

**MidContinent SBU**  
Chevron North America  
Exploration and Production Company  
11111 S. Wilcrest  
Houston, TX 77099

October 21, 2005

Request for Administrative Approval of  
Unorthodox Oil Well Location and  
Simultaneous Dedication (via mail & email)  
[re-application due to location change  
**Administrative Order NSL-5227 (SD)**]

**RECEIVED**

OCT 25 2005

**OIL CONSERVATION  
DIVISION**

Mr. Michael E. Stogner  
New Mexico Oil Conservation Division  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

Dear Mr. Stogner:

Chevron respectfully requests administrative approval of an unorthodox oil well location for the following well:

**Mark #13**  
**(API No. 30-025-37385)**  
Surf: 1881' FNL & 1183' FEL, Unit H  
Base Grayburg: 1395' FNL & 1305' FEL, Unit H  
SW/4 NE/4 Section 3, T22S, R37E, NMPM  
Lea County, New Mexico

The New Mexico Oil Conservation Division approved the previous location of the Mark #13 (30-025-37385) by Administrative Order NSL-5227 (SD) date June 30, 2005. Due to severe surface issues [Exhibit 3.2] the location has been moved to Unit H and would be simultaneously dedicated to the existing Mark #10 well (30-025-25785). The surface location has caused Chevron to propose directionally drilling the Mark #13 to a location that places the Grayburg producing interval within Unit H, with the base of Grayburg location at 1395' FNL, 1305' FEL of Section 3, T22S - R37E, Lea County, New Mexico.

The proposed well will be an infill producer in the Penrose Skelly, Grayburg Pool (50350), which is an oil pool spaced on 40 acres. This well is a follow-up to our recent infill drilling in the same Pool which concluded in 2004. Chevron's technical analysis of the reservoir still supports the contention that typical Grayburg wells cannot drain 40 acres.

The SW/4 NE/4 of Section 3 will be simultaneously dedicated in the Penrose Skelly, Grayburg Pool to the proposed well and to the Mark #10 (API No. 30-025-25785). The Mark #10 was drilled in 1975 and recompleted as a Penrose Skelly, Grayburg producer in 2003. Chevron also requests approval for simultaneous dedication of these two wells.

October 21, 2005

Page 2

This application is based on geological and engineering analysis. The analysis and justification for this request is attached as Exhibit 1, along with other supporting documentation. There are five wells that have produced the Grayburg formation in the NE/4 of Section 3. The proposed well will be located in a legal location on the Mark Owen lease. Based on drainage calculations, Chevron believes that drilling the infill well will recover reserves that would not be recovered by existing Grayburg producers.

A land plat highlighting the proposed well's location is attached as Exhibit 2. The NE/4 of Section 3 is covered by a single fee lease and has common royalty and working interest ownerships. For that reason and the proposed location of the infill well, there are no adversely affected interest owners and no one has been notified of this application.

If you have any questions concerning this application or need additional information, please contact me by phone at (281) 561-4918 or by email at [gpritchard@chevron.com](mailto:gpritchard@chevron.com). If I am not available, you can also reach Mark Wakefield by phone at (281) 561-4866 or by email at [wakefms@chevron.com](mailto:wakefms@chevron.com). Thank you for consideration of this matter.

Sincerely,



George F. Pritchard  
Geologist [Texas License #3848]

Attachments

cc: NMOCD District 1 – Hobbs, NM  
Mark Wakefield  
Well File

DATE IN	SUSPENSE	ENGINEER	LOGGED IN	TYPE	APP NO.
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ABOVE THIS LINE FOR DIVISION USE ONLY

## NEW MEXICO OIL CONSERVATION DIVISION

- Engineering Bureau -

1220 South St. Francis Drive, Santa Fe, NM 87505



### ADMINISTRATIVE APPLICATION CHECKLIST

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

#### Application Acronyms:

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [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 - Simultaneous Dedication  
☒ NSL ☐ NSP ☒ 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

[D] Other: Specify \_\_\_\_\_

#### [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] SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

**Note:** Statement must be completed by an individual with managerial and/or supervisory capacity.

George F. Pritchard  
 Print or Type Name

Signature

Geologist  
 Title

10/21/2005  
 Date

gpritchard@chevron.com  
 e-mail Address

## **NOTIFICATION LIST**

Application of Chevron U.S.A. Inc. for Administrative Approval of an Unorthodox Oil Well Location and Simultaneous Dedication:

**Mark #13**

Surf: 1881' FNL & 1183' FEL, Unit Letter H

Base Grayburg: 1395' FNL, 1305' FEL, Unit Letter H

Section 3, T22S, R37E

Lea County, New Mexico

**Offset Operators, Working Interest Owners, NE/4 Section 3:**

- |    |                                                               |                  |
|----|---------------------------------------------------------------|------------------|
| 1. | Chevron U.S.A. Inc.<br>11111 S. Wilcrest<br>Houston, TX 77099 | Operator/100% WI |
|----|---------------------------------------------------------------|------------------|

## EXHIBIT 1

### ENGINEERING AND GEOLOGICAL JUSTIFICATION

Application of Chevron U.S.A. Inc. for Administrative Approval of an Unorthodox Oil Well Location and Simultaneous Dedication:

#### **Mark #13**

Surf: 1881' FNL & 1183' FEL, Unit Letter H

Base Grayburg: 1395' FNL, 1305' FEL, Unit Letter H

Section 3, T22S, R37E

Lea County, New Mexico

#### **PRIMARY OBJECTIVE: GRAYBURG**

#### **SUPPORTING DATA:**

1. Chevron U.S.A. Inc. (Chevron) is the operator of the proposed Mark #13 well (Exhibit 3). The proposed total depth is 4300' in the top of the San Andres formation.
2. The completion will be in the Penrose Skelly, Grayburg Oil Pool (50350) and the proposed location encroaches toward the following wells (Exhibit 4).

Operator	Well	Location	Formation	Cum Prod		Current Prod		API / Status
				MBO	MMCF	BOPD	MCFPD	
Chevron	Mark #1	3-B	Grayburg	66	422	19	156	30-025-09979; Producing;
Chevron	Mark #4	3-H	Grayburg	11	58			30-025-09996; Inactive Grayburg, (Prod. Tubb)
Chevron	Mark #9	3-G	Grayburg	75	918	11	186	30-025-24584; Producing
Chevron	Mark #10	3-H	Grayburg	14	156	12	186	30-025-25785; Producing
Chevron	Mark #11	3-A	Grayburg	4	11	64	176	30-025-26051; Producing, cmpltd 4/05

3. The proposed Mark #13 unorthodox Grayburg location is based primarily on drainage considerations:

#### **a. Grayburg Reservoir**

The Grayburg is a series of alternating subtidal and supratidal dolomites with the subtidal rock having porosity and hydrocarbons while the supratidal rock is tight. The Grayburg depositional environments varied rapidly so that many porous and tight intervals are not continuous from well to well on 40-acre spacing. Tight dolomite and/or anhydrite intervals within the Grayburg create vertical and horizontal flow barriers between different zones of porosity. Additionally, average porosity of the Grayburg is less than 10%, and the average permeability is less than 1 millidarcy. For all of these reasons, Grayburg wells are not usually capable of draining a 40-acre proration unit.

The reservoir was also analyzed by mapping the Hydrocarbon Pore Volume (HCPV) (Exhibit 5). HCPV is the product of feet of net pay (h) times average porosity (phi) times oil saturation ( $S_o$ ). The attached map is the arithmetic product of grids interpreted from those values. The values were obtained as follows:

1. Net pay was read from either modern neutron-density logs or estimated from a map developed from gross pay times net-to-gross ratio (Exhibit 4).
2. Average porosity was calculated from modern well logs using a minimum of 6% crossplot porosity and a maximum of 20%.
3. Oil saturation was calculated from a fractional flow curve using representative water cut values.

The following table provides drainage areas calculated from the HCPV map and reserves of the offsetting wells.

Operator	Well	Location	Formation	Drainage Acres	EUR	
					MBO	MMCF
Chevron	Mark #1	3-B	Grayburg	32	100	629
Chevron	Mark #4	3-H	Grayburg	3	11	58
Chevron	Mark #9	3-G	Grayburg	24	78	1024
Chevron	Mark #10	3-H	Grayburg	13	45	350
Chevron	Mark #11	3-A	Grayburg	21	67	166

As seen above, the average drainage area of the offsetting locations (Lot A, B, G & H) is 19 acres and additional reserves can be recovered by drilling the proposed infill well. The new location was moved from the approximate center location of the existing offsetting producers due to surface related issues. Reserves for the proposed location were calculated using the HCPV map, a 19 acre drainage area, and a 15% recovery factor. The results are as follows:

Operator	Well	Location	HCPV	Drainage Acres	EUR	
					MBO	MMCF
Chevron	Owen #13	3-H	7.2	19	63	466

4. The NE/4 of Section 3 is covered by a single fee lease which has common royalty and working interest ownerships. Chevron is the operator and 100% working interest owner of the Grayburg wells toward which the proposed well will encroach. Therefore, there are no offset interest owners or adversely affected parties to notify of this application.
5. The proposed Mark #13 will share a 40-acre proration unit and will be simultaneously dedicated with the Mark #10 (30-025-25785) as a Penrose Skelly, Grayburg producer in Section 3, Unit Letter H.
6. Approval of this application will allow for the recovery of oil and gas reserves which would not otherwise be recovered.

2

1



# State of New Mexico

## DISTRICT I

1225 N. FRENCH DR., BOBBS, NM 88240

Energy, Minerals and Natural Resources Department

Form C-102

Revised JUNE 10, 2003

## DISTRICT II

1301 W. GRAND AVENUE, ARTESIA, NM 88210

## OIL CONSERVATION DIVISION

Submit to Appropriate District Office

1220 SOUTH ST. FRANCIS DR.

State Lease - 4 Copies

Santa Fe, New Mexico 87505

Fee Lease - 3 Copies

## DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410

## DISTRICT IV

1220 S. ST. FRANCIS DR., SANTA FE, NM 87505

## WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code	Pool Name
Property Code	Property Name <b>MARK</b>	Well Number <b>13</b>
OGRID No.	Operator Name <b>CHEVRON</b>	Elevation <b>3391'</b>

### Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	3	22-S	37-E		1881	NORTH	1183	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 4	LOT 3	LOT 2	LOT 1
39.73 AC	39.74 AC	39.78 AC	39.77 AC
<p>GEODETIC COORDINATES NAD 27 NME</p> <p>Y=519572.7 N X=866465.7 E</p> <p>LAT.=32°25'22.15" N LONG.=103°08'44.59" W</p> <p>1881'</p> <p>1183'</p> <p>315.87'</p> <p>Original surface location 1678' FNL &amp; 1425' FEL</p>			
MSA			
7' 1081 1678 203'			
E/WA			
3' 1425 1183 242'			

### OPERATOR CERTIFICATION

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

Signature \_\_\_\_\_

Printed Name \_\_\_\_\_

Title \_\_\_\_\_

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.

OCTOBER 7, 2005

Date Surveyed \_\_\_\_\_ LA

Signature & Seal of Professional Surveyor

*Ronald J. Edson* 10/11/05

05.11.1570

Certificate No. RONALD J. EDSON 3239

District I  
1625 N. French Dr., Hobbs, NM 88240

District II  
1301 W. Grand Avenue, Artesia, NM  
88210

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

District IV  
1220 South St. Francis Dr., Santa Fe, NM  
87505

State of New Mexico  
Energy, Minerals & Natural Resources Department

Form C-102  
Revised June 10, 2003

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.  
Santa Fe, NM 87505

Submit to Appropriate District Office

Exhibit 3.1

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number <b>30-025-25785</b>	<sup>2</sup> Pool Code <b>50350</b>	<sup>3</sup> Pool Name <b>Penrose Skelly; Grayburg</b>
<sup>4</sup> Property Code <b>2678</b>	<sup>5</sup> Property Name <b>Mark</b>	<sup>6</sup> Well Number <b>10</b>
<sup>7</sup> OGRID No. <b>4323</b>	<sup>8</sup> Operator Name <b>Chevron U.S.A., Inc.</b>	<sup>9</sup> Elevation <b>3395' GL</b>

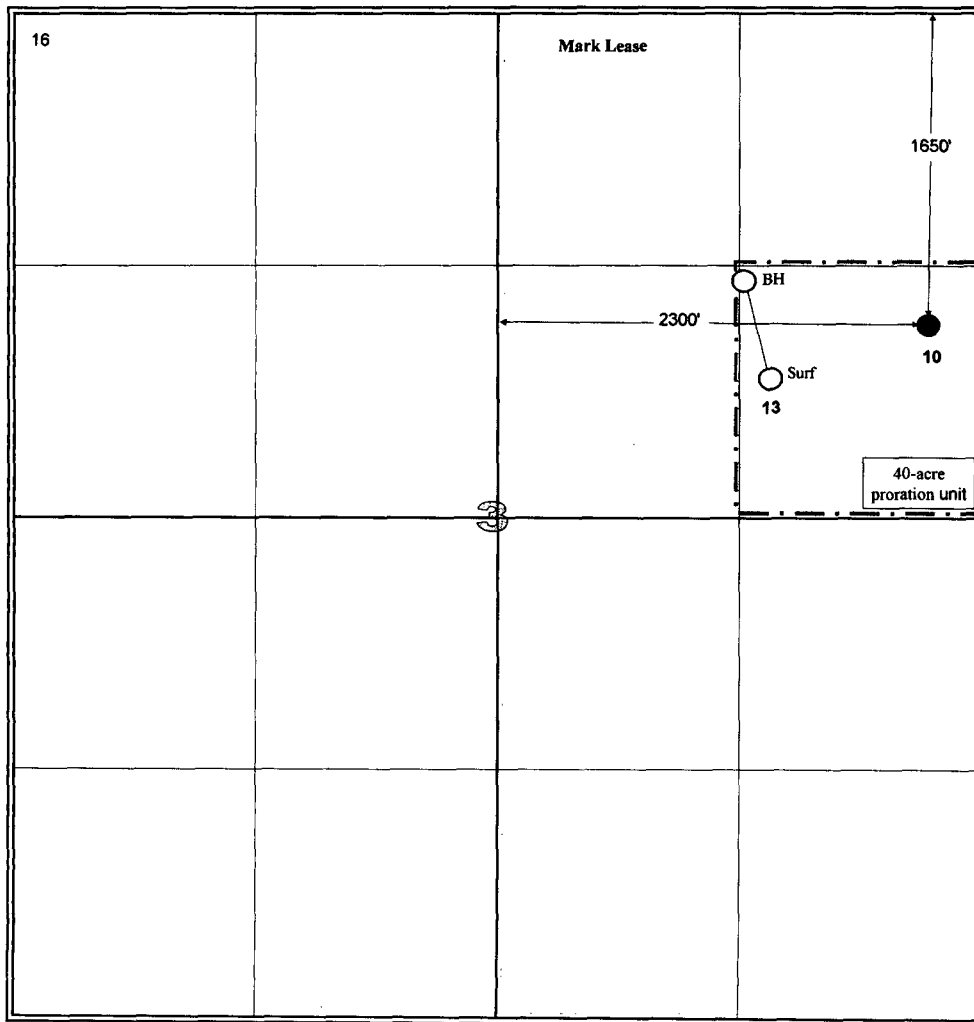

<sup>10</sup> Surface Location

UL or Lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
<b>H</b>	<b>3</b>	<b>22S</b>	<b>37E</b>		<b>1650</b>	<b>North</b>	<b>340</b>	<b>East</b>	<b>Lea</b>

<sup>11</sup> Bottom Hole Location If Different From Surface

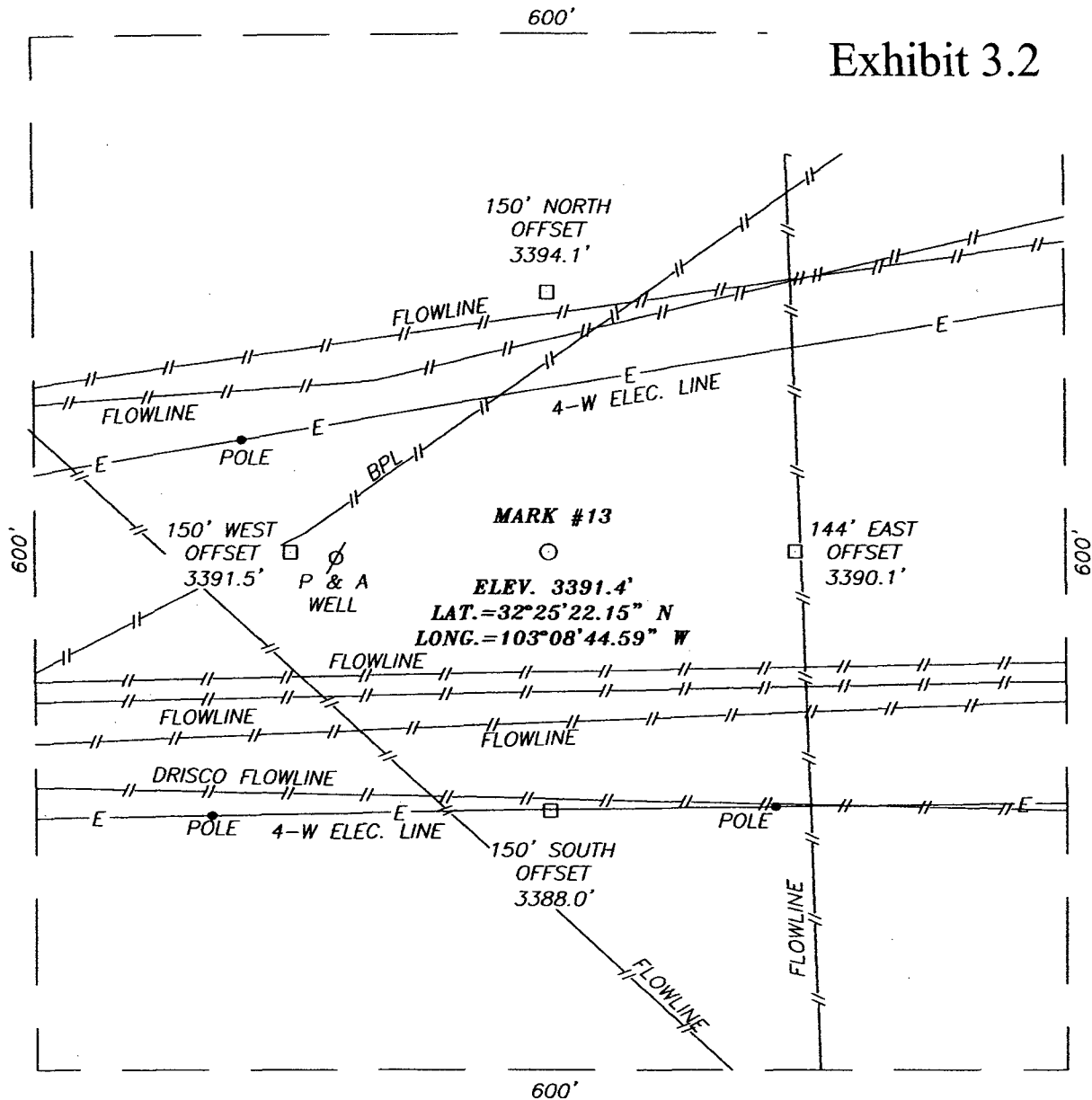
UL or Lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
<b>12</b> Dedicated Acres <b>40</b>	<b>13</b> Joint or Infill	<b>14</b> Consolidation Code	<b>15</b> Order No.						

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

<div>16</div> 	<div>1</div> <p><b>OPERATOR CERTIFICATION</b></p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.</p> <p>Signature </p> <p>Printed Name <b>George F. Pritchard</b></p> <p>Title <b>Geologist</b></p> <p><b>October 18, 2005</b></p>
	<div>1</div> <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>Signature and Seal of Professional Surveyor:</p> <p>Certificate Number</p>

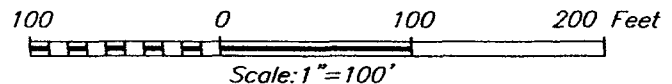
**SECTION 3, TOWNSHIP 22 SOUTH, RANGE 37 EAST, N.M.P.M.,**  
 LEA COUNTY, NEW MEXICO

**Exhibit 3.2**



**DIRECTIONS TO LOCATION**

FROM THE INTERSECTION OF ST. HWY. #176 AND  
 (SR #207) LOOP #18 GO EAST ON HWY. #176  
 APPROX. 0.7 MILES. TURN RIGHT AND GO SOUTH  
 APPROX. 0.6 MILES. GO AROUND PLANT ON THE  
 WEST SIDE AND TURN LEFT AND GO EAST APPROX.  
 400' TO THIS LOCATION.

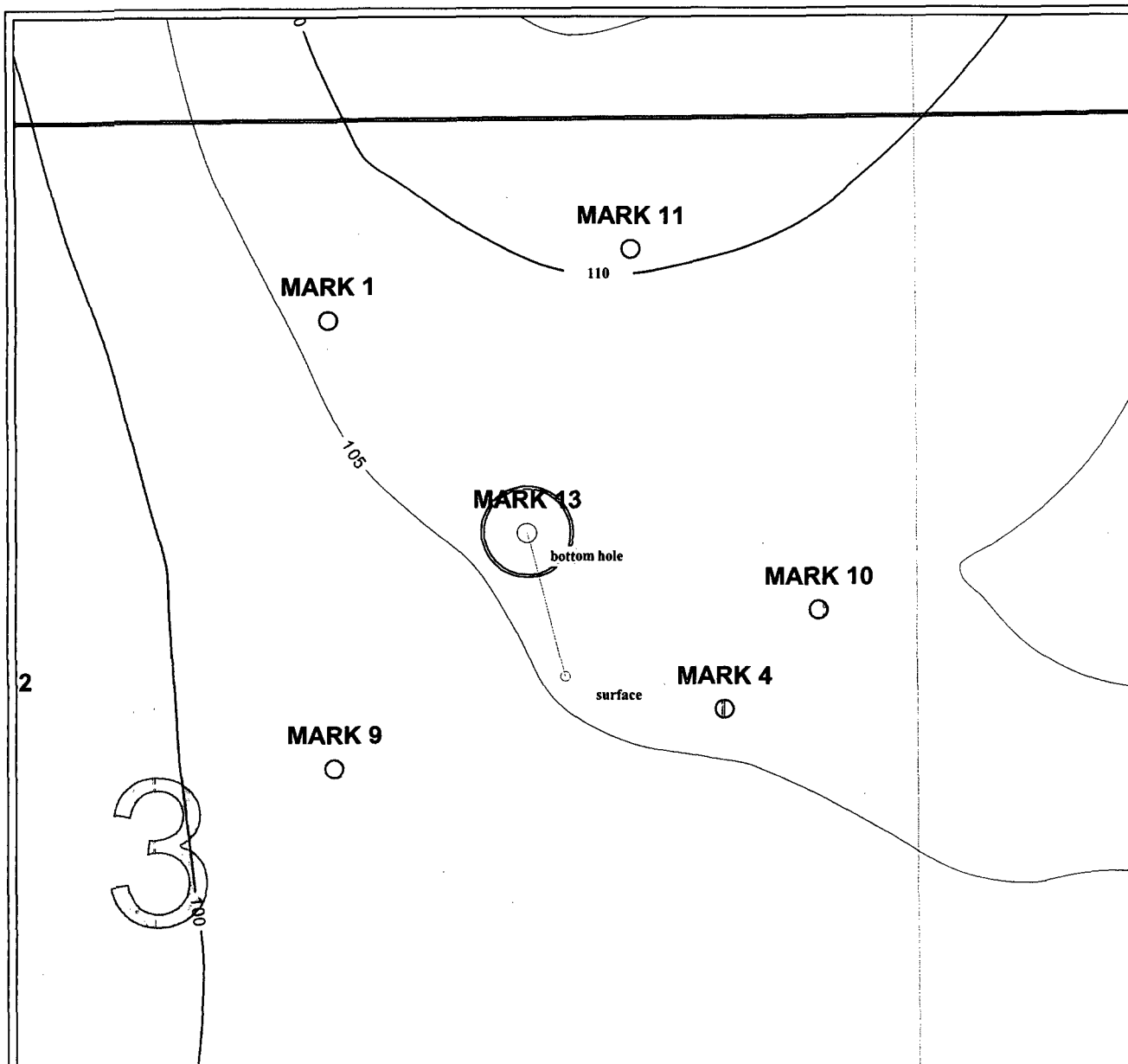


**CHEVRON**

**MARK #13 WELL**  
 LOCATED 1881 FEET FROM THE NORTH LINE  
 AND 1183 FEET FROM THE EAST LINE OF SECTION 3,  
 TOWNSHIP 22 SOUTH, RANGE 37 EAST, N.M.P.M.,  
 LEA COUNTY, NEW MEXICO.

Survey Date: 10/7/05	Sheet 1 of 1 Sheets
W.O. Number: 05.11.1570	Dr By: LA
Date: 10/10/05	Disk: CD#4
05111570	Scale: 1"=100'

**PROVIDING SURVEYING SERVICES  
 SINCE 1946**  
**JOHN WEST SURVEYING COMPANY**  
 412 N. DAL PASO  
 HOBBS, N.M. 88240  
 (505) 383-3117



PETRA 10/19/2005 10:45:00 AM

**CHEVRON U.S.A.**

## **EXHIBIT 4**

### **PENROSE-SKELLY FIELD MARK #13**

Sec. 3, T22S-R37E, Lea Co., New Mexico

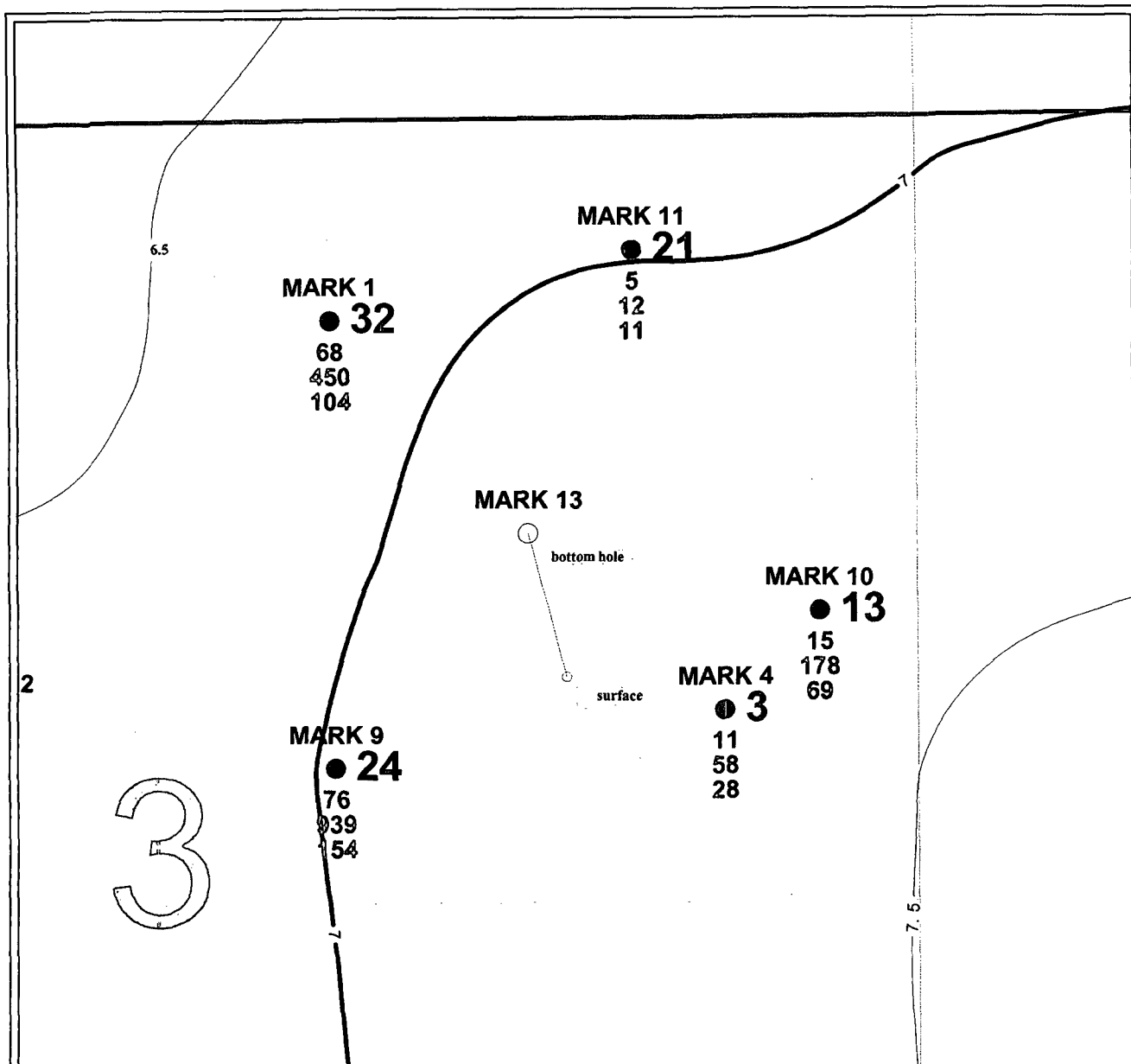
Grayburg Net Pay CI=5.0'[Gr<40, Por>6%]

### **POSTED WELL DATA**

Well Label



October 19, 2005



PETRA 10/19/2005 10:53:18 AM

CHEVRON U.S.A.

## EXHIBIT 5

### PENROSE-SKELLY FIELD MARK #13

Sec. 3, T22S-R37E, Lea Co., New Mexico

Grayburg HCPV CI=0.5, & EUR Acres Drain

### POSTED WELL DATA

Well Label

● GFP\_GRAYBURG - EUR-GRAYBURG-ACRES[G]  
 GFP\_GRAYBURG - GRAYBURG-CUM\_OIL\_MBO[PI]  
 GFP\_GRAYBURG - GRAYBURG-CUM\_GAS\_MMCF[PI]  
 GFP\_GRAYBURG - GRAYBURG-CUM\_WATER\_MBO[PI]



October 19, 2005



# NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

**BILL RICHARDSON**

Governor

**Joanna Prukop**

Cabinet Secretary

**June 30, 2005**

**Mark E. Fesmire, P.E.**

Director

**Oil Conservation Division**

**Chevron U.S.A., Inc.**  
c/o **MidContinent SBU**  
**Chevron North America Exploration and Production Company**  
**P. O. Box 36366**  
**Houston, Texas 77326**

**Attention: George F. Prichard**  
**Geologist**  
*gpritchard@chevrontexaco.com*

***Administrative Order NSL-5227 (SD)***

Dear Mr. Pritchard:

Reference is made to the following: (i) your application (***administrative application reference No. pSEM0-517329469***) submitted on behalf of the operator, Chevron U.S.A., Inc. ("Chevron"), to the New Mexico Oil Conservation Division ("Division") in Santa Fe, New Mexico on June 21, 2005; and (ii) the Division's records: all concerning Chevron's request for an unorthodox "infill" oil well location within an existing standard 40-acre oil spacing and proration unit comprising the SW/4 NE/4 (Unit G) of Section 3, Township 22 South, Range 37 East, NMPM, Penrose Skelly (Grayburg) Pool (**50350**), Lea County, New Mexico.

Your application has been duly filed under the provisions of Division Rule 104.F.

This 40-acre Grayburg unit is currently dedicated to Chevron's Mark Well No. 9 (**API No. 30-025-24584**) located at a standard oil well location 2172 feet from the North line and 1972 feet from the East line of Section 3.

It is the Division's understanding that the NE/4 equivalent of Section 3 comprises a single fee lease (Mark lease) with common mineral interest in which Chevron is the leasehold operator; therefore, there are no adversely effected offsets to the subject 40-acre tract within the Grayburg interval.

It is further understood that such unorthodox location is necessitated for geologic and engineering reasons in that this location is approximately equidistance to other offsetting Penrose Skelly (Grayburg) oil wells within the Mark fee lease. The proposed infill oil well location will enable Chevron to further develop and deplete the Grayburg reserves within this lease that might not otherwise be recovered.

**Chevron U.S.A., Inc.**  
**June 30, 2005**  
**Page 2**

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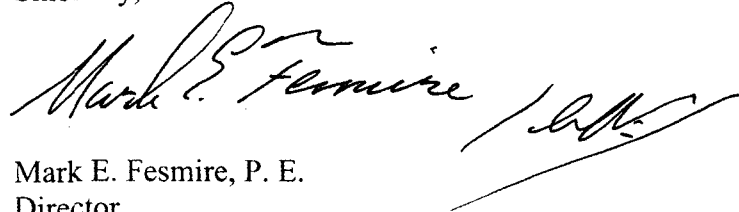
**Division Administrative Order NSL-5227 (SD)**

By the authority granted me under the provisions of Division Rule 104.F (2), the following described well to be drilled at an unorthodox "infill" oil well location within the SW/4 NE/4 (Unit G) of Section 3 is hereby approved:

**Mark Well No. 13**  
**1678' FNL & 1425' FEL.**

Further, both the existing Mark Well No. 9 and the proposed Mark Well No. 13 are to be simultaneously dedicated to the subject 40-acre unit.

Sincerely,

A handwritten signature in black ink, appearing to read "Mark E. Fesmire", followed by a large, stylized flourish or checkmark.

Mark E. Fesmire, P. E.  
Director

MEF/ms

cc: New Mexico Oil Conservation Division – Hobbs