made in the adjustment among the owners in the unit area for their respective investments in wells, tanks, pumps, machinery, materials and equipment contributed to the unit operations;

a provision governing how the costs of unit operations including capital investments shall be determined and charged to the separately owned tracts and how said costs shall be paid including a provision providing when, how, and by whom the unit production allocated to an owner who does not pay the share of the costs of unit operations charged to such owner, or the interest of such owner, may be sold and the proceeds applied to the payment of such costs;

a provision for carrying any working interest owner on a limited, carried or net-profits basis, payable out of production, upon such terms and conditions determined by the Commission to be just and reasonable, and allowing an appropriate charge for interest for such service payable out of such owner's share of production, provided that any nonconsenting working interest owner being so carried shall be deemed to have relinquished to the unit operator all of its operating rights and working interest in and to the unit until his share of the costs, service charge and interest are repaid to the unit operator;

a provision designating the unit operator and providing for the supervision and conduct of the unit operations, including the selection, removal or substitution of an operator from among the working interest owners to conduct the unit operations;

a provision for a voting procedure for the decision of matters to be decided by the working interest owners in respect to which each working interest owner shall have a voting interest equal to its unit participation; and

the time when the unit operation shall commence and the manner in which, and the circumstances under which, the operations shall terminate and for the settlement of accounts upon such termination;

and are therefore hereby adopted.

(7) That this order shall not become effective unless and until the appropriate ratification provisions of Section 65-14-8, NMSA, 1953 Compilation, are complied with.

(8) That if the persons owning the required percentage of interest in the unit area as set out in Section 65-14-8 NMSA, 1953 Compilation, do not approve the plan for unit operations within a period of six months from the date of entry of this order, this order shall cease to be of further force and effect and shall be revoked by the Commission, unless the Commission shall extend the time for ratification for good cause shown.

-6-

Case No. 5970
Order No. R-5496

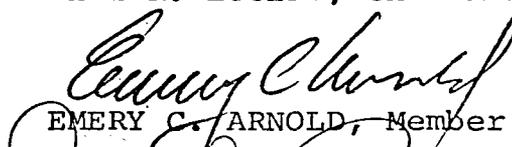
(9) That when the persons owning the required percentage of interest in the unit area have approved the plan for unit operations, the interests of all persons in the unit are unitized whether or not such persons have approved the plan of unitization in writing.

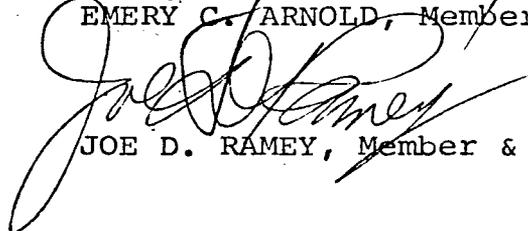
(10) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

PHIL R. LUCERO, Chairman


EMERY C. ARNOLD, Member


JOE D. RAMEY, Member & Secretary

S E A L

dr/

BEFORE THE OIL CONSERVATION COMMISSION
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. 6008
Order No. R-5530

APPLICATION OF TEXACO INC., FOR
A PRESSURE MAINTENANCE PROJECT,
LEA COUNTY, NEW MEXICO.

Also see R-5530-A

R-5530-B

R-5530-C

ORDER OF THE COMMISSION

R-5530-D

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on August 17, 1977, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 20th day of September, 1977, 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 by Commission Order No. R-5496 dated August 9, 1977, statutory unitization was approved for the Central Vacuum Unit Area, Lea County, New Mexico.
- (3) That the applicant herein, Texaco Inc., seeks authority to institute a pressure maintenance project on the aforesaid Central Vacuum Unit Area, Vacuum Grayburg-San Andres Pool, Lea County, New Mexico, by the injection of water into the San Andres formation through the 55 wells described on Exhibit A attached to this order.
- (4) That to permit an efficient injection pattern, the unorthodox locations of the 54 new injection wells as reflected on said Exhibit A should be approved.
- (5) That the applicant further seeks the designation of a project area and the promulgation of special rules and regulations governing said project including special allowable provisions.
- (6) That the project area should consist of those proration units within the boundary of said Central Vacuum Unit upon which is located an injection well and any directly or diagonally offsetting proration unit which contains a producing well.

(7) That the total project area allowable should be equal to the sum of the basic project area allowable plus the water injection credit allowable, and said total project area allowable should be limited to 80 barrels of oil per day times the number of developed 40-acre proration units in the project area times two.

(8) That the basic project area allowable should be equal to 80 barrels of oil per day times the number of developed 40-acre proration units in the project area.

(9) That the water injection credit allowable should be based on the following formula:

$$\text{Water Injection Credit Allowable} = \left[\frac{\text{net water injected}}{\text{basic project area allowable voidage}} \right] \times \text{basic project area allowable}$$

and should be calculated as follows:

$$\text{Water Injection Credit Allowable} = \left\{ \frac{W_i - W_p}{\text{BPAA} \left[\beta_o + \left(\frac{R_p - R_s}{1000} \right) \beta_g \right]} - 1 \right\} \text{BPAA}$$

where W_i = Average daily water injection during previous month, project area
 W_p = Average daily water production during previous month, project area
BPAA = Basic Project Area Allowable = 80 x number of 40-acre tracts in project area
 β_o = Oil formation volume factor, reservoir barrels per stock tank barrel, as determined from Exhibit B, for latest available project area reservoir pressure
 R_p = Producing gas-oil ratio, cubic feet per barrel, during previous month, project area
 R_s = Solution gas-oil ratio, cubic feet per barrel, as determined from Exhibit B, for latest available project area reservoir pressure
 β_g = Gas formation volume factor, reservoir barrels per MCF, as determined from Exhibit B, for latest available project area reservoir pressure

In no event should the Water Injection Credit Allowable be less than zero.

(10) That the project area allowable should be produced from the wells within the project area in any proportion provided that any proration unit situated on the boundary of said Central Vacuum Unit which proration unit is not directly or diagonally offset by a San Andres injection well outside the unit should not be permitted to produce in excess of 80 barrels of oil per day.

(11) That each of the newly drilled injection wells in the project should be equipped with surface casing and production casing set at approximately 350 feet and 4800 feet, respectively, and cemented to the surface.

(12) That injection should be accomplished through 2 3/8-inch plastic coated tubing installed in a packer which should be set approximately 50 feet above the uppermost perforation in the case of newly drilled wells and at approximately 4376 feet in the one well to be converted to injection.

(13) That the casing-tubing annulus in each injection well should be filled with an inert fluid and that a pressure gauge or approved leak detection device should be attached to the annulus in order to determine leakage in the casing, tubing, or packer.

(14) That the injection wells or system should be equipped with a pop-off valve or acceptable substitute which will limit the surface injection pressure to no more than 0.2 pounds per foot of depth to the uppermost perforation unless the Secretary-Director of the Commission should administratively authorize a higher pressure.

(15) That there are 15 wells, as set out on Exhibit C to this order, which are located within or immediately adjacent to the boundaries of said Central Vacuum Unit which are completed or plugged in such a manner that will not assure that they will not serve as channels for injected water to migrate from the San Andres formation to other formations or to the surface.

(16) That to prevent migration of injected water from the San Andres formation, formation injection pressure at wells offsetting the wells identified on said Exhibit C should be limited to hydrostatic pressure until such time as the wells on said Exhibit C have been repaired or it shall otherwise be demonstrated to the satisfaction of the Secretary-Director of the Commission that the same will not serve as avenues for escape of such waters.

(17) That the wells within the project should be equipped to facilitate periodic testing of the annular space between strings of production and surface casing.

(18) That the operator should take all other 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 from injection, producing, or plugged and abandoned wells.

(19) That approval of the subject application should result in the recovery of additional volumes of oil from the Central Vacuum Unit Area, thereby preventing waste.

(20) That the application should be approved.

IT IS THEREFORE ORDERED:

X (1) That the applicant, Texaco Inc., is hereby authorized to institute a pressure maintenance project in the Central Vacuum Unit Area, Vacuum-Grayburg-San Andres Pool, Lea County, New Mexico, by the injection of water into 55 wells at orthodox and unorthodox locations as set out on Exhibit A attached to this order and by reference made a part hereof.

X (2) That each of the newly drilled injection wells shall be equipped with surface casing and production casing set at approximately 350 feet and 4800 feet, respectively, and cemented to the surface.

X (3) That injection shall be accomplished through 2 3/8-inch plastic coated tubing installed in a packer set approximately 50 feet above the uppermost perforation in the case of newly drilled wells and at approximately 4376 feet in the one existing well converted to injection.

X (4) That the casing-tubing annulus in each injection well shall be filled with an inert fluid and a pressure gauge or approved leak detection device shall be attached to the annulus in order to determine leakage in the casing, tubing, or packer.

X (5) That the injection wells or system shall be equipped with a pop-off valve or acceptable substitute which will limit the surface injection pressure to no more than 0.2 pounds per foot of depth to the uppermost perforations.

X
X (6) That the Secretary-Director of the Commission may administratively authorize a pressure limitation in excess of that set out in Order No. (5) above upon a showing by the operator that such higher pressure will not result in fracturing of the confining strata. *amended - see R-5530-A*

X (7) That the applicant shall not inject water into the formation of any well located on a 40-acre tract that has on it, or that directly or diagonally offsets a tract that has on it, one of the 15 wells identified on Exhibit C attached hereto and by reference made a part hereof, at a pressure greater than hydrostatic until such well has been repaired or it has been shown to the satisfaction of the Secretary-Director of the Commission that such well will not serve as an avenue of escape for waters injected into the San Andres formation and he has authorized a higher than hydrostatic pressure. *amended - see R-5530-A*

X (8) That the wells within the project area shall be equipped with risers or in another acceptable manner such as to facilitate the periodic testing of the bradenhead for pressure or fluid production.

X
X (9) That the operator shall immediately notify the supervisor of the Commission district office at Hobbs of the failure of the tubing or packer in any of said injection wells, the leakage of water or oil from or around any producing well, the leakage of water or oil from or around any plugged and abandoned well within the project area, or any other evidence of fluid migration from the injection zone, and shall take such timely steps as may be necessary or required to correct such failure or leakage. *amended - see R-5530-A*

X (10) That the pressure maintenance project shall be designated the Texaco Inc. Central Vacuum Unit Pressure Maintenance Project.

X (11) That the project area of said Central Vacuum Unit Pressure Maintenance Project shall consist of those proration units within the boundary of the Central Vacuum Unit upon which is located an injection well and any directly or diagonally offsetting proration unit which contains a producing well.

X
X (12) That those wells within the Central Vacuum Unit Area that are not included within the project area as defined above shall be prorated in accordance with the Rules and Regulations of the Commission. *amended - see R-5530-A*

*Amended
R. 5530-C*

X (13) That the project area shall receive a project area allowable, and said project area allowable shall be the sum of the basic project area allowable plus the water injection credit allowable, and shall be limited to 80 barrels of oil per day times the number of developed 40-acre project area times two.

X (14) That the basic project area allowable shall be equal to 80 barrels of oil per day times the number of developed 40-acre proration units in the project area.

X (15) That the water injection credit allowable shall be based on the following formula:

$$\text{Water Injection Credit Allowable} = \left[\frac{\text{net water injected}}{\text{basic project area allowable voidage}} \right] \times \text{basic project area allowable}$$

and should be calculated as follows:

$$\text{Water Injection Credit Allowable} = \left\{ \frac{W_i - W_p}{\text{BPAA} \left[\beta_o + \left(\frac{R_p - R_s}{1000} \right) \beta_g \right]} - 1 \right\} \text{BPAA}$$

- where:
- W_i = Average daily water injection during previous month, barrels per day, project area only
 - W_p = Average daily water produced during previous month, barrels per day, project area only
 - BPAA = Basic Project Area Allowable = 80 x number of 40-acre tracts in project area
 - β_o = Oil formation volume factor, reservoir barrels per stock tank barrel, as determined from Exhibit B (attached hereto and by reference made a part hereof), for the latest available project area reservoir pressure
 - R_p = Producing gas-oil ratio, cubic feet per barrel, for previous month, project area only
 - R_s = Solution gas-oil ratio, cubic feet per barrel, as determined from Exhibit B, for the latest available project area reservoir pressure
 - β_g = Gas formation volume factor, reservoir barrels per MCF, as determined from Exhibit B, for latest available project area reservoir pressure

In no event shall the Water Injection Credit Allowable be less than zero, i.e., negative numbers derived from application of the above formula shall be ignored.

X
X
16
(13) That the average project area reservoir pressure shall be determined prior to the commencement of injection of water into the reservoir and at least annually thereafter. The average project area pressure shall be the average of the pressures in at least ten representative wells selected by the operator of the unit and the Supervisor of the Hobbs District Office of the Commission at an agreed upon datum.
amended - see R-5530-A

X
17
Amend
(14) That the project area allowable may be produced from any well within the project area in any proportion provided, however, that any proration unit situated on the boundary of the Central Vacuum Unit which proration unit is not directly or diagonally offset by a San Andres injection well outside said Central Vacuum Unit shall not be permitted to produce in excess of 80 barrels of oil per day.
amended - see R-5530-A

X
18
(15) That each month the project operator shall submit to the Commission a Pressure Maintenance Project Operator's Report, on a form prescribed by the Commission, outlining thereon the data required, and requesting allowables for each of the several wells in the Project as well as the total project area allowable. The aforesaid Pressure Maintenance Project Operator's Report shall be filed in lieu of Form C-120 for the Project.
amended - see R-5530-A

X
19
(16) That the Commission shall, upon review of the report and after any adjustments deemed necessary, calculate the allowable for the wells in the Project for the next succeeding month in accordance with these rules. The sum of the allowables so calculated shall be assigned to the Project and, except as provided under Order (14) above, may be produced from the wells in the Project in any proportion.
amended - see R-5530-A

X
20
(17) 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

PHIL R. LUCERO, Chairman

Emery C. Arnold
EMERY C. ARNOLD, Member

Joe D. Ramey
JOE D. RAMEY, Member & Secretary

S E A L

dr/

*Insert
20*

CENTRAL VACUUM UNIT
Authorized Injection Wells

54 new wells to be drilled at the following locations:

<u>WELL NO.</u>	<u>LOCATION</u>	<u>SECTION</u>	<u>TOWNSHIP</u>	
			<u>SOUTH</u>	<u>RANGE EAST</u>
5	1310' FNL & 1310' FWL	30	17	35
6	1310' FNL & 2630' FWL	30	17	35
7	1310' FNL & 1330' FEL	30	17	35
13	2630' FNL & 10' FEL	25	17	34
14	2630' FNL & 1310' FWL	30	17	35
15	2630' FNL & 2630' FWL	30	17	35
16	2630' FNL & 1330' FEL	30	17	35
25	1330' FSL & 1310' FWL	25	17	34
26	1330' FSL & 2630' FWL	25	17	34
27	1330' FSL & 1330' FEL	25	17	34
28	1330' FSL & 10' FEL	25	17	34
29	1330' FSL & 1310' FWL	30	17	35
30	1330' FSL & 2630' FWL	30	17	35
31	1330' FSL & 1330' FEL	30	17	35
-40	10' FSL & 1310' FWL	25	17	34
-41	10' FSL & 2630' FWL	25	17	34
42	10' FSL & 1330' FEL	25	17	34
43	10' FSL & 10' FEL	25	17	34
44	10' FSL & 1310' FWL	30	17	35
45	10' FSL & 2630' FWL	30	17	35
46	10' FSL & 1330' FEL	30	17	35
55	1310' FNL & 1310' FWL	36	17	34
56	1310' FNL & 2630' FWL	36	17	34
57	1310' FNL & 1330' FEL	36	17	34
58	1310' FNL & 10' FEL	36	17	34
59	1310' FNL & 1310' FWL	31	17	35
60	1310' FNL & 2630' FWL	31	17	35
61	1310' FNL & 1330' FEL	31	17	35
70	2630' FNL & 1310' FWL	36	17	34
71	2630' FNL & 2630' FWL	36	17	34
72	2630' FNL & 1330' FEL	36	17	34
73	2630' FNL & 10' FEL	36	17	34
74	2630' FNL & 1310' FWL	31	17	35
81	1330' FSL & 1310' FWL	36	17	34
82	1330' FSL & 2630' FWL	36	17	34
83	1330' FSL & 1330' FEL	36	17	34
84	1330' FSL & 10' FEL	36	17	34
85	1330' FSL & 1310' FWL	31	17	35
93	10' FSL & 1310' FWL	31	17	35
94	10' FSL & 2630' FWL	31	17	35
-99	1310' FNL & 1310' FWL	6	18	35
100	1310' FNL & 2630' FWL	6	18	35
-101	1310' FNL & 1330' FEL	6	18	35
106	2520' FNL & 1040' FWL	6	18	35

Case No. 6008
Order No. R-5530
Exhibit "A"

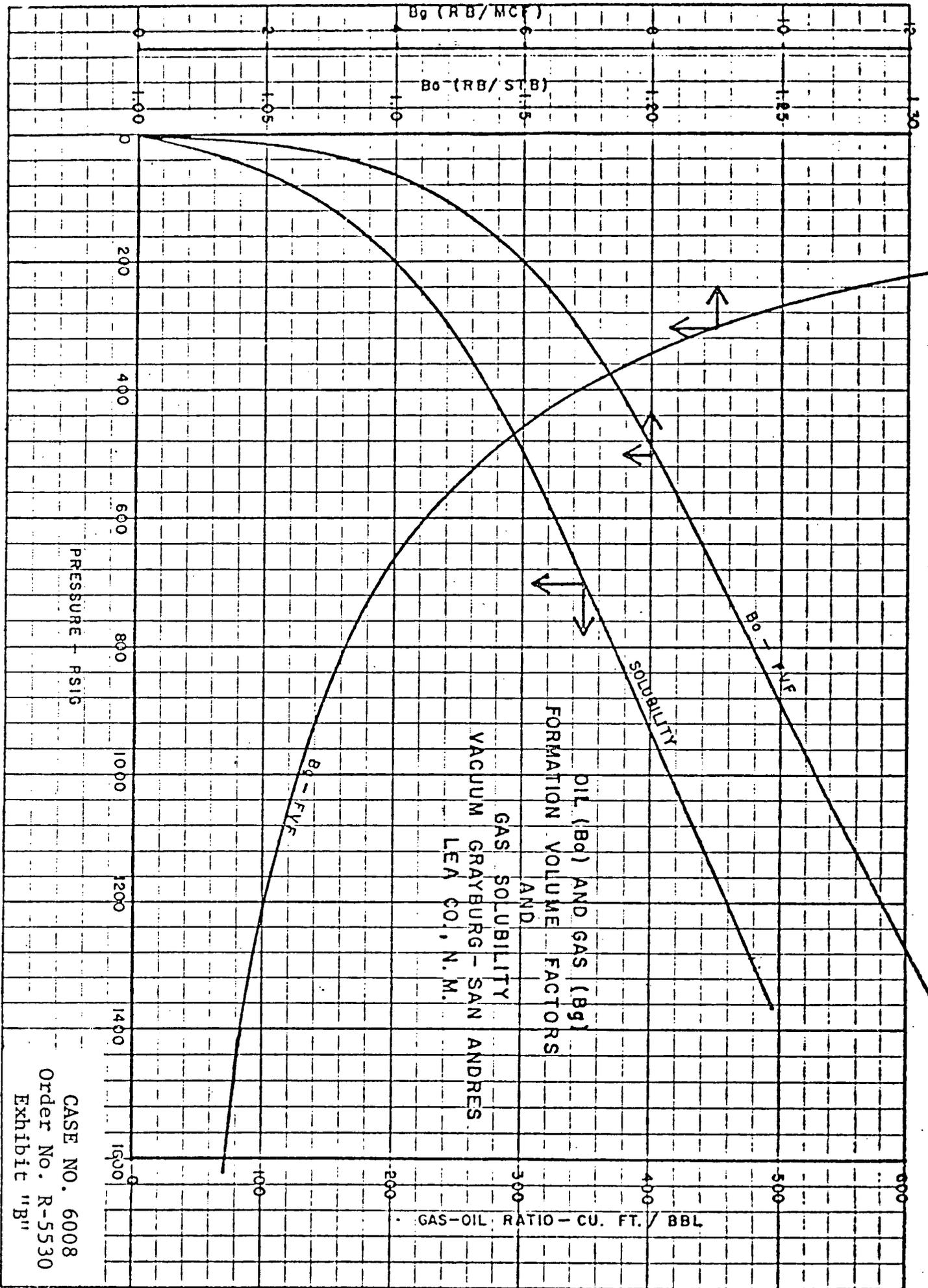
54 new wells to be drilled at the following locations continued

<u>WELL NO.</u>	<u>LOCATION</u>	<u>SECTION</u>	<u>TOWNSHIP</u> <u>SOUTH</u>	<u>RANGE</u> <u>EAST</u>
107	2450' FNL & 2630' FWL	6	18	35
108	2630' FNL & 1480' FEL	6	18	35
113	1620' FSL & 1100' FWL	6	18	35
114	1460' FSL & 2100' FWL	6	18	35
115	1600' FSL & 1500' FEL	6	18	35
120	60' FNL & 1100' FWL	7	18	35
121	400' FSL & 2380' FWL	6	18	35
122	350' FSL & 1560' FEL	6	18	35
128	1310' FNL & 200' FEL	12	18	34
129	1310' FNL & 2630' FWL	7	18	35

One existing well, Sun Oil Company Lea State "B" No. 7 located as follows:

131	2119' FNL & 918' FWL	7	18	35
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Case No. 6008
Order No. R-5530
Exhibit "A"



CASE NO. 6008
 Order No. R-5530
 Exhibit "B"

<u>OPERATOR</u>	<u>LEASE</u>	<u>WELL NO.</u>	<u>UT.</u>	<u>SEC.</u>	<u>TWP.</u>	<u>RGE.</u>
Continental Oil Co.	State H 35	9	H	35	17S	34E
Getty Oil Company	State AN	8	P	7	18S	35E
Getty Oil Company	State AN	9	I	7	18S	35E
Getty Oil Company	State BA	6	D	36	17S	34E
Marathon Oil Co.	Warn State A/c 2	6	K	6	18S	35E
Marathon Oil Co.	Warn State A/c 2	10	K	6	18S	35E
Mobil Oil Corp.	Bridges State	11	F	25	17S	34E
Mobil Oil Corp.	State DD	1	D	31	17S	35E
Phillips Petroleum Co.	Santa Fe	87	L	31	17S	35E
Texaco Inc.	New Mexico "AB" State	5	J	6	18S	35E
Texaco Inc.	New Mexico "AE" State	4	F	12	18S	34E
Texaco Inc.	New Mexico "O" State NCT-1	14	J	36	17S	34E
Texaco Inc.	New Mexico "O" State NCT-1	18	H	36	17S	34E
Texaco Inc.	New Mexico "P" State	1	J	7	18S	35E
Texaco Inc.	New Mexico "Q" State	4	P	25	17S	34E

Case No. 6008
Order No. R-5530
Exhibit "C"

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 6256
Order No. R-5530-A

APPLICATION OF TEXACO INC. FOR
AMENDMENT OF COMMISSION ORDER
NO. R-5530, NON-STANDARD LOCATIONS,
AND AN ADMINISTRATIVE PROCEDURE,
LEA COUNTY, NEW MEXICO.

also rec.
R-5530
R-5530-B
R-5530-C
R-5530-D

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on June 21, 1978,
at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 25th day of July, 1978, the Division
Director, 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 Division has jurisdiction of this cause and the
subject matter thereof.
- (2) That the applicant, Texaco Inc., is the operator of
the Central Vacuum Unit Pressure Maintenance Project authorized
by Commission Order No. R-5530.
- (3) That the applicant seeks to amend Paragraph (14) on
Page 7 of said Order No. R-5530 by removing or amending the
allowable restriction therein subject to lease line agreements.
- (4) That said allowable restriction should be removed
for any proration unit within said Central Vacuum Unit upon
which a lease line injection well is located.

(5) That the applicant seeks permission to expand said Central Vacuum Unit Pressure Maintenance Project in the Vacuum Grayburg-San Andres Pool by the injection of water into the Grayburg-San Andres formation through eight additional injection wells located as follows:

<u>Unit Well No.</u>	<u>Location</u>	<u>Unit</u>	<u>Section</u>	<u>Township</u>	<u>Range</u>
133	10' FNL & 1550' FEL	B	12	18-S	34-E
134	40' FNL & 40' FWL	D	7	18-S	35-E
135	1600' FSL & 40' FWL	L	6	18-S	35-E
136	2450' FNL & 40' FWL	E	6	18-S	35-E
137	1100' FNL & 40' FWL	D	6	18-S	35-E
138	10' FSL & 70' FEL	P	36	17-S	34-E
140	10' FSL & 2571' FWL	N	36	17-S	34-E
141	10' FSL & 1310' FWL	M	36	17-S	34-E

(6) That the application for approval of one other additional injection well, Unit Well No. 139, at a non-standard location should be dismissed.

(7) That the applicant further seeks the establishment of an administrative procedure for approval of additional producing and injection wells and the conversion of existing wells within said Central Vacuum Unit Pressure Maintenance Project to injection at both orthodox and unorthodox locations without further notice and hearing.

(8) That the establishment of such an administrative procedure would permit the more efficient operation of the project.

(9) That any injection well authorized by such an administrative procedure should be subject to all of the requirements and limitations contained in said Order No. R-5530.

(10) That Paragraphs 13, 14, 15, 16, and 17 on Page 7 of said Order No. R-5530 are numbered in error and should be re-numbered in proper sequence.

IT IS THEREFORE ORDERED:

(1) That the applicant, Texaco Inc., is hereby authorized to expand its Central Vacuum Unit Pressure Maintenance Project, Vacuum Pool, by the injection of water into the Grayburg-San Andres

formations through the following-described wells at non-standard locations as follows:

<u>Unit Well No.</u>	<u>Location</u>	<u>Unit</u>	<u>Section</u>	<u>Township</u>	<u>Range</u>
133	10' FNL & 1550' FEL	B	12	18-S	34-E
134	40' FNL & 40' FWL	D	7	18-S	35-E
135	1600' FSL & 40' FWL	L	6	18-S	35-E
136	2450' FNL & 40' FWL	E	6	18-S	35-E
137	1100' FNL & 40' FWL	D	6	18-S	35-E
138	10' FSL & 70' FEL	P	36	17-S	34-E
140	10' FSL & 2571' FWL	N	36	17-S	34-E
141	10' FSL & 1310' FWL	M	36	17-S	34-E

(2) That the application for approval of one other additional injection well, Unit Well No. 139, at a non-standard location is hereby dismissed.

(3) That Paragraph No. (6) on Page 5 of Order No. R-5530 is hereby amended to read in its entirety as follows:

"(6) That the Director of the Oil Conservation Division may administratively authorize a pressure limitation in excess of that set out in Order No. (5) above upon a showing by the operator that such higher pressure will not result in fracturing of the confining strata."

(4) That Paragraph No. (7) on Page 5 of Order No. R-5530 is hereby amended to read in its entirety as follows:

"(7) That the applicant shall not inject water into the formation of any well located on a 40-acre tract that has on it, or that directly or diagonally offsets a tract that has on it, one of the 15 wells identified on Exhibit C attached hereto and by reference made a part hereof, at a pressure greater than hydrostatic until such well has been repaired or it has been shown to the satisfaction of the Division Director that such well will not serve as an avenue of escape for waters injected into the San Andres formation and he has authorized a higher than hydrostatic pressure."

(5) That Paragraph No. (9) on Page 5 of Order No. R-5530 is hereby amended to read in its entirety as follows:

"(9) That the operator shall immediately notify the supervisor of the Hobbs District Office of the Division of the failure of the tubing or packer in any of said injection wells, the leakage of water or oil from or around any producing well, the leakage of water or oil from or around any plugged and abandoned well within the project area, or any other evidence of fluid migration from the injection zone, and shall take such timely steps as may be necessary or required to correct such failure or leakage."

(6) That Paragraph No. (12) on Page 5 of Order No. R-5530 is hereby amended to read in its entirety as follows:

"(12) That those wells within the Central Vacuum Unit Area that are not included within the project area as defined above shall be prorated in accordance with the Division Rules and Regulations."

(7) That Paragraph No. (13) on Page 7 of Order No. R-5530 is hereby renumbered Paragraph No. (16) and is further amended to read in its entirety as follows:

"(16) That the average project area reservoir pressure shall be determined prior to the commencement of injection of water into the reservoir and at least annually thereafter. The average project area pressure shall be the average of the pressures in at least ten representative wells selected by the operator of the unit and the Supervisor of the Hobbs District Office of the Division at an agreed upon datum."

(8) That Paragraph No. (14) on Page 7 of Order No. R-5530 is hereby renumbered Paragraph No. (17) and is further amended to read in its entirety as follows:

"(17) That the project area allowable may be produced from any well within the project area in any proportion provided, however, that any proration unit situated on the boundary of the Central Vacuum Unit which proration unit is not directly or diagonally offset by a San Andres injection well outside said Central Vacuum Unit, or upon which a Central Vacuum "lease-line" injection well is not located between a unit producing well and the unit boundary shall not be permitted to produce in excess of 80 barrels of oil per day."

(9) That Paragraph No. (15) on Page 7 of Order No. R-5530 is hereby renumbered Paragraph No. (18) and is further amended to read in its entirety as follows:

"(18) That each month the project operator shall submit to the Division a Pressure Maintenance Project Operator's Report, on a form prescribed by the Division outlining thereon the data required, and requesting allowables for each of the several wells in the Project as well as the total project area allowable. The aforesaid Pressure Maintenance Project Operator's Report shall be filed in lieu of Form C-120 for the Project."

(10) That Paragraph No. (16) on Page 7 of Order No. R-5530 is hereby renumbered Paragraph No. (19) and is further amended to read in its entirety as follows:

"(19) That the Division shall, upon review of the report and after any adjustments deemed necessary, calculate the allowable for the wells in the Project for the next succeeding month in accordance with these rules. The sum of the allowables so calculated shall be assigned to the Project and, except as provided under Order (17) above, may be produced from the wells in the Project in any proportion."

(11) That Order No. R-5530, as amended hereinabove is further amended by the addition of the following Paragraph No. (20):

(20) The Director of the Division is hereby authorized to approve such additional producing wells and injection wells at orthodox and unorthodox locations within the boundaries of applicant's Central Vacuum Unit as may be necessary to complete an efficient production and injection pattern, provided that said producing wells shall not be located closer than 330 feet to the Unit boundary nor injection wells closer than 10 feet to the Unit boundary nor any well closer than 10 feet to any quarter-quarter section or subdivision inner boundary. To obtain such approval, the project operator shall file proper application with the Division, which application, if it seeks authorization to convert additional wells to injection or to drill additional production or injection wells shall include the following:

- (a) A plat showing the location of the proposed well, all wells within the project area, and offset operators, locating wells which offset the project area.
- (b) A schematic drawing of the proposed well which fully describes the casing, tubing, perforated interval, depth, and a demonstration that any proposed injection well will meet construction, pressure and monitoring provisions of Orders Nos. (2), (3), (4), (6), and (7) of this Order or the equivalent.
- (c) A letter stating that all offset operators to the proposed well have been furnished a complete copy of the application and the date of notification. The Director of the Division may approve the proposed well if, within 20 days after receiving the application, no objection to the proposal is received. The Director may grant immediate approval, provided waivers of objection are received from all offset operators.

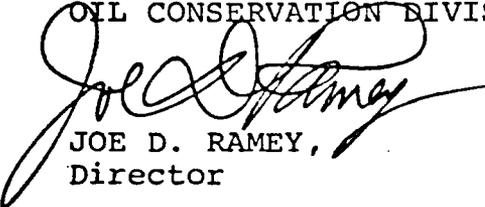
(12) That Paragraph No. (17) on Page 7 of Order No. R-5530 is hereby renumbered Paragraph No. (21) and is further amended to read in its entirety as follows:

"(21) That jurisdiction of Case No. 6008 is retained for the entry of such further orders as the Division may deem necessary."

(13) That jurisdiction of Case No. 6256 is retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



JOE D. RAMEY,
Director

S E A L

dr/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 6306
Order No. R-5530-B

APPLICATION OF TEXACO INC. FOR
AN UNORTHODOX LOCATION, PERMISSION
TO INJECT WATER AND DIRECTIONAL
DRILLING, LEA COUNTY, NEW MEXICO.

Also see
R-5530
R-5530-A
R-R5530-C
R-5530-D

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on August 30, 1978, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 7th day of September, 1978, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Texaco Inc., seeks approval for the unorthodox location of its Central Vacuum Unit Well No. 139 to be vertically drilled from a surface location 85 feet from the South line and 958 feet from the East line of Section 36, Township 17 South, Range 34 East, Vacuum Grayburg-San Andres Pool, Lea County, New Mexico, to a depth of approximately 3100 feet, and then directionally drilled in such a manner as to be bottomed in the San Andres formation in a 100' square bottom hole target location with the center of the target being 60 feet from the South line and 1310 feet from the East line of said Section 36; that the applicant further seeks approval to inject water into the San Andres formation in said well.

(3) That an injection well at said unorthodox bottomhole location will better enable applicant to complete an efficient waterflood injection pattern in its Central Vacuum Unit Area.

(4) That the directional drilling of said well to the aforesaid bottomhole location is occasioned by the location of a surface obstruction immediately over the bottomhole location, namely a gasoline plant.

(5) That no offset operator objected to the proposed unorthodox location.

(6) That approval of the subject application will afford the applicant the opportunity to produce its just and equitable share of the gas in the subject pool, will prevent the economic loss caused by the drilling of unnecessary wells, avoid the augmentation of risk arising from the drilling of an excessive number of wells, and will otherwise prevent waste and protect correlative rights.

(7) That the injection of water into the subject well shall be subject to all of the provisions of previous orders of the Division relating to the Central Vacuum Unit Waterflood Project, including Orders Nos. R-5530 and R-5530-A.

IT IS THEREFORE ORDERED:

(1) That an unorthodox location is hereby approved for the Texaco Inc. Central Vacuum Unit Well No. 139 to be vertically drilled from a surface location 85 feet from the South line and 958 feet from the East line of Section 36, Township 17 South, Range 34 East, Vacuum Grayburg-San Andres Pool, Lea County, New Mexico, to a depth of approximately 3100 feet, and directionally drilled to a true vertical depth of 4800 feet in the San Andres formation, bottoming it within a 100' square bottomhole target, with the center of the target being 60 feet from the South line and 1310 feet from the East line of said Section 36.

(2) That the applicant is hereby authorized to utilize said well for the injection of water into the San Andres formation, injection to be through tubing set in a packer located approximately 50 feet above the uppermost perforation.

(3) That operation of and injection into the subject well shall be subject to all of the provisions applicable to other injection wells in the Central Vacuum Unit Area Waterflood Project, as promulgated by Division Orders Nos. R-5530 and R-5530-A.

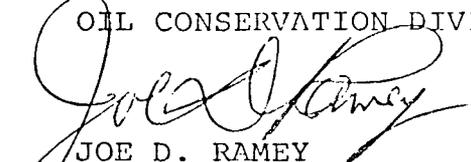
(4) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

-3-

Case No. 6306
Order No. R-5530-B

DONE at Santa Fe, New Mexico, on the day and year herein-
above designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



JOE D. RAMEY
Director

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STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7353
Order No. R-5530-C

APPLICATION OF TEXACO INC.
FOR THE AMENDMENT OF DIVISION
ORDER NO. R-5530, LEA COUNTY,
NEW MEXICO.

Also See
R-5530
R-5530-A
R-5530-B
R-5530-D

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on September 23, 1981, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 13th day of October, 1981, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.
- (2) That the applicant, Texaco Inc., seeks the amendment of Order No. R-5530, which authorized its Central Vacuum Unit Area Pressure Maintenance Project, to increase the total project area allowable, or as an alternative, to reclassify the project as a waterflood project.
- (3) That said Division Order No. R-5530, as amended, authorized the applicant to operate said pressure maintenance project in the Vacuum Grayburg-San Andres Pool, Lea County, New Mexico.
- (4) That paragraph (13) of Order No. R-5530 established parameters and limitations for a project area allowable to be available for producing wells within said project.
- (5) That under said paragraph (13) the project area allowable is limited to 12,320 barrels per day.

(6) That wells in the project are now producing at a combined rate of approximately 12,000 barrels per day and production is expected to increase to approximately 17,000 barrels per day.

(7) That removal of the limitation on the project area allowable, which limit equals 80 barrels of oil per day times the number of developed 40-acre tracts within the project area times two, would permit the applicant the relief sought and would be consistent with the allowable formula for an offsetting pressure maintenance project in the same pool.

(8) That no offset operator objected to the proposed increase in project area allowable.

(9) That that part of the subject application seeking in the alternative to reclassify said pressure maintenance project as a waterflood should be dismissed.

(10) That approval of the application will not result in waste nor violation of correlative rights.

IT IS THEREFORE ORDERED:

(1) That effective October 1, 1981, paragraph (13) on page 6 of Division Order No. R-5530 is hereby amended to read in its entirety as follows:

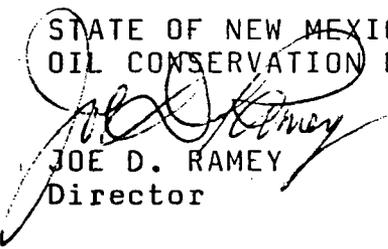
"(13) That the project area shall receive a project area allowable, and said project area allowable shall be the sum of the basic project area allowable plus the water injection credit allowable."

(2) That that portion of the application in this case seeking, in the alternative, to redesignate Texaco Inc.'s Central Vacuum Pressure Maintenance Project as a waterflood project is hereby dismissed.

(3) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION


JOE D. RAMEY
Director

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STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7824
Order No. R-5530-D

APPLICATION OF TEXACO INC. FOR
AMENDMENT OF DIVISION ORDER NO.
R-5530 AND APPROVAL OF A TERTIARY
OIL RECOVERY PROJECT UNDER THE
CRUDE OIL WINDFALL PROFITS TAX ACT
OF 1980, LEA COUNTY, NEW MEXICO.

See Also
R-5530
R-5530-A
R-5530-B
R-5530-C

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on March 16, 1983, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 5th day of April, 1983, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Texaco Inc., seeks authority to convert its Central Vacuum Unit Pressure Maintenance Project (water injection) to a polymer-augmented waterflood, and pursuant to Section 212.78 of the United States Department of Energy Regulations and Section 4993 of the Internal Revenue Code seeks certification of said project as a Qualified Tertiary Oil Recovery Project.

(3) That said pressure maintenance project lies within the Vacuum Grayburg-San Andres Pool, Lea County, New Mexico.

(4) That said pool was discovered in May, 1929, by Socony Vacuum Oil Company, experienced substantial development thereafter with waterflooding being initiated during 1977.

(5) That the Texaco Inc. Central Vacuum Unit Pressure Maintenance Project (water injection) consisting of approximately 3046 acres was approved by Division Order No. R-5530 on September 20, 1977 and water injection was commenced within said project beginning in 1977.

(6) That the applicant now seeks approval for the installation of a tertiary recovery polymer-augmented water-flood by the injection of polyacrylamide polymers into 81 wells and the designation of a qualifying tertiary recovery project area all within said pressure maintenance project.

(7) That the New Mexico Oil Conservation Division has been designated by the Governor of the State of New Mexico as the appropriate agency to approve Qualified Tertiary Recovery Projects in New Mexico for purpose of the Crude Oil Windfall Profits Tax Act of 1980.

(8) That the proposed Qualifying Tertiary Project Area (QTP Area) lies wholly within said Central Vacuum Unit Pressure Maintenance Project in the Texaco Vacuum Grayburg San Andres Unit Area and consists of the following described acreage:

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM

Section 25: S/2 and SE/4 NE/4

Section 36: All

TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM

Section 30: All

Section 31: N/2, SW/4, and SW/4 SE/4

TOWNSHIP 18 SOUTH, RANGE 34 EAST, NMPM

Section 12: N/2 NE/4

TOWNSHIP 18 SOUTH, RANGE 35 EAST, NMPM

Section 6: All

Section 7: NW/4 and NW/4 NE/4

containing 3046 acres, more or less.

(9) That the proposed project is a tertiary recovery method described in Section 212.78(c) of the Department of Energy Regulations and as defined in Section 4993 of the Internal Revenue Code.

(10) That the proposed Tertiary Recovery Project is expected to result in the recovery of at least an additional 2,700,000 barrels of incremental tertiary crude oil which the

Division finds is more than an insignificant increase in the ultimate recovery of crude oil.

(11) That the injection of polyacrylamide polymers will improve mobility ratio and vertical conformance, and the Texaco QTP Area project is designed, and will be operated, in accordance with sound engineering principles.

(12) That the entire Central Vacuum Unit Pressure Maintenance Project will be affected and it is adequately delineated.

(13) That the QTP Area tertiary recovery operations beginning date is after May, 1979, with scheduled polymer injection to begin during late March or April, 1983.

(14) That past production from the Vacuum Grayburg-San Andres Pool underlying the Central Vacuum Unit Area is 53,500,000 barrels through April, 1983; future recovery thereafter without the proposed tertiary recovery project is estimated to be 46,467,000 barrels of oil; and with the proposed tertiary recovery project an additional 2,700,000 barrels of incremental tertiary oil will be recovered resulting in a total production of 49,167,000 barrels of oil.

(15) That the Central Vacuum Unit presently has thereon 76 producing wells, 81 injection wells, three plugged and abandoned wells, and four water supply wells with the project being fully developed on 20-acre well spacing.

(16) That all injection wells located in the Central Vacuum Unit will receive polymer-augmented injection for an extended period of time, (estimated to be 20 months) until a 10 percent pore volume of polymer/water solution is injected.

(17) That the projected future expense for the proposed tertiary project is six million dollars (\$6,000,000) for the cost of the polymer and associated chemicals and one hundred eighty thousand dollars (\$180,000) is estimated for polymer handling equipment.

(18) That the proposed tertiary recovery operations within said QTP Area meet all requirements of Section 4993(C) (2) (A), (B) and (C) of the Internal Revenue Code.

(19) That the approval of this application will prevent waste, protect correlative rights and promote conservation, provided however, that the production limitation provisions of Rules 13 through 15 of Division Order No. R-5530, dated

September 20, 1977, as amended by Division Order No. R-5530-A, dated July 25, 1978, and Order No. R-5530-C, dated October 1, 1981, should remain in effect.

IT IS THEREFORE ORDERED:

(1) That effective April 1, 1983, or the first day of the month following initiation of polymer injection, the Qualifying Tertiary Recovery Project Area, described in Finding No. (8) of this Order, being the Texaco Inc. Central Vacuum Unit Area, Central Vacuum Grayburg-San Andres Pool, Lea County, New Mexico, is hereby approved as a Qualified Tertiary Recovery Project under the Crude Oil Windfall Profits Tax Act of 1980.

(2) That the applicant, Texaco Inc., is hereby authorized to inject water and polyacrylamide polymers into approved injection wells in this unit, and that Division Order No. R-5530 dated September 1, 1977, is hereby amended to allow the injection of said polymers.

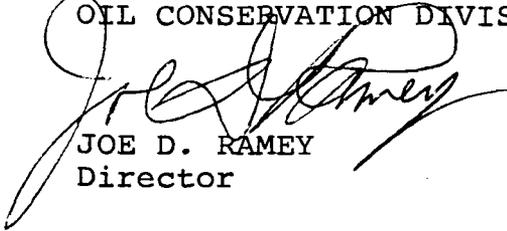
IT IS FURTHER ORDERED:

(1) That the production limitation provisions of Rules 13 through 15 of Division Order No. R-5530, as amended by Division Orders Nos. R-5530-A and R-5530-C, shall remain in full force and effect until further order of the Division.

(2) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year herein-above designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION


JOE D. RAMEY
Director

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

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 11650
ORDER NO. R-5530-E

APPLICATION OF TEXACO EXPLORATION AND PRODUCTION INC. FOR AMENDMENT OF DIVISION ORDER NO. R-5530, AS AMENDED, TO INCREASE INJECTION PRESSURES IN ITS CENTRAL VACUUM UNIT PRESSURE MAINTENANCE PROJECT AREA, AUTHORIZE A TERTIARY RECOVERY PROJECT BY THE INJECTION OF CARBON DIOXIDE AND TO QUALIFY THIS PROJECT FOR THE RECOVERED OIL TAX RATE PURSUANT TO THE "ENHANCED OIL RECOVERY ACT", LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a. m. on December 19, 1996, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 30th day of April, 1997, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

(1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) By Division Order R-5496, entered in Case No. 5970 on August 9, 1977, the Division, upon application of Texaco Inc., approved the Central Vacuum Unit, said unit comprising some 3,046 acres, more or less, of State and fee lands described as follows:

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM

Section 25: S/2, SE/4 NE/4

Section 36: All

TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM

Section 30: All

Section 31: N/2, SW/4, SW/4 SE/4

TOWNSHIP 18 SOUTH, RANGE 34 EAST, NMPM

Section 12: N/2 NE/4

TOWNSHIP 18 SOUTH, RANGE 35 EAST, NMPM

Section 6: All

Section 7: NW/4, NW/4 NE/4

(3) By Order No. R-5530 entered in Case No. 6008 on September 20, 1977, the Division authorized Texaco Inc. to institute a pressure maintenance project within the aforesaid Central Vacuum Unit by the injection of water into the Grayburg and San Andres formations, Vacuum Grayburg-San Andres Pool, through fifty-five initial injection wells.

(4) The "Unitized Formation" for the Central Vacuum Unit includes the stratigraphic interval underlying the Unit Area in the Vacuum-Grayburg-San Andres Pool between the depths of 3,858 feet (plus 144 feet sub-sea) and 4,858 feet (minus 856 feet sub-sea) on the Welex Acoustic Velocity Log, run on November 15, 1963, in the Texaco Inc. State of New Mexico "O" (NCT-1) Well No. 23, located in Unit O of Section 36, Township 17 South, Range 34 East, NMPM, Lea County, New Mexico (now Vacuum Glorieta West Unit Well No. 101).

- (5) The applicant, Texaco Exploration and Production Inc. (Texaco) seeks:
- a) to amend Division Order No. R-5530, as amended, to authorize the implementation of tertiary recovery operations within the Central Vacuum Unit Pressure Maintenance Project by the alternate injection of water and carbon dioxide and produced gases (WAG) into the Grayburg and San Andres formations;
 - b) authorization to increase the surface injection pressure for water in certain injection wells to 1500 psi, provided that step rate tests conducted on these wells do not indicate fracturing of the injection formation;
 - c) authorization to inject carbon dioxide gas at a maximum surface injection pressure of 350 psi above the maximum allowed surface water injection pressure, not to exceed 1850 psi; and,
 - d) to qualify the proposed tertiary recovery project for the recovered oil tax rate pursuant to the "New Mexico Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5).

(6) The applicant proposed that the project area for the tertiary recovery project comprise some 1,550 acres, more or less, being a portion of the Central Vacuum Unit Area, described as follows:

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM

Section 25: S/2 S/2 SE/4, S/2 SE/4 SW/4, SE/4 SW/4 SW/4
Section 36: S/2, NE/4, E/2 NW/4, SW/4 NW/4, S/2 NW/4
NW/4, NE/4 NW/4 NW/4

TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM

Section 30: S/2 S/2 SW/4, S/2 SW/4 SE/4, SW/4 SE/4 SE/4
Section 31: W/2, SW/4 SE/4, W/2 NE/4, SE/4 NE/4, S/2
NE/4 NE/4, NW/4 NE/4 NE/4

TOWNSHIP 18 SOUTH, RANGE 35 EAST, NMPM

Section 6: N/2 NW/4, NW/4 NE/4, SW/4 NW/4, N/2 NE/4
NE/4, SW/4 NE/4 NE/4, NW/4 SE/4 NE/4, N/2
SW/4 NE/4, N/2 SE/4 NW/4, SW/4 SE/4 NW/4,
N/2 NW/4 SW/4, NW/4 NE/4 SW/4

(7) Current secondary recovery operations within the Central Vacuum Unit are summarized as follows:

Number of Producing Wells: 88
Number of Injection Wells: 86
Current Oil Production: 4,100 BOPD
Current Water Injection: 63,000 BWP
Cumulative Oil Recovery: 72 MMSTBO
Cumulative Secondary
Oil Recovery (1977-Date): 42 MMSTBO
Current Average Water Cut: 96%

(8) According to evidence and testimony presented by the applicant, its plan of operation within the proposed tertiary recovery project includes:

- a) implementing a change in the process used for the displacement of crude oil by initiating water-alternating-gas (WAG) injection (injecting water and carbon dioxide (CO₂) in alternating slugs of produced gas and CO₂ with slugs of water);
- b) injecting an estimated 259 BCF of CO₂ and other produced gases and 148 million barrels of water over the life of the proposed tertiary project, which is estimated to be approximately 25 years;

- c) utilizing a total of fifty-one (51) injection wells (all as shown on Exhibit "A" attached hereto) and seventy-one (71) producing wells (sixty-eight (68) existing wells and three (3) new wells proposed to be drilled) within the proposed tertiary recovery project; and,
- d) injecting at sufficient pressure so as to maintain reservoir pressure at high enough levels to meet miscible pressure requirements in the reservoir.

(9) The proposed tertiary recovery project area (described in Finding No. 6 above) represents approximately 50 percent of the area contained within the Central Vacuum Unit. According to applicant's testimony, the proposed tertiary recovery project is being limited to only a portion of the Central Vacuum Unit for the following reasons:

- a) the targeted area represents that portion of the Central Vacuum Unit which contains the best hydrocarbon pore volume within the Grayburg-San Andres reservoir; and,
- b) the current economics of the proposed tertiary recovery project dictate that CO₂ injection should be initially limited to that portion of the Central Vacuum Unit containing sufficient hydrocarbon pore volume.

(10) Applicant further testified that the proposed tertiary recovery project may be expanded in the future into other areas of the Central Vacuum Unit in the event economic considerations become more favorable.

(11) Further evidence and testimony presented by the applicant indicates that the amount of recoverable oil attributed to a positive production response from the expanded use of enhanced oil recovery technology for the proposed tertiary recovery project is an estimated 20.3 million stock tank barrels along with 23.2 BCF of hydrocarbon gas.

(12) Texaco testified that the initiation of tertiary recovery operations utilizing the methodology proposed should result in the additional recovery set forth in Finding Paragraph No. (11) above for a projected cost of approximately \$345.7 million which includes field installations and upgrades, well remediation, separation and compression facilities, the purchase of CO₂ and the costs associated with the recycling of injectant.

(13) The proposed tertiary recovery project is offset by the following described tertiary CO₂ floods within the Vacuum Grayburg-San Andres Pool, approved respectively, by Division Order Nos. R-6856, as amended, and Order No. R-10599-B:

- a) to the east is the Phillips Petroleum Company East Vacuum Grayburg-San Andres Unit Pressure Maintenance Project located in portions of Townships 17 and 18 South, Range 35 East, NMPM, East Vacuum Grayburg-San Andres Unit Area, Lea County, New Mexico. The current authorized bottomhole pressure in this project area equates to a surface injection pressure for CO₂ of approximately 1850 psig; and,
- b) to the west is the Phillips Petroleum Company State "35" Unit Pressure Maintenance Project which is also a CO₂ tertiary recovery project underlying the N/2, E/2 SW/4, and SE/4 of Section 35, Township 17 South, Range 34 East, NMPM, State "35" Com Unit Area, Lea County, New Mexico. The authorized surface injection pressure for CO₂ in this project area is 1850 psig.

(14) The evidence and testimony presented in this case indicates that it is prudent to implement the proposed tertiary recovery project within the Central Vacuum Unit at this time, and that such implementation will result in the recovery of additional oil and gas from the project area which may otherwise not be recovered, thereby preventing waste.

(15) The evidence further indicates that the oil and gas recovered as a result of implementing the proposed tertiary recovery project will be allocated to each tract within the Central Vacuum Unit on a fair and reasonable basis, thereby protecting correlative rights.

(16) The proposed tertiary recovery project should be approved.

(17) The evidence presented by Texaco indicates that the proposed tertiary recovery project meets all the criteria for certification by the Division as a qualified "Enhanced Oil Recovery Project" pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5).

(18) The certified "EOR Project Area" should initially comprise the area described in Finding Paragraph No. (6) above, provided however, the "EOR Project Area" eligible for the recovered oil tax rate may be contracted and reduced dependent upon the evidence presented by the applicant in its demonstration of the occurrence of a positive production response.

(19) To be eligible for the EOR tax credit, the applicant should advise the Division when CO₂ (WAG) injection commences within the "EOR Project Area" and request the Division certify the subject tertiary recovery project to the New Mexico Taxation and Revenue Department.

(20) At such time as a positive production response occurs from CO₂ (WAG) injection operations and within seven years from the date of the Certificate of Qualification, the applicant must apply to the Division for certification of positive production response, which application shall identify the area actually benefiting from tertiary recovery operations. The Division may review the application administratively or set it for hearing. Based upon evidence presented, the Division will certify to the New Mexico Taxation and Revenue Department those lands and wells which are eligible for the tax credit.

(21) Division Order No. R-5530 established maximum surface injection pressures within the Central Vacuum Unit equal to 0.2 psi/ft. of depth to the uppermost injection perforation in each of the fifty-five initial injection wells, or approximately 800 psi.

(22) Throughout the course of secondary recovery operations, the maximum surface injection pressures for the injection wells within the Central Vacuum Unit have been increased upon a showing by the operator that such higher pressure will not result in the fracturing of the injection formation or confining strata. Pressure increases such as described are usually based upon the results of step rate tests.

(23) The current maximum surface injection pressures within the proposed tertiary recovery project area range from approximately 872 psi to 2775 psi.

(24) With regards to the injection pressures within the proposed tertiary recovery project area, the applicant seeks:

- a) authority to inject CO₂ at a surface injection pressure 350 psi above the current maximum surface injection pressure for water for a given well (all as shown on applicant's Exhibit No. 12), said CO₂ injection pressure not to exceed 1850 psi;
- b) authority to continue to conduct step rate tests and receive pressure increase authority on injection wells within the tertiary recovery project area whose current maximum surface injection pressure for water is less than 1500 psi; and,
- c) authority to increase the surface injection pressure for water to 1500 psi on eight wells located within the tertiary recovery project area which have shown no "break" or fracture on current step rate tests, (these wells having been identified on applicant's Exhibit No. 12).

(25) The evidence and testimony presented by Texaco indicates that the proposed maximum CO₂ surface injection pressure of 1850 psi, or 350 psi above the current maximum surface injection pressure for water, is reasonable, necessary and should not result in the migration of injected fluid from the proposed injection interval.

(26) Texaco should be authorized to conduct step rate tests and obtain surface injection pressure increases for water within those injection wells in the tertiary recovery project area whose current maximum surface injection pressure for water is less than 1500 psi.

(27) Texaco should be required to submit current step rate tests on those eight wells described in Finding No. (24)(c) above prior to obtaining Division approval to increase the surface injection pressure for water on these wells to 1500 psi.

(28) All injection wells or the pressurization system should be initially equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than the individual well surface injection pressure authorized by this order.

(29) The applicant testified that there are no "problem wells" within the one-half mile "area of review" and further testified that all plugged and abandoned wells and all producing wells are cemented in a manner adequate to confine the injected fluid to the proposed injection interval.

(30) Texaco proposed that each of the injection wells shown on Exhibit "A" be equipped no different than previously equipped for waterflood operation.

(31) In support of this request, Texaco testified that it anticipates no additional corrosion problems within these wellbores as a result of CO₂ injection.

(32) Texaco's request should be granted, provided however, the Division may require the installation of additional or upgraded wellbore tubulars and packers should it become apparent that the injection of CO₂ is causing beyond normal corrosion problems.

(33) If not previously equipped, each of the injection wells shown on Exhibit "A" should be equipped with internally coated tubing installed in a packer set within 100 feet of the uppermost injection perforation or casing shoe; the casing-tubing annulus should be filled with an inert fluid; and a gauge or approved leak-detection device should be attached to the annulus in order to determine leakage in the casing, tubing or packer.

(34) The operator should give advance notification to the supervisor of the Hobbs District Office of the Division of the date and time of the installation of any new injection equipment and of the mechanical integrity pressure tests in order that the same may be witnessed.

(35) The application should be approved and the project should be governed by the provisions of Rule Nos. 701 through 708 of the Oil Conservation Division Rules and Regulations.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Texaco Exploration and Production Inc., is hereby authorized to institute an EOR tertiary recovery project by means of combined water, carbon dioxide (CO₂), and produced gas injection (WAG) in its Central Vacuum Unit Area located in portions of Townships 17 and 18 South, Ranges 34 and 35 East, NMPM, Lea County, New Mexico, by the injection of water, CO₂, and produced gases into the Grayburg and San Andres formations, Vacuum-Grayburg-San Andres Pool, through the correlative gross perforated and/or open hole interval between the depths of 3,858 feet (plus 144 feet sub-sea) and 4,858 feet (minus 856 feet sub-sea) on the Welex Acoustic Velocity Log, run on November 15, 1963, in the Texaco Inc. State of New Mexico "O" (NCT-1) Well No. 23, located in Unit O of Section 36, Township 17 South, Range 34 East, NMPM, Lea County, New Mexico (now Vacuum Glorieta West Unit Well No. 101), within each of the fifty-one injection wells shown on Exhibit "A" attached hereto.

IT IS FURTHER ORDERED THAT:

(2) Any previous injection authority not in conflict with the provisions set forth in this order shall remain in full force and effect.

(3) WAG injection operations shall be accomplished through internally coated tubing installed in a packer set within approximately 100 feet of the uppermost injection perforations or casing shoe; the casing-tubing annulus shall be filled with an inert fluid and a gauge or approved leak-detection device shall be attached to the annulus in order to determine leakage in the casing, tubing or packer.

(4) For those injection wells within the "EOR Project Area" whose current maximum surface injection pressure for water is less than 1500 psi (as shown on applicant's Exhibit No. 12), the applicant is hereby authorized to inject water into each of these wells at the current maximum surface injection pressure, provided however, such pressure may be administratively increased by the Division upon a showing that such increase will not result in the fracturing of the injection formation or confining strata, and shall be further authorized to inject CO₂ and produced gases at a maximum surface injection pressure of 350 psi above the current maximum surface injection pressure for water, provided however, such CO₂ injection shall not occur at a surface injection pressure in excess of 1850 psi.

(5) For those injection wells within the "EOR Project Area" whose current maximum surface injection pressure for water exceeds 1500 psi (as shown on applicant's Exhibit No. 12), the applicant is hereby authorized to inject water into each of these wells at the current maximum surface injection pressure, and shall be further authorized to inject CO₂ and produced gases at a maximum surface injection pressure of 1850 psi.

(6) Texaco shall be required to submit current step rate tests on those eight wells described in Finding No. (24)(c) above prior to obtaining Division approval to increase the surface injection pressure for water on these wells to 1500 psi.

(7) The Division Director shall retain the authority to administratively authorize a pressure limitation in excess of the above pressure limits upon a showing by the operator that such higher pressure will not result in the fracturing of the injection formation or confining strata.

(8) The operator shall immediately notify the Supervisor of the Hobbs District Office of the Division of the failure of the casing in any of the injection wells, the leakage of water, natural gas, CO₂, or oil from or around any producing well, or the leakage of water, natural gas, CO₂, or oil from any plugged and abandoned well within the "EOR Project Area", and shall take such steps as may be necessary to correct such failure or leakage.

(9) The subject tertiary recovery project is hereby certified as a qualified "Enhanced Oil Recovery Project" pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5).

(10) The certified and approved "EOR Project Area" shall include those lands described as follows, provided however, the "EOR Project Area" eligible for the recovered oil tax rate may be reduced dependent upon the evidence presented by the applicant in its demonstration of the occurrence of a positive production response.

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM

Section 25: S/2 S/2 SE/4, S/2 SE/4 SW/4, SE/4 SW/4 SW/4

Section 36: S/2, NE/4, E/2 NW/4, SW/4 NW/4, S/2 NW/4
NW/4, NE/4 NW/4 NW/4

TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM

Section 30: S/2 S/2 SW/4, S/2 SW/4 SE/4, SW/4 SE/4 SE/4

Section 31: W/2, SW/4 SE/4, W/2 NE/4, SE/4 NE/4, S/2
NE/4 NE/4, NW/4 NE/4 NE/4

TOWNSHIP 18 SOUTH, RANGE 35 EAST, NMPM

Section 6: N/2 NW/4, NW/4 NE/4, SW/4 NW/4, N/2 NE/4
N/4, SW/4 NE/4 NE/4, NW/4 SE/4 NE/4, N/2
SW/4 NE/4, N/2 SE/4 NW/4, SW/4 SE/4 NW/4,
N/2 NW/4 SW/4, NW/4 NE/4 SW/4

(11) To be eligible for the EOR credit, prior to commencing WAG injection operations, the operator must request from the Division a Certificate of Qualification, which certificate will specify the proposed project area as described above.

(12) At such time as a positive production response occurs and within seven years from the date of the Certificate of Qualification, the operator must apply to the Division for certification of positive production response, which application shall identify the area actually benefitting from enhanced recovery operations. The Division may review the application administratively or set it for hearing. Based upon evidence presented, the Division will certify to the New Mexico Taxation and Revenue Department those lands and wells which are eligible for the credit.

(13) The injection authority granted herein for the fifty-one WAG injection wells shall terminate one year after the effective date of this order if the operator has not commenced WAG injection operations into these wells, provided however, the Division, upon written request by the operator, may grant an extension thereof for good cause shown.

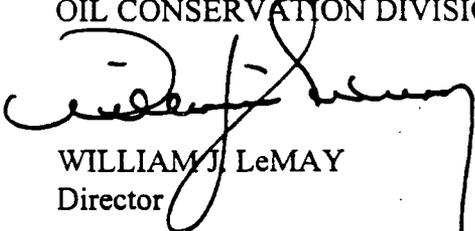
(14) The subject tertiary recovery project is hereby designated the Central Vacuum Unit Tertiary Recovery Project and shall be governed by the provisions of Rules Nos. 701 through 708 of the Oil Conservation Division Rules and Regulations.

(15) Monthly progress reports of the tertiary recovery project herein authorized shall be submitted to the Division in accordance with Rules 706 and 1115 of the Division Rules and Regulations.

(16) Jurisdiction is hereby retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION


WILLIAM J. LeMAY
Director

S E A L

EXHIBIT "A"
CASE NO. 11650
ORDER NO. R-5530-E
TEXACO EXPLORATION AND PRODUCTION INC.
CENTRAL VACUUM UNIT
TERTIARY PROJECT INJECTION WELLS

WELL NO	FOOTAGE	SECTION	TWNSHP	RANGE	API NUMBERS
CVU #40	42' FNL, 1247' FWL	D 36	17S	34E	30-025-25703
U #41	60' FNL, 2552' FWL	C 36	17S	34E	30-025-25704
U #42	32' FNL, 1286' FEL	A 36	17S	34E	30-025-25705
CVU #43	35' FNL, 127' FEL	A 36	17S	34E	30-025-25706
CVU #44	134' FNL, 1219' FWL	D 31	17S	35E	30-025-25719
CVU #45	121' FNL, 2475' FWL	C 31	17S	35E	30-025-25720
CVU #46	119' FNL, 1224' FEL	A 31	17S	35E	30-025-25818
CVU #55	1310' FNL, 1310' FWL	D 36	17S	34E	30-025-25721
CVU #56	1310' FNL, 2630' FWL	C 36	17S	34E	30-025-25722
CVU #57	1310' FNL, 1330' FEL	B 36	17S	34E	30-025-25723
CVU #58	1310' FNL, 132' FEL	A 36	17S	34E	30-025-25724
CVU #59	1403' FNL, 1200' FWL	E 31	17S	35E	30-025-25725
CVU #60	1310' FNL, 2535' FWL	C 31	17S	35E	30-025-25707
CVU #61	1310' FNL, 1230' FEL	A 31	17S	35E	30-025-25819
CVU #70	2630' FNL, 1310' FWL	E 36	17S	34E	30-025-25726
CVU #71	2630' FNL, 2623' FEL	G 36	17S	34E	30-025-25727
CVU #72	2630' FNL, 1330' FEL	G 36	17S	34E	30-025-25697
CVU #73	2630' FNL, 142' FEL	H 36	17S	34E	30-025-25728
CVU #74	2561' FSL, 1180' FWL	L 31	17S	35E	30-025-25729
CVU #81	1332' FSL, 1310' FWL	L 36	17S	34E	30-025-25708
CVU #82	1333' FSL, 2528' FWL	K 36	17S	34E	30-025-25730
U #83	1330' FSL, 1330' FEL	J 36	17S	34E	30-025-25731
U #84	1333' FSL, 151' FEL	I 36	17S	34E	30-025-25732

CVU #85	1336' FSL, 1201' FWL	L 31	17S	35E	30-025-25709
CVU #93	10' FSL, 1136 FWL	M 31	17S	35E	30-025-25733
CVU #94	50' FSL, 2549' FEL	O 31	17S	35E	30-025-25734
CVU #99	1408' FNL, 1211' FWL	E 6	18S	35E	30-025-25710
CVU #100	1372' FNL, 2544' FWL	F 6	18S	35E	30-025-25711
CVU #101	1410' FNL, 1336' FEL	G 6	18S	35E	30-025-25712
CVU #106	2520' FNL, 1040' FWL	E 6	18S	35E	30-025-25796
CVU #136	2450' FNL, 40' FWL	E 6	18S	35E	30-025-25997
CVU #137	1100' FNL, 40' FWL	D 6	18S	35E	30-025-25998
U #138	10' FSL, 70' FEL	P 36	17S	34E	30-025-25999
U #139	85' FSL, 958' FEL	P 36	17S	34E	30-025-26078
CVU #140	10' FSL, 2571' FWL	N 36	17S	34E	30-025-26000
CVU #141	10' FSL, 1310' FWL	M 36	17S	34E	30-025-26001
CVU #144	35' FNL, 1330' FEL	B 6	18S	35E	30-025-26788
CVU #145	1310' FSL, 2475' FWL	N 31	17S	35E	30-025-26789
CVU #146	2465' FNL, 1335' FEL	G 31	17S	35E	30-025-26790
CVU #147	1310' FNL, 200' FEL	A 31	17S	35E	30-025-26791
CVU #159	1310' FNL, 100' FWL	D 36	17S	34E	30-025-27969
CVU #160	2602' FNL, 35' FWL	E 36	17S	34E	30-025-27970
CVU #161	180' FSL 10' FWL	M 36	17S	34E	30-025-27971
CVU #193	101' FNL, 534' FWL	D 6	18S	35E	30-025-32800
CVU #194	14' FNL, 1917' FWL	C 6	18S	35E	30-025-38010
CVU #199	1372' FNL, 584' FWL	E 6	18S	35E	30-025-32804
CVU #200	1301' FNL, 1875' FWL	C 6	18S	35E	30-025-32805
CVU #201	1360' FNL, 1973' FEL	G 6	18S	35E	30-025-32806
CVU #206	2509' FNL, 536' FWL	E 6	18S	35E	30-025-32808
CVU #207	2500' FNL, 1825' FWL	F 6	18S	35E	30-025-32809
CVU #244	10' FNL, 1930' FEL	B 6	18S	35E	30-025-32810