Form 3160-5 (September 2001)-

# UNITED STATES OCD-MOBES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

OMB No 1004-0135 Expires January 31, 2004

5 Lease Serial No

NMNM23006

SUNDRY NOTICES AND REPORTS ON WELLS Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

6 If Indian, Allottee or Tribe Name

FORM APPROVED

SÜBMİT IN TR	IPLICATE - Other in	structions on reverse	side	7 If Unit or	CA/Agreement, Name and/or No.	_
1 Type of Well  ☑ Oil Well ☐ Gas Well ☐	Other			8. Well Nam	ne and No	_
Name of Operator     Marbob Energy Corporation	/ 41	14049>		LPC 31 Fee		_
3a Address P.O. Box 227, Artesia, NM 8821	1-0227	3b Phone No (include 505-748-3303	,		D25-38157 1 Pool, or Exploratory Area	_
4. Location of Well (Footage, Sec. Sec. 31, T18S - R32E 2210' FNL & 940' FEL	T, R, M, or Survey Descrip	H : 1830/N	42280/E Unit@	11 County o	e Spring, North or Parish, State y, New Mexico	_
12. CHECK AP	PROPRIATE BOX(ES)	TO INDICATE NATU	RE OF NOTICE, RE			_
TYPE OF SUBMISSION		TY	PE OF ACTION			
Notice of Intent  Subsequent Report  Final Abandonment Notice	Acidize Alter Casing Casing Repair Change Plans Convert to Injection	Deepen Fracture Treat New Construction Plug and Abandon Plug Back	Production (Start/ Reclamation Recomplete Temporarily Aba Water Disposal	[	Water Shut-Off  Well Integrity  Other Move Location	- -
2 Describe Proposed or Complete	d Operation (algority state all	mantiment details, including not			1 1	-

Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof if the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No on file with BLM/BIA Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

Marbob Energy Corporation proposes to move the location of this well from 2210' FNL & 940' FEL to 1830' FNL & 2280' FEL. The new location will fall on the edge of the existing LPC 31 Federal #1 location. Attached is the revised well pad layout (Exhibit 3). The expanded location will fall within the previously surveyed 600 X 600 area. The well will be horizontally drilled with the ending bottom hole location being approx. 2310' FNL & 330' FEL. 5 1/2" casing will be run to Total Depth.

SEE ATTACHED FOR CONDITIONS OF APPROVAL

RECEIVED

MAR 1 8 2008
HOBBS OCD

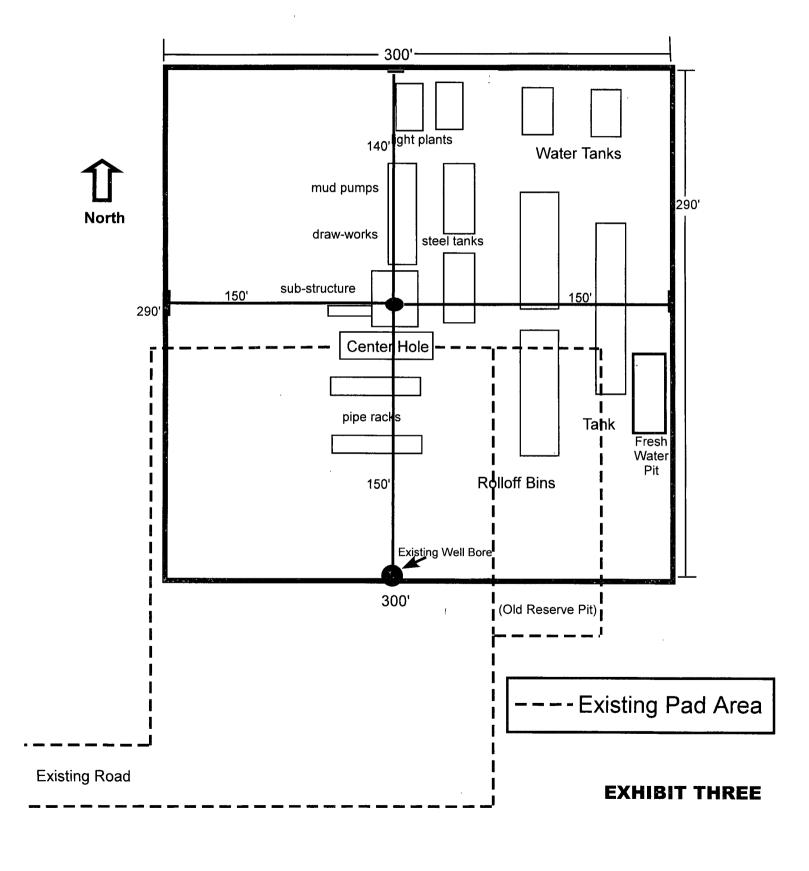
14 1 hereby certify that the foregoing is true and correct Name (PrintedlTyped)	
Nancy T. Agnew	Title Land Department
Signature Nancy T. agnew	Date 12-18-07
THIS SPACE FOR FED	VERAL OR STATE OFFICE USE
Approved by (Signature) /s/ Don Peterson	Name /s/ Don Peterson TIFEIELD MANAGER
Conditions of approval, if any, are attached Approval of this notice does not certify that the applicant holds legal or equitable title to those rights in the si which would entitle the applicant to conduct operations thereon	t warrant or Office Date WAR 1 4 2008
Title 10 H C C Section 1001 and Title 42 H C C S. 4 1212	

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction

(Continued on next page)

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LPC 31 Federal #2 1830' FNL & 2280' FEL Section 31, T18S - R32E Lea County, New Mexico



# PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME: Marbob Energy Corporation

LEASE NO.: NMNM 23006

WELL NAME & NO.: LPC 31 Federal 2

SURFACE HOLE FOOTAGE: 1830' FNL & 2280' FEL BOTTOM HOLE FOOTAGE 2310' FNL & 0330' FEL

LOCATION: Section 31, T. 18 S., R 32 E., NMPM

COUNTY: Lea County, New Mexico

## I. DRILLING

# A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

- a. Spudding well
- b. Setting and/or Cementing of all casing strings
- c. BOPE tests

# **⊠** Lea County

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 393-3612

- 1. A Hydrogen Sulfide (H2S) Drilling Plan should be activated 500 feet prior to drilling into the Queen formation. Measurements in the gas stream have been reported between 25-400 ppm.
- 2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
- 3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

### B. CASING

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- 1. The 9-5/8 inch surface casing shall be set at approximately 1125 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. Centralizers required on surface casing per Onshore Order 2.III.B.1.f.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.
  - b. Wait on cement (WOC) time for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement). Please provide WOC times to inspector for cement slurries.
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

, . . t

- d. If cement falls back, remedial cementing will be done prior to drilling out that string.
- 2. The minimum required fill of cement behind the 5-1/2 inch production casing is:
  - Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.
- 3. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

# C. PRESSURE CONTROL

- 1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
- 2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M)** psi.
- 3. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

- a. The tests shall be done by an independent service company.
- b. The results of the test shall be reported to the appropriate BLM office.
- c. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- d. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

## WWI 031108

# MARBOB ENERGY CORPORATION DRILLING AND OPERATIONS PROGRAM

# LPC 31 Federal #2 2210' FNL & 940' FEL, Unit H Section 31, T18S, R32E Lea County, New Mexico

In conjunction with Form 3160-3, Application for Permit to Drill subject well, Marbob Energy Corporation submits the following ten items of pertinent information in accordance with BLM requirements.

- 1. The geological surface formation is Permian.
- 2. The estimated tops of geologic markers are as follows:

Yates	2830'	Delaware	4560'
Seven Rivers	3060'	Bone Springs	6900'
Queen	3660′	, -	

3. The estimated depths at which anticipated water, oil or gas formations are expected to be encountered:

Yates	2830'		
Bone Springs	6900'	Oil	

No other formations are expected to give up oil, gas, or fresh water in measurable quantities. The surface fresh water sands will be protected by setting 13 3/8" casing at 600' and circulating cement back to surface. Any shallower zones above TD which contain commercial quantities of oil and/or gas will have cement circulated across them by inserting a float shoe joint into the  $5\,1/2$ " production casing which will be run at TD to sufficiently cover all known oil and gas horizons 200' above.

# 4. Proposed Casing Program:

Hole	Interval	OD	New	Wt	Collar	Grade	Collapse	Burst	Tension
Size		Casing	or				Design	Design	Design
			Used				Factor	Factor	Factor
12 1/4"	0'-1125'	9 5/8"	New	36#	STC	J-55	1.125	1.125	1.6
7 7/8"	1125′-10100′	5 ½"	New	17#	LTC	N-80	1.125	1.125	1.6

# Proposed Cement Program:

9 5/8" Surface Casing: Cement to surface with 500 sk "c" Light 12.8 ppg yield

1.91 tail in with 200 sk "c" wt 14.8 yield 1.34.

5 1/2" Production Casing: Cement 1st Stage with 225 sk "H" Acid Soluble yield 2.6 wt

15.0 DV Tool @7700'

2<sup>nd</sup> Stage with 700 sk "H" Light Wt 12.7 yield 1.91 Tail in

with 100 sk "H" Wt 13.8 yield 1.64 TOC 900'

## 5. Pressure Control Equipment:

See Exhibit #1. Nipple up on 9 5/8" surface casing with a 3M system and test to 3000# with independent tester.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. A 2"kill line and a 3" choke line will be included in the drilling spool located below the ram-type BOP. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold with 3000 psi WP rating.

6. Mud Program: The applicable depths and properties of this system are as follows:

			Weight	Viscosity	Waterloss
	Depth	Type	(ppg)	(sec)	(cc)
Ī	0' - 1125'	Fresh Wtr (spud)	8,5	28	N.C.
	1125' - 10100'	Brine	9.8-10.2	40-45 ~	N.C.

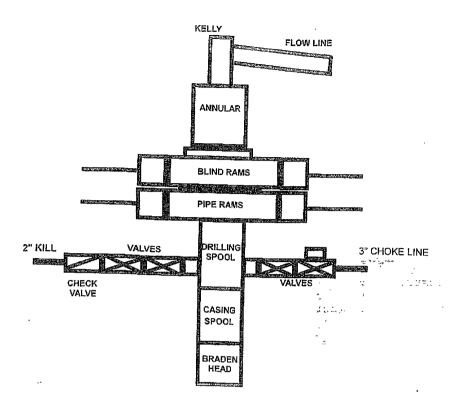
- 7. Auxiliary Equipment: Kelly Cock; Sub with full opening valve on floor; and drill pipe connections.
- 8. Testing, Logging and Coring Program:

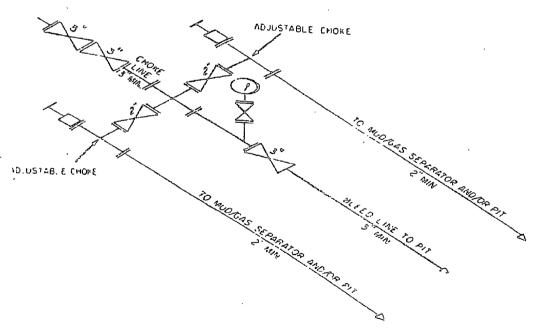
No drillstem tests are anticipated.

The electric logging program will consist of Dual Laterolog Micro SFL, Spectral Density Dual Spaced Neutron Csng Log, and Depth Control Log. No conventional coring is anticipated.

- 9. No abnormal pressures or temperatures are anticipated.
- 10. Anticipated starting date: As soon as possible after approval.

# 3M SYSTEM





3M CHOKE MANIFOLD EQUIPMENT - CONFIGURATION OF CHOKES

DISTRICT I 1626 N. FRENCH DR., HOBBS, NM 88240

Energy, Minerals and Natural Resources Department

DISTRICT II
1301 W. GRAND AVENUE, ARTESIA, NM 88210

# 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

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

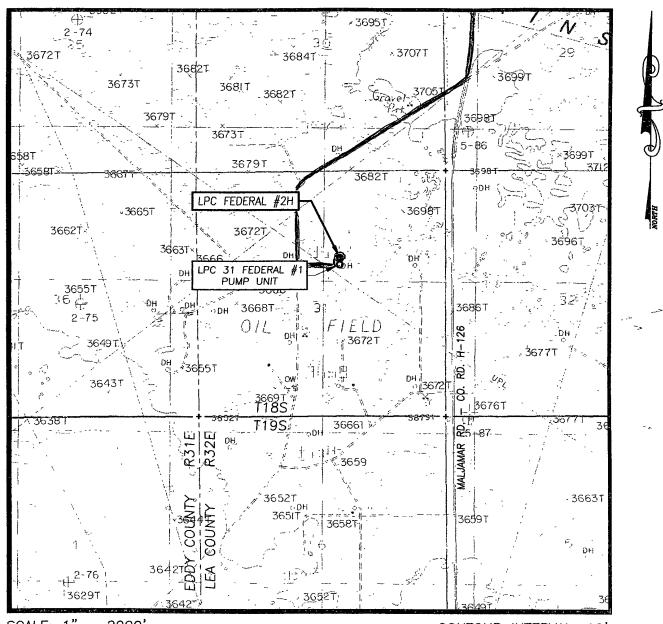
DISTRICT IV 1220 S. ST. FRANCIS DR., SANTA FE, NM 87508	WELL LOCATION AND AC	REAGE DEDICATION PLAT	□ AMENDED REPORT		
API Number	Pool Code	Pool Name			
30-025-38157	41450	Lusk; Bone Spring, North			
Property Code	Property	Name	Well Number		
	LPC 31	FEDERAL	2H		
OGRID No.	Operator	Name	Elevation		
14049	MARROR ENERGY	CORPORATION	7697'		

#### MARBOB ENERGY CURPORATION 3683 Surface Location UL or lot No. Section Feet from the North/South line Township Range Lot Idn Feet from the East/West line County G 31 18-S 32-E 1830 NORTH 2280 **EAST** LEA Bottom Hole Location If Different From Surface UL or lot No. Section Township Range Feet from the North/South line Feet from the East/West line County Н 31 18-S 32-E 2310 **NORTH** 330 **EAST** LEA Joint or Infill Dedicated Acres Consolidation Code Order No. 80

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

OPERATOR CERTIFICATION  I hereby certify that the information boratin is true and complete to the best of organisation afther owns a working interest and including the proposed bottom halo location reverse in the land including the proposed bottom halo location reverse in the land including the proposed bottom halo location reverse in the land including the proposed bottom halo location reverse in the land including the proposed bottom halo location reverse in the land including the proposed bottom halo location reverse in the land including the proposed bottom halo location graves and reverse of several transportation of the proposed bottom halo location provides interest or to a voluntary pooling agreement or e for the directors on transportation of the proposed bottom halo location provides interest or to several provides and provides and the same in the directors of the land including the proposed bottom halo location provides interest or to several provides and the land including the proposed bottom halo location provides interest or to several provides and provides and provides and provides and provides and provides and the land including the proposed bottom halo location provides and the provides and provides and the provides and provides	107.1			
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A1.18 AC.  LOT 2  3678.9'  3686.2'  41.18 AC.  LOT 2  3678.9'  3681.0'  DETAIL  41.27 AC.  LOT 3  GEODETIC COORDINATES NAD 27 NME. SURFACE LOCATION  SURFACE LOCATION  AND 27 NME. SURFACE LOCATION  SURFACE LOCATION  AX = 662828.4 E  LOT = 1.32.706162' N  LOT = 1.33.803978' W  LOT 4  LOT 4  LOT 4  LOT 4  LOT 4  LOT 4  LOT 5  LOT 6  LOT 6  LOT 7  AC.  LOT 6  LOT 7  GEODETIC COORDINATES NAD 27 NME. SURFACE LOCATION  BOTTOM HOLE LOCATION  LOT 8  LOT 9				
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LOT 2  3678.9'  3686.2'    S.L.   CRID AZ   2280'   Sighature   Date	41.18 AC		7 23	compulsory pooling order heretofore entered
3678.9' 3686.2'    SL				by the division.
S.L. GRID AZ = 103'38'09   330'   Printed Name   Surveyor Certification   Surveyor Certificate   Nancy T. Agnew   Printed Name   Surveyor Certification   Surveyor Certific	20, 2	3678.9		
S.L. GRID AZ = 103'38'09   330'   Printed Name   Surveyor Certification   Surveyor Certificate   Nancy T. Agnew   Printed Name   Surveyor Certification   Surveyor Certific		1		OCMINT (COMMITZ 112100)
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NAD 27 NME. SURFACE LOCATION  BOTTOM HOLE LOCATION  Y=621019.1 N X=662828.4 E  LAT.=32.706162 N LONG.=103.803978 W  LOT 4  BOTTOM HOLE LOCATION  Y=620545.4 N X=664781.1 E  LAT.=32.706162 N LONG.=103.803978 W  Certificate Not Garner Eidson and that the same is true and correct to the best of my belief.  LOT 4  Certificate Not Garner Eidson and that the same is true and correct to the best of my belief.  Signature & Seal of Professional Surveyor  Certificate Not Garner Eidson 12841 RONALD J. EIDSON 3239	LOT 3	CEODETIC COOPDINATES		
SURFACE LOCATION  SURFACE LOCATION  Y=621019.1 N  X=662828.4 E  LAT.=32.706162 N  LONG.=103.803978 W  A1.35 AC.  LOT 4  BOTTOM HOLE  LOCATION  Y=620545.4 N  X=664781.1 E  LAT.=32.706162 N  LONG.=103.803978 W  Date Singlyed  Signature & Seal-of  Professional Surveyor  Certificate Not Garrice: EIDSON 12641  RONALD J. EIDSON 3239			,	I hereby certify that the well location
BOTTOM HOLE   LOCATION   Y=621019.1 N   Y=620545.4 N   X=662828.4 E   X=664781.1 E   LAT.=32.706162 N   LONG.=103.803978 W   LOT 4			DOTTOU HOUS	notes of actual surveys made by me or
Y=621019.1 N X=662828.4 E  LAT.=32.706162 N LONG.=103.803978 W  LOT 4  Y=620545.4 N X=664781.1 E  FEBRUARY 5/2008  Date Sirryyed Signature & Seal-of Professional Surveyor  Certificate No. GARN. 6: EIDSON 12641 RONALD J. EIDSON 3239		SONTACL LOCATION		under my supervision, and that the same is
X=662828.4 E		Y-621010 1 N		true and correct to the best of my belief.
LAT. = 32.706162° N LONG. = 103.803978° W  LOT 4  L				
LONG. = 103.803978 W  Date Stroyed ME DSS  Signature & Seal of Professional Surveyor  3239  Certificate No. GARNES EIDSON 12841  RONALD J. EIDSON 3239		7-002020.4 L	X=004/81.1 E	The state of the s
LONG. = 103.803978 W  Date Stroyed ME DSS  Signature & Seal of Professional Surveyor  3239  Certificate No. GARNES EIDSON 12841  RONALD J. EIDSON 3239	[ ]	IAT 32 706162° N		FEBRUARY 2//2008
Signature & Seal of Professional Surveyor  OB: 1.1.0040  Certificate No. GARNG EIDSON 12841 RONALD J. EIDSON 3239				Date Surveyed Name () DSS
Professional Surveyor  3239  Certificate No. GARNG EIDSON 12841  RONALD J. EIDSON 3239	41.35 AC.		'	
Certificate No. GARN. 6: EIDSON 12641 RONALD J. EIDSON 3239	LOT 4			Professional Surveyor
RONALD J. EIDSON 3239		f		3030
RONALD J. EIDSON 3239		}		///
RONALD J. EIDSON 3239				1 W 3 8 1/1 Land 1 : Q = 1
RONALD J. EIDSON 3239		Į.		UNDOWN 1 (DUNDO 2/06/08)
RONALD J. EIDSON 3239	1	1		08.11.0040
RONALD J. EIDSON 3239				
		ī		
41.44 AC.		<b>\</b>		RONALD J. EIDSON 3239
	41.44 AC.			

# LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL: 10' GREENWOOD LAKE. NM

SEC. 31 TWP. 18-S RGE. 32-E N.M.P.M. SURVEY\_\_\_\_ COUNTY LEA STATE NEW MEXICO DESCRIPTION 1830' FNL & 2280 FEL ELEVATION\_ <u> 3683'</u> **MARBOB** OPERATOR ENERGY CORPORATION LPC FEDERAL LEASE U.S.G.S. TOPOGRAPHIC MAP GREENWOOD LAKE, NM

**Existing Roads** Proposed Flowline



# **Marbob**

Lea County S31T18S R32E LPC Federal #2H Original Hole

Plan: Plan #1

# **Pathfinder Survey Report**

12 February, 2008



8200 8300

> 300 400 500



0 00

Azimuths to Grid North True North: -0.29° Magnetic North: 7,83°

Magnetic Field Strength: 49236.7snT Dip Angle: 60.69° Date: 2/12/2008 Model: IGRF200510

Project: Lea County Site: S31 T18S R32E Well: LPC Federal #2H Wellbore: Original Hole

Plan: Plan #1 (LPC Federal #2H/Original Hole)



WELL DETAILS LPC Federal #2H

Ground Elevation: 3683 00 RKB Elevation: EST RKB @ 3683.00ft

Rig Name.

+N/-S +E/-W Northing 0 00 621019 100 Easting 662828,400 Latittude 32° 42' 22 183 N 103° 48' 14.319 W

PROJECT DETAILS: Lea County Geodetic System US State Plane 1927 (Exact solution) Datum: NAD 1927 (NADCON CONUS) Ellipsoid Clarke 1866

Zone. New Mexico East 3001

System Datum: Mean Sea Level Local North: Grid

SECTION DETAILS

TVD +E/-W DLeg 0,00 VSec Target TFace 0.00 0.00 0.00 0 00 0.00 0 00 0.00 0.00 7757.04 0.00 0 00 7757.04 0 00 0.00 0 00 0 00 0.00 8657.04 90.00 103 64 8330.00 -135.12 556.80 10.00 103 64 572.96 10093 42 8330 00 -473.84 1952.67 0,00 2009.34 PBHL 0 00

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name TVD PBHL 8330 00

+E/-W 1952.70

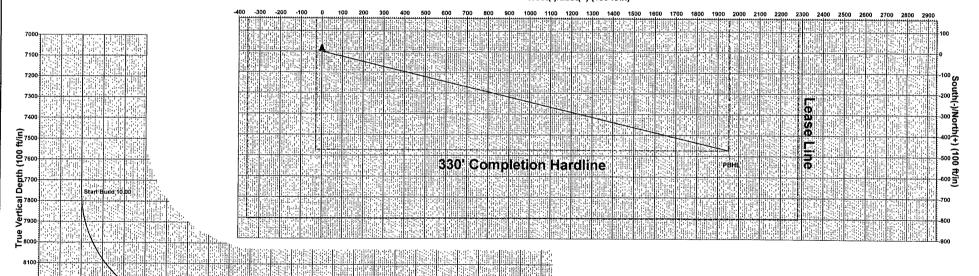
+N/-S

-473 70

Northing 620545 400

Easting Shape 664781.100 Point

#### West(-)/East(+) (100 ft/in)



Plan Plan #1 (LPC Federal #2H/Original Hole) Created By Mark Freeman Date 16 39, February 12 2008

Checked \_\_\_\_\_ Date. \_\_\_

Vertical Section at 103.64° (100 ft/in)

## Pathfinder Survey Report

Company:

Marbob

Lea County Project:

Site:

S31 T18S R32E

Well: Wellbore: LPC Federal #2H Original Hole

Design:

Plan #1

Local Co-ordinate Reference:

TVD Reference: MD Reference:

Well LPC Federal #2H EST RKB @ 3683.00ft EST RKB @ 3683.00ft

North Reference:

**Survey Calculation Method:** 

Database:

Grid Mınımum Curvature

EDM 2003.16 Single User Db

Project

Lea County, New Mexico

Map System:

US State Plane 1927 (Exact solution)

Geo Datum: Map Zone:

NAD 1927 (NADCON CONUS)

New Mexico East 3001

System Datum:

Mean Sea Level

Site

S31 T18S R32E

Site Position:

From: **Position Uncertainty:** 

Мар

Northing: Easting:

Slot Radius:

621,019.100ft 662,828.400ft Latitude:

Longitude:

**Grid Convergence:** 

32° 42' 22 183 N

103° 48' 14.319 W 0.29°

LPC Federal #2H

**Well Position** 

+N/-S +E/-W

0.00 ft 0.00 ft Northing: Easting:

621,019.100 ft 662,828.400 ft

Latitude: Longitude: 32° 42' 22 183 N

**Position Uncertainty** 

0.00 ft

0.00 ft

Wellhead Elevation:

2/12/2008

ft

**Ground Level:** 

60.69

103° 48' 14.319 W 3,683.00 ft

Wellbore

Original Hole

Magnetics

**Model Name** 

IGRF200510

Sample Date

Declination (°)

**Dip Angle** 

Field Strength

(nT)

49.237

Plan #1

Design **Audit Notes:** 

Version:

Phase:

PLAN

Tie On Depth:

0.00

**Vertical Section:** 

**Survey Tool Program** 

Depth From (TVD) (ft)

0 00

+N/-S (ft) 0.00

+F/-W (ft) 0.00

Direction (°) 103.64

Date 2/12/2008

From To (ft) 10,093.42 Plan #1 (Original Hole)

Survey (Wellbore)

**Tool Name** 

MWD

Description MWD - Standard

**Planned Survey** 

	, , ,	1 4		*				
	MD (ft)	Inc (°)	^ Azi (°)	ŢVD´ (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)
	0.00	0 00	0.00	0.00	0.00	0.00	0 0ò	0.00
	100.00	0.00	0.00	100.00	0.00	0.00	0 00	0.00
	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0 00
	300 00	0 00	0.00	300.00	0.00	0.00	0.00	0 00
	400.00	0 00	0.00	400 00	0 00	0 00	0 00	0.00
ļ	500.00	0.00	0.00	500 00	0.00	0.00	0.00	0.00
	600.00	0.00	0.00	600.00	0.00	0.00	0.00	0 00
	700.00	0 00	0.00	700.00	0.00	0.00	0.00 -	0 00
İ	800 00	0.00	0 00	800 00	0 00	0 00	0 00	0.00
	900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00
	1,000.00	0 00	0.00	1,000.00	0.00	0.00	0 00	0.00
	1,100.00	0.00	0 00	1,100.00	0 00	0.00	0 00	0 00

**WHS** Pathfinder Survey Report

Company: Project:

Marbob Lea County

Plan #1

Site: Well: Wellbore:

Design:

S31 T18S R32E LPC Federal #2H Original Hole

Local Co-ordinate Reference:

Well LPC Federal #2H EST RKB @ 3683.00ft EST RKB @ 3683.00ft TVD Reference: MD Reference:

North Reference:

Grid **Survey Calculation Method:** 

Database:

Minimum Curvature EDM 2003 16 Single User Db

						,	
Planned Survey	• ,	,			,		,,,
MD (ft)	Inc (°)	Azi (°)	TVD · (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)
1,200.00	0 00	0.00	1,200.00	0.00	0.00	0 00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400 00	0.00	0 00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0 00	
1,600.00	0 00	0.00	1,600.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700 00	0.00	0.00	0.00	0.00
1,800 00	0.00	0.00	1,800 00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00					
2,100.00	0.00	0.00	2,000.00 2,100.00	0.00 0 00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00 0.00	0.00	0 00
2,300.00	0.00	0.00	2,300 00	0.00	0.00	0.00	0.00
2,400 00	0.00	0.00	2,400.00	0.00	0.00	o oo o oo	0.00
		*5					0.00
2,500.00	0.00	0.00	2,500 00	0 00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600 00	0.00	0.00	0 00	0.00
2,700.00	0 00	0.00	2,700 00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0 00	0.00
2,900 00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00
3,000 00	0.00	0.00	3,000.00	0.00	0 00	0.00	0 00
3,100.00	0 00	0 00	3,100.00	0 00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200 00	0 00	0.00	0.00	0.00
3,300.00	0 00	0.00	3,300 00	0.00	0.00	0.00	0 00
3,400.00	0 00	0.00	3,400.00	0.00	0 00	0.00	0.00
3,500 00	0.00	. 0 00	3,500.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0 00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0 00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0 00
3,900.00	0.00	0.00	3,900 00	0.00	0.00	0.00	0.00
4,000.00	0.00	0 00	4,000.00	0 00	0.00	0 00	0.00
4,100 00	0 00	0.00	4,100 00	0 00	0.00	0 00	0.00
4,200 00	0 00	0.00	4,200 00	0 00	0.00	0 00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0 00	0 00
4,400 00	0 00	0.00	4,400.00	0.00	0.00	0.00	0.00
4,500.00	0 00	0.00	4,500 00	0.00	0.00	0.00	0 00
4,600 00	0.00	0.00	4,600.00	0.00	0.00	0.00	
4,700.00	0 00	0 00	4,700.00	0.00	0.00	0 00	0.00 0.00
4,800.00	0.00	0 00	4,800.00	0.00	0.00	0.00	0.00
4,900 00	0.00	0 00	4,900.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00					
5,100.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,200.00	0.00	0.00	0 00	0.00
5,400 00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00
		,	5,400 00	0 00	0.00	0 00	0.00
5,500 00	0.00	0 00	5,500 00	0.00	0.00	0.00	0.00

# **WHS** Pathfinder Survey Report

Company: Project:

Plan #1

Marbob Lea County S31 T18S R32E

Site: Well: Wellbore:

Design:

LPC Federal #2H Original Hole

Local Co-ordinate Reference: Well LPC Federal #2H

TVD Reference: EST RKB @ 3683 00ft EST RKB @ 3683.00ft

North Reference: . Grid

Minimum Curvature

Survey Calculation Method: Database:

MD Reference:

EDM 2003.16 Single User Db

Planned	Surve	y

Fiamled Survey		* * *				The second of the second	
MD (ft)	inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)
5,600.00	0.00	0 00	5,600 00	0.00	0.00	0.00	0.00
5,700 00	0.00	0 00	5,700.00	0.00	0.00	0 00	0.00
5,800 00	0 00	0.00	5,800.00	0.00	0.00	0 00	0.00
5,900.00	0 00	0.00	5,900.00	0 00	0.00	0.00	0.00
6,000.00	0 00	0 00	6,000 00	0.00	0.00	0.00	0 00
6,100 00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00
6,200.00	0 00	0.00	6,200.00	0.00	0 00	0.00	0.00
6,300.00	0.00	0.00	6,300 00	0 00	0.00	0.00	0 00
6,400.00	0.00	0.00	6,400 00	0.00	0.00	0 00	0.00
6,500.00	0 00	0.00	6,500.00	0.00	0 00	0 00	0.00
6,600.00	0 00	0.00	6,600.00	0 00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0 00	0.00	0 00
6,800.00	0.00	0.00	6,800.00	0 00	0.00	0.00	0.00
6,900 00	0.00	0.00	6,900 00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000 00	0.00	0 00	0.00	0 00
7,100.00	0 00	0 00	7,100.00	0.00	0.00	0.00	0 00
7,200.00	0 00	0.00	7,200.00	0.00	0.00	0.00	0 00
7,300.00	0 00	0.00	7,300.00	0.00	0.00	0.00	0.00
7,400 00	0.00	0.00	7,400 00	0 00	0.00	0 00	0.00
7,500.00	0.00	0 00	7,500 00	0.00	0.00	0.00	0.00
7,600.00	0.00	0 00	7,600 00	0.00	0.00	0 00	0.00
7,700.00	0.00	0.00	7,700.00	0.00	0.00	0.00	0.00
7,757 04	0 00	0.00	7,757.04	0 00	0.00	0.00	0 00
7,800.00	4.30	103 64	7,799 96	-0.38	1 56	1.61	10.00
7,850.00	9.30	103.64	7,849.59	-1.77	7.31	7.52	10.00
7,900.00	14.30	103.64	7,898.52	-4.18	17 24	17.74	10 00
7,950.00	19 30	103.64	7,946.37	-7.59	31 28	32.19	10.00
8,000.00	24 30	103.64	7,992.78	-11.97	49.31	50.75	10 00
8,050.00	29.30	103 64	8,037 40	-17 28	71 21	73 28	10.00
8,100 00	34.30	103 64	8,079.88	-23 49	96.81	99.62	10.00
8,150.00	39 30	103.64	8,119.91	-30 55	125.90	129.55	10.00
8,200.00	44.30	103.64	8,157.17	-38.41	158.27	162.87	10 00
8,250.00	49.30	103 64	8,191 39	-47 00	193 68	199 30	10 00
8,300 00	54.30	103.64	8,222.31	-56 26	231 85	238 58	10 00
8,350 00	59 30	103.64	8,249.68	-66.13	272.50	280.40	10.00
8,400.00	64 30	103.64	8,273.30	-76.51	315.30	324.45	10.00
8,450.00	69.30	103 64	8,293.00	-87.35	359.95	370 39	10.00
8,500.00	74 30	103.64	8,308.61	-98.54	406 09	417 88	10 00
8,550.00	79 30	103.64	8,320.03	-110 02	453 38	466.54	10 00
8,600.00	84.30	103.64	8,327.16	-121.69	501.46	516.01	10.00
8,650 00	89.30	103.64	8,329 95	-133 46	549 96	565 92	10.00
8,657.04	90.00	103 64	8,330.00	-135 12	556 80	572 96	10.00
8,700.00	90.00	103 64	8,330.00	-145 25	598 55	615.92	0 00
8,800.00	90.00	103 64	8,330.00	-168 83	695.73	715.92	0.00
						,	

# **WHS**

# Pathfinder Survey Report

Company: Project:

Marbob Lea County

Plan #1

Site: Well: Wellbore:

Design:

S31 T18S R32E

LPC Federal #2H Original Hole

Local Co-ordinate Reference: Well LPC Federal #2H

TVD Reference: MD Reference: North Reference: EST RKB @ 3683.00ft EST RKB @ 3683.00ft

Grid

Survey Calculation Method:

Database:

Minimum Curvature EDM 2003.16 Single User Db

ed Survey		, , ,			1 No. 1 1	200	
MD (ft)	inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)
8,900.00	90.00	103.64	8,330.00	-192.41	<sup>*</sup> 792.91	815.92 <sup>°</sup>	
9,000.00	90.00	103.64	8,330.00	-215.99	890.09	915 92	
9,100 00	90.00	103.64	8,330.00	-239.57	987.27	1,015.92	ı
9,200.00	90 00	103.64	8,330.00	-263 16	1,084.45	1,115.92	
9,300.00	90.00	103.64	8,330 00	-286.74	1,181.62	1,215.92	
9,400.00	90.00	103 64	8,330.00	-310.32	1,278.80	1,315.92	
9,500.00	90.00	103.64	8,330.00	-333.90	1,375 98	1,415.92	
9,600.00	90.00	103.64	8,330.00	-357.48	1,473.16	1,515.92	
9,700.00	90.00	103.64	8,330.00	-381.07	1,570.34	1,615.92	
9,800.00	90.00	103.64	8,330 00	-404.65	1,667.52	1,715.92	
9,900.00	90.00	103.64	8,330 00	-428 23	1,764.70	1,815.92	
10,000.00	90.00	103.64	8,330.00	-451.81	1,861.88	1,915.92	
10,093 42	90.00	103.64	8,330.00	-473.84	1,952.67	2,009.34	

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
PBHL - plan hits target - Point	0.00	0 00	8,330.00	-473 70	1,952.70	620,545 400	664,781.100	32° 42′ 17.398 N	103° 47' 51 494 W

Checked By:	Approved Dur	D-4	
Checked by.	Approved By:	Date:	