

DATE IN 11/13/06	SUSPENSE	ENGINEER R. Ezcanjan	LOGGED IN 11/15/06	TYPE NSL	APP NO. PTD50631937408
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ABOVE THIS LINE FOR DIVISION USE ONLY

SD

P.TD50631937551

## 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.**

Sarah Rittenhouse  
 Print or Type Name

Signature

*Sarah Rittenhouse*

Project Manager / Geologist  
 Title

11/6/2006  
 Date

Sarah.Rittenhouse@chevron.com  
 e-mail Address

2006 NOV 13 PM 1 13



**Sarah C. Rittenhouse**  
Project Manager / Geologist

**North America Upstream**  
Midcontinent Business Unit  
11111 S. Wilcrest, Rm S1031  
Houston, Texas 77099  
Tel (281) 561-3773  
Fax (281) 561-3576  
sarah.rittenhouse@chevron.com

2006 NOV 13 PM 1 13

November 6, 2006

**Request for Administrative Approval of  
Unorthodox Oil Well Location and  
Simultaneous Dedication**

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

Dear Mr. Fesmire:

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

**C.L. Hardy #8**  
330' FSL & 1410' FWL, SE/4 SW/4 of  
Section 20, T21S, R37E, Unit Letter N  
Lea County, New Mexico

The proposed well will be an infill producer in the Penrose Skelly, Grayburg Pool [Pool Code 50350], which is an oil pool spaced on 40 acres. This well is a continuation of our 4 year infill drilling in the same Pool. Chevron's technical analysis of the reservoir still supports the contention that typical Grayburg wells cannot drain 40 acres.

The SE/4 SW/4 of Section 20 will be simultaneously dedicated in the Penrose Skelly, Grayburg Pool to the proposed well and to the C.L. Hardy #2. The C.L. Hardy #2 was drilled in 1947 and was re-completed as a Penrose Skelly, Grayburg producer in 2004. Chevron also requests approval of the simultaneous dedication.

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 six wells that have produced the Grayburg formation in the SW/4 of Section 20. The proposed well will be located in the approximate southern center point of those wells and 330' off the lease line. 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 SW/4 of Section 20 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.

November 6, 2006  
Page 2

If you have any questions concerning this application or need additional information, please contact me by phone at (281) 561-3773 or by email at [sarah.rittenhouse@chevron.com](mailto:sarah.rittenhouse@chevron.com). If I am not available, you can also reach Michael Gelbs by phone at (281) 561-7939 or by email at [mike.gelbs@chevron.com](mailto:mike.gelbs@chevron.com). Thank you for consideration of this matter.

Sincerely,

A handwritten signature in black ink, appearing to read 'Sarah Rittenhouse', followed by a long, horizontal, wavy line.

Sarah C. Rittenhouse  
Project Manager / Geologist

Attachments

cc: NMOCD District 1 – Hobbs, NM  
Michael Gelbs  
Sarah Rittenhouse  
George Pritchard  
Well File

## **NOTIFICATION LIST**

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

**C.L. Hardy #8**

330' FSL & 1410' FWL

Section 20, T21S, R37E, Unit Letter N

Lea County, New Mexico

**Offset Operators, Working Interest Owners, N/2 Section 28:**

- |    |   |                  |
|----|---|------------------|
| 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:

#### **C.L. Hardy #8**

330' FSL & 1410' FWL

Section 20, T21S, R37E, Unit Letter N

Lea County, New Mexico

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

#### **SUPPORTING DATA:**

1. Chevron U.S.A. Inc. (Chevron) is the operator of the proposed C.L. Hardy #8 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 and the proposed location encroaches toward the following wells (Exhibit 4).

Operator	Well	API #	Location	Formation	Cum Prod		Current Prod		Status
					MBO	MMCF	BOPD	MCFPD	
Chevron	C L Hardy #2	30025066850000	20-N	Grayburg	7	288	4	321	Active Pre 1970
Chevron	C L Hardy #3	30025066860000	20-K	Grayburg	16	344	9	262	Active Feb 03
Chevron	C L Hardy #4	30025067050000	20-M	Grayburg	5	245	4	165	Active Jun 48
Chevron	C L Hardy #5	30025066870000	20-L	Grayburg	11	277	10	255	Active Jan 50
Chevron	C L Hardy #6	30025367400000	20-K	Grayburg	10	138	6	235	Active Sep 04
Chevron	C L Hardy #1	30025066840000	20-N	Grayburg	42	0	0	0	Inactive
Chevron	C L Hardy #7	30025378330000	20-L	Grayburg	0	1	5	200	Active Jun 06

3. The proposed C.L. Hardy #8 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.

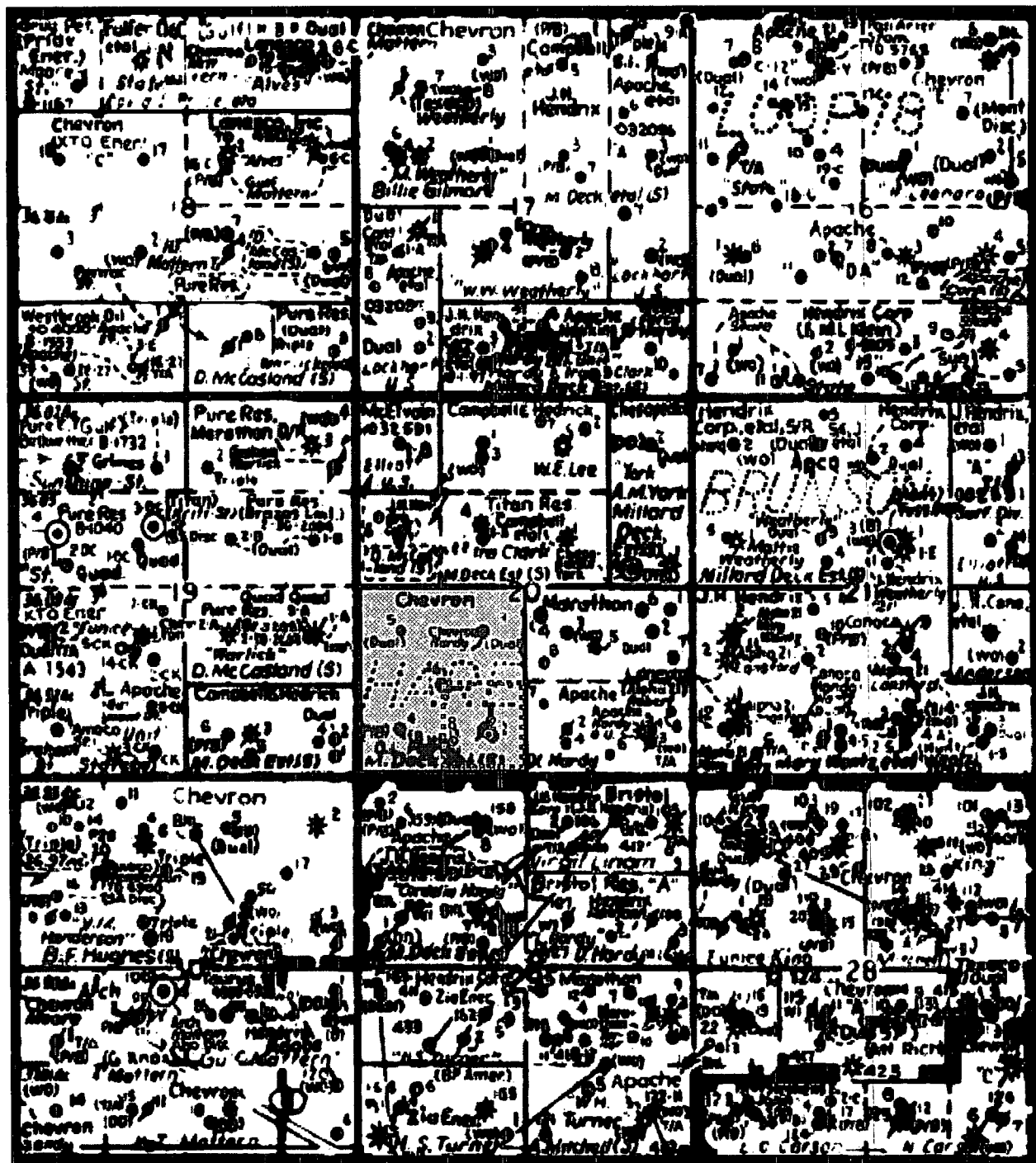
The following table provides drainage areas calculated from the HCPV map and reserves of the offsetting wells.

Operator	Well	API #	Location	Formation	Drainage Acres	EUR	
						MBO	MMCF
Chevron	C L Hardy #2	30025066850000	20-N	Grayburg	3	25	1209
Chevron	C L Hardy #3	30025066860000	20-K	Grayburg	5	45	1071
Chevron	C L Hardy #4	30025067050000	20-M	Grayburg	2	16	741
Chevron	C L Hardy #5	30025066870000	20-L	Grayburg	3	31	789
Chevron	C L Hardy #6	30025367400000	20-K	Grayburg	4	35	478
Chevron	C L Hardy #7	30025378330000	20-L	Grayburg	5	47	207

As seen above, the average drainage area of the offsetting locations is only 4 acres, and additional reserves can be recovered by drilling the proposed infill well at an approximate equidistant location from the existing offsetting producers. Reserves for the proposed location were calculated using the HCPV map, a 6 acre drainage area, and a 15% recovery factor. The results are as follows:

Operator	Well	Location	HCPV	Drainage Acres	EUR	
					MBO	MMCF
Chevron	C L Hardy #8	20-N	10.4	6	47	207

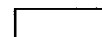
4. The SW/4 of Section 20 is covered by a single fee lease which has common royalty and working interest ownerships. Chevron is the operator and 100% working interest owner of the Grayburg wells toward which the proposed well will encroach. Therefore, there are no offset interest owners or adversely affected parties to notify of this application.
5. The proposed C.L. Hardy #8 will share a 40-acre proration unit and will be simultaneously dedicated with the C.L. Hardy #2 as a Penrose Skelly, Grayburg producer in Section 20, Unit Letter N.
6. Approval of this application will allow for the recovery of oil and gas reserves which would not otherwise be recovered.



Chevron USA Inc.



C. L. Hardy #2  
 554 FSL & 2086 FWL, Unit N  
 C. L. Hardy #8 (proposed)  
 330 FSL & 1310 FWL, Unit N  
 Section 20, T21S-R37E  
 Lea County, New Mexico



C. L. Hardy Lease



40 Acre Proration Unit

Scale: 1"=2000' Approx.



# State of New Mexico

Energy, Minerals and Natural Resources Department

## DISTRICT I

1825 N. FRENCH DR., HOBBES, NM 88240

## DISTRICT II

1301 W. GRAND AVENUE, ARTESIA, NM 88210

## DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410

## DISTRICT IV

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

## OIL CONSERVATION DIVISION

1220 SOUTH ST. FRANCIS DR.  
Santa Fe, New Mexico 87505

Form C-102

Revised October 12, 2005

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

## WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number		Pool Code	Pool Name
Property Code	Property Name C.L. HARDY		Well Number 8
OGRID No.	Operator Name CHEVRON U.S.A. INC.		Elevation 3486'

### Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	20	21-S	37-E		330	SOUTH	1410	WEST	LEA

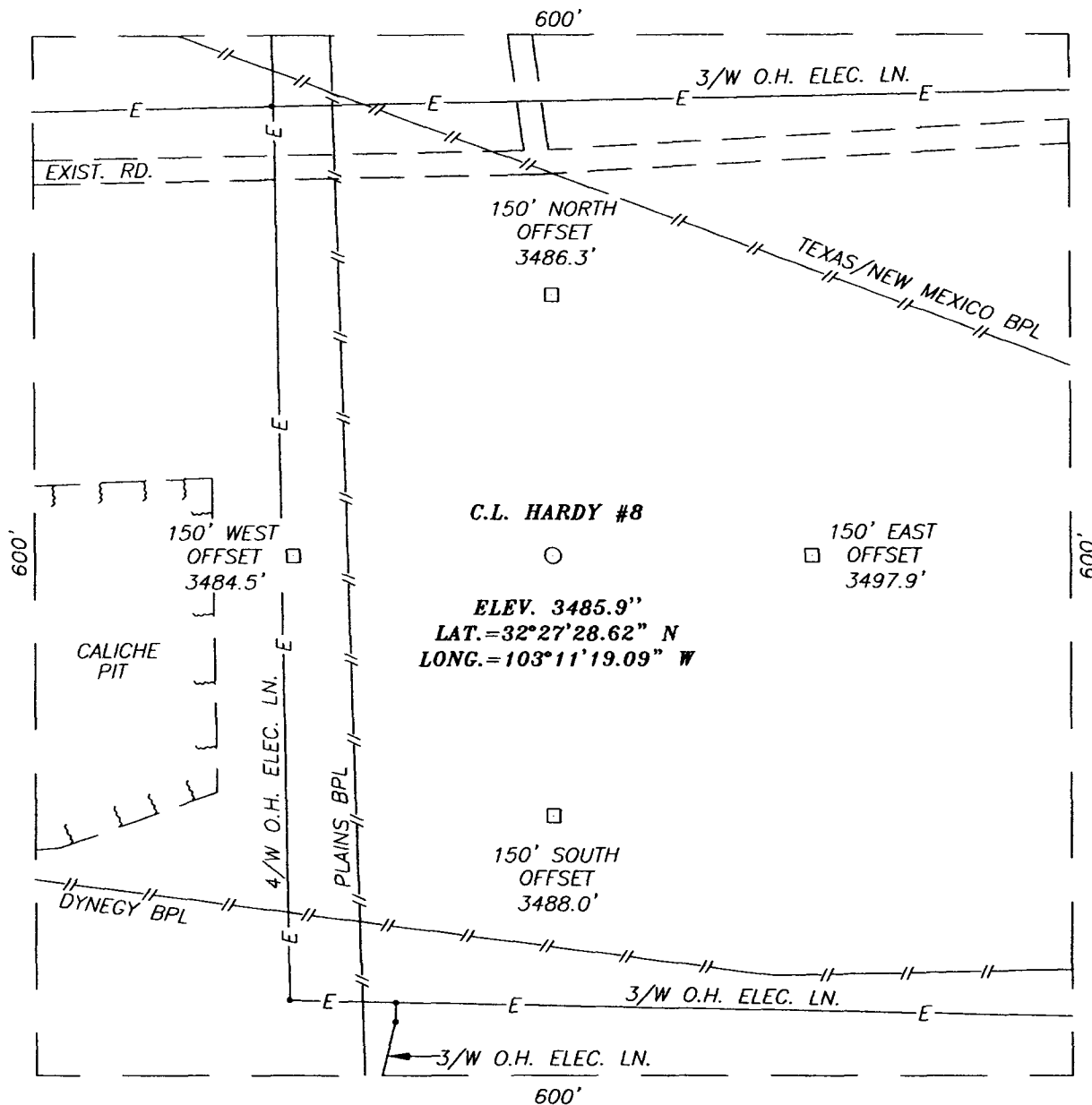
### Bottom Hole Location If Different From Surface

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

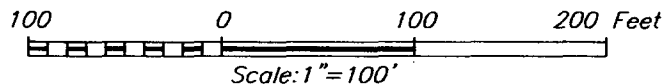
<p>GEODETIC COORDINATES NAD 27 NME</p> <p>Y=532209.1 N X=853085.3 E</p> <p>LAT.=32°27'28.62" N LONG.=103°11'19.09" W</p>	<h3>OPERATOR CERTIFICATION</h3> <p>I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p>Signature _____ Date _____</p> <p>Printed Name _____</p>
	<h3>SURVEYOR CERTIFICATION</h3> <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>FEBRUARY 16, 2006</p> <p>Date Surveyed _____ DSR</p> <p>Signature &amp; Seal of Professional Surveyor _____</p> <p> </p> <p>Certificate No. GARY EDSON 12641</p>

**SECTION 20, TOWNSHIP 21 SOUTH, RANGE 37 EAST, N.M.P.M.,**  
 LEA COUNTY, NEW MEXICO



**DIRECTIONS TO LOCATION**

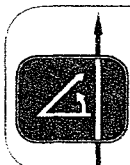
FROM THE INTERSECTION OF ST. HWY 8-176 AND  
 CO. RD. E-33 (N. TURNER), (APPROX. 1.0 MILE  
 WEST OF EUNICE, N.M.), GO NORTH ON CO. RD.  
 E-33 APPROX. 1.14 MILES, TURN LEFT AND GO  
 WEST ON MEANDERING ROAD APPROX. 0.77 MILES.  
 THIS LOCATION IS APPROX. 250 FEET SOUTH.



**CHEVRON U.S.A. INC.**

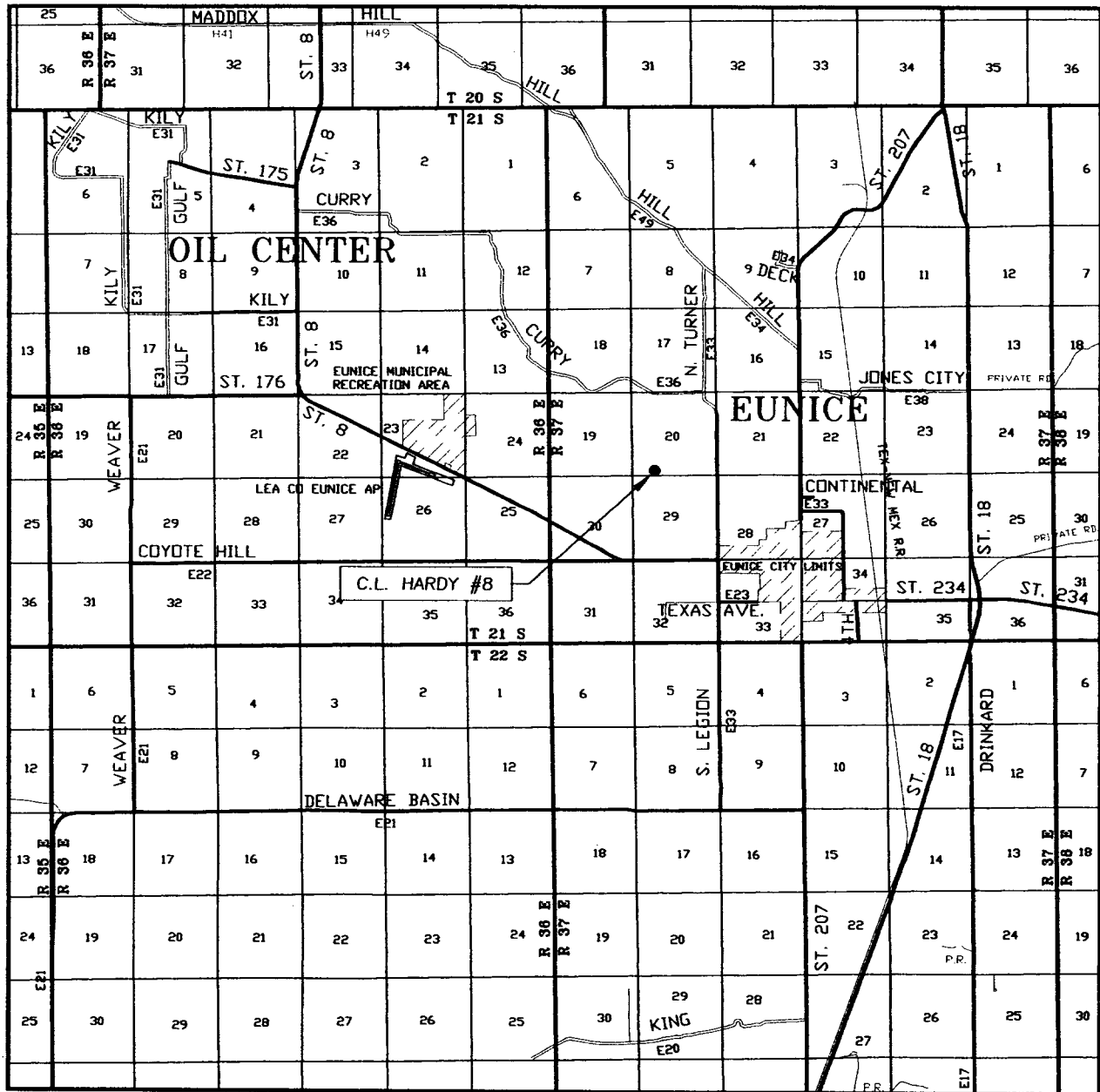
C.L. HARDY #8 WELL  
 LOCATED 330 FEET FROM THE SOUTH LINE  
 AND 1410 FEET FROM THE WEST LINE OF SECTION 20,  
 TOWNSHIP 21 SOUTH, RANGE 37 EAST, N.M.P.M.,  
 LEA COUNTY, NEW MEXICO.

Survey Date: 02/16/06	Sheet 1 of 1 Sheets
W.O. Number: 06.11.0319	Dr By: D.S.R. Rev 1: N/A
Date: 03/06/06	Disk: CD#1 06110319 Scale: 1"=100'



PROVIDING SURVEYING SERVICES  
 SINCE 1946  
**JOHN WEST SURVEYING COMPANY**  
 412 N. DAL PASO  
 HOBBS, N.M. 88240  
 (505) 393-3117

# VICINITY MAP



SCALE: 1" = 2 MILES

SEC. 20 TWP. 21-S RGE. 37-E

SURVEY N.M.P.M.

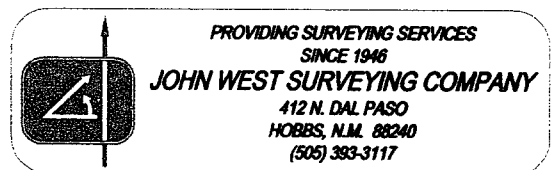
COUNTY LEA STATE NEW MEXICO

DESCRIPTION 330' FSL & 1410' FWL

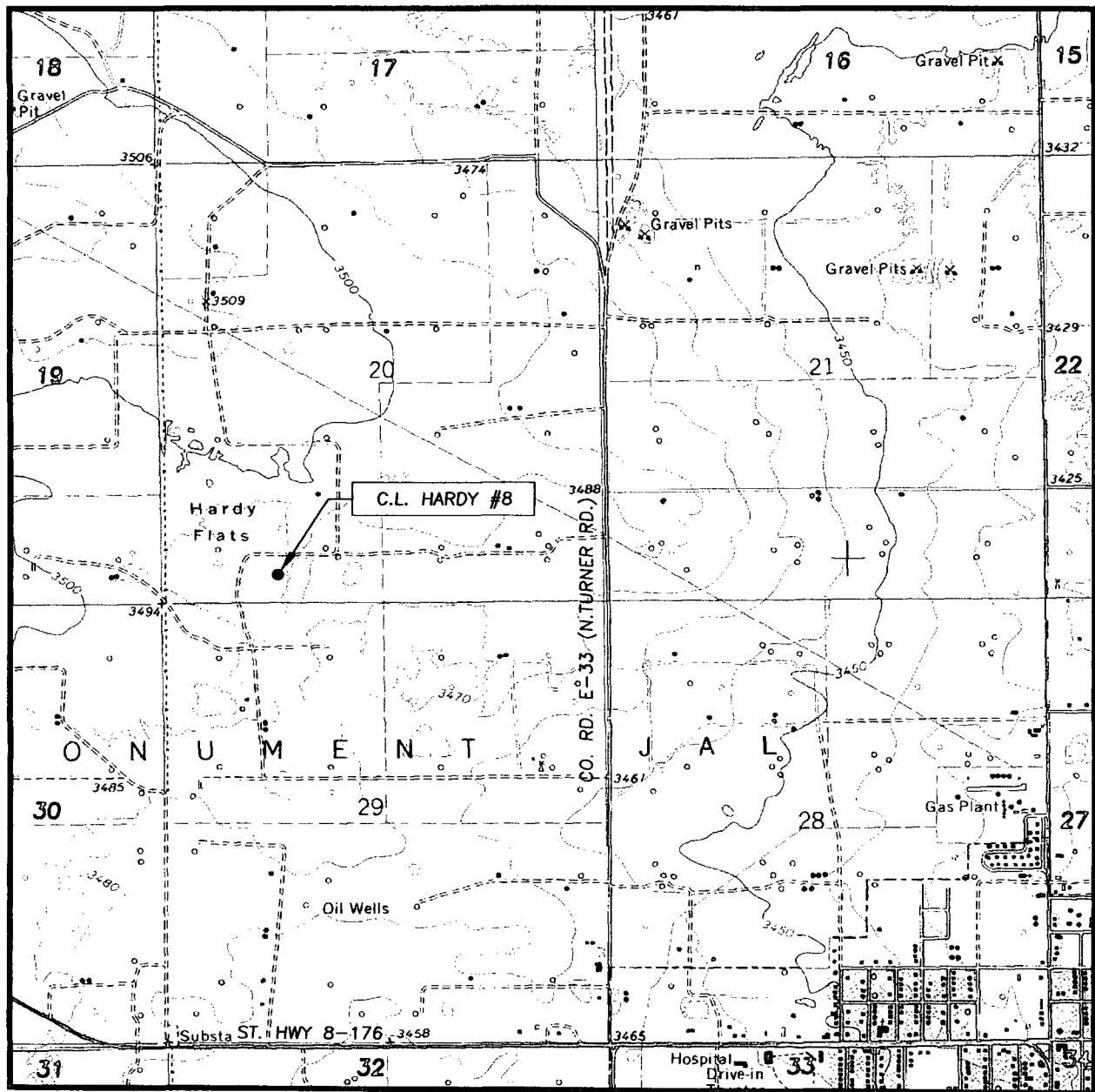
ELEVATION 3486'

OPERATOR CHEVRON U.S.A. INC.

LEASE C.L. HARDY



# LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:  
EUNICE, N.M. - 10'

SEC. 20 TWP. 21-S RGE. 37-E

SURVEY N.M.P.M.

COUNTY LEA STATE NEW MEXICO

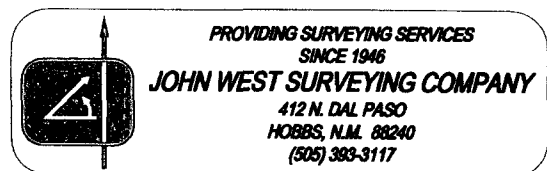
DESCRIPTION 330' FSL & 1410' FWL

ELEVATION 3486'

OPERATOR CHEVRON U.S.A. INC.

LEASE C.L. HARDY

U.S.G.S. TOPOGRAPHIC MAP  
EUNICE, N.M.



**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	<sup>2</sup> Pool Code 50360	<sup>3</sup> Pool Name Penrose Skelly; Grayburg
<sup>4</sup> Property Code	<sup>5</sup> Property Name C L Hardy	<sup>6</sup> Well Number 8
<sup>7</sup> OGRID No. 4323	<sup>8</sup> Operator Name Chevron U.S.A., Inc.	<sup>9</sup> Elevation 3486

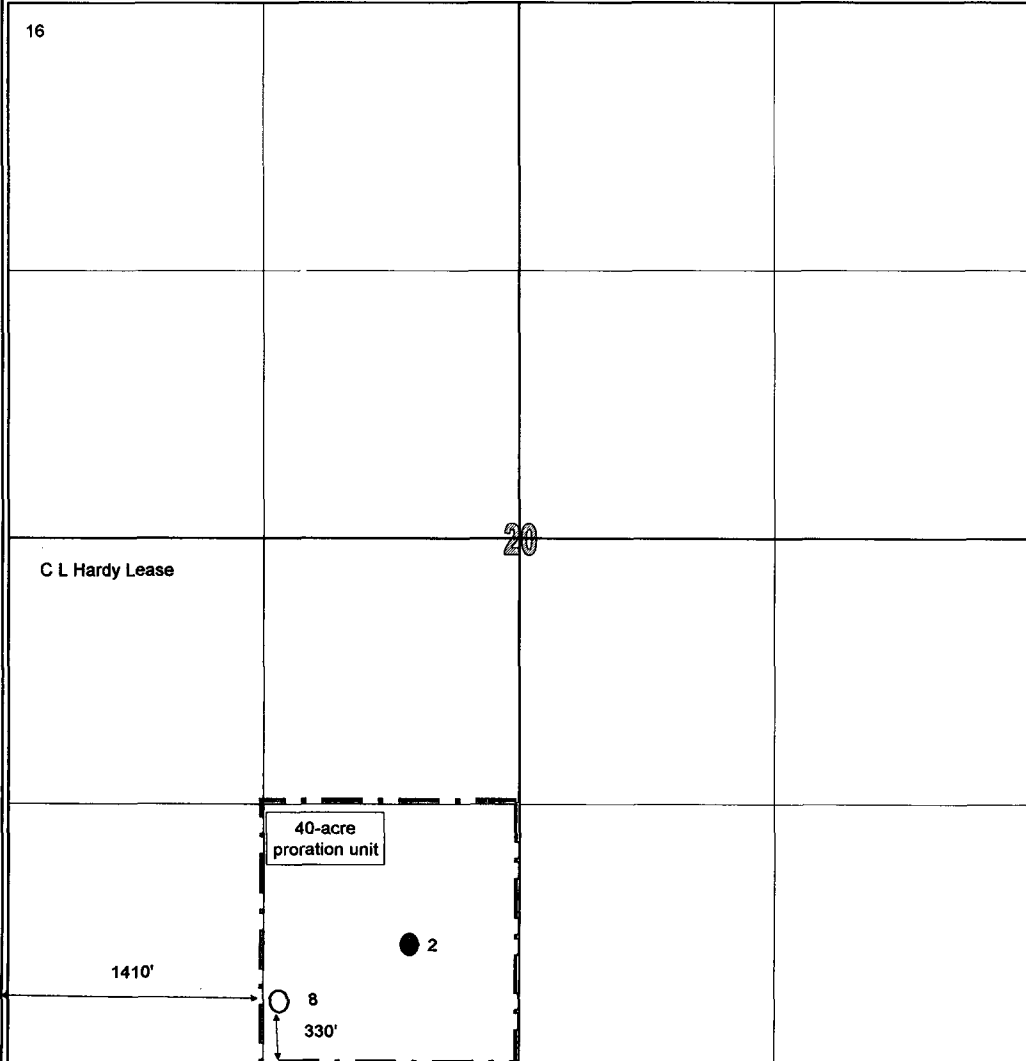
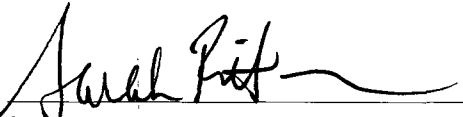
<sup>10</sup> Surface Location

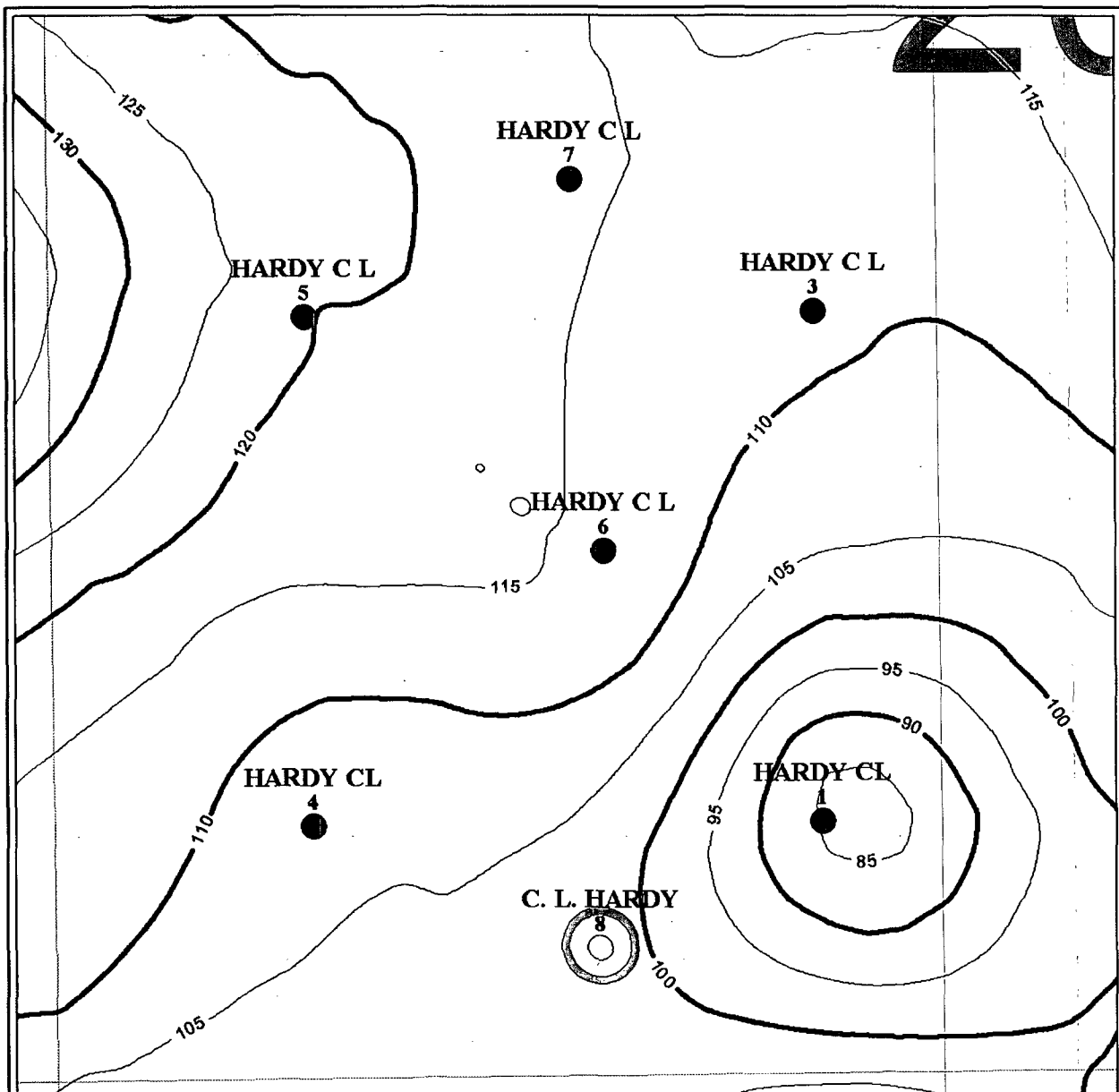
UL or Lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	20	21S	37E		330	South	1410	West	Lea

<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
<sup>12</sup> Dedicated Acres 40	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> 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><p>16</p></div>	<div><p>17</p><p><b>OPERATOR CERTIFICATION</b></p><p><i>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.</i></p><p></p><p>Signature</p><p>Sarah C. Rittenhouse</p><p>Printed Name</p><p>Geologist</p><p>Title</p><p>November 2, 2006</p></div>
	<div><p>18</p><p><b>SURVEYOR CERTIFICATION</b></p><p><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></p><p>Signature and Seal of Professional Surveyor:</p><p>Certificate Number</p></div>



PETRA 11/6/2006 10:47:06 AM

# Chevron U.S.A. Inc.

## EXHIBIT 4

PENROSE-SKELLY FIELD C.L. HARDY #8

Sec. 20, T21S-37E, Lea CO. New Mexico

Grayburg New Pay CI=5.1[Gr<40, Por>6%]

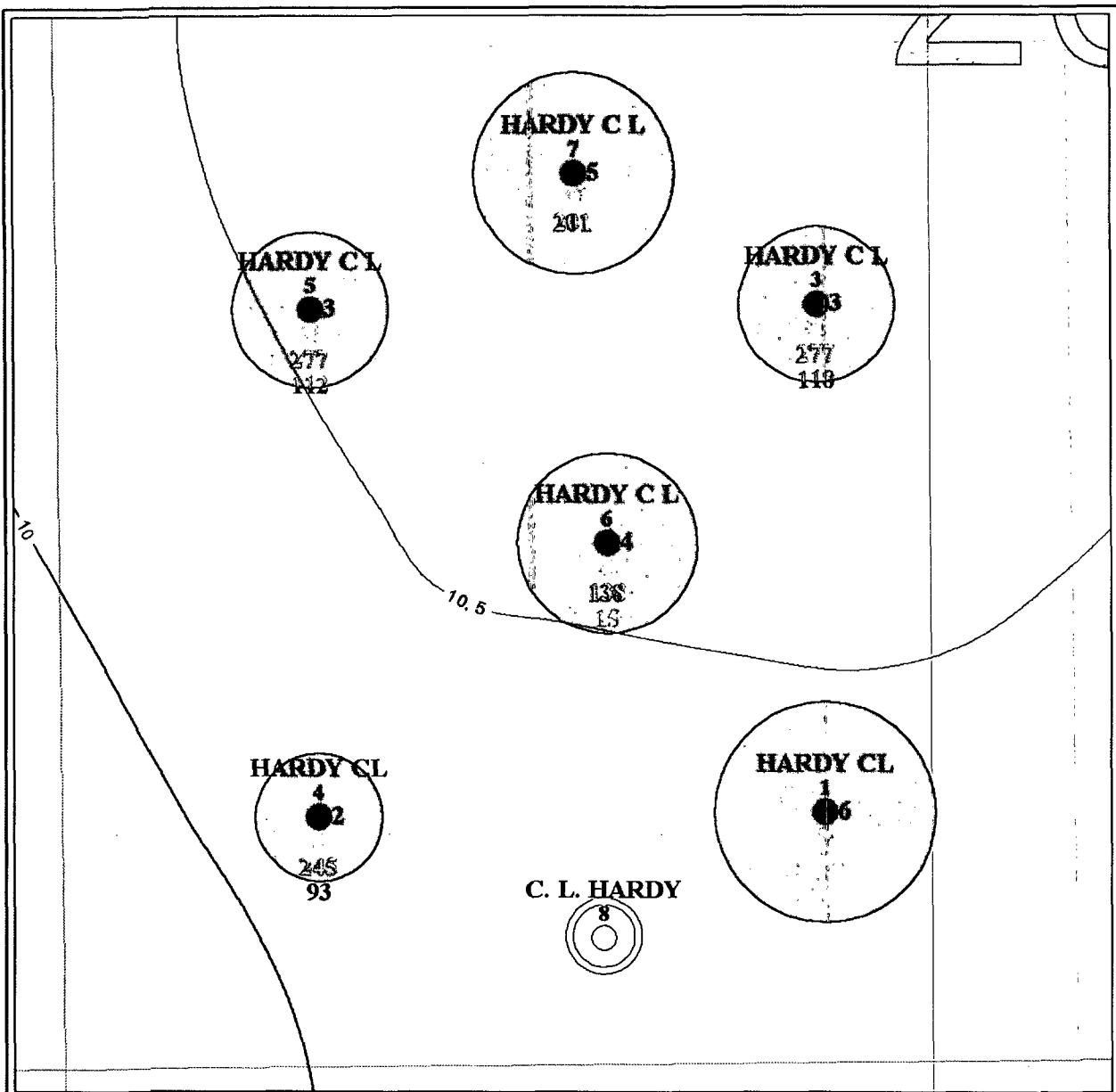


### POSTED WELL DATA

Well Name  
Well Number



November 6, 2006



PETRA 11/6/2006 3:02:14 PM

Chevron U.S.A. Inc.

## EXHIBIT 5

PENROSE-SKELLY FIELD C.L. HARDY #8

Sec. 20, T21S-37E, Lea CO. New Mexico

Grayburg HCPV CI=0.5 & EUR - Drainage

### POSTED WELL DATA

Well Name  
Well Number

● SRLF\_PENROSE\_SKELLY - DRAINAGE\_ZONE[SRLF]

SRLF PENROSE SKELLY - GRAYBURG CUM OIL[SRLF] (MBO)  
SRLF PENROSE SKELLY - GRAYBURG CUM GAS[SRLF] (MMCF)  
SRLF PENROSE SKELLY - GRAYBURG CUM WATER[SRLF] (MBO)



November 6, 2006