

# NEW MEXICO OIL CONSERVATION DIVISION

- Engineering Bureau -

NSL 1/27/00

## ADMINISTRATIVE APPLICATION COVERSHEET

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]

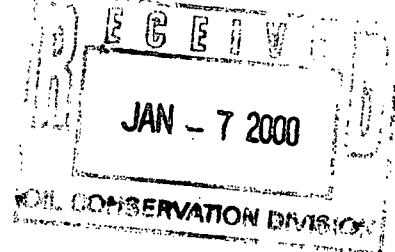
### [1] TYPE OF APPLICATION - Check Those Which Apply for [A]

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

Check One Only for [B] or [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

### [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 further verify that all applicable API Numbers are included. I understand that any omission of data, information or notification is cause to have the application package returned with no action taken.

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

L. M. Sanders  
 Print or Type Name

*L. M. Sanders*  
 Signature

Supervisor, Regulation/  
 Title Proration

01/04/99  
 Date



## PHILLIPS PETROLEUM COMPANY

4001 PENBROOK  
ODESSA, TEXAS 79762

EXPLORATION AND PRODUCTION  
Permian Profit Center

December 30, 1999

Michael Stogner, Hearings Examiner  
State of New Mexico  
Energy, Minerals, and Natural Resources  
Oil Conservation Division  
2040 S. Pacheco  
Santa Fe, New Mexico 87504

Re: Request for Unorthodox Locations  
East Vacuum Grayburg San Andres Unit  
Well Nos. Tr.3236 #394, Tr.3127 #395, Tr.3236 #396,  
Tr. 3127 #397, Tr.3127 #398, Tr.3127 #399  
Lea County, New Mexico

Dear Sir:

Phillips Petroleum Company respectfully requests administrative approval for unorthodox locations for the subject wells based on engineering considerations. The wells are to be located on the lease line of the East Vacuum Grayburg San Andres Unit and Central Vacuum Unit as indicated on the attached NMOCD Forms C-102.

Under the provision of NMOCD Rule 104.F (3) attached is the information requested for the justification of Phillips' request. The list of operators of all spacing units surrounding the area of interest is attached.

If any additional information is needed,, please contact me at the letterhead address or telephone (915) 368-1488 or Celeste Dale at (915) 368-1667.

Sincerely,

L. M. Sanders  
Supervisor, Regulation/Proration

/cgd

cc: NMOCD at Hobbs

### Justification

Phillips Petroleum Company, as operator of East Vacuum (Grayburg/San Andres) Unit (EVGSAU), and Texaco E&P Inc., as operator of Central Vacuum Unit (CVU) propose to drill 4 injectors and 4 producers along the lease line of the two units. Phillips will operate 2 producers and 4 injectors, and Texaco will operate 2 producers. The proposed wells are an expansion of 10-acre direct line drive pattern development that has occurred within EVGSAU and CVU (Figure 1). The most attractive ten-acre drilling sites remaining are on the common lease lines between the two units. Within CVU, infill drilling of this nature has demonstrated incremental oil recovery of over 100,000 BO per well, with incremental recovery ranging from 2.7% to 6.8% of the original oil in place due to improved sweep efficiency. Phillips expects that this project will recover 871,000 BO of gross incremental oil reserves.

Phillips and Texaco will enter into an agreement that will provide that the two units share production revenue from the four lease line producers on an equal basis.

The State of New Mexico is owner of 100% of the royalty interests under EVGSAU and 98.8409% of royalty interests under CVU. On January 4, 1999, The Commissioner of Public Lands granted approval on behalf of the state to drill the four lease line producers.



Figure 1

DISTRICT I  
P.O. Box 1980, Hobbs, NM 88241-1980

State of New Mexico

Energy, Minerals and Natural Resources Department

Form C-102  
Revised February 10, 1994  
Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

DISTRICT II  
P.O. Drawer 88, Artesia, NM 88211-0719

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

OIL CONSERVATION DIVISION

P.O. Box 2088  
Santa Fe, New Mexico 87504-2088

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-025-	62180	Vacuum Grayburg San Andres
Property Code	Property Name	Well Number
009166	EVGSAU TRACT 3236	394
OGRID No.	Operator Name	Elevation
017643	PHILLIPS PETROLEUM COMPANY	3974

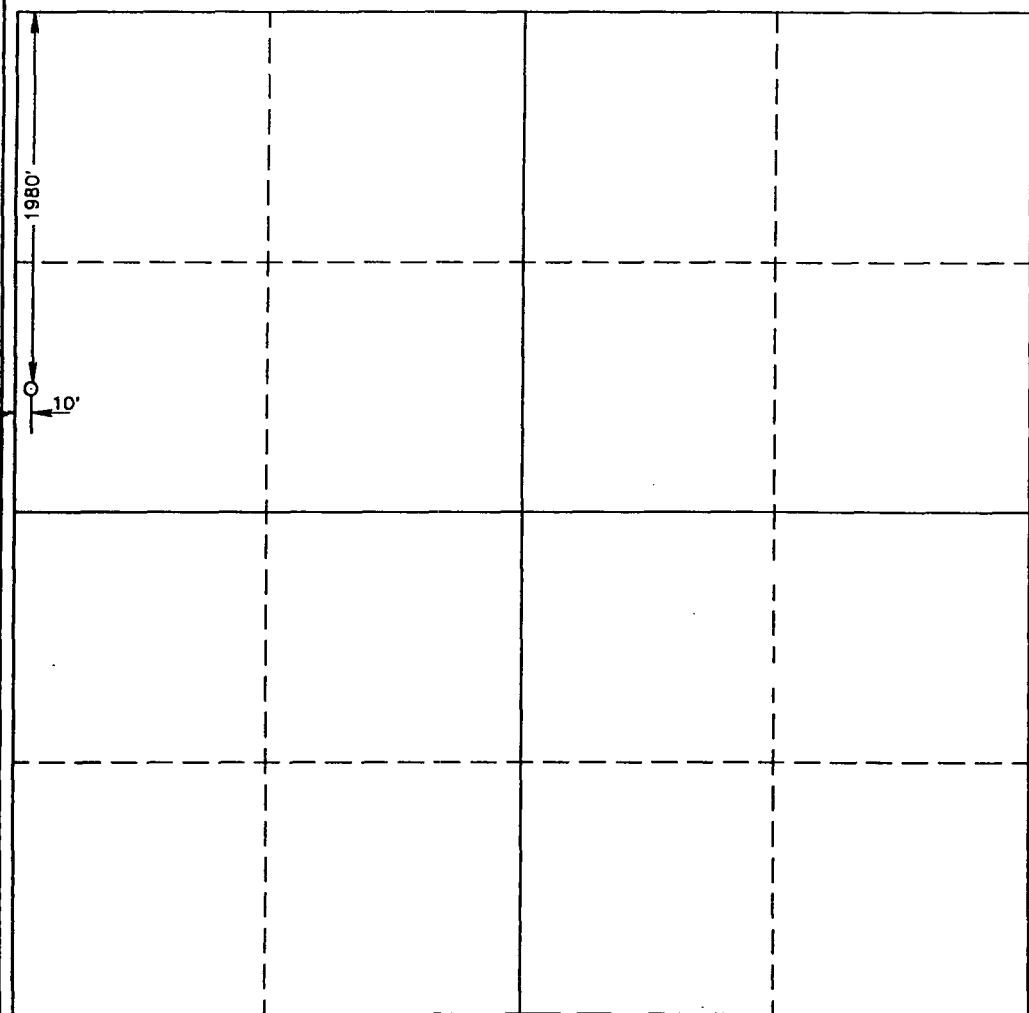
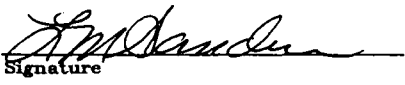
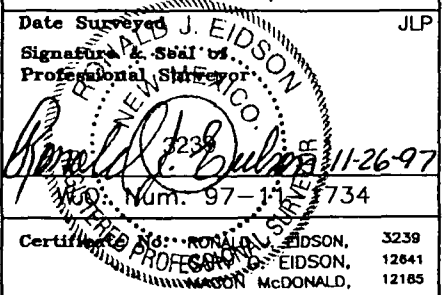
Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	32	17 S	35 E		1980	NORTH	10	WEST	LEA

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	County
Dedicated Acres	Joint or Infill	Consolidation Code	Order No.						

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

	<b>OPERATOR CERTIFICATION</b>	
	<i>I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.</i>	
	 Signature	
	L. M. Sanders Printed Name Supv., Regulation/ Title Proration 12/30/99 Date	
	<b>SURVEYOR CERTIFICATION</b>	
	<i>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 belief.</i>	
	NOVEMBER 24, 1997 Date Surveyed	
	 Signature & Seal of Professional Surveyor RONALD J. EIDSON, 3239 Certified Professional Surveyor, 12841 RONALD J. EIDSON, 12185	

DISTRICT I  
P.O. Box 1980, Hobbs, NM 88241-1980

State of New Mexico  
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OIL CONSERVATION DIVISION

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Santa Fe, New Mexico 87504-2088

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-025-	Pool Code 62180	Pool Name Vacuum Grayburg San Andres
Property Code 009166	Property Name EVGSAU TRACT 3127	Well Number 395W
OGRID No. 017643	Operator Name PHILLIPS PETROLEUM COMPANY	Elevation 3976

Surface Location

UL or lot No. I	Section 31	Township 17 S	Range 35 E	Lot Idn	Feet from the 2630	North/South line SOUTH	Feet from the 645	East/West line EAST	County LEA
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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	County
Dedicated Acres		Joint or Infill	Consolidation Code	Order No.					

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED  
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LOT 1 37.56 AC.				
LOT 2 37.51 AC.				
LOT 3 37.47 AC.				
LOT 4 37.42 AC.				

OPERATOR CERTIFICATION

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

*L.M. Sanders*  
Signature

L. M. Sanders  
Printed Name

Supv., Regulation/  
Title

12/30/99 Proration  
Date

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 belief.

NOVEMBER 24, 1997

Date Surveyed JLP

Signature & Seal of  
Professional Surveyor

*Ronald E. Eidson*  
Professional Surveyor

P.W.O. Num. 97-11-1735

Certificate No. RONALD E. EIDSON, 3239  
GARY G. EIDSON, 12641  
MCDONALD, 12185

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Energy, Minerals and Natural Resources Department

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OIL CONSERVATION DIVISION

P.O. Box 2088  
Santa Fe, New Mexico 87504-2088

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-025-	62180	Vacuum Grayburg San Andres
Property Code	Property Name	Well Number
009166	EVGSAU TRACT 3127	396W
OGRID No.	Operator Name	Elevation
017643	PHILLIPS PETROLEUM COMPANY	3976

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	31	17 S	35 E		2630	SOUTH	1950	EAST	LEA

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	County
Dedicated Acres	Joint or Infill	Consolidation Code	Order No.						

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED  
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LOT 1 37.56 AC.				
LOT 2 37.51 AC.				
LOT 3 37.47 AC.				
LOT 4 37.42 AC.				

OPERATOR CERTIFICATION

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

*L. M. Sanders*  
Signature  
L. M. Sanders  
Printed Name  
Supv., Regulation/  
Title  
12/30/99  
Date

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 belief.

NOVEMBER 24, 1997

Date Surveyed JLP  
Signature & Seal of Professional Surveyor  
RONALD O. EDSON  
11-26-97  
O. Num. 87-1736  
Certificate No. RONALD O. EDSON, 3239  
GARY E. EDSON, 12841  
BONNIE McDONALD, 12185

DISTRICT II  
P.O. Drawer 88, Artesia, NM 88211-0078

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

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

## OIL CONSERVATION DIVISION

P.O. Box 2088  
Santa Fe, New Mexico 87504-2088

☐ AMENDED REPORT

# WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-025-	62180	Vacuum Grayburg San Andres
Property Code	Property Name	Well Number
009166	EVGSAU TRACT 3127	397
OGRID No.	Operator Name	Elevation
017643	PHILLIPS PETROLEUM COMPANY	3977


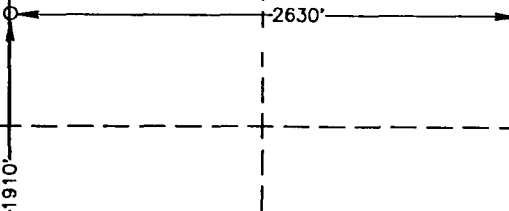
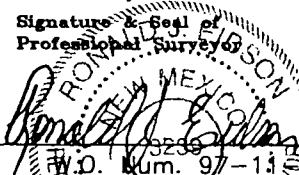
### Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	31	17 S	35 E		1910	SOUTH	2630	EAST	LEA

## 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	County
Dedicated Acres	Joint or Infill	Consolidation Code		Order No.					

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OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

LOT 1    37.56 AC.			<b>OPERATOR CERTIFICATION</b>  I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.  <div style="text-align: center;">   <u>Signature</u> </div> <div style="text-align: center;"> <u>L. M. Sanders</u>  <b>Printed Name</b> </div> <div style="text-align: center;"> <u>Supv., Regulation/</u>  <b>Title</b> </div> <div style="text-align: center;"> <u>Proration</u>  <b>Title</b> </div> <div style="text-align: center;"> <u>12/30/99</u>  <b>Date</b> </div>
LOT 2    37.51 AC.			
LOT 3    37.47 AC.			
LOT 4    37.42 AC.			<b>SURVEYOR CERTIFICATION</b>  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 belief.  <div style="text-align: center;"> <b>NOVEMBER    24, 1997</b> </div> <div style="text-align: center;"> <b>Date Surveyed</b> </div> <div style="text-align: right;"> <b>JLP</b> </div> <div style="text-align: center;"> <u>Signature</u>    <u>Seal of</u>  <b>Professional Surveyor</b> </div> <div style="text-align: center;">  </div> <div style="text-align: center;"> <u>W.D. Num. 97-115737</u> </div> <div style="text-align: center;"> <b>Certificate No.</b> </div> <div style="display: flex; justify-content: space-between;"> <div>             RONALD J. ELDSON,              GARY G. ELDSON,              MARGO MCDONALD,         </div> <div>             3239              12641              12185         </div> </div>

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Energy, Minerals and Natural Resources Department

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WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-025-	62180	Vacuum Grayburg San Andres
Property Code	Property Name	Well Number
009166	EVGSAU TRACT 3127	399W
OGRID No.	Operator Name	Elevation
017643	PHILLIPS PETROLEUM COMPANY	3971

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	31	17 S	35 E		10	SOUTH	660	EAST	LEA

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	County
Dedicated Acres	Joint or Infill	Consolidation Code	Order No.						

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

LOT 1 37.56 AC.				<p><b>OPERATOR CERTIFICATION</b></p> <p>I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.</p> <p><i>L. M. Sanders</i> Signature</p> <p>L. M. Sanders Printed Name</p> <p>Supv., Regulation/ Title Proration</p> <p>12/30/99 Date</p> <p><b>SURVEYOR CERTIFICATION</b></p> <p>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 belief.</p> <p>NOVEMBER 24, 1997</p> <p>Date Surveyed JLP</p> <p>Signature &amp; Seal of Professional Surveyor</p> <p><i>Ronald S. Edson</i> RONALD S. EDSON P.O. Box 87-116740 11-26-97</p> <p>Certification No. RONALD S. EDSON, 3239 GARY B. EDSON, 12841 WALTON McDONALD, 12185</p>
LOT 2 37.51 AC.				
LOT 3 37.47 AC.				
LOT 4 37.42 AC.				

10'  
660'

DISTRICT I  
P.O. Box 1980, Hobbs, NM 88241-1980

DISTRICT II  
P.O. Drawer DD, Artesia, NM 88211-0719

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

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State of New Mexico  
Energy, Minerals and Natural Resources Department

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P.O. Box 2088  
Santa Fe, New Mexico 87504-2088

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-025-	62180	Vacuum Grayburg San Andres
Property Code	Property Name	Well Number
009166	EVGSAU TRACT 3127	398W
OGRID No.	Operator Name	Elevation
017643	PHILLIPS PETROLEUM COMPANY	3976

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	31	17 S	35 E		1350	SOUTH	2165	EAST	LEA

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	County
Dedicated Acres	Joint or Infill	Consolidation Code	Order No.						

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LOT 1 37.56 AC.				
LOT 2 37.51 AC.				
LOT 3 37.47 AC.				
LOT 4 37.42 AC.				

Diagram showing well location and acreage. Dimensions: 2165' (horizontal), 1350' (vertical).

**OPERATOR CERTIFICATION**

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

*L. M. Sanders*  
Signature  
L. M. Sanders  
Printed Name  
Supv., Regulation/  
Title  
12/30/99  
Date

**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 belief.

NOVEMBER 24, 1997

Date Surveyed  
Signature & Seal of Professional Surveyor  
Professional Surveyor  
JLP  
3239  
1-26-97  
N.M. 97-11-1338  
Certification No. RONALD J. EIDSON, 3239  
RONALD J. EIDSON, 12641  
JACQUE McDONALD, 12185

**OFFSET OPERATORS LIST**

**EAST VACUUM GRAYBURG SAN ANDRES UNIT  
VACUUM (GRAYBURG/SAN ANDRES) FIELD  
LEA COUNTY, NM  
(12/30/99)**

Texaco North America Production  
Attn: Mr. Ronald W. Lanning  
P. O. Box 3109  
Midland, TX 79702

I hereby certify that the above list of Offset Operators have been notified of Phillips Petroleum Company's Application for administrative approval of the Unorthodox Locations for the East Vacuum Grayburg San Andres Unit (EVGSAU) Wells #3236-394, 3127-395, 3236-396, 3127-397, 3127-398, 3127-399.



L. M. Sanders  
Supervisor, Regulation/Proration

/cgd

## WAIVER OF OBJECTIONS

Texaco Exploration and Producing Inc., as owner of offsetting rights to the Phillips Petroleum Company East Vacuum Grayburg San Andres Unit, hereby waives any and all objections to the Application for Unorthodox Locations filed by Phillips Petroleum Company. It is understood the wells are located as follows:

EVGSAU Tract 3127, #395W, Sec.31, T-17-S, R-35-E, 2630' FSL, 645' FEL, Lea Co., NM  
EVGSAU Tract 3236, #394, Sec. 32, T-17-S, R-35-E, 1980' FNL, 10' FWL, Lea Co., NM  
EVGSAU Tract 3127, #396W, Sec. 31, T-17-S, R-35-E, 2630' FSL, 1950' FEL, Lea Co., NM  
EVGSAU Tract 3127, #397, Sec. 31, T-17-S, R-35-E, 1910' FSL, 2630' FEL, Lea Co., NM  
EVGSAU Tract 3127, #398W, Sec. 31, T-17-S, R-35-E, 1350' FSL, 2165' FEL, Lea Co., NM  
EVGSAU Tract 3127, #399W, Sec. 31, T-17-S, R-35-E, 10' FSL, 660' FEL, Lea Co., NM

TEXACO EXPLORATION AND PRODUCING INC.:

SIGNED: 

NAME: CHRISTOPHER K. PETERSON

TITLE: ACTING CO<sub>2</sub> ASSET TEAM MANAGER

DATE: Dec. 30, 1999

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

BY THE COMMISSION:

*R-5530-D*

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  
 $\beta_o$  = 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  
 $\beta_g$  = 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 (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 (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 (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
- $\beta_o$  = 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
- $\beta_g$  = 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.

16 X  
X  
(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*

17 X  
*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*

18 X X  
(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*

19 X  
(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*

20 X  
(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, Member

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</u> <u>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"

PRESSURE - PSIS

$B_g$  (RB/MCF)  
 $B_o$  (RB/STB)

OIL ( $B_o$ ) AND GAS ( $B_g$ )  
FORMATION VOLUME FACTORS  
AND  
GAS SOLUBILITY  
VACUUM GRAYBURG - SAN ANDRES  
LEA CO., N.M.

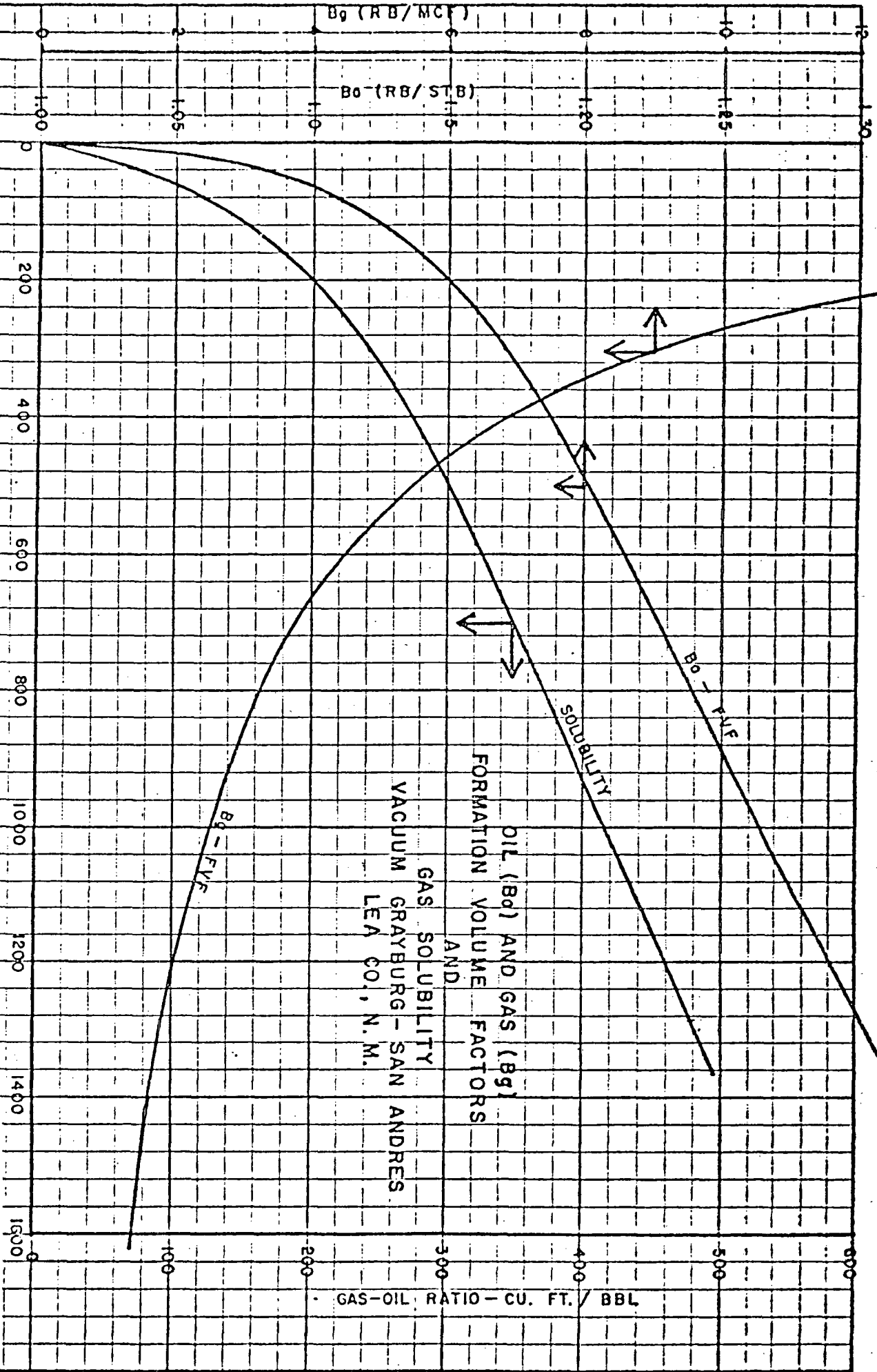
SOLUBILITY

$B_g$  - FVF

$B_o$  - FVF

GAS-OIL RATIO - CU. FT. / BBL

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 see*  
*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.

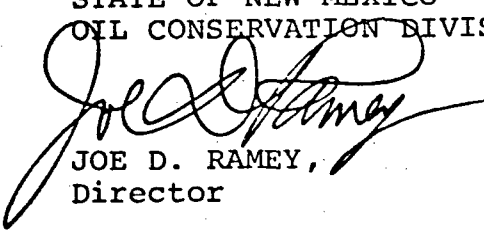
(12) That Paragraph No. (17) on Page 7 of Order No. R-5530 is hereby renumbered Paragraph No. (21) and is further amended to read in its entirety as follows:

"(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

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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. 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.

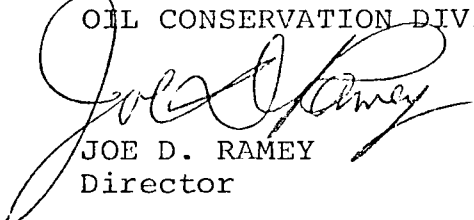
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Case No. 6306

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.

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.

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

(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.

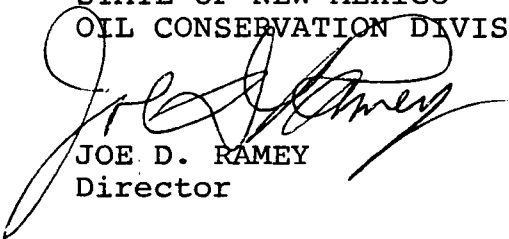
IT IS FURTHER ORDERED:

(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 hereinabove 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 BWPD  
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 (CO<sub>2</sub>) in alternating slugs of produced gas and CO<sub>2</sub> with slugs of water);
- b) injecting an estimated 259 BCF of CO<sub>2</sub> 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 CO<sub>2</sub> 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 CO<sub>2</sub> and the costs associated with the recycling of injectant.

(13) The proposed tertiary recovery project is offset by the following described tertiary CO<sub>2</sub> 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 CO<sub>2</sub> of approximately 1850 psig; and,
- b) to the west is the Phillips Petroleum Company State "35" Unit Pressure Maintenance Project which is also a CO<sub>2</sub> 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 CO<sub>2</sub> 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 CO<sub>2</sub> (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 CO<sub>2</sub> (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 CO<sub>2</sub> 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 CO<sub>2</sub> 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 CO<sub>2</sub> 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 CO<sub>2</sub> 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 CO<sub>2</sub> 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 (CO<sub>2</sub>), 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, CO<sub>2</sub>, 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 CO<sub>2</sub> and produced gases at a maximum surface injection pressure of 350 psi above the current maximum surface injection pressure for water, provided however, such CO<sub>2</sub> 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 CO<sub>2</sub> 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, CO<sub>2</sub>, or oil from or around any producing well, or the leakage of water, natural gas, CO<sub>2</sub>, 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.

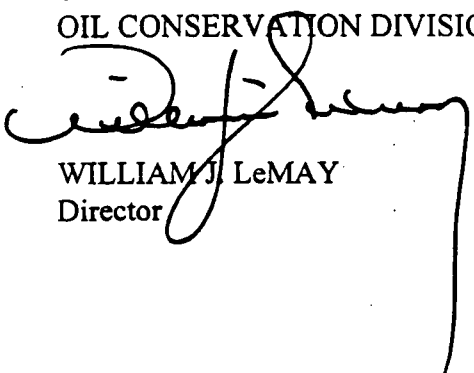
(14) The subject tertiary recovery project is hereby designated the Central Vacuum Unit Tertiary Recovery Project and shall be governed by the provisions of Rules Nos. 701 through 708 of the Oil Conservation Division Rules and Regulations.

(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	U	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	C 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

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. 6366  
Order No. R-5871

APPLICATION OF PHILLIPS PETROLEUM  
COMPANY FOR STATUTORY UNITIZATION,  
LEA COUNTY, NEW MEXICO.

*Also see  
R-5897*

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on October 25, 1978, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 27th day of November, 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, Phillips Petroleum Company, seeks the statutory unitization, pursuant to the "Statutory Unitization Act," Sections 65-14-1 through 65-14-21, NMSA, 1953 Compilation, of 7,025.3 acres, more or less, of State 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 East Vacuum Grayburg-San Andres 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 4,050 feet (103 feet sub-sea) and 5,050 feet (1103 feet sub-sea) on the Lane Wells Acoustilog, Run No. 1, dated April 14, 1964, in Exxon's New Mexico State "K" Well No. 19, located in the SE/4 SE/4 of Section 28, Township 17 South, Range 35 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 24: SE/4

TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM  
Section 18: W/2 SW/4 and SE/4 SW/4  
Section 19: W/2, S/2 NE/4, and SE/4  
Section 20: W/2 NW/4, SE/4 NW/4, SW/4,  
SW/4 NE/4, W/2 SE/4 and SE/4 SE/4  
Section 21: SW/4 SW/4, E/2 SW/4, and SE/4  
Section 22: SW/4, W/2 SE/4, and SE/4 SE/4  
Section 23: S/2 SW/4  
Section 24: SW/4 SW/4  
Section 25: W/2 NW/4  
Section 26: N/2, SW/4, W/2 SE/4, and NE/4 SE/4  
Sections 27, 28, and 29: All  
Section 31: N/2 SE/4 and SE/4 SE/4  
Sections 32 and 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

(4) That the portion of the Vacuum Grayburg-San Andres Pool proposed to be included in the aforesaid East Vacuum Grayburg-San Andres 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 East Vacuum Grayburg-San Andres 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 East Vacuum Grayburg-San Andres 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. 1 and 2 in this case, being the Unit Agreement and the Unit Operating Agreement should be incorporated by reference into this order.

(13) That applicant's Exhibit No. 2 in this case, being the Unit Operating Agreement, should be amended by the addition thereto of Exhibit "G", being applicant's Exhibit No. 13 in this case and entitled "Business Ethics Policy Compliance."

(14) That the Statutory Unitization of the East Vacuum Grayburg-San Andres 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 East Vacuum Grayburg-San Andres Unit Agreement, covering 7025.3 acres, more or less, of State 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 East Vacuum Grayburg-San Andres Unit Agreement shall be designated the East Vacuum Grayburg-San Andres Unit Area and shall comprise:

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM  
Section 24: SE/4

TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM

Section 18: W/2 SW/4 and SE/4 SW/4  
Section 19: W/2, S/2 NE/4, and SE/4  
Section 20: W/2 NW/4, SE/4 NW/4, SW/4,  
SW/4 NE/4, W/2 SE/4, and SE/4 SE/4  
Section 21: SW/4 SW/4, E/2 SW/4 and SE/4  
Section 22: SW/4, W/2 SE/4, and SE/4 SE/4  
Section 23: S/2 SW/4  
Section 24: SW/4 SW/4  
Section 25: W/2 NW/4  
Section 26: N/2, SW/4, W/2 SE/4, and NE/4 SE/4  
Sections 27, 28, and 29: All  
Section 31: N/2 SE/4 and SE/4 SE/4  
Sections 32 and 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

(3) That the vertical limits of the East Vacuum Grayburg-San Andres Unit Area shall be the Grayburg-San Andres formation identified between the depths of 4,050 feet (103 feet sub-sea) and 5,050 feet (1103 feet sub-sea) on the Lane Wells Acoustilog, Run No. 1, dated April 14, 1964, in Exxon's New Mexico State "K" Well No. 19, located in the SE/4 SE/4 of Section 28, Township 17 South, Range 35 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. 1 in this case, being the East Vacuum Grayburg-San Andres Unit Agreement, is hereby incorporated by reference into this order.

(5) That applicant's Exhibit No. 2 in this case, being the East Vacuum Grayburg-San Andres Unit Operating Agreement, as amended by the addition thereto of "Exhibit G, Business Ethics Policy Compliance," being applicant's Exhibit No. 13 in this case, is hereby incorporated by reference into this order.

(6) That the East Vacuum Grayburg-San Andres Unit Agreement and the East Vacuum Grayburg-San Andres 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 Division Director 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.

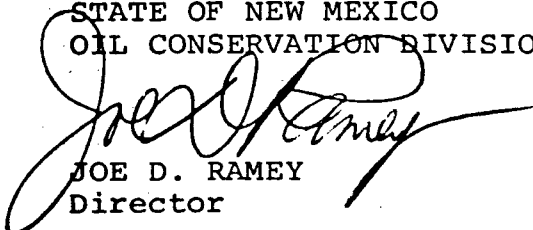
(8) That if the persons owning the required percentage of interest in the unit area as set out in Section 65-14-8, NMSA, 1953 Compilation, do not approve the plan for unit operations within a period of six months from the date of entry of this order, this order shall cease to be of further force and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

(9) That the persons owning the required percentage of interest in the unit area have approved the plan for unit operations and 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 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

S E A L

fd/

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. 6367  
Order No. R-5897

APPLICATION OF PHILLIPS PETROLEUM  
COMPANY FOR A PRESSURE MAINTENANCE  
PROJECT, LEA COUNTY, NEW MEXICO.

*Also see  
R-5871*

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on October 25, 1978, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 16th day of January, 1979, 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 by Division Order No. R-5871 dated November 27, 1978, statutory unitization was approved for the East Vacuum Grayburg-San Andres Unit Area, Lea County, New Mexico.

(3) That the applicant herein, Phillips Petroleum Company, seeks authority to institute a pressure maintenance project on the aforesaid East Vacuum Grayburg-San Andres Unit Area, Vacuum Grayburg-San Andres Pool, Lea County, New Mexico, by the injection of water into the San Andres formation through 59 wells, 31 of which would be drilled in 1979 during Phase II of the Project Development Program and 28 of which would be drilled in 1980 during Phase III of the Development Program.

(4) Applicant further seeks the designation of a project area for said pressure maintenance project and the promulgation of special rules and regulations governing said project including special allowable provisions.

(5) That for Phase I of the Project Development Program, applicant proposes to drill during 1979 ten producing wells at unorthodox locations as specified below:

<u>TRACT NO.</u>	<u>WELL NO.</u>	<u>LOCATION</u>	<u>UNIT</u>	<u>SECTION</u>
3229	005	1310' FSL and 1310' FWL	M	32
3202	001	1310' FSL and 1330' FEL	O	32
3202	003	1330' FNL and 1330' FEL	G	32
3328	002	1310' FSL and 1310' FWL	M	33
3366	001	1330' FNL and 1310' FWL	E	33
3333	004	1330' FNL and 1330' FEL	G	33
3456	005	1330' FNL and 1310' FWL	E	34
2801	002	1310' FSL and 1310' FWL	M	28
2801	004	1310' FSL and 1330' FEL	O	28
2721	001	1310' FSL and 1310' FWL	M	27

all in Township 17 South, Range 35 East, NMPM, Lea County, New Mexico.

(6) That during Phase II of the Development Program applicant proposes to drill 18 additional producing wells, all at unorthodox locations, and during Phase III of the Program applicant proposes to drill 26 additional producing wells, also at unorthodox locations.

(7) That all of the wells referred to in Findings Nos. (3), (5) and (6) above, being 59 injection wells at unorthodox locations and 54 producing wells at unorthodox locations, together with the currently completed producing wells in the Unit Area, will provide a thorough and efficient sweep of hydrocarbons throughout the unitized area, and will result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(8) That the above-described injection and producing wells, some of which would be at unorthodox locations along the unit boundaries in accordance with lease-line agreements with operators of offsetting lands, will not impair but will protect correlative rights.

(9) That the applicant's request for the designation of a Pressure Maintenance Project for the East Vacuum Grayburg-San Andres Unit Area, and for the promulgation of special rules and regulations governing said project, is in the interest of conservation and should be approved, subject to certain provisions.

(10) That the project area should consist of those proration units within the boundary of the East Vacuum Grayburg-San Andres Unit upon which is located an injection well and any directly or diagonally offsetting proration unit which contains a producing well.

(11) That the total project area allowable should be equal to the sum of the basic project area allowable plus the water injection credit allowable.

(12) 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.

(13) 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 in accordance with Exhibits "A" and "B" attached hereto and by reference made a part hereof.

(14) 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 East Vacuum Unit which proration unit is not directly or diagonally offset by a San Andres injection well outside the Unit or on the Unit boundary should not be permitted to produce in excess of 80 barrels of oil per day.

(15) That each of the newly drilled production or injection wells in the project should be equipped with surface casing set at approximately 350 feet and cemented to the surface and with "production" casing set at total depth, approximately 4900 feet.

(16) That the "production" casing on each of said newly drilled wells should be cemented to the surface, except that in any well in which an intermediate casing string has been run to below the top of the Yates formation and cemented to the surface, the "production" casing may be cemented back into the base of the intermediate casing string.

(17) That injection should be accomplished through tubing installed in a packer set within 100 feet of the uppermost perforation. The injection tubing should be corrosion protected by a non-reactive internal lining or coating. The casing-tubing

annulus in each injection well should be filled with an inert fluid and a surface pressure gauge or approved leak detection device should be attached to the annulus.

(18) The injection wells or system should be equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 0.2 psi per foot of depth to the uppermost perforation. Provision should be made for the Division Director to administratively authorize a pressure limitation in excess of the above upon showing by the Unit Operator that such higher pressure will not result in fracturing of the confining strata.

(19) All wells within the project area should be equipped with risers or in some other acceptable manner as to facilitate the periodic testing of the bradenhead for pressure or fluid production.

(20) That provision should be made for the Division Director to authorize placing wells on injection and the drilling of injection wells and additional producing wells at orthodox and unorthodox locations anywhere within the Unit Area without notice and hearing, provided that no unorthodox location is closer than ten feet to a quarter-quarter section line nor closer than 330 feet to the unit boundary, unless such well located closer than 330 feet to the unit boundary is covered by a lease-line agreement with the operator of the lands offsetting such well or the owner of the offsetting lands has waived objection to such location in writing.

(21) That there are a number of wells within the East Vacuum Grayburg-San Andres Unit Area and on lands offsetting the unit area which have previously been plugged and abandoned in a manner which may permit waters injected into the San Andres formation to escape into other formations, including the Salado formation and the shallow fresh water-bearing formations unless remedial action is taken on said wells prior to injection in their near vicinity.

(22) That there are a number of wells within the East Vacuum Grayburg-San Andres Unit Area and on lands offsetting the unit area which penetrate the Vacuum Grayburg-San Andres Pool and are completed in deeper pay zones, but which are cased and cemented in such a manner as may permit the escape of waters injected into the San Andres formation into other formations as described above.

(23) That those wells referred to in Findings Nos. (21) and (22) above which are inadequately plugged and abandoned or are inadequately cased and cemented, or are suspected of being so, include, but are not necessarily limited to, the wells listed in Exhibit "C" attached hereto and by reference made a part hereof.

(24) That no injection at greater than hydrostatic pressure should be made into the Grayburg or San Andres formation in any well in the East Vacuum Grayburg-San Andres Unit Area within one-half mile of any well listed on Exhibit "C" attached hereto until remedial action has been taken on such well to ensure that it will not serve as an avenue of escape for injected waters or until tests have been conducted on such well or other evidence concerning such well has been presented, all establishing to the satisfaction of the Supervisor of the Hobbs District Office of the Division that remedial work on such well is unnecessary.

IT IS THEREFORE ORDERED:

(1) That the applicant, Phillips Petroleum Company, is hereby authorized to institute and operate a pressure maintenance project in the East Vacuum Grayburg-San Andres Unit Area, Vacuum Grayburg-San Andres Pool, Lea County, New Mexico, by the injection of water into the San Andres formation through certain wells which will be administratively approved for water injection at some later date by the Division Director.

(2) That said project shall be designated the East Vacuum Unit Pressure Maintenance Project.

(3) That the following unorthodox locations are hereby approved for new producing wells which are to be drilled by the unit operator during Phase I of the Project Development Program:

<u>TRACT NO.</u>	<u>WELL NO.</u>	<u>LOCATION</u>	<u>UNIT</u>	<u>SECTION</u>
3229	005	1310' FSL and 1310' FWL	M	32
3202	001	1310' FSL and 1330' FEL	O	32
3202	003	1330' FNL and 1330' FEL	G	32
3328	002	1310' FSL and 1310' FWL	M	33
3366	001	1330' FNL and 1310' FWL	E	33
3333	004	1330' FNL and 1330' FEL	G	33
3456	005	1330' FNL and 1310' FWL	E	34
2801	002	1310' FSL and 1310' FWL	M	28
2801	004	1310' FSL and 1330' FEL	O	28
2721	001	1310' FSL and 1310' FWL	M	27

all in Township 17 South, Range 35 East, NMPM, Lea County, New Mexico.

(4) That Special Rules and Regulations governing the East Vacuum Unit Pressure Maintenance Project are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS  
FOR THE  
EAST VACUUM UNIT PRESSURE MAINTENANCE PROJECT

RULE 1. The project area of the East Vacuum Unit Pressure Maintenance Project shall consist of those proration units within the boundaries of the East Vacuum Grayburg-San Andres Unit upon which is located an injection well and any directly or diagonally offsetting proration unit which contains a producing well.

RULE 2. 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.

RULE 3. 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.

RULE 4. The water injection credit allowable shall be contingent upon full reservoir voidage replacement of all produced fluids and shall be based upon the following formula:

$$\text{Water Injection Credit Allowable} = \left[ \frac{\text{Net Water Injected}}{\text{Basic Project Area Allowable} \times \text{Reservoir Voidage}} \right]^{-1} \times \text{Basic Project Area Allowable}$$

The water injection credit allowable shall be calculated in accordance with the procedures and parameters depicted on Exhibits "A" and "B" to Order No. R-5897.

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.

RULE 5. The weighted average project area reservoir pressure shall be determined prior to commencement of injection of water into the reservoir and at least annually thereafter. The weighted average project area pressure shall be determined from the pressures in at least ten representative wells selected by the unit operator and the Supervisor of the Hobbs District Office of the Division.

RULE 6. The project area allowable may be produced from the wells within the project area in any proportion provided, however, that any proration unit situated on the boundary of the East Vacuum Unit which proration unit is not directly or diagonally offset by a San Andres injection well outside said East Vacuum Unit or on the East Vacuum Unit boundary shall not be permitted to produce in excess of 80 barrels of oil per day.

RULE 7. Those wells within the East 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 Division.

RULE 8. The Division Director shall have authority to approve, without notice and hearing, the drilling of wells at unorthodox locations anywhere within the unit boundary, provided however, no unorthodox location shall be closer than ten feet to any quarter-quarter section line, and provided further, that no such unorthodox location shall be closer than 330 feet to the outer boundary of the unit area, unless such well is covered by a lease-line agreement with the operator of the lands offsetting such well, and a copy of the lease-line agreement accompanies the application for such unorthodox location, or unless such offset operator has waived objection to the proposed unorthodox location in writing, and his waiver accompanies the application.

RULE 9. No well shall be placed on water injection in the East Vacuum Unit Area unless the Division Director has approved such well for injection. Applications for injection approval shall be filed in accordance with Rule 701 of the Division Rules and Regulations.

RULE 10. Each newly drilled injection or producing well shall be equipped with a minimum of 350 feet of surface casing and "production" casing run to total depth (approximately 4900 feet). All casing strings shall be cemented to the surface except that in any well in which an intermediate casing string has been run to below the top of the Yates formation and cemented to the surface, the "production" string may be cemented back into the base of the intermediate casing.

RULE 11. Injection shall be accomplished through tubing installed in a packer set within 100 feet of the uppermost perforation. The injection tubing shall be corrosion protected by a non-reactive internal lining or coating. The casing-tubing annulus in each injection well shall be filled with an inert fluid and a surface pressure gauge or approved leak detection device shall be attached to the annulus.

RULE 12. The injection wells or system shall be equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 0.2 psi per foot of depth to the uppermost perforation. The Division Director may administratively authorize a pressure limitation in excess of the above upon showing by the unit operator that such higher pressure will not result in fracturing of the confining strata.

RULE 13. All wells within the project area shall be equipped with risers or in some other acceptable manner as to facilitate the periodic testing of the bradenhead for pressure or fluid production.

RULE 14. The unit 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.

RULE 15. 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.

RULE 16. 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 Rule 6 above, may be produced from the wells in the Project in any proportion.

IT IS FURTHER ORDERED:

(1) That no injection at greater than hydrostatic pressure shall be made into the Grayburg or San Andres formation in any well in the East Vacuum Grayburg-San Andres Unit Area within one-half mile of any well listed on Exhibit "C" attached hereto until remedial action has been taken on such well to ensure that it will not serve as an avenue of escape for injected waters, or until tests have been conducted on such well or other evidence concerning such well has been presented

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Case No. 6367  
Order No. R-5897

establishing to the satisfaction of the Supervisor of the Hobbs District Office of the Division that remedial work on such well is unnecessary.

(2) That Order No. R-3150 which authorized a pilot waterflood project in this area is hereby rescinded.

(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

S E A L

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EAST VACUUM GRAYBURG-SAN ANDRES UNIT  
PRESSURE MAINTENANCE PROJECT

VACUUM GRAYBURG-SAN ANDRES POOL, LEA COUNTY, NEW MEXICO

WATER INJECTION CREDIT ALLOWABLE CALCULATION DATA

ATTACHMENT TO \_\_\_\_\_, 19\_\_, REPORT

$$\text{Water Injection Credit Allowable} = \left[ \frac{W_i - W_p}{\text{BPAA} \left[ B_o + \frac{(R_p - R_s)}{(1,000)} B_g \right]} - 1 \right] \text{BPAA}$$

$W_i$  = \_\_\_\_\_ = Average daily water injection, barrels per day, project area only.

$W_p$  = \_\_\_\_\_ = Average daily water produced, barrels per day, project area only.

BPAA = \_\_\_\_\_ = Basic project area allowable, 80 bopd x \_\_\_\_\_ (number of developed 40-acre tracts in project area).

\_\_\_\_\_ = Weighted average project area reservoir pressure, psig, from \_\_\_\_\_, 19\_\_, survey data.

$B_o$  = \_\_\_\_\_ = Oil formation volume factor, reservoir barrels per stock tank barrel (Exhibit B).

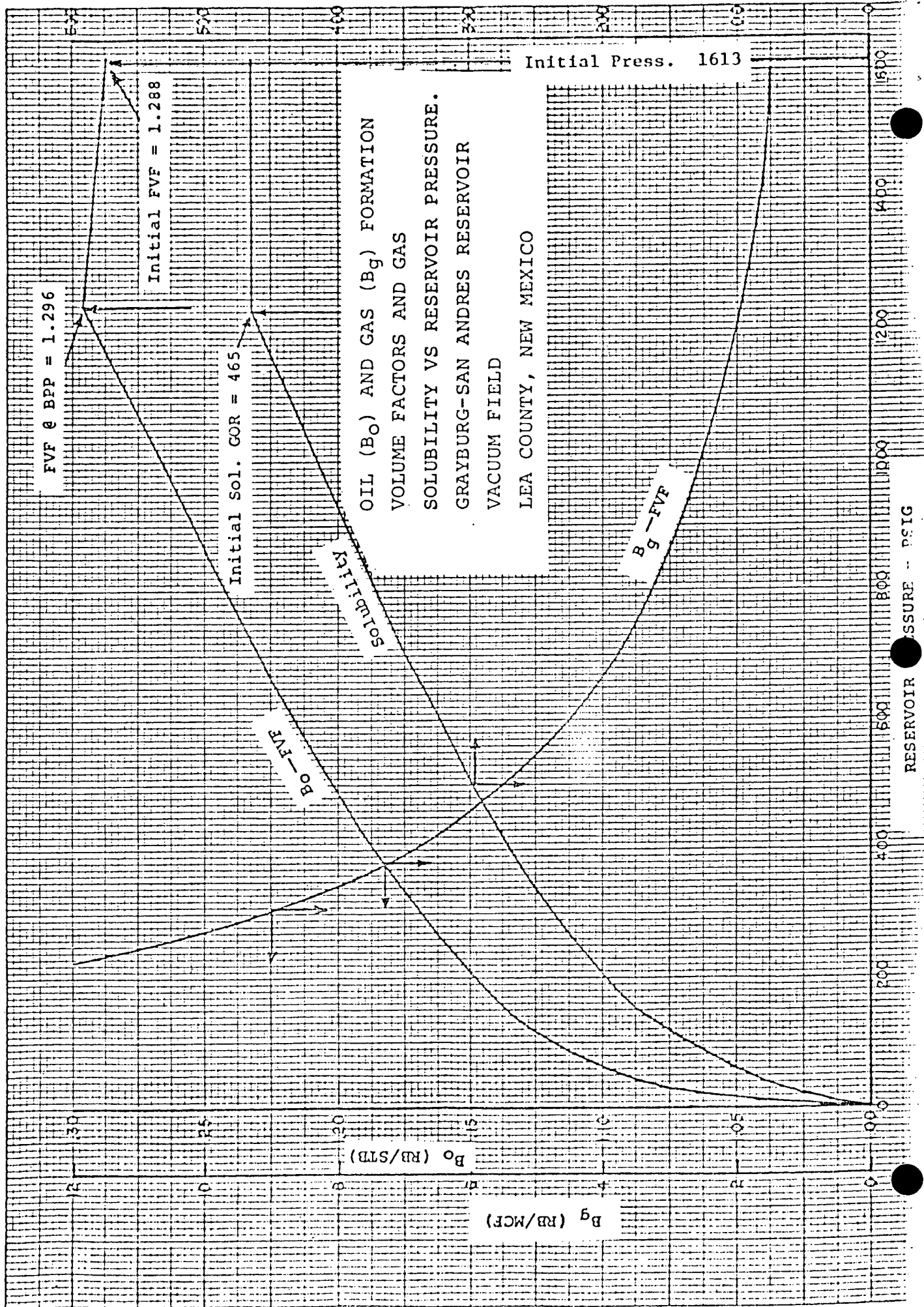
$R_p$  = \_\_\_\_\_ = Producing gas-oil ratio, cubic feet per barrel, project area only.

$R_s$  = \_\_\_\_\_ = Solution gas-oil ratio, cubic feet per barrel (Exhibit B).

$B_g$  = \_\_\_\_\_ = Gas formation volume factor, reservoir barrels per Mcf (Exhibit B).

Water injection credit allowable for \_\_\_\_\_, 19\_\_, = \_\_\_\_\_ barrels of oil per day.

EXHIBIT "A"  
ORDER NO. R-5897



## EXHIBIT "C"

WELLS SUSPECTED OF BEING INADEQUATELY PLUGGED  
AND ABANDONED OR INADEQUATELY CASED AND  
CEMENTED

Rpt of 11/2

OPERATOR	LEASE	WELL NO.	UNIT	SEC-TWP-RGE	
Mobil	State P	7	P	22-17S-35E	work to commence 3-68
Penrose	State	2	N	24-17S-35E	commenced 11/
Phillips	Santa Fe	15	A	28-17S-35E	completed 3/29/
Phillips	Santa Fe	16	L	5-18S-35E	completed 4/28/
Phillips	Santa Fe	37	F	28-17S-35E	compl 6/23/80
Phillips	Santa Fe	47	C	35-17S-35E	compl 8/1/80
Shell	State U	1	C	3-18S-35E	compl 9/13/80
Shell	State VAA	6	K	5-18S-35E	compl 6-27-8
Shell	State C	1	I	24-17S-34E	compl 7-14-8
Shell	State I	1	E	29-17S-35E	compl 3-19-80
Shell	State S	1	I	21-17S-35E	compl 8-16-8.
Stoltz et al.	Abo	1	O	24-17S-35E	to commence 3-6.
Zapata	Shell State	1	O	23-17S-35E	compl 11/2/80
Barnett	State B	1	D	19-17S-35E	to commence 3-6.
Jones	State	2	A	35-17S-35E	compl 10/11/8.
Penrose	Scarborough	1	C	25-17S-35E	to commence 3-6
Amoco	State CV	1	F	25-17S-35E	compl 7-29-80
Amoco	State CV	4	L	25-17S-35E	compl 7-12-8
Amoco	State CV	5	F	25-17S-35E	to commence 3-6
Chevron	State 6-34	4	J	34-17S-35E	to commence 3-6
Cities Service	State BJ	2	K	35-17S-35E	compl 9-23-80
Crusader	State	1	E	20-17S-35E	compl 8-29-82
Crusader	State	2	C	19-17S-35E	compl 10-23-82
Crusader	State	3	N	18-17S-35E	P & A 9-30-80
Exxon	State J	1	M	19-17S-35E	now working with compl 1-3 mos
Exxon	State J	2	L	19-17S-35E	commenced 10-27
Exxon	State AC	1	H	22-17S-35E	compl 11-6-80
Great Western	State E	2	L	25-17S-35E	compl 6-9-80
Marathon	Warn State	1	M	23-17S-35E	compl 7-21-80
Amoco	State CV	2	E	25-17S-35E	had reg. except
Amoco	State CV	2-Y	E	25-17S-35E	compl 103 filed
Millard Deck	Carthay State	2	G	20-17S-35E	*
Exxon	State K	17	P	32-17S-35E	Exxon will come
Marathon	Staplin State	1	L	20-17S-35E	*
Marathon	Warn State	1	B	4-18S-35E	*
Mobil	N.Vac.Abo Unit	207	H	24-17S-34E	*
Pennzoil	Phillips State	1	A	28-17S-35E	*
Pennzoil	Phillips State	2	F	28-17S-35E	*
Phillips	Vac.Abo Unit	6-68	H	34-17S-35E	compl 9-20-79
Phillips	Vac.Abo Unit	1-9	J	27-17S-35E	compl 9-20-7
Phillips	Vac.Abo Unit	7-3	P	27-17S-35E	*
Phillips	Vac.Abo Unit	7-4	I	27-17S-35E	*
Phillips	Vac.Abo Unit	9-5	H	33-17S-35E	*
Phillips	Vac.Abo Unit	13-2	E	4-18S-35E	*

\* = exception granted

<u>OPERATOR</u>	<u>LEASE</u>	<u>WELL NO.</u>	<u>UNIT</u>	<u>SEC-TWP-RGE</u>
Phillips	Vac.Abo Unit 14-3		N	5-18S-35E *
Phillips	Vac.Abo Unit 14-4		L	5-18S-35E *
Shell	State V	6	P	27-17S-35E *
Shell	State K	1	O	19-17S-35E *

\* = exception granted

EXHIBIT "C"  
ORDER NO. R-5897

Page 2 of 2

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*  
*R-6856-B*

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 L. 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 QTP 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 QTP Area tertiary recovery operations beginning date is after May, 1979.

(19) That the QTP 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 QTP Area meet all requirements of Section 4993 of the Internal Revenue Code.

(21) That the Phillips QTP 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.

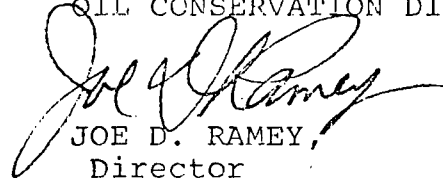
(2) That the applicant, Phillips Petroleum Company, is hereby authorized to inject water and carbon dioxide into the 45 wells listed on Exhibit "A" attached to this Order.

(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 L

EXHIBIT A

Approved Water-Alternate-  
Carbon Dioxide Injectors

Tract 2622 - Well 004	Tract 3202 - Well 008
Well 006	Well 009
	Well 010
Tract 2717 - Well 003	Well 013
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	Tract 3328 - Well 003
Well 009	
	Tract 3332 - Well 001
Tract 2801 - Well 005	
Well 006	Tract 3333 - Well 005
Well 007	Well 006
Well 012	
Well 015	Tract 3373 - Well 001
Tract 2865 - Well 001	Tract 3374 - Well 002
Tract 2913 - Well 007	Tract 3456 - Well 006
Well 008	Well 007
Well 009	Well 009
Tract 2941 - Well 001	Tract 0524 - Well 001
	Well 006
Tract 2947 - Well 001	
Tract 2963 - Well 004	
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:

*See Also Order Nos.  
R-6856  
R-6856-B*

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:

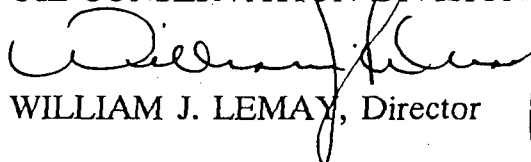
(1) Ordering Paragraph No. (2) of Division Order No. R-6856 is hereby amended to read in its entirety as follows:

"(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:

*See Also Order Nos.*

*R-6856*

*R-6856-A*

CASE NO. 10779  
Order No. R-6856-B

APPLICATION OF PHILLIPS PETROLEUM COMPANY TO QUALIFY FIVE PORTIONS OF ITS EAST VACUUM GRAYBURG-SAN ANDRES UNIT PRESSURE MAINTENANCE PROJECT FOR THE RECOVERED OIL TAX RATE PURSUANT TO THE "NEW MEXICO 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 July 29, 1993, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 12th day of November, 1993, 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) The following orders of the Division have been issued for the Phillips Petroleum Company East Vacuum Grayburg-San Andres Pressure Maintenance Project:
  - (a) Order No. R-5871, issued in Case No. 6366 and dated November 27, 1978, approved the application of Phillips Petroleum Company for statutory unitization of the following described 7,025.3 acres, more or less, of State lands in Lea County, New Mexico, also known as the East Vacuum Grayburg-San Andres Unit Area:

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM  
Section 24: SE/4

**TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM**

- Section 18: Lots 3 and 4 (W/2 SW/4 equivalent) and SE/4 SW/4  
Section 19: Lots 1 through 4 (W/2 W/2 equivalent), S/2 NE/4, E/2 W/2, and SE/4  
Section 20: SW/4 NE/4, W/2 NW/4, SE/4 NW/4, SW/4, W/2 SE/4, and SE/4 SE/4  
Section 21: NE/4 SW/4, S/2 SW/4, and SE/4  
Section 22: SW/4, W/2 SE/4, and SE/4 SE/4  
Section 23: S/2 SW/4  
Section 24: SW/4 SW/4  
Section 25: W/2 NW/4  
Section 26: N/2, SW/4, N/2 SE/4, and SW/4 SE/4  
Sections 27 through 29: All  
Section 31: N/2 SE/4 and SE/4 SE/4  
Sections 32 and 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: Lots 2, 3, and 4 (NW/4 NE/4 and N/2 NW/4 equivalent)  
Section 5: Lots 1 through 4 and S/2 S/2 (N/2 equivalent) and NW/4 SW/4

- (b) Order No. R-5897, issued in Case No. 6367 and dated January 26, 1979, authorized Phillips Petroleum Company to institute a pressure maintenance project (therein designated the East Vacuum Grayburg-San Andres Unit Pressure Maintenance Project Area) by the injection of water into the Vacuum Grayburg-San Andres Pool on the above-described Unit, Lea County, New Mexico.
- (c) Order No. R-6856, issued in Case 7426 and dated December 16, 1981, amended Order No. R-5897 by authorizing Phillips Petroleum Company to inject carbon dioxide along with water through 45 certain wells within the following described area therein designated a "Qualified Tertiary Project Area" that lies wholly within the East Vacuum Grayburg-San Andres Unit Pressure Maintenance Project Area:

**TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM**

Section 26: N/2, SW/4, N/2 SE/4, and SW/4 SE/4  
Sections 27 through 29: All  
Section 31: N/2 SE/4 and SE/4 SE/4  
Sections 32 and 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: Lots 2, 3, and 4 (NW/4 NE/4 and N/2 NW/4 equivalent)  
Section 5: Lots 1 through 4 and S/2 S/2 (N/2 equivalent) and NW/4 SW/4

- (d) Order No. R-6856-A, issued in Reopened Case 7426, on September 19, 1990, provided for the reinjection of hydrocarbon contaminated carbon dioxide into said Qualified Tertiary Project Area.

(3) At this time the applicant, Phillips Petroleum Company, seeks an order pursuant to the Rules and Procedures for Qualification of Enhanced Oil Recovery Projects and Certification for the Recovered Oil Tax Rate, as promulgated by Division Order No. R-9708, qualifying five portions of its East Vacuum Grayburg-San Andres Unit Pressure Maintenance Project, Vacuum Grayburg-San Andres Pool, Lea County, New Mexico, for the recovered oil tax rate pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5).

(4) The proposed five areas under consideration specifically comprise the following described lands:

**Area 1:**

That portion of Lot No. 3 being the SW/4 NW/4 NE/4 NW/4 equivalent, the W/2 SW/4 NE/4 NW/4 equivalent, and the SE/4 SW/4 NE/4 NW/4 equivalent, that portion of Lot No. 4 being the S/2 N/2 NW/4 NW/4 equivalent, and the S/2 NW/4 NW/4 equivalent, N/2 SW/4 NW/4, N/2 S/2 SW/4 NW/4, NW/4 SE/4 NW/4, and N/2 SW/4 SE/4 NW/4 all in Section 5, Township 18 South, Range 35 East, NMPM, Lea County, New Mexico, comprising 85 acres, more or less.

Area 2:

S/2 N/2 NE/4 SW/4, S/2 NE/4 SW/4, SE/4 NE/4 NW/4 SW/4, E/2 SE/4 NW/4 SW/4, E/2 NE/4 SW/4 SW/4, NE/4 SE/4 SW/4 SW/4, N/2 SE/4 SW/4, N/2 S/2 SE/4 SW/4, SW/4 NE/4 NE/4 SE/4, S/2 NW/4 NE/4 SE/4, SW/4 NE/4 SE/4, W/2 SE/4 NE/4 SE/4, S/2 N/2 NW/4 SE/4, S/2 NW/4 SE/4, N/2 SW/4 SE/4, N/2 S/2 SW/4 SE/4, W/2 NE/4 SE/4 SE/4, NW/4 SE/4 SE/4, N/2 SW/4 SE/4 SE/4, and NW/4 SE/4 SE/4 SE/4 all in Section 32, Township 17 South, Range 35 East, NMPM, Lea County, New Mexico, comprising 180.00 acres, more or less.

Area 3:

S/2 SW/4 NE/4 NE/4, S/2 NE/4 NW/4 NE/4, W/2 NW/4 NE/4, SE/4 NW/4 NE/4, N/2 SW/4 NE/4, SW/4 SW/4 NE/4, N/2 SE/4 SW/4 NE/4, N/2 NW/4 SE/4 NE/4, NE/4 NE/4 NW/4, S/2 NW/4 NE/4 NW/4, S/2 NE/4 NW/4, S/2 SE/4 NW/4 NW/4, NE/4 SW/4 NW/4, S/2 NW/4 SW/4 NW/4, S/2 SW/4 NW/4, SE/4 NW/4, N/2 NE/4 SW/4, SW/4 NE/4 SW/4, N/2 SE/4 NE/4 SW/4, E/2 NW/4 SW/4, N/2 NW/4 NW/4 SW/4, SE/4 NW/4 NW/4 SW/4, NE/4 SW/4 NW/4 SW/4, N/2 NE/4 SW/4 SW/4, N/2 NW/4 SE/4 SW/4, and N/2 NW/4 NW/4 SE/4 all in Section 33, Township 17 South, Range 35 East, NMPM, Lea County, New Mexico, comprising 275.00 acres, more or less.

Area 4:

S/2 SW/4 NE/4 NE/4, S/2 SE/4 NW/4 NE/4, NE/4 SW/4 NE/4, S/2 NW/4 SW/4 NE/4, S/2 SW/4 NE/4, S/2 NE/4 SE/4 NE/4, W/2 SE/4 NE/4, SE/4 SE/4 NE/4, S/2 SE/4 SE/4 NW/4, E/2 NE/4 NE/4 SW/4, NE/4 SE/4, N/2 NW/4 SE/4, E/2 SW/4 NW/4 SE/4, SE/4 NW/4 SE/4, E/2 NE/4 SW/4 SE/4, and N/2 SE/4 SE/4 of Section 33 and S/2 SW/4 SW/4 NW/4, W/2 SW/4 NE/4 SW/4, S/2 NE/4 NW/4 SW/4, W/2 NW/4 SW/4, SE/4 NW/4 SW/4, N/2 NE/4 SW/4 SW/4, and NW/4 SW/4 SW/4 of Section 34, all in Township 17 South, Range 35 East, NMPM, Lea County, New Mexico, comprising 250.00 acres, more or less.

Area 5:

S/2 SW/4 NE/4 NE/4, NW/4 NE/4, N/2 SW/4 NE/4, N/2 S/2 SW/4 NE/4, N/2 NW/4 SE/4 NE/4, NE/4 NW/4, S/2 SE/4 NW/4 NW/4, N/2 NE/4 SW/4 NW/4, N/2 SE/4 NW/4, and N/2 S/2 SE/4 NW/4 all in Section 32, Township 17 South, Range 35 East, NMPM, Lea County, New Mexico, comprising 160 acres, more or less.

(5) All of the above-described areas are located wholly within the "Qualified Tertiary Project Area" approved by said Order No. R-6856, as amended.

(6) Evidence indicates Phillips proceeded with its carbon dioxide/water injection phase within said "Qualified Tertiary Project Area" in 1985. According to Division records there are currently forty-two active and three inactive carbon dioxide/water injection wells within the boundary of said "Qualified Tertiary Project Area". Said flood operations have thus far been conducted on 80-acre inverted nine-spot patterns.

(7) Primary oil recovery from the entire pressure maintenance project has been approximately 78,000,000 barrels of oil. As of January 1993, total oil production from said Unit was approximately 117,099,100 barrels of oil. Under the current 80-acre invert nine-spot patterns, ultimate secondary and tertiary oil recovery is estimated to be 66,548,800 barrels of oil.

(8) Said pressure maintenance project is currently producing at a rate of 7,900 BOPD and 38,000 BWPD from 199 active producers with 100 currently active injection wells (both water and carbon dioxide/water injectors). Approximately 26,000,000 barrels of recoverable oil reserves remain under the current mode of operations.

(9) Phillips seeks to expand portions of this "Qualified Tertiary Project Area" by means of a significant change in the process used for the displacement of crude oil which will be a modification of well configurations in the five above-described selected areas of the Unit. This proposed expansion will require that the applicant drill and equip a total of eight new producing wells, convert four existing producing wells to injection, reactivate one producing well, and upgrade existing tank batteries and injection facilities as follows:

AREA 1: There is presently no injection activity in this particular area, carbon dioxide/water injection will commence by converting the East Vacuum G/SA Unit, Tract 0524, Well No. 129 and the drilling of an infill producing well (East Vacuum G/SA Unit, Tract 0524, Well No. 7) in the

SW/4 SE/4 NW/4 (the SW/4 of Unit F). The entire area including the following five existing wells; East Vacuum G/SA Unit, Tract 0524, Well Nos. 2, 3, 8, 45, and 112; should be affected by this change which will change, somewhat, the process used for displacement of crude oil by the introduction of carbon dioxide into this virgin area;

**AREA 2:** Three additional infill producing wells are to be drilled (East Vacuum G/SA Unit, Tract 3202, Well Nos. 20 and 21 and the East Vacuum G/SA Unit, Tract 3229, Well No. 13) within the area and the existing East Vacuum G/SA Unit, Tract 3202, Well No. 1, in Unit I; will be converted to a carbon dioxide/water injection well. There is currently one carbon dioxide/water injection well within the area, the East Vacuum G/SA Unit, Tract 3229, Well No. 8. The impact of these changes should affect the areal sweep as to allow carbon dioxide to contact areas that are currently not being contacted with carbon dioxide from the existing injection well located in the area. As a consequence, the following seven producing wells should experience an improvement in oil recovery through this improved sweep efficiency; East Vacuum G/SA Unit, Tract 3202, Well Nos. 4, 6, 12, and 15 and the East Vacuum G/SA Unit, Tract 3229, Well Nos. 3, 4, and 5;

**AREA 3:** There are currently two carbon dioxide/water injectors in this area, the East Vacuum G/SA Unit, Tract 3333, Well No. 5 and the East Vacuum G/SA Unit, Tract 3374, Well No. 2. This area is being converted from two 80-acre nine-spot patterns to a 160-acre line drive pattern. The existing East Vacuum G/SA Unit, Tract 3333, Well No. 2 will be converted to injection and three additional producing wells (the East Vacuum G/SA Unit, Tract 3308, Well No. 6, East Vacuum G/SA Unit, Tract 3366, Well No. 1, and East Vacuum G/SA Unit, Tract 3373, Well No. 2) will be drilled offset to the line drive injection. The combination of these changes will alter the displacement process significantly by increasing the areal sweep to allow carbon dioxide to contact new areas that are currently not being contacted with carbon dioxide. In addition to the three new infill wells, the following nine existing producers should experience an improvement in oil recovery through improved sweep efficiency; the East Vacuum G/SA Unit, Tract 3308, Well Nos. 2 and 3, the East Vacuum G/SA Unit, Tract 3366, Well No. 29, the East Vacuum G/SA Unit, Tract 3373, Well No. 28, the East Vacuum G/SA Unit, Tract 3333, Well Nos. 3 and 8, the East Vacuum G/SA Unit, Tract 3328, Well No. 2, and the East Vacuum G/SA Unit, Tract 3374, Well Nos. 1 and 3;

**AREA 4:** There are currently two carbon dioxide/water injectors in this area, the East Vacuum G/SA Unit, Tract 3315, Well Nos. 6 and 8. This area is being converted from one 80-acre nine-spot pattern and one 70-acre seven spot pattern to a 150-acre line drive pattern. The existing East Vacuum G/SA Unit, Tract 3315, Well No. 1 will be converted to injection and an additional well (the East Vacuum G/SA Unit, Tract 3440, Well No. 7) is to be drilled to accomplish these changes in operations. The combination of these changes should alter the oil displacement process significantly by changing the areal sweep to allow carbon dioxide to contact new areas that are currently not being contacted with carbon dioxide. In addition, the following nine wells should experience an improvement in oil recovery through this improved sweep efficiency; the East Vacuum G/SA Unit, Tract 3333, Well Nos. 1, 4, and 7, the East Vacuum G/SA Unit, Tract 3440, Well Nos. 1, 3, and 5, and the East Vacuum G/SA Unit, Tract 3315, Well Nos. 2, 4, and 5; and,

**AREA 5:** The conversion of the East Vacuum G/SA Unit, Tract 3202, Well No. 33, along with the existing carbon dioxide/water injector East Vacuum G/SA Unit, Tract 3236, Well No. 6, will alter this pattern from an 80-acre inverted nine-spot pattern to an 80-acre line drive pattern. This change will alter the oil displacement process by changing the areal sweep to allow carbon dioxide to contact new areas that are currently not being contacted with carbon dioxide. The following seven wells should experience an improvement in oil recovery through this improved sweep efficiency; the East Vacuum G/SA Unit, Tract 3202, Well Nos. 3, 16, and 19 and the East Vacuum G/SA Unit, Tract 3236, Well Nos. 3, 4, 5, and 7.

(10) Applicant's engineering evidence indicates that with a significant change or modification in the injection patterns with the drilling of said additional producers and the conversion of existing wells to injection, an estimated additional 1.056 million barrels of oil will be recovered in the five "Expanded Use Areas" having a current undiscounted value of \$19,505,308.00.

(11) The costs of the required additional facilities in the five "Expanded Use Areas" are estimated to be approximately \$3,958,825.00 and the total project costs are estimated to be approximately \$5,976,249.00.

(12) The geologic evidence presented by Phillips demonstrated that portions of the reservoir in the "Expanded Use Areas" contains distinct stringers each vertically isolated from the others with none continuous over the entire southern portion of the unit resulting in the existing 80-acre waterflood pattern being too large to overcome the areal discontinuities found in the Pool.

(13) Based on the testimony presented in this case the proposed enhanced oil recovery project is economically and technically feasible and has not been prematurely filed.

(14) Each of the subject five "Expanded Use Areas" that are included in the "Qualified Tertiary Project Area" of Phillips' East Vacuum Grayburg-San Andres Unit Pressure Maintenance Project Area should be qualified an "Enhanced Oil Recovery Project" (EOR) pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5).

(15) In order for the applicant to be eligible for said EOR credit, the operator should advise the Division, after an appropriate application for injection is processed, when the injection into each additional injection well commences and at such time, request the Division certify the project to the New Mexico Taxation and Revenue Department.

(16) The application should be approved and the EOR Project should be governed by the provisions of the "Rules and Procedures for Qualifications of Enhanced Oil Recovery Projects" and "Certification for Recovered Oil Tax Rate" as promulgated by Division Order No. R-9708.

(17) Each of the five "enhanced oil recovery project areas" should initially comprise those producing wells listed by Phillips that are to be affected by the expanded carbon dioxide/water injection in the five subject areas.

(18) At such time as a positive production response occurs 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, and identify the specific wells which the operator believes are eligible for the credit. 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.

**IT IS THEREFORE ORDERED THAT:**

(1) The application of Phillips Petroleum Company to qualify five individual and separate portions of its East Vacuum Grayburg-San Andres Unit Pressure Maintenance Project, Vacuum Grayburg-San Andres Pool, Lea County, New Mexico as an "Enhanced Oil Recovery Project" pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5), is hereby approved.

(2) The subject "enhanced oil recovery project areas" shall initially comprise the following five described areas in Lea County, New Mexico:

**Area 1:**

That portion of Lot No. 3 being the SW/4 NW/4 NE/4 NW/4 equivalent, the W/2 SW/4 NE/4 NW/4 equivalent, and the SE/4 SW/4 NE/4 NW/4 equivalent, that portion of Lot No. 4 being the S/2 N/2 NW/4 NW/4 equivalent, and the S/2 NW/4 NW/4 equivalent, N/2 SW/4 NW/4, N/2 S/2 SW/4 NW/4, NW/4 SE/4 NW/4, and N/2 SW/4 SE/4 NW/4 all in Section 5, Township 18 South, Range 35 East, NMPM, Lea County, New Mexico, comprising 85 acres, more or less.

**Area 2:**

S/2 N/2 NE/4 SW/4, S/2 NE/4 SW/4, SE/4 NE/4 NW/4 SW/4, E/2 SE/4 NW/4 SW/4, E/2 NE/4 SW/4 SW/4, NE/4 SE/4 SW/4 SW/4, N/2 SE/4 SW/4, N/2 S/2 SE/4 SW/4, SW/4 NE/4 NE/4 SE/4, S/2 NW/4 NE/4 SE/4, SW/4 NE/4 SE/4, W/2 SE/4 NE/4 SE/4, S/2 N/2 NW/4 SE/4, S/2 NW/4 SE/4, N/2 SW/4 SE/4, N/2 S/2 SW/4 SE/4, W/2 NE/4 SE/4 SE/4, NW/4 SE/4 SE/4, N/2 SW/4 SE/4 SE/4, and NW/4 SE/4 SE/4 SE/4 all in Section 32, Township 17 South, Range 35 East, NMPM, Lea County, New Mexico, comprising 180.00 acres, more or less.

**Area 3:**

S/2 SW/4 NE/4 NE/4, S/2 NE/4 NW/4 NE/4, W/2 NW/4 NE/4, SE/4 NW/4 NE/4, N/2 SW/4 NE/4, SW/4 SW/4 NE/4, N/2 SE/4 SW/4 NE/4, N/2 NW/4 SE/4 NE/4, NE/4 NE/4 NW/4, S/2 NW/4 NE/4 NW/4, S/2 NE/4 NW/4, S/2 SE/4 NW/4 NW/4, NE/4 SW/4 NW/4, S/2 NW/4 SW/4 NW/4, S/2 SW/4 NW/4, SE/4 NW/4, N/2 NE/4 SW/4, SW/4 NE/4 SW/4, N/2 SE/4 NE/4 SW/4, E/2 NW/4 SW/4, N/2 NW/4

NW/4 SW/4, SE/4 NW/4 NW/4 SW/4, NE/4 SW/4 NW/4 SW/4,, N/2 NE/4 SW/4 SW/4, N/2 NW/4 SE/4 SW/4, and N/2 NW/4 NW/4 SE/4 all in Section 33, Township 17 South, Range 35 East, NMPM, Lea County, New Mexico, comprising 275.00 acres, more or less.

**Area 4:**

S/2 SW/4 NE/4 NE/4, S/2 SE/4 NW/4 NE/4, NE/4 SW/4 NE/4, S/2 NW/4 SW/4 NE/4, S/2 SW/4 NE/4, S/2 NE/4 SE/4 NE/4, W/2 SE/4 NE/4, SE/4 SE/4 NE/4, S/2 SE/4 SE/4 NW/4, E/2 NE/4 NE/4 SW/4, NE/4 SE/4, N/2 NW/4 SE/4, E/2 SW/4 NW/4 SE/4, SE/4 NW/4 SE/4, E/2 NE/4 SW/4 SE/4, and N/2 SE/4 SE/4 of Section 33 and S/2 SW/4 SW/4 NW/4, W/2 SW/4 NE/4 SW/4, S/2 NE/4 NW/4 SW/4, W/2 NW/4 SW/4, SE/4 NW/4 SW/4, N/2 NE/4 SW/4 SW/4, and NW/4 SW/4 SW/4 of Section 34, all in Township 17 South, Range 35 East, NMPM, Lea County, New Mexico, comprising 250.00 acres, more or less.

**Area 5:**

S/2 SW/4 NE/4 NE/4, NW/4 NE/4, N/2 SW/4 NE/4, N/2 S/2 SW/4 NE/4, N/2 NW/4 SE/4 NE/4, NE/4 NW/4, S/2 SE/4 NW/4 NW/4, N/2 NE/4 SW/4 NW/4, N/2 SE/4 NW/4, and N/2 S/2 SE/4 NW/4 all in Section 32, Township 17 South, Range 35 East, NMPM, Lea County, New Mexico, comprising 160 acres, more or less.

(3) Each of the five Project Areas shall be defined in terms of the unit wells which would actually qualify for the recovered oil tax rate and shall initially comprise the following wells in the above described areas in Lea County, New Mexico:

AREA 1: EAST VACUUM GRAYBURG-SAN ANDRES UNIT		AREA 2: EAST VACUUM GRAYBURG-SAN ANDRES UNIT	
Tract No.	Well No.	Tract No.	Well No.
INJECTION WELLS		INJECTION WELLS	
0524	129	3202	1
PRODUCING WELLS		3229	8
0524	2	PRODUCING WELLS	

AREA 1: EAST VACUUM GRAYBURG-SAN ANDRES UNIT		AREA 2: EAST VACUUM GRAYBURG-SAN ANDRES UNIT	
Tract No.	Well No.	Tract No.	Well No.
0524	3	3202	4
0524	7	3202	6
0524	8	3202	12
0524	45	3202	15
0524	112	3202	20
		3202	21
		3229	3
		3229	4
		3229	5
		3229	13

AREA 3: EAST VACUUM GRAYBURG-SAN ANDRES UNIT		AREA 4: EAST VACUUM GRAYBURG-SAN ANDRES UNIT	
Tract No.	Well No.	Tract No.	Well No.
INJECTION WELLS		INJECTION WELLS	
3333	2	3315	1
3333	5	3315	6
3374	2	3315	8
PRODUCING WELLS		PRODUCING WELLS	
3308	2	3333	1
3308	3	3333	4
3308	6	3333	7
3328	2	3315	2
3333	3	3315	4

AREA 3: EAST VACUUM GRAYBURG-SAN ANDRES UNIT		AREA 4: EAST VACUUM GRAYBURG-SAN ANDRES UNIT	
Tract No.	Well No.	Tract No.	Well No.
3333	8	3315	5
3366	1	3440	1
3366	29	3440	3
3373	2	3440	5
3373	28	3440	7
3374	1		
3374	3		

AREA 5: EAST VACUUM GRAYBURG-SAN ANDRES UNIT	
Tract No.	Well No.
INJECTION WELLS	
3202	3
3236	6
PRODUCING WELLS	
3202	3
3202	16
3202	19
3236	3
3236	4
3236	5
3236	7

(4) The operator shall advise the Division when the additional injection phase of the project commences into any of the new injection wells.

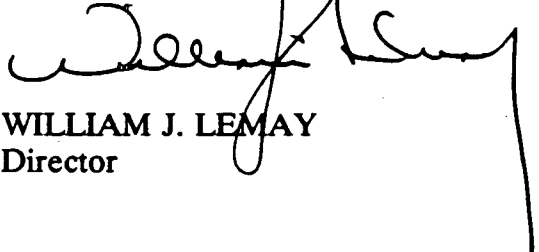
(5) At such time as a positive production response occurs and within five years from the date of the Certificate of Qualification, the applicant must apply to the Division for certification of positive production response, which application shall identify the area actually benefitting from enhanced recovery operations, and identify the specific wells which the operator believes are eligible for the credit. 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.

(6) Said EOR project shall be governed by the provisions of the "Rules and Procedures for Qualifications of Enhanced Oil Recovery Projects" and "Certification for Recovered Oil Tax Rate" as promulgated by Division Order No. R-9708.

(7) 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

SEAL

## **Stogner, Michael**

---

**From:** Paul R. Owen[SMTP:prosmo@ix.netcom.com]  
**Reply To:** prosmo@ix.netcom.com  
**Sent:** Thursday, January 13, 2000 4:11 PM  
**To:** Stogner, Michael  
**Subject:** Texaco/Phillips Lease Line Agreements



Paul R. Owen.vcf

Mike--

Following is language which you might use to describe the parties' lease line agreements and ensure that the administrative order will not be effective until the parties execute those agreements:

The parties are in the process of finalizing a Producers Cooperative Unit Line Agreement and Water Injection Agreement. By those agreements, the parties will split equally, the costs of drilling and operating, and the proceeds from production from, the wells which are the subject of both Applications. These agreements will ensure the proper production and conservation of oil and gas from the Grayburg and San Andres formations in the subject area, and will ensure that the parties' correlative rights are protected.

This Order will be effective upon the last party's signing of both the Producers Cooperative Unit Line Agreement and the Water Injection Agreement.

Thank you.

Paul R. Owen  
Attorney at law

Campbell, Carr, Berge & Sheridan, P.A.  
Post Office Box 2208  
110 North Guadalupe, Suite 1  
Santa Fe, New Mexico 87505  
(505) 988-4421  
(505) 983-6043 (fax)

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

MICHAEL B. CAMPBELL  
WILLIAM F. CARR  
BRADFORD C. BERGE  
MARK F. SHERIDAN  
MICHAEL H. FELDEWERT  
PAUL R. OWEN  
ANTHONY F. MEDEIROS  
  
JACK M. CAMPBELL  
1916-1999

JEFFERSON PLACE  
SUITE 1 - 110 NORTH GUADALUPE  
POST OFFICE BOX 2208  
SANTA FE, NEW MEXICO 87504-2208  
TELEPHONE: (505) 988-4421  
FACSIMILE: (505) 983-6048  
E-MAIL: ccbspa@ix.netcom.com

January 14, 2000

**HAND DELIVERED**

Michael Stogner, Hearing Examiner  
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 nonstandard well locations for wells in Central Vacuum Unit Tertiary Recovery Project, Lea County, New Mexico.***

***Application of Phillips Petroleum Company for nonstandard well locations for wells in East Vacuum Grayburg San Andres Unit Tertiary Recovery Project, Lea County, New Mexico.***

Dear Mr. Stogner

We discussed this matter by telephone yesterday. On Tuesday, January 11, we filed applications for hearing in both of the above-captioned cases.

When we spoke yesterday, you indicated that you had received an administrative application from Phillips which sought approval of the same well locations which are the subject of the above-captioned Phillips case. I indicated that I intended to submit an administrative application for Texaco, concerning the wells referenced in the above-referenced Texaco case. After discussing the matter, you indicated that you would treat Texaco's application as an administrative application, and act on both applications accordingly.

You also indicated that Phillips yesterday provided you with drafts of the Producers' Cooperative Unit Line Agreement and the Water Injection Agreement. My understanding is that the Agreements are in virtually final form, and will be executed some time prior to

OIL CONSERVATION DIV.  
JAN 14 PM 4:39

Michael Stogner, Hearing Examiner  
January 14, 2000  
Page 2

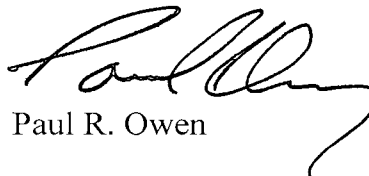
the spudding of the first well, a projected date of mid-February, 2000.

The parties are in the process of finalizing the Producers Cooperative Unit Line Agreement and Water Injection Agreement. By those agreements, the parties will split equally the costs of drilling and operating, and the proceeds from production, from the wells which are the subject of both Applications. These agreements will ensure the proper production and conservation of oil and gas from the Grayburg and San Andres formations in the subject area, and will ensure that the parties' correlative rights are protected.

We recommend that, when you issue an Administrative Order approving the Applications, that you insert a provision that the Order will be effective upon the last party's signing of both the Producers Cooperative Unit Line Agreement and the Water Injection Agreement.

If you need anything further before you can grant the applications, please let me know. We appreciate your attention to these applications, and your cooperation with us in reaching a solution which is satisfactory to both the Division and the parties.

Very truly yours,

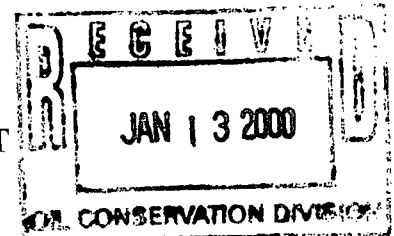
A handwritten signature in black ink, appearing to read "Paul R. Owen", with a stylized, flowing script.

Paul R. Owen

cc: Mr. Scott Wehner (via facsimile)  
Mr. Fred Kent (via facsimile)  
Mr. Tom Kellahin (via hand delivery)

DRAFT January 6, 2000

**EVGSAU/CVU WATER INJECTION AGREEMENT**



THIS AGREEMENT, is entered into between Phillips Petroleum Company (Phillips) as Operator and on behalf of all working interest owners of the East Vacuum Grayburg San Andres Unit (EVGSAU), and Texaco Exploration and Production Inc. (TEPI) as operator and on behalf of all working interest owners of the Central Vacuum Unit (CVU).

**WITNESSETH:**

WHEREAS, Phillips and TEPI represent that the EVGSAU and the CVU, 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, the parties hereto desire to further enhance the recovery of crude oil from the CVU and EVGSAU by drilling four (4) water injection wells in close proximity to their common unit boundary, with an option to covert same to water-alternating-gas injection when deemed necessary and mutually agreed to by both parties.

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

**ARTICLE I**  
**DRILL WELLS**

Phillips for the joint account, will drill, equip, operate and maintain the wells listed below for the purpose of injecting water into the Grayburg and San Andres formations.

EVGSAU 3127-395W - 2630' FSL, 645' FEL  
EVGSAU 3127-396W - 2630' FSL, 1950' FEL  
EVGSAU 3127-398W - 1350' FSL, 2165' FEL  
EVGSAU 3127-399W - 10' FSL, 660' FEL

The drilling of the subject wells shall be commenced within the later of, sixty (60) days from the date of approval by the New Mexico Oil Conservation Division, or March 31, 2000.

The above wells are located in Section 31, T-17-S, R-35-E, 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.

**ARTICLE II**  
**OPERATIONS**

Phillips will operate the injection wells and furnish suitable water as required for injection through its water injection system. Injection of water into any of the injection wells covered by this Agreement in the Grayburg and San Andres formations shall be at rates and at pressures that will comply with the rules and regulations of the Oil Conservation Division of the Department of Energy and Minerals of the State of New Mexico. The intent of such injection will be to maintain average reservoir pressure between 1500 and 1600 psig. Except as otherwise provided for herein, all operations hereunder will be governed by the applicable terms of the Operating Agreement for the EVGSAU 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 EVGSAU, the provisions of this Agreement shall prevail.

**ARTICLE III**  
**OPERATING COSTS AND EXPENSES**

All costs to drill, equip, operate, plug and abandon the injection wells will be allocated and the injection wells will be owned as follows:

**ARTICLE IV**  
**EXPENDITURE LIMITATION**

Without the approval of TEPI, Phillips shall not undertake any single project reasonably estimated to require an expenditure in excess of Fifty Thousand dollars (\$50,000.00); provided, however, that, in case of explosion, fire, flood or other sudden emergency, whether of the same or different nature, Phillips may take steps and incur such expenses as in its opinion are required to deal with such emergency to safeguard life and property. Phillips shall as promptly as possible report any such emergency to TEPI, but in all events, within 48 hours of any such occurrence.

**ARTICLE V**  
**INCOME TAX ELECTION**

This Agreement and operations hereunder shall not constitute a partnership. If for Federal income tax purposes this Agreement and the operations hereunder are regarded as a partnership, then each of the parties hereto elects to be excluded from the application of all of the provisions of Subchapter K, Chapter 1, Subtitle A, of the Internal Revenue Code of 1986, as permitted and authorized by Section 761 of the Code and regulations promulgated thereunder. Phillips is authorized and directed to execute on behalf of each of the parties hereto such evidence of this election as may be required by the Secretary of the Treasury of the United States or the Federal Internal Revenue Service, including specifically, but not by way of limitation, all of the returns, statements, and the data required by Treasury Regulation 1.761. Should there be any requirement that each party hereto give further evidence of this election, such party shall execute such documents and furnish such other evidence as may be required by the Federal Internal Revenue Service or as may be necessary to evidence this election. Each party hereto further agrees not to give any notices or take any other action inconsistent with the election made hereby. If any present or future income tax laws of the state in which the operations are located or any future income tax law of the United States contain provisions similar to those in Subchapter K, Chapter 1, Subtitle A, of the Internal Revenue Code of 1986, under which an election similar to that provided by Section 761 of the Code is permitted, each of the parties hereto agrees to make such election as may be permitted or required by such laws. In making the foregoing election, each of the parties states that the income derived by such party from the operations under this Agreement can be adequately determined without the computation of partnership taxable income.

**ARTICLE VI**  
**CLAIMS AND LAWSUITS**

Phillips may settle any single third party damage claim or suit arising from operations hereunder if the expenditure does not exceed Twenty-five Thousand dollars ( \$25,000.00 ) and if the payment is in complete settlement of such claim or suit. If the amount for settlement exceeds the above amount, the parties hereto shall assume and takeover the further handling of the claim or suit, unless TEPI delegates authority to Phillips to handle the same. All costs of handling, settling, or otherwise discharging such claim or suit shall be shared jointly and in the proportions set out in Article III, paragraph 2., hereinabove. If a claim is made against any party hereto or a party hereto is sued on account of any matter arising from operations hereunder, such party shall notify the other party hereto within 48 hours, and the claim or suit shall be treated as any other claim or suit involving operations hereunder.

Each party hereto agrees to indemnify, defend and hold the other party harmless from and against any and all suits, claims, demands, liabilities, costs, and expenses (including attorneys fees and court costs) brought by royalty owners, working interest owners or other interest owners of such property as a result of the parties entering into this Agreement, including without limitation any claims based upon the amount of royalties being paid to such royalty owner, working interest owner, or other interest owner of such party.

**ARTICLE VII**  
**FORCE MAJEURE**

If any party hereto is rendered unable, wholly or in part, by force majeure to carry out its obligations under this Agreement, other than the obligation to make money payments, said party shall give the other party prompt written notice of the force majeure situation, including full particulars thereof.

If the parties hereto mutually agree to terminate this Agreement or either party elects to relinquish its interest under the terms and provisions of Article IX above, Phillips shall, within sixty (60) days of such termination or relinquishment under Article IX, determine the value of salvable material or equipment purchased for the joint account, in the proportions the material and equipment were purchased and the costs accounted for, and remaining value distributed under Article III above. The value of such salvable material and equipment shall be determined in accordance with the provisions of Exhibit "B", less the estimated cost of salvaging said material and equipment.

**Article XI**  
**ALTERNATIVE DISPUTE RESOLUTION**

The parties agree that if any dispute arises between them related to this Agreement they will use the procedures outlined in Exhibit "C", attached hereto, to attempt to resolve such dispute prior to commencing legal proceedings; provided, however, that either party may seek a restraining order, temporary injunction, or other provisional judicial relief if such party in its sole judgement believes that such action is necessary to avoid irreparable injury or to preserve the status quo. The parties will continue to participate in good faith in the procedures despite any such request for provisional relief.

**ARTICLE XII**  
**ASSIGNMENT**

The Parties hereto may assign this Agreement pursuant to the terms and conditions governing assignments contained in the EVGSAU Unit Agreement.

**ARTICLE XIII**  
**MISCELLANEOUS PROVISIONS**

1. This Agreement may be amended at any time with the written consent of all the parties hereto.
2. This Agreement and its Exhibits shall constitute the entire contract of the parties hereto and there are no agreements, undertakings, obligations, promises, assurances or conditions, whether precedent or otherwise, except those specifically set forth herein. In the event there is a conflict between this Agreement, the Exhibits attached hereto and the Operating Agreement for the EVGSAU, the provisions of this Agreement shall prevail.
3. Phillips will conduct all operations under this Agreement in a good and workmanlike manner and have no liability to TEPI for losses sustained or liabilities incurred, except such as may result from gross negligence or willful misconduct.

Upon giving notice, the obligations of such party, so far as they are affected by such force majeure, shall be suspended during, but no longer than, the continuance of the force majeure situation. The affected party shall use all reasonable diligence to remove the force majeure situation as quickly as practicable.

The requirement that any force majeure shall be remedied with all reasonable dispatch shall not require the settlement of strikes, lockouts, or other labor difficulty by the party involved, contrary to the party's wishes. Such difficulties shall be handled entirely within the discretion of the concerned party.

The term "force majeure" as used herein shall mean an act of God, strike, lockout, or other industrial disturbance, act of the public enemy, war, blockade, public riot, lighting, fire, frozen pipes, storm, flood, explosion, governmental action or delay, restraint or inaction, unavailability of equipment, and any other cause, whether of the kind specifically enumerated above or otherwise, which is not reasonably within the control of the party claiming such suspension.

## **ARTICLE VIII**

### **NOTICES**

All notices between the parties hereto pursuant to the terms of this Agreement, or otherwise, shall be deemed given upon depositing the same in the United States mail, overnight delivery service or sending such notice by telefax or other form of facsimile to the address or FAX number noted below, save and except notices required in Article IV, which shall be deemed given by verbal communication or voice mail:

Phillips Petroleum Company  
4001 Penbrook  
Odessa, TX 79762  
Attn: Brett A. Butterfield  
Phone: ( 915 ) 368-1373  
FAX: ( 915 ) 368-1633

Texaco Exploration and Production Inc.  
P. O. Box 3109  
Midland, TX 79702  
Attn: CO<sub>2</sub> Assets Manager  
Phone: ( 915 ) 688-2936  
FAX: ( 915 ) 688-4473

Each party hereto will be responsible for assuring that such address or FAX number noted above is current.

## **ARTICLE IX**

### **TERM OF AGREEMENT**

This Agreement shall remain in effect for a period of five (5) years from the effective date hereof and for so long thereafter as the CVU and EVGSAU benefit from the terms and provisions of this Agreement and remain economically profitable to the parties hereto, subject to the provisions below. However, unless the subject wells are drilled and completed by June 30, 2000, this Agreement shall terminate and be of no force or effect except as to those wells drilled and capable of injection.

If at any time during the term of this Agreement, the parties mutually agree that the injection well(s) should be converted to CO<sub>2</sub> water-alternating-gas injection service, said well(s) will cease to be subject to this Agreement, and will instead become subject to a new agreement, to be negotiated between both parties containing provisions for such CO<sub>2</sub> injection.

Furthermore, during the initial five (5) year period, this Agreement cannot be terminated without the mutual consent of both Phillips and TEPI. Thereafter, either party, upon giving sixty (60) days notice to the other, may relinquish all right, title and interest under this Agreement and the remaining party shall retain the option to continue the operations under this Agreement at its sole cost and benefit.

It is agreed, however, that the termination of this Agreement or relinquishment of rights pursuant to this Agreement, shall not relieve either party hereto from any liability which has occurred or attached prior to the date of such termination.

## **ARTICLE X**

### **ABANDONMENT OF OPERATIONS**

IN WITNESS WHEREOF, the Parties have executed this Agreement to be effective the 1<sup>st</sup> day of February, 2000.

**PHILLIPS PETROLEUM COMPANY**  
as operator of the East Vacuum Grayburg San Andres Unit

By: \_\_\_\_\_  
**Brett A. Butterfield**  
Attorney - in - Fact

**TEXACO EXPLORATION AND PRODUCTION INC.**  
as operator of the Central Vacuum Unit

By: \_\_\_\_\_  
**R. J. Schneider**  
Attorney - in - Fact

STATE OF TEXAS }

COUNTY OF ECTOR }

Before me \_\_\_\_\_, a Notary Public in and for said County and State, on this day personally appeared Brett A. Butterfield, Attorney-in-Fact of PHILLIPS PETROLEUM COMPANY, a Delaware corporation, known to me to be the person whose name is subscribed on the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed, and in the capacity therein stated.

Given under my hand and seal of office this \_\_\_\_ day of \_\_\_\_\_, 2000.

My Commission expires:

\_\_\_\_\_

\_\_\_\_\_  
Notary Public in and for the State of Texas

STATE OF TEXAS }

COUNTY OF MIDLAND }

Before me \_\_\_\_\_, a Notary Public in and for said County and State, on this day personally appeared \_\_\_\_\_, Attorney-in-Fact, of TEXACO EXPLORATION AND PRODUCTION INC., a Delaware corporation, known to me to be the person whose name is subscribed on the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed. and in the capacity therein stated.

Given under my hand and seal of office this \_\_\_\_ day of \_\_\_\_\_, 2000.

My Commission expires:

\_\_\_\_\_

\_\_\_\_\_  
Notary Public in and for the State of Texas

**EXHIBIT "A"**

Attached to and made a part of that certain EVGSAU/CVU Water Injection Agreement  
effective February 1, 2000, by and between  
Phillips Petroleum Company and Texaco Exploration and Production Inc.

Map of Lease Line Area

EXHIBIT "B"

1  
COPAS 1984 ONSHORE

## **EXHIBIT "C"**

Attached to and made a part of that certain EVGSAU/CVU Water Injection Agreement  
effective February 1, 2000, by and between  
Phillips Petroleum Company and Texaco Exploration and Production Inc.

### **ALTERNATIVE DISPUTE RESOLUTION**

Either Party may initiate alternative dispute resolution procedures by sending written notice to the other Party specifically stating the complaining Party's claim and requesting dispute resolution in accordance with Article XI. The Party receiving the notice ("receiving Party") shall reply with designation of a person to settle the dispute and shall list two (2) alternative dates (both of which must be within fourteen days after receipt of the complaint) for meeting at the receiving Party's offices, or at a mutually agreeable location.

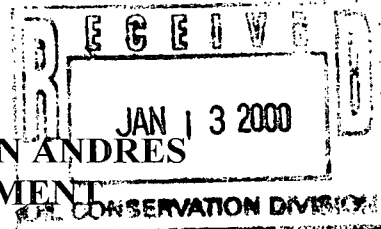
The Parties' authorized representatives shall conduct such investigation and meet as they may mutually agree to be advantageous for resolution of the dispute; provided, however, that if the Parties are unable to resolve and settle the dispute within forty-five (45) days after the first meeting of the authorized representatives then the Parties will have no further obligation under Article XI as to the matters set forth in the complaining Party's letter and the receiving Party's reply.

It is expressly agreed that the following shall apply and control over any other provision in this Exhibit or in Article XI:

- (a) All applicable statutes of limitation and defenses based upon passage of time shall be tolled while the procedures specified in Article XI and this Exhibit "C" are followed. Such tolling shall begin upon the receiving Party's notice of claim. The Parties shall take such action, if any, as may be necessary to effectuate tolling.
- (b) All offers, conduct, views, opinions, and statements, whether written oral, made in the course of negotiation by any of the Parties, their employees, agents, experts, attorneys, and representatives are confidential, made for compromise and settlement, are agreed to be protected from disclosure under Federal and State Rules of Evidence and procedure, and are inadmissible and not discoverable for any purpose, including impeachment, in litigation or legal proceedings between the Parties, and shall not be disclosed to anyone who is not an agent, employee, expert, or representative of the Parties; provided, however, that evidence otherwise discoverable or admissible is not excluded from discovery or admission as a result of presentation or use in negotiation.
- (c) The Parties may, by written agreement (signed by both Parties), alter any time deadline or location(s) for meeting(s).
- (d) All obligations and requirements under this Exhibit and/or under Article XI shall cease at the end of ninety (90) days following the receiving Party's receipt of the complaining Party's notice of dispute, and the Parties shall thereafter be free to file suit or to initiate any other legal proceeding related to the matters involved in the dispute. The tolling period described in (a) above shall terminate at the end of such ninety (90) day period.
- (e) Time is of the essence for purposes of the provisions of this Exhibit.

DRAFT January 4, 2000

**CENTRAL VACUUM / EAST VACUUM GRAYBURG SAN ANDRES  
PRODUCERS COOPERATIVE UNIT LINE AGREEMENT**



THIS AGREEMENT, is entered into between Phillips Petroleum Company (Phillips) as Operator and on behalf of all working interest owners in the East Vacuum Grayburg San Andres Unit (EVGSAU) and Texaco Exploration and Production Inc (TEPI), as Operator and on behalf of all working interest owners in the Central Vacuum Unit (CVU).

**WITNESSETH:**

WHEREAS, Phillips and TEPI represent that the EVGSAU and the CVU, 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 EVGSAU and the CVU, 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.

- Central Vacuum Unit Well No. 295, located 669 feet FNL, 10 feet FEL of Section 6, T-18-S, R35-E.
- Central Vacuum Unit Well No. 286, located 634 feet FSL, 1,333 feet FEL of Section 31, T-17-S, R-35-E.

Phillips, 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.

- EVGSA Unit Well No. 3236-394, located 1980 feet FNL, 10 feet FWL, of Section 32, T-17-S, R-35-E.
- EVGSA Unit Well No. 3127-397, located 1910 feet FSL, 2630 feet FEL, of Section 31, T-17-S, R-35-E

The drilling of the subject wells shall be commenced within the later of, sixty (60) days from the date of approval by the New Mexico Oil Conservation Division, or March 31, 2000. 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 TEPI operated wells hereunder will be governed by the applicable terms of the Operating Agreement for the CVU and all Phillips operated wells hereunder shall be governed by the applicable terms of the Operating Agreement for the EVGSAU, which are incorporated herein by reference. In the event there is a conflict between this Agreement, the Exhibits attached hereto and the respective Operating Agreements, the provisions of this Agreement shall prevail. All produced gas not sold from Phillips operated wells will be retained by EVGSAU, and all produced gas not sold from TEPI operated wells will be retained by CVU. All costs to drill, equip, operate, plug and abandon the wells, save and except produced gas dehydration and compression costs, and all revenue from oil, natural gas liquids, and hydrocarbon residue gas sales, if any, will be allocated and the wells will be owned as follows:

Central Vacuum Unit	50%
---------------------	-----

East Vacuum Grayburg San Andres 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 and Phillips on their respectively operated wells. The volume of natural gas liquids recovered and sold from the gas produced hereunder shall be calculated from allocated gas volumes and the liquids sales to gas recovery ratio for the plant processing the gas, less a proportional share of any natural gas liquids sales retained by the processing plant as compensation for processing expenses. A monthly report shall be supplied by Phillips and TEPI to one another stating monthly production and sales 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, unless the subject wells are drilled and completed by June 30, 2000, this Agreement shall terminate and be of no force or effect except as to those wells capable of producing in commercial quantities.

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 CVU and the EVGSAU.

VII.

The terms and provisions of this Agreement shall inure to the benefit of and be binding upon the parties hereto, their successors and assigns.

[The remainder of this page intentionally left blank]

IN WITNESS WHEREOF, the parties have executed this Agreement to be effective as of the \_\_\_\_  
day  
of \_\_\_\_\_, 1999.

PHILLIPS PETROLEUM COMPANY  
Operator of the East Vacuum Grayburg San Andres Unit

\_\_\_\_\_  
Attorney-in-Fact

TEXACO EXPLORATION AND PRODUCTION INC.  
Operator of the Central Vacuum Unit

\_\_\_\_\_  
Attorney-in-Fact

STATE OF TEXAS       §  
                              §  
COUNTY OF ECTOR    §

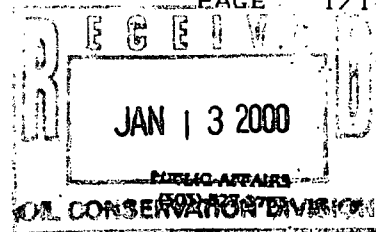
This agreement was acknowledged before me this \_\_\_\_ day of \_\_\_\_\_, 199\_\_,  
by \_\_\_\_\_, Attorney-in-Fact for Texaco Exploration and  
Production Inc., a Delaware corporation.

\_\_\_\_\_  
Notary Public

STATE OF TEXAS       §  
                              §  
COUNTY OF MIDLAND §

This agreement was acknowledged before me this \_\_\_\_ day of \_\_\_\_\_, 199\_\_,  
by \_\_\_\_\_, Attorney-in-Fact for Phillips Petroleum Company, a  
Delaware corporation.

\_\_\_\_\_  
Notary Public



## MELIC APPEARS

# OL CONSERVATION ENVIRONMENT

## ADMINISTRATIVE BOARD

**(505)-827-5700**

**LEGAL**

(505) 427-5715

## PLANNING

**(505)-827-5732**

ROYALTY  
(505)-827-5772

**Ray Powell, M.S., D.V.M.**

310 Old Santa Fe Trail, P. O. Box 1148  
Santa Fe, New Mexico 87504-1148  
Phone (505)-827-5760, Fax (505)-827-5766

Dear Mr. Lanning:

We are in receipt of your letter of November 25, 1998 requesting our approval of your plans to drill four lease line producers, jointly with Phillips, between the Central Vacuum Unit and the East Vacuum Grayburg San Andres Unit.

It is our understanding that Texaco will operate the CVU Well Nos. 286 and 295. Phillips will operate the EVGSAU Well Nos. 3236-394 and 3127-397. Production will be handled through the existing lease gathering system. Individual wells will be gathered, tested and metered through a three-phase separator. Averages of individual monthly tests will be used to prorata volumes back to individual wells based on the monthly sales meter volume. Half of all production from each well will be allocated to each unit. Each unit will then allocate its share of production to each of its tracts based on the existing tract participation factors.

The Commissioner of Public Lands hereby grants approval to your proposed request. Our approval is subject to like approval by the New Mexico Oil Conservation Division.

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, Director  
Oil, Gas and Minerals Division  
(505) 827-5744  
RP/JP/pm

pc: Reader File,  
OCD-Attention: David Catanach, Ben Stone.

**"WE WORK FOR EDUCATION"**

November 25, 1998

Ms. Jami Bailey, Director  
Oil, Gas & Minerals Division  
New Mexico State Land Office  
P.O. Box 1148  
Santa Fe, New Mexico 87504-1148

**NM255100    Central Vacuum Unit**  
**MC20353    Phillips' East Vacuum Grayburg San Andres Unit**  
Lea County, New Mexico

Dear Ms. Bailey:

The State of New Mexico is the owner of 98.8409% of the royalty interests under the Texaco operated Central Vacuum Unit (CVU) and 100.0% of the royalty interests under the Phillips operated East Vacuum Grayburg San Andres Unit (EVGSAU). The purpose of this letter is to seek your approval, as a royalty owner, of our plans to drill four lease line producers, jointly with Phillips, between these two units.

The limits of the Vacuum Field were defined and developed on forty acre spacing by the mid-1940's. Enhanced recovery by waterflooding was initiated during the 1970's throughout the field. The majority of the field's well spacing was reduced to twenty acres in the late 1970's and early 1980's. The reduced spacing and waterflooding capital projects were highly successful, adding significant reserves to the properties. Sporadic infill drilling on ten acre spacing occurred in the late 1980's and through the mid-1990's. The ten acre development projects have been modestly profitable and have added appreciable reserves. Some of the more attractive ten acre drilling sites remaining are on the common lease lines between the various unitized waterflood operations.

Texaco undertook a detailed evaluation (Study) of the various Vacuum Field operator's ten acre development experiences in the summer of 1994. **Fig. 1** shows the extent of ten acre development as of the summer of 1994. The Study found that recoveries ranged from 3.2% to 6.8% of the Original Oil-In-Place (OOIP). Recoveries were found to be dominated by reservoir quality, with few exceptions. The Study showed that an additional 5,100,000 Stock Tank Barrels (STB) of oil will be recovered through the thirty, then existing, ten acre locations Texaco operated within the field.

Based on the Study's findings, Texaco successfully drilled fourteen new ten acre locations in 1995. These locations are shown in **Fig. 2** relative to previously drilled locations. The

production plot in **Fig. 3** provides a general measure of that project's success--production was at a ten year high. There was no interference/acceleration of reserves, and **Fig. 4** demonstrates that 1,460,000 STB's of additional recovery can be attributed to that development. This is equivalent to 3.3% OOIP that would not otherwise have been recovered. This drilling, which occurred in 1995 is immediately offset to the south-southwest of the subject area of interest.

Based on the past success of the 1995 infill drilling program, Texaco identified, drilled and completed 8 additional infill drilling locations during early 1996 (**Fig. 5**). Again, a production plot in **Fig. 6** provides a qualitative indication of the results achieved. Texaco has continued ten acre infill development on a strategic approach rather than blanket infill development. There is clearly acreage that would not be profitable to develop on the tighter well density--especially in the current oil market. Based on the earlier Study, and recent successes from the 1995 and early 1996 development programs, Texaco identified another three locations which were developed in late 1996 (**Fig. 5**). Here too, the production plot in **Fig. 6** provides a qualitative indication of this development. The 11 locations drilled in 1996 will contribute 2,417,000 STB's of additional recovery, or 5.8% OOIP that would not otherwise have been recoverable. The production rate from these latest three locations indicated that the economical limitations of expanding this ten acre development have been approached within the interior acreage of the Texaco operated Units. The only profitable acreage that remains to be developed is on the common lease lines between the CVU (CVU) and offset Phillips operations. The lease line development is expected to recover reserves near the high end of the recoveries experienced with previous programs due to the structurally advantageous positions. This conclusion is supported not only by the 1994 study, but with the completion of the single lease line producer between CVU and the Vacuum Grayburg San Andres Unit in 1996. This lease line well was completed with one of the highest rates of oil out of the 10-acre infill wells drilled to-date. Your office has previously approved the drilling of additional lease line producers between the CVU and Phillips' State 35 Unit operations on the western side of CVU. Those wells are also shown on **Fig. 5**, and are scheduled to spud in December, 1998.

Texaco has been in communication with Phillips Petroleum Company concerning this joint lease line development. Texaco and Phillips have mutually agreed to jointly develop the common lease line between the CVU and EVGSAU. Working interest owner approval to pursue this project has been solicited. As with previous projects, over 90% subscription is anticipated.

There are four (4) open producing locations identified in **Fig. 5** along the CVU and EVGSAU lease line, two of which Texaco plans to develop and operate, while the remainder are developed and operated by Phillips. The planned bottom hole locations are better described as:

CVU No.	286	634' FSL & 1333' FEL	Sec. 31	T17S-R35E
CVU No.	295	669' FNL & 10' FEL	Sec. 6	T18S-R35E
EVGSAU No.	3236-394	1910' FNL & 10' FWL	Sec. 32	T17S-R35E
EVGSAU No.	3127-397	1910' FSL & 2630' FEL	Sec. 31	T17S-R35E

Ms. Jami Bailey  
November 25, 1998  
Page 3

Each unit will share equally in the investments, expenses, and production. Production will be handled through the existing lease gathering system. Individual wells are gathered and tested/metered through a three-phase test separator. Averages of individual monthly tests are used to prorate volumes back to individual wells based on the monthly sales meter volume. Half of all production from each well will be allocated to each unit. Each unit will then allocate its share of production to each of its tracts based on existing tract participation factors and royalties will be paid accordingly. Over 347,000 STB of waterflood reserves are anticipated to be recoverable through these four additional locations.

Phillips initiated a miscible CO<sub>2</sub> flood at the EVGSAU 1985. Texaco initiated a miscible CO<sub>2</sub> flood at CVU in July 1997. Industry projects forecast additional reserves from 9% to 18% OOIP. This suggests that an additional recovery of 664,000 to 1,329,000 STB will be bypassed in the near future without development of these three lease line locations. This is in addition to the waterflood reserves discussed above.

Texaco and Phillips will soon schedule a hearing with the New Mexico Oil Conservation Division for approval of these well locations. Based on our previous experience with lease line wells, we would like to have your approval for this project prior to scheduling of the hearing.

Please direct any technical questions to Mr. Scott Wehner at 915-688-2954. I can be reached at 915-688-4445.

Sincerely,

Ronald W. Lanning

RWL:

Enclosures



STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION  
HOBBS DISTRICT OFFICE

January 10, 2000

GOVERNOR

POST OFFICE BOX 1980  
HOBBS, NEW MEXICO 88241-1980  
(505) 393-6161

OIL CONSERVATION DIVISION  
P. O. BOX 2088  
SANTA FE, NEW MEXICO 87501

RE: Proposed:

MC \_\_\_\_\_  
DHC \_\_\_\_\_  
NSL   X   \_\_\_\_\_  
NSP \_\_\_\_\_  
SWD \_\_\_\_\_  
WFX \_\_\_\_\_  
PMX \_\_\_\_\_

Gentlemen:

I have examined the application for the:

Phillips Petroleum Co  
Operator

Lease & Well No. Unit S-T-R

Vacuum GB/SA Unit, East #394-E, 32-17s-35e  
Vacuum GB/SA Unit, East #399-P, 31-17s-35e  
Vacuum GB/SA Unit, East #398-J, 31-17s-35e  
Vacuum GB/SA Unit, East #397-J, 31-17s-35e  
Vacuum GB/SA Unit, East #397-J, 31-17s-35e  
Vacuum GB/SA Unit, East #395-I, 31-17s-35e

and my recommendations are as follows:

*OK w/ approval of NSC*

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Yours very truly,

*Chris Williams*

Chris Williams  
Supervisor, District 1

/ed

**Stogner, Michael**

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**To:** Larry Sanders  
**Cc:** Williams, Chris  
**Subject:** EVGSA Unit lease line locations

In receipt of your 12-30-99 request for Phillips' East Vacuum Grayburg San Andres Unit Well Nos. Tr. 3236 #394, Tr. 3127#395, Tr. 3236#396, Tr. 3127#397, Tr. 3127#398, and Tr. 3127#399. Please provide me a copy of the Phillips/Texaco lease line agreement and the 1-4-00 State Land Office letter 'authorizing' on behalf of the state the four lease line producers.

Thanks.