

RECEIVED
OCD-HOBBS

ATS-09-561

OCT 13 2009

HOBBSOCD

FORM APPROVED
OMB No 1004-0137
Expires March 31, 2007

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5 Lease Serial No. NMN0107697	
1b. Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6 If Indian, Allottee or Tribe Name	
2 Name of Operator Marbob Energy Corporation		7 If Unit or CA Agreement, Name and No	
3a Address P.O. Box 227, Artesia, NM 88211-0227		8 Lease Name and Well No. S L Deep Federal #4H 37543	
3b Phone No. (include area code) 14049 575-748-3303		9 API Well No. 30-025-39538	
4 Location of Well (Report location clearly and in accordance with any State requirements *) At surface 2310' FNL & 660' FWL At proposed prod zone 330' FNL & 940' FWL		10 Field and Pool, or Exploratory Lusk; Bone Spring (K1KKO)	
11 Sec, T, R, M or Blk and Survey or Area Section 30, T19S - R32E		12 County or Parish Lea County	
13 State NM		14 Distance in miles and direction from nearest town or post office* About 5 miles from Halfway, NM	
15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig unit line, if any) 330'		16 No of acres in lease 2,321.520	
17 Spacing Unit dedicated to this well 80		18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft	
19 Proposed Depth PHTD:10500' TVD:9283' MD - 11676		20 BLM/BIA Bond No. on file NMB000412	
21 Elevations (Show whether DF, KDB, RT, GL, etc) 3527' GL - near operator		22 Approximate date work will start* 09/05/2009	
23 Estimated duration 30 Days		24. Attachments	

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No 1, must be attached to this form

- | | |
|--|---|
| 1 Well plat certified by a registered surveyor | 4 Bond to cover the operations unless covered by an existing bond on file (see Item 20 above) |
| 2 A Drilling Plan | 5 Operator certification |
| 3 A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office) | 6 Such other site specific information and/or plans as may be required by the BLM |

25 Signature Nancy T. Agnew	Name (Printed Typed) Nancy T. Agnew	Date 08/05/2009
Title Land Department		

Approved by (Signature) /s/ Don Peterson	Name (Printed Typed) CARLSBAD FIELD OFFICE	Date OCT 8 2009
Title FIELD MANAGER		

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 USC Section 1001 and Title 43 USC 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

*(Instructions on page 2)

Capitan Controlled Water Basin

Approval Subject to General Requirements
& Special Stipulations Attached

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

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

RECEIVED

OCT 13 2009

HOBBS

State of New Mexico

Energy, Minerals and Natural Resources Department

JUL 24 2009

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 30-025-39538	Pool Code 41440	Pool Name LUSK; BONE SPRING
Property Code 375 43	Property Name S L DEEP FEDERAL	Well Number 4H
OGRID No. 14049	Operator Name MARBOB ENERGY CORPORATION	Elevation 3527'

Surface Location

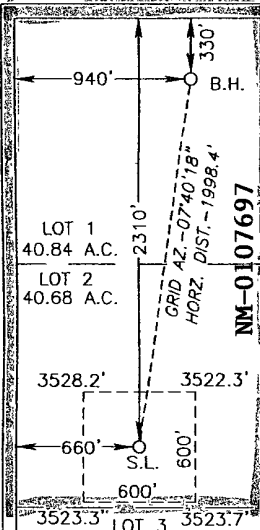
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
2	30	19-S	32-E		2310	NORTH	660	WEST	LEA

Bottom Hole Location If Different From Surface

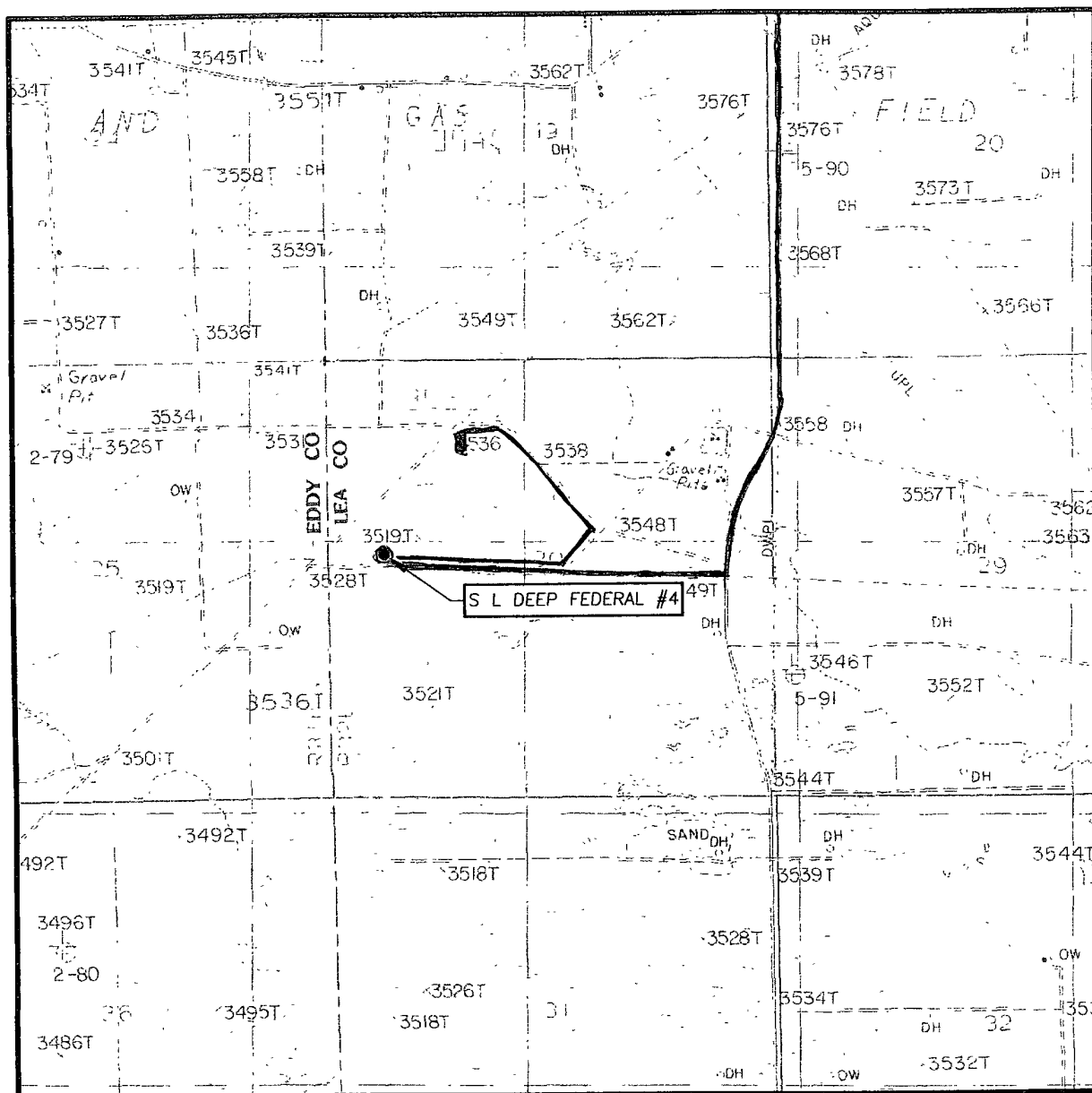
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	30	19-S	32-E		330	NORTH	940	WEST	LEA

Dedicated Acres	Joint or Infill	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

 <p>LOT 1 40.84 A.C.</p> <p>LOT 2 40.68 A.C.</p> <p>LOT 3 40.52 A.C.</p> <p>LOT 4 40.36 A.C.</p> <p>GRID 42 - 07'40"18" HORZ. DIST. - 1998.4'</p> <p>NM-0107697</p> <p>GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION Y=594129.9 N X=660635.1 E LAT.=32.632282° N LONG.=103.811537° W BOTTOM HOLE LOCATION Y=596109.9 N X=660901.9 E</p>	<p>OPERATOR CERTIFICATION</p> <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><i>Nancy T. Agnew</i> 8/5/09 Signature Date</p> <p>Nancy T. Agnew Printed Name</p> <p>SURVEYOR CERTIFICATION</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>Date Surveyed Signature & Seal of Professional Surveyor <i>Ronald J. Eidson</i> 7-23-09 Professional Surveyor</p> <p>Certificate No. GARY EIDSON 12641 RONALD J. EIDSON 3239</p>
---	--

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:
GREENWOOD LAKE, N.M. - 10'

SEC. 30 TWP. 19-S RGE. 32-E

SURVEY N.M.P.M.

COUNTY LEA STATE NEW MEXICO

DESCRIPTION 2310' FNL & 660' FWL

ELEVATION 3527'

OPERATOR MARBOB ENERGY CORPORATION

LEASE S L DEEP FEDERAL

U.S.G.S. TOPOGRAPHIC MAP
GREENWOOD LAKE, N.M.

 **Existing Roads**
 **Proposed Flowline**

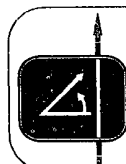
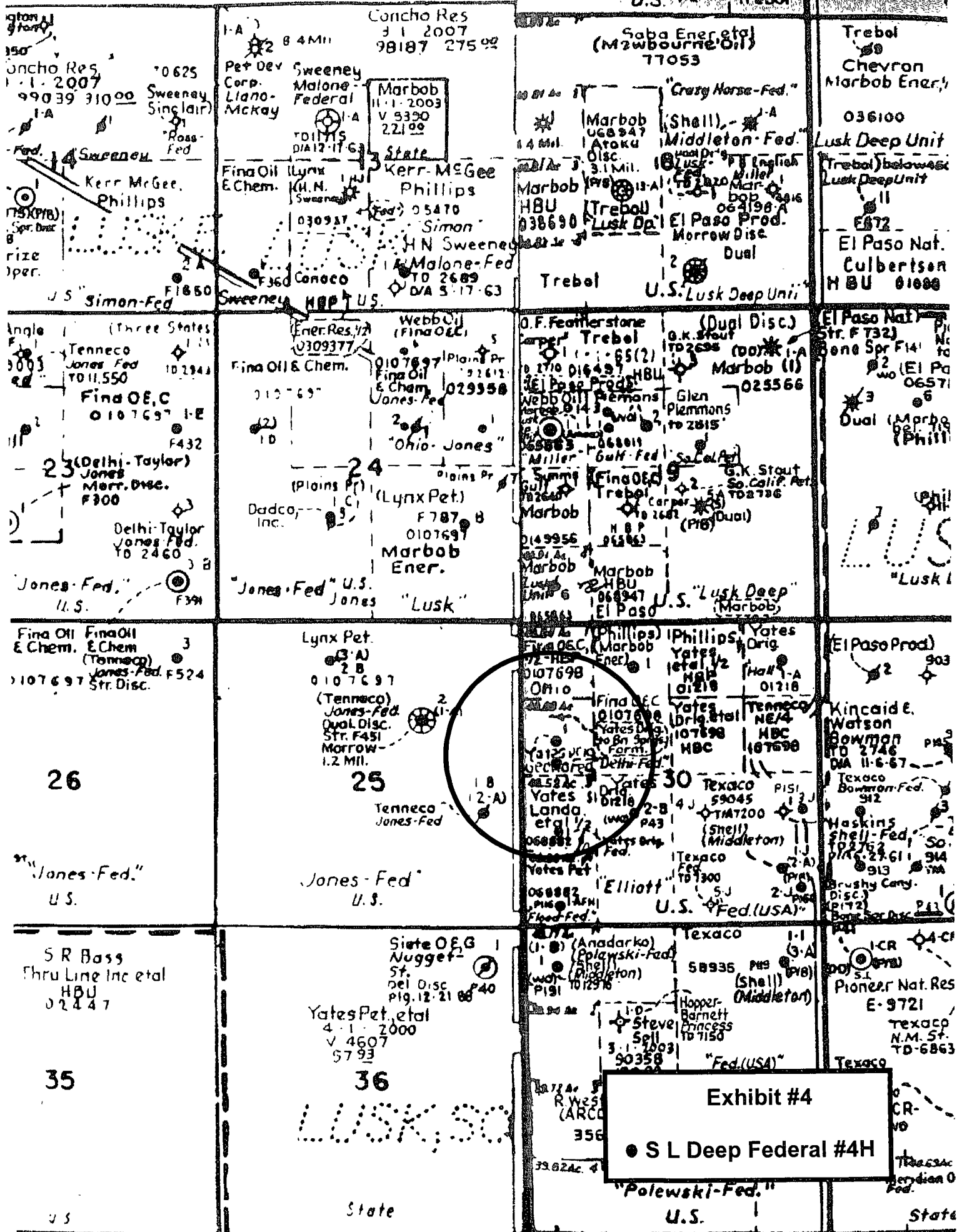


EXHIBIT #2



MARBOB ENERGY CORPORATION
DRILLING AND OPERATIONS PROGRAM

S L Deep Federal #4H
Surf: 2310' FNL & 660' FWL
BHL: 330' FNL & 940' FWL
Section 30, T19S, 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. Geological surface formation: Permian
2. The estimated tops of geologic markers & estimated depths at which anticipated water, oil or gas formations are expected to be encountered are as follows:

Rustler	821'	
Top Salt	1013'	
Bottom Salt	2353'	
Yates	2454'	Oil
Reef	2862'	Water
Delaware	4544'	Oil
Bone Spring	7147'	
1 st Bone Spring Sand	8345'	Oil
2 nd Bone Spring Sand	9052'	Oil
3 rd Bone Spring Sand	9829'	
Pilot Hole TD	10500'	← See COA
TVD	9283'	
THD	11500'	

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 850' and circulating cement back to surface. All intervals will be isolated by setting 5 1/2" casing to total depth and circulating cement above the base of the 13 3/8" casing.

3. Proposed Casing Program:

9 5/8 "

Hole Size	Interval	OD Casing	New or Used	Wt	Collar	Grade	Collapse Design Factor	Burst Design Factor	Tension Design Factor
17 1/2"	0' - 850'	13 3/8"	New	54.5#	STC	J-55	1.125	1.125	1.6
12 1/4"	850' - 3500'	9 5/8"	New	36#	BUTT	J-55	1.125	1.125	1.6
12 1/4"	3500' - 4000'	9 5/8"	New	40#	BUTT	J-55	1.125	1.125	1.6
7 7/8"	4000' - 11500'	5 1/2"	New	17#	LTC	N--80	1.125	1.125	1.6

C11076 per directional plan

See COA

5. Proposed Cement Program: ← See COA

- a. 13 3/8" Surf Cement to surface with 500 sk "C" light wt 12.7 ppg yield 1.91. Tail in with 200 sk "c" wt 14.8 yield 1.34.
- b. 9 5/8" Int 1st stage cement with 400 sk "c" Light wt 12.7 yield 1.91 Tail in w/200 sk "c" wt 14.8 yield 1.34. Second stage 600 sk "c" light wt 12.7 yield 1.91 Tail in with 200 sk "c" wt 14.8 yield 1.34 TOC 500' packer stage collar @ 2500'
See COA
- c. 5 1/2" Prod 1st Stage 300 sk Acid Soluble "H" wt 15.0 yield 2.6
2nd Stage 700 sk "H" light wt 12.7 yield 1.91 Tail in with 100 sk "H" wt 13.0 yield 1.64 TOC 2300' DV @ 8700'

The above cement volumes could be revised pending the caliper measurement from the open hole logs. The top of cement is designed to reach approximately 200' above the 9 5/8" casing shoe. **All casing is new and API approved.**

6. Minimum Specifications for Pressure Control:

Nipple up on 13 3/8" casing with a 2M system tested to 2000# with independent tester. Nipple up on 9 5/8" with 3M system & test to 3000 psi with independent tester.

BOP will be operationally checked each 24 hour period. BOP 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 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.

7. Estimated BHP: 3861.728 psi

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

Depth	Type System	Mud Weight	Viscosity (sec)	Waterloss (cc)
0' – 850'	Fresh Water	8.4	29	N.C.
850' – 4000'	Brine	9.9 – 10.0	29	N.C.
4000' – 11500'	Cut Brine	8.9	29	N.C.

The necessary mud products for weight addition and fluid loss control will be on location at all times.

Intermediate: Drill intermediate with brine water if we lose circulation in reef switch to fresh water and dry drill to intermediate TD. We will notify the BLM to witness switch to fresh water.

9. Auxiliary Well Control and Monitoring Equipment:

- a. A Kelly cock will be in the drill string at all times.
- b. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.
- c. Hydrogen Sulfide detection equipment will be in operation after drilling out the 13 3/8" casing shoe until the 5 1/2" casing is cemented. Breathing equipment will be on location upon drilling the 13 3/8" shoe until total depth is reached.

10. Testing, Logging and Coring Program:

- a. Drill stem tests will be based on geological sample shows.
- b. The open hole electrical logging program will be:
 - i. Total Depth to Intermediate Casing: Dual Laterolog-Micro Laterolog and Gamma Ray. Compensated Neutron – Z Density log with Gamma Ray and Caliper.
 - ii. Total Depth to Surface: Compensated Neutron with Gamma Ray
 - iii. No coring program is planned
 - iv. Additional testing will be initiated subsequent to setting the 5 1/2" production casing. Specific intervals will be targeted based on log evaluation, geological sample shows and drill stem tests.

11. Potential Hazards:

- a. No abnormal pressures or temperatures are expected. There is no known presence of H₂S in this area. If H₂S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No. 6. No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP: 3861.728 psi. No H₂S is anticipated to be encountered.

12. Anticipated starting date and Duration of Operations:

- a. Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as possible after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 30 days.



RECEIVED
OCT 13 2009
HOBBSOCD

Marbob

Lea County
S L Deep Federal
#4H
OH

Plan: Plan #1

Pathfinder X & Y Planning Report

04 August, 2009

PATHFINDER



Pathfinder Energy Services

Pathfinder X & Y Planning Report



Company: Marbob
Project: Lea County
Site: S L Deep Federal
Well: #4H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #4H
TVD Reference: WELL @ 3549 00ft (Patriot #3)
MD Reference: WELL @ 3549 00ft (Patriot #3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Project: Lea County, New Mexico
Map System: US State Plane 1927 (Exact solution)
Geo Datum: NAD 1927 (NADCON CONUS)
Map Zone: New Mexico East 3001

System Datum: Mean Sea Level

Site: S L Deep Federal

Site Position: Northing: 594,129.900 ft Latitude: 32° 37' 56.214 N
From: Map Easting: 660,635.100 ft Longitude: 103° 48' 41.535 W
Position Uncertainty: 0.00 ft Slot Radius: " Grid Convergence: 0.28 °

Well: #4H
Well Position: +N/-S 0.00 ft Northing: 594,129.900 ft Latitude: 32° 37' 56.214 N
+E/-W 0.00 ft Easting: 660,635.100 ft Longitude: 103° 48' 41.535 W
Position Uncertainty: 0.00 ft Wellhead Elevation: ft Ground Level: 3,527.00 ft

Wellbore: OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	08/04/2009	7.94	60.59	49,050

Design: Plan #1

Audit Notes:

Version: Phase: PLAN Tie On Depth: 0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	7.67

Survey Tool Program Date 08/04/2009

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	11,075.93	Plan #1 (OH)	MWD	MWD - Standard



Pathfinder Energy Services

Pathfinder X & Y Planning Report



Company: Marbob
Project: Lea County
Site: S L Deep Federal
Well: #4H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #4H
TVD Reference: WELL @ 3549.00ft (Patriot #3)
MD Reference: WELL @ 3549.00ft (Patriot #3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
0.00	0.00	0.00	0.00	-3,549.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
100.00	0.00	0.00	100.00	-3,449.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
200.00	0.00	0.00	200.00	-3,349.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
300.00	0.00	0.00	300.00	-3,249.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
400.00	0.00	0.00	400.00	-3,149.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
500.00	0.00	0.00	500.00	-3,049.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
600.00	0.00	0.00	600.00	-2,949.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
700.00	0.00	0.00	700.00	-2,849.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
800.00	0.00	0.00	800.00	-2,749.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
900.00	0.00	0.00	900.00	-2,649.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
1,000.00	0.00	0.00	1,000.00	-2,549.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
1,100.00	0.00	0.00	1,100.00	-2,449.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
1,200.00	0.00	0.00	1,200.00	-2,349.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
1,300.00	0.00	0.00	1,300.00	-2,249.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
1,400.00	0.00	0.00	1,400.00	-2,149.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
1,500.00	0.00	0.00	1,500.00	-2,049.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
1,600.00	0.00	0.00	1,600.00	-1,949.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
1,700.00	0.00	0.00	1,700.00	-1,849.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
1,800.00	0.00	0.00	1,800.00	-1,749.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
1,900.00	0.00	0.00	1,900.00	-1,649.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
2,000.00	0.00	0.00	2,000.00	-1,549.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
2,100.00	0.00	0.00	2,100.00	-1,449.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
2,200.00	0.00	0.00	2,200.00	-1,349.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
2,300.00	0.00	0.00	2,300.00	-1,249.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
2,400.00	0.00	0.00	2,400.00	-1,149.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
2,500.00	0.00	0.00	2,500.00	-1,049.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
2,600.00	0.00	0.00	2,600.00	-949.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10



Pathfinder Energy Services

Pathfinder X & Y Planning Report



Company: Marbob
Project: Lea County
Site: S L Deep Federal
Well: #4H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #4H
TVD Reference: WELL @ 3549.00ft (Patriot #3)
MD Reference: WELL @ 3549.00ft (Patriot #3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi. (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
2,700.00	0.00	0.00	2,700.00	-849.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
2,800.00	0.00	0.00	2,800.00	-749.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
2,900.00	0.00	0.00	2,900.00	-649.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
3,000.00	0.00	0.00	3,000.00	-549.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
3,100.00	0.00	0.00	3,100.00	-449.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
3,200.00	0.00	0.00	3,200.00	-349.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
3,300.00	0.00	0.00	3,300.00	-249.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
3,400.00	0.00	0.00	3,400.00	-149.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
3,500.00	0.00	0.00	3,500.00	-49.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
3,600.00	0.00	0.00	3,600.00	51.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
3,700.00	0.00	0.00	3,700.00	151.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
3,800.00	0.00	0.00	3,800.00	251.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
3,900.00	0.00	0.00	3,900.00	351.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
4,000.00	0.00	0.00	4,000.00	451.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
4,100.00	0.00	0.00	4,100.00	551.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
4,200.00	0.00	0.00	4,200.00	651.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
4,300.00	0.00	0.00	4,300.00	751.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
4,400.00	0.00	0.00	4,400.00	851.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
4,500.00	0.00	0.00	4,500.00	951.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
4,600.00	0.00	0.00	4,600.00	1,051.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
4,700.00	0.00	0.00	4,700.00	1,151.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
4,800.00	0.00	0.00	4,800.00	1,251.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
4,900.00	0.00	0.00	4,900.00	1,351.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
5,000.00	0.00	0.00	5,000.00	1,451.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
5,100.00	0.00	0.00	5,100.00	1,551.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
5,200.00	0.00	0.00	5,200.00	1,651.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
5,300.00	0.00	0.00	5,300.00	1,751.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10



Pathfinder Energy Services

Pathfinder X & Y Planning Report



Company: Marbob
Project: Lea County
Site: S L Deep Federal
Well: #4H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #4H
TVD Reference: WELL @ 3549.00ft (Patriot #3)
MD Reference: WELL @ 3549.00ft (Patriot #3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
5,400.00	0.00	0.00	5,400.00	1,851.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
5,500.00	0.00	0.00	5,500.00	1,951.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
5,600.00	0.00	0.00	5,600.00	2,051.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
5,700.00	0.00	0.00	5,700.00	2,151.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
5,800.00	0.00	0.00	5,800.00	2,251.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
5,900.00	0.00	0.00	5,900.00	2,351.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
6,000.00	0.00	0.00	6,000.00	2,451.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
6,100.00	0.00	0.00	6,100.00	2,551.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
6,200.00	0.00	0.00	6,200.00	2,651.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
6,300.00	0.00	0.00	6,300.00	2,751.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
6,400.00	0.00	0.00	6,400.00	2,851.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
6,500.00	0.00	0.00	6,500.00	2,951.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
6,600.00	0.00	0.00	6,600.00	3,051.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
6,700.00	0.00	0.00	6,700.00	3,151.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
6,800.00	0.00	0.00	6,800.00	3,251.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
6,900.00	0.00	0.00	6,900.00	3,351.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
7,000.00	0.00	0.00	7,000.00	3,451.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
7,100.00	0.00	0.00	7,100.00	3,551.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
7,200.00	0.00	0.00	7,200.00	3,651.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
7,300.00	0.00	0.00	7,300.00	3,751.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
7,400.00	0.00	0.00	7,400.00	3,851.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
7,500.00	0.00	0.00	7,500.00	3,951.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
7,600.00	0.00	0.00	7,600.00	4,051.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
7,700.00	0.00	0.00	7,700.00	4,151.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
7,800.00	0.00	0.00	7,800.00	4,251.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
7,900.00	0.00	0.00	7,900.00	4,351.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
8,000.00	0.00	0.00	8,000.00	4,451.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10



Pathfinder Energy Services

Pathfinder X & Y Planning Report



Company: Marbob
Project: Lea County
Site: S L Deep Federal
Well: #4H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #4H
TVD Reference: WELL @ 3549.00ft (Patriot #3)
MD Reference: WELL @ 3549.00ft (Patriot #3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
8,100.00	0.00	0.00	8,100.00	4,551.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
8,200.00	0.00	0.00	8,200.00	4,651.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
8,300.00	0.00	0.00	8,300.00	4,751.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
8,400.00	0.00	0.00	8,400.00	4,851.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
8,500.00	0.00	0.00	8,500.00	4,951.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
8,600.00	0.00	0.00	8,600.00	5,051.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
8,700.00	0.00	0.00	8,700.00	5,151.00	0.00	0.00	0.00	0.00	594,129.90	660,635.10
8,805.50	0.00	0.00	8,805.50	5,256.50	0.00	0.00	0.00	0.00	594,129.90	660,635.10
KOP-8805.50'MD,0.00°INC,0.00°AZI,8805.50'TVD										
8,825.00	2.34	7.67	8,824.99	5,275.99	0.39	0.05	0.40	12.00	594,130.29	660,635.15
8,850.00	5.34	7.67	8,849.94	5,300.94	2.05	0.28	2.07	12.00	594,131.95	660,635.38
8,875.00	8.34	7.67	8,874.75	5,325.75	5.00	0.67	5.05	12.00	594,134.90	660,635.77
8,900.00	11.34	7.67	8,899.38	5,350.38	9.24	1.24	9.32	12.00	594,139.14	660,636.34
8,925.00	14.34	7.67	8,923.76	5,374.76	14.74	1.99	14.88	12.00	594,144.64	660,637.09
8,950.00	17.34	7.67	8,947.80	5,398.80	21.50	2.90	21.70	12.00	594,151.40	660,638.00
8,975.00	20.34	7.67	8,971.46	5,422.46	29.50	3.97	29.77	12.00	594,159.40	660,639.07
9,000.00	23.34	7.67	8,994.67	5,445.67	38.72	5.21	39.07	12.00	594,168.62	660,640.31
9,025.00	26.34	7.67	9,017.35	5,468.35	49.12	6.62	49.57	12.00	594,179.02	660,641.72
9,050.00	29.34	7.67	9,039.46	5,490.46	60.69	8.17	61.24	12.00	594,190.59	660,643.27
9,075.00	32.34	7.67	9,060.92	5,511.92	73.39	9.88	74.06	12.00	594,203.29	660,644.98
9,100.00	35.34	7.67	9,081.68	5,532.68	87.19	11.74	87.97	12.00	594,217.09	660,646.84
9,125.00	38.34	7.67	9,101.69	5,552.69	102.04	13.74	102.96	12.00	594,231.94	660,648.84
9,150.00	41.34	7.67	9,120.88	5,571.88	117.91	15.88	118.97	12.00	594,247.81	660,650.98
9,175.00	44.34	7.67	9,139.21	5,590.21	134.75	18.15	135.97	12.00	594,264.65	660,653.25
9,200.00	47.34	7.67	9,156.63	5,607.63	152.53	20.54	153.90	12.00	594,282.43	660,655.64
9,225.00	50.34	7.67	9,173.08	5,624.08	171.18	23.05	172.72	12.00	594,301.08	660,658.15
9,250.00	53.34	7.67	9,188.53	5,639.53	190.65	25.68	192.38	12.00	594,320.55	660,660.78



Pathfinder Energy Services

Pathfinder X & Y Planning Report



Company: Marbob
Project: Lea County
Site: S L Deep Federal
Well: #4H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #4H
TVD Reference: WELL @ 3549.00ft (Patriot #3)
MD Reference: WELL @ 3549.00ft (Patriot #3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
9,275.00	56.34	7.67	9,202.92	5,653.92	210.91	28.40	212.81	12.00	594,340.81	660,663.50
9,300.00	59.34	7.67	9,216.23	5,667.23	231.88	31.23	233.97	12.00	594,361.78	660,666.33
9,325.00	62.34	7.67	9,228.41	5,679.41	253.51	34.14	255.80	12.00	594,383.41	660,669.24
9,350.00	65.34	7.67	9,239.44	5,690.44	275.75	37.14	278.23	12.00	594,405.65	660,672.24
9,375.00	68.33	7.67	9,249.27	5,700.27	298.52	40.20	301.22	12.00	594,428.42	660,675.30
9,400.00	71.33	7.67	9,257.89	5,708.89	321.78	43.33	324.68	12.00	594,451.68	660,678.43
9,425.00	74.33	7.67	9,265.26	5,716.26	345.45	46.52	348.57	12.00	594,475.35	660,681.62
9,450.00	77.33	7.67	9,271.38	5,722.38	369.47	49.76	372.80	12.00	594,499.37	660,684.86
9,475.00	80.33	7.67	9,276.22	5,727.22	393.77	53.03	397.33	12.00	594,523.67	660,688.13
9,500.00	83.33	7.67	9,279.77	5,730.77	418.29	56.33	422.07	12.00	594,548.19	660,691.43
9,525.00	86.33	7.67	9,282.02	5,733.02	442.97	59.66	446.97	12.00	594,572.87	660,694.76
9,550.00	89.33	7.67	9,282.97	5,733.97	467.72	62.99	471.94	12.00	594,597.62	660,698.09
9,555.56	90.00	7.67	9,283.00	5,734.00	473.23	63.73	477.50	12.00	594,603.13	660,698.83
EOC-9555.56°MD,90.00°INC,7.67°AZI,9283.00°TVD,12.00°DLS, 477.50°VS, 473.23°N, 63.73°E										
9,600.00	90.00	7.67	9,283.00	5,734.00	517.28	69.66	521.94	0.00	594,647.18	660,704.76
9,700.00	90.00	7.67	9,283.00	5,734.00	616.38	83.01	621.94	0.00	594,746.28	660,718.11
9,800.00	90.00	7.67	9,283.00	5,734.00	715.49	96.36	721.94	0.00	594,845.39	660,731.46
9,900.00	90.00	7.67	9,283.00	5,734.00	814.59	109.70	821.94	0.00	594,944.49	660,744.80
10,000.00	90.00	7.67	9,283.00	5,734.00	913.70	123.05	921.94	0.00	595,043.60	660,758.15
10,100.00	90.00	7.67	9,283.00	5,734.00	1,012.80	136.40	1,021.94	0.00	595,142.70	660,771.50
10,200.00	90.00	7.67	9,283.00	5,734.00	1,111.91	149.74	1,121.94	0.00	595,241.81	660,784.84
10,300.00	90.00	7.67	9,283.00	5,734.00	1,211.01	163.09	1,221.94	0.00	595,340.91	660,798.19
10,400.00	90.00	7.67	9,283.00	5,734.00	1,310.12	176.44	1,321.94	0.00	595,440.02	660,811.54
10,500.00	90.00	7.67	9,283.00	5,734.00	1,409.22	189.78	1,421.94	0.00	595,539.12	660,824.88
10,600.00	90.00	7.67	9,283.00	5,734.00	1,508.33	203.13	1,521.94	0.00	595,638.23	660,838.23
10,700.00	90.00	7.67	9,283.00	5,734.00	1,607.43	216.48	1,621.94	0.00	595,737.33	660,851.58
10,800.00	90.00	7.67	9,283.00	5,734.00	1,706.54	229.82	1,721.94	0.00	595,836.44	660,864.92



Pathfinder Energy Services

Pathfinder X & Y Planning Report



Company: Marbob
Project: Lea County
Site: S L Deep Federal
Well: #4H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #4H
TVD Reference: WELL @ 3549.00ft (Patriot #3)
MD Reference: WELL @ 3549.00ft (Patriot #3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
10,900.00	90.00	7.67	9,283.00	5,734.00	1,805.64	243.17	1,821.94	0.00	595,935.54	660,878.27
11,000.00	90.00	7.67	9,283.00	5,734.00	1,904.75	256.52	1,921.94	0.00	596,034.65	660,891.62
11,075.93	90.00	7.67	9,283.00	5,734.00	1,980.00	266.65	1,997.87	0.00	596,109.90	660,901.75

TD at 11075.93 - PBHL(SL#4H)

Targets

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(SL#4H) 0.00 0.00 9,283.00 1,980.00 266.80 596,109.900 660,901.900 32° 38' 15.794 N 103° 48' 38.301 W
- plan hits target
- Point

Plan Annotations

Measured
Depth
(ft)

Vertical
Depth
(ft)

Local Coordinates

+N/-S
(ft)

+E/-W
(ft)

Comment

8,805.50	8,805.50	0.00	0.00	KOP-8805.50°MD,0.00°INC,0.00°AZI,8805.50°TVD
9,555.56	9,283.00	473.23	63.73	EOC-9555.56°MD,90.00°INC,7.67°AZI,9283.00°TVD,12.00°DLS, 477.50
11,075.93	9,283.00	1,980.00	266.65	TD at 11075.93

Checked By: _____

Approved By: _____

Date: _____



Project: Lea County
Site: S L Deep Federal
Well: #4H
Wellbore: OH
Plan: Plan #1 (#4H/OH)



Azimuths to Grid North
True North: -0.28°
Magnetic North: 7.66°

Magnetic Field
Strength: 49049.8nT
Dip Angle: 60.58°
Date: 08/04/2009
Model: IGRF200510

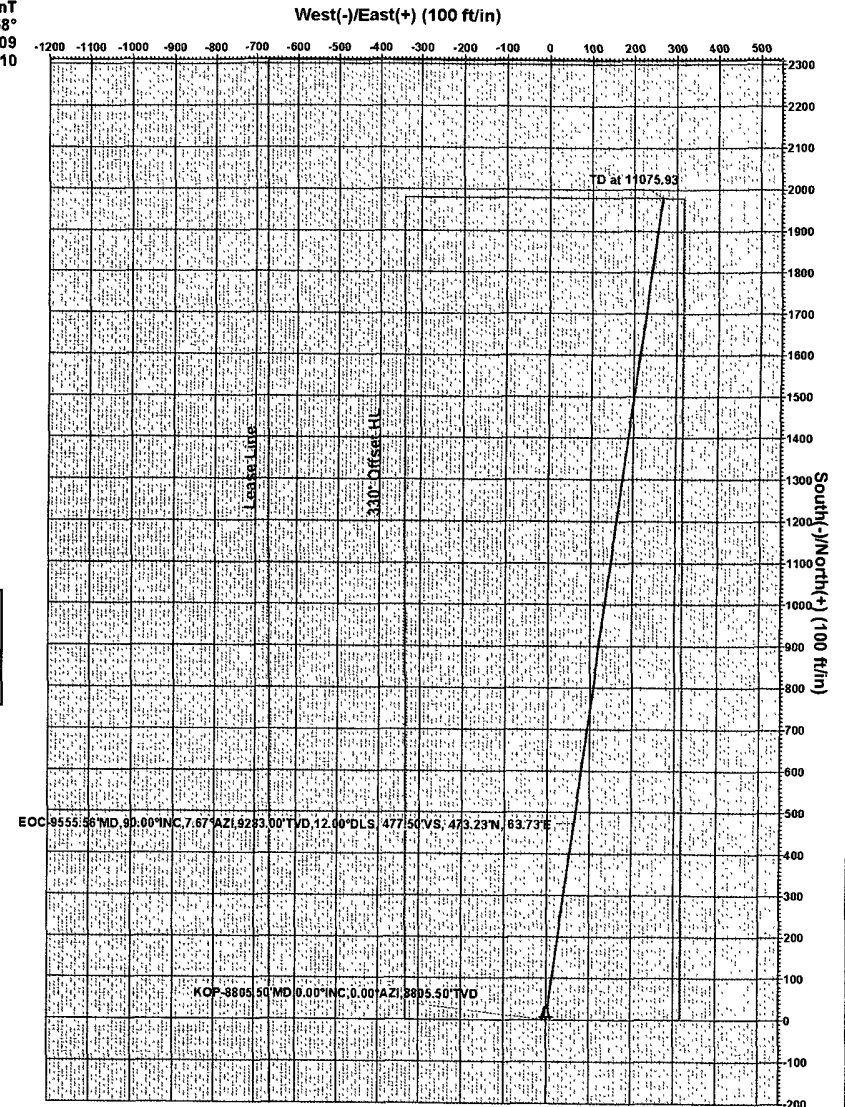
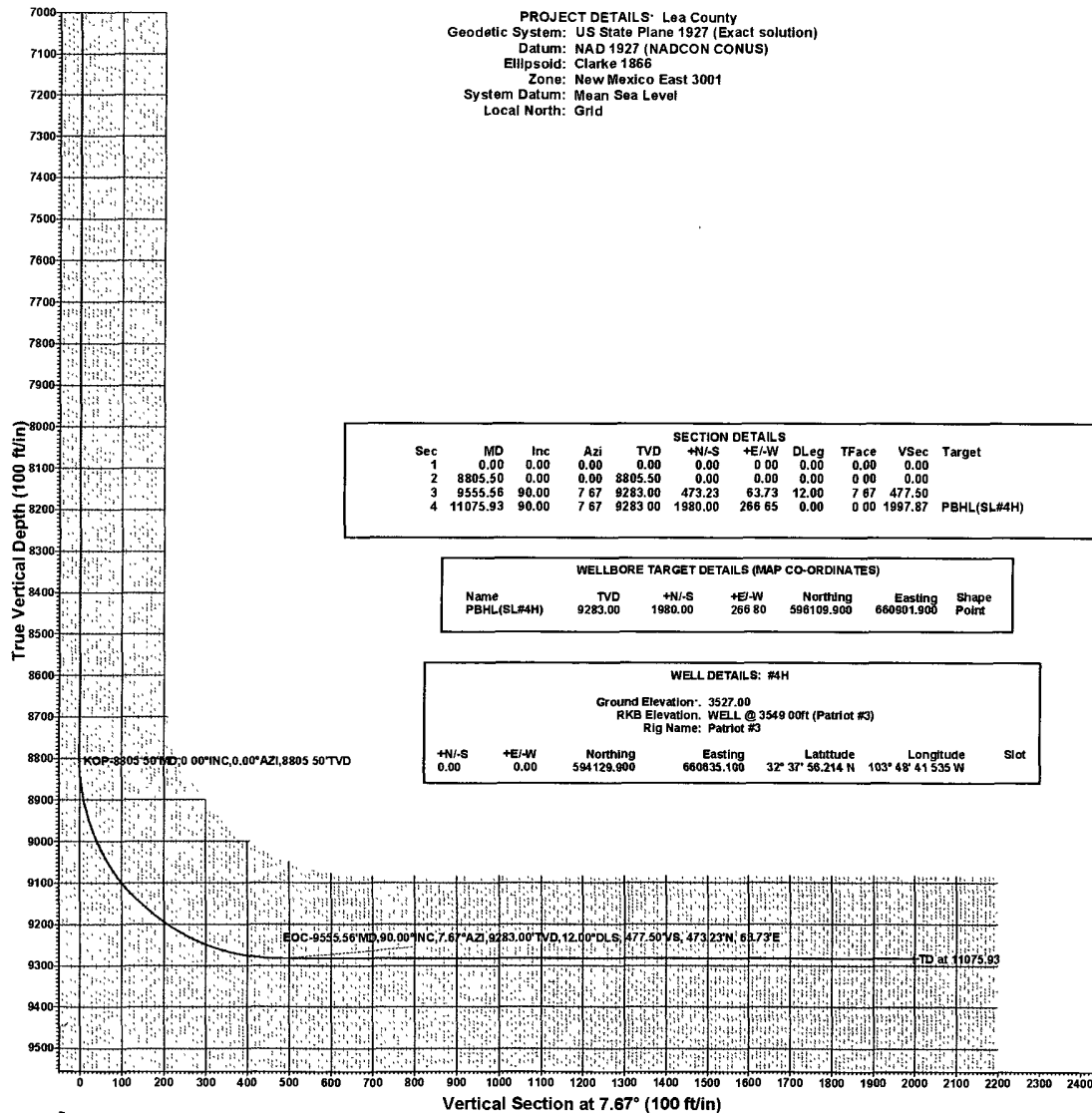
PATHFINDER

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									
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	8805.50	0.00	0.00	8805.50	0.00	0.00	0.00	0.00	0.00
3	9555.56	90.00	7.67	9283.00	473.23	63.73	12.00	7.67	477.50
4	11075.93	90.00	7.67	9283.00	1980.00	266.65	0.00	0.00	1997.87 PBHL(SL#4H)

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)						
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape Point
PBHL(SL#4H)	9283.00	1980.00	266.65	596109.900	660901.900	

WELL DETAILS: #4H						
Ground Elevation: 3527.00						
RKB Elevation: WELL @ 3549.00ft (Patriot #3)						
Rig Name: Patriot #3						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	594129.900	660835.100	32° 37' 56.214 N	103° 48' 41.535 W	



Plan Plan #1 (#4H/OH)
Created By Nate Bingham Date 11 37, August 04 2009
Checked _____ Date _____

MARBOB ENERGY CORPORATION

HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

I. HYDROGEN SULFIDE TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

- A. The hazards and characteristics of hydrogen sulfide (H₂S).
- B. The proper use and maintenance of personal protective equipment and life support systems.
- C. The proper use of H₂S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
- D. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

- A. The effects of H₂S on metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
- B. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
- C. The contents and requirements of the H₂S Drilling Operations Plan and the Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H₂S zone (within 3 days or 500 feet) and weekly H₂S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H₂S Drilling Operations Plan and the Public Protection Plan. This plan shall be available at the well site. All personnel will be required to carry documentation that they have received the proper training.

II. H₂S SAFETY EQUIPMENT AND SYSTEMS

Note: All H₂S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H₂S.

A. Well Control Equipment:

Flare line.

Choke manifold.

Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.

Auxiliary equipment to include: annular preventer, mud-gas separator, rotating head.

B. Protective equipment for essential personnel:

Mark II Surviveair 30-minute units located in the dog house and at briefing areas.

C. H₂S detection and monitoring equipment:

2 - portable H₂S monitor positioned on location for best coverage and response. These units have warning lights and audible sirens when H₂S levels of 20 ppm are reached.

D. Visual warning systems:

Caution/Danger signs shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate. See example attached.

E. Mud Program:

The mud program has been designed to minimize the volume of H₂S circulated to the surface.

F. Metallurgy:

All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H₂S service.

G. Communication:

Company vehicles equipped with cellular telephone and 2-way radio.

Marbob Energy has conducted a review to determine if an H₂S contingency plan is required for the above referenced well. We were able to conclude that any potential hazardous volume would be minimal. H₂S concentrations of wells in this area from surface to TD are low enough; therefore we do not believe that an H₂S Contingency Plan would be necessary.

W A R N I N G

**YOU ARE ENTERING AN H₂S AREA
AUTHORIZED PERSONNEL ONLY**

- 1. BEARDS OR CONTACT LENSES NOT ALLOWED**
- 2. HARD HATS REQUIRED**
- 3. SMOKING IN DESIGNATED AREAS ONLY**
- 4. BE WIND CONSCIOUS AT ALL TIMES**
- 5. CK WITH MARBOB FOREMAN AT MAIN OFFICE**

MARBOB ENERGY CORPORATION

1-575-748-3303

EMERGENCY CALL LIST

	<u>Office</u>	<u>Mobile</u>	<u>Home</u>
Marbob Energy Corp.	575-748-3303		
Sheryl Baker	575-748-3303	575-748-5489	575-748-2396
Johnny C. Gray	575-748-3303	575-748-5983	575-885-3879
Raye Miller	575-748-3303	575-513-0176	575-746-9577
Dean Chumbley	575-748-3303	575-748-5988	575-748-2426

EMERGENCY RESPONSE NUMBERS **Eddy County, New Mexico**

State Police	575-748-9718
Eddy County Sheriff	575-746-2701
Emergency Medical Services (Ambulance)	911 or 575-746-2701
Eddy County Emergency Management (Harry Burgess)	575-887-9511
State Emergency Response Center (SERC)	575-476-9620
Carlsbad Police Department	575-885-2111
Carlsbad Fire Department	575-885-3125
New Mexico Oil Conservation Division	575-748-1283
Indian Fire & Safety	800-530-8693
Halliburton Services	800-844-8451

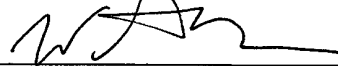
CERTIFICATION:

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drillsite and access route, that I am familiar with the conditions which presently exist; that the statements made in this plan are to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by Marbob Energy Corporation and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

Aug 5 2004

Date

Marbob Energy Corporation



William Miller

Land Department

PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Marbob Energy Corp
LEASE NO.:	NM0107697
WELL NAME & NO.:	4H S L Deep Federal
SURFACE HOLE FOOTAGE:	2310' FNL & 660' FWL
BOTTOM HOLE FOOTAGE:	330' FNL & 940' FWL
LOCATION:	Section 30, T. 19 S., R 32 E., NMPM
COUNTY:	Lea County, New Mexico

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
 - Lesser Prairie Chicken
 - Ground Level Abandoned Well Marker
- ☒ **Construction**
 - Notification
 - Topsoil
 - Reserve Pit – Closed-loop mud system
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☐ **Road Section Diagram**
- ☒ **Drilling**
 - Onshore Order 6 – H2S requirements
 - Logging requirements
 - Casing depth/safety factor
 - Capitan Reef requirements
 - Pilot hole
- ☒ **Production (Post Drilling)**
 - Pipelines
- ☐ **Reserve Pit Closure/Interim Reclamation**
- ☐ **Final Abandonment/Reclamation**

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Timing Limitation Stipulation/Condition of Approval for Lesser Prairie-Chicken: Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Hobbs Field Station at (575) 393-3612 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall stockpile the topsoil of the well pad. The topsoil shall not be used to backfill the reserve pit and will be used for interim and final reclamation.

C. RESERVE PITS

The operator has applied for a closed-loop system. The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

If the operator elects to surface the access road and/or well pad, mineral materials extracted during construction of the reserve pit may be used for surfacing the well pad and access road and other facilities on the lease.

Payment shall be made to the BLM prior to removal of any additional federal mineral materials from any site other than the reserve pit. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.

The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

VII. 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

☒ **Eddy County**

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,
(575) 361-2822

1. A Hydrogen Sulfide (H₂S) Drilling Plan should be activated 500 feet prior to drilling into the Delaware formation. **As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.**
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.
4. **The record of the drilling rate along with the CAL/GR/N well log run from TD to surface will be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

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 for all casing strings. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

**Possible lost circulation in the Artesia Group and the Capitan Reef.
Possible water flows in the Artesia and Salado Groups.**

- 1. The 13-3/8 inch surface casing shall be set at approximately 850 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.**
 - 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 is to include the lead cement slurry.**
 - 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.**
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.**

If any lost circulation occurs below the Base of the Salt, the operator is to switch to fresh water mud to protect the Capitan Reef and use fresh water mud until setting the intermediate casing. The appropriate BLM office is to be notified for a PET to witness the switch to fresh water.

In addition, daily drilling reports are to be submitted to the BLM CFO by 0800 hours each morning from the setting of the surface casing until the intermediate casing is set. Failure to submit these reports will result in an Incidence of Non-Compliance being issued for failure to comply with the Conditions of Approval.

NOTE: 9-5/8" Intermediate casing to be set in the Lamar Limestone at approximately 4495 feet.

Intermediate casing to be filled after running each 1000' to meet BLM collapse safety factor of 1.125.

2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:

a. First stage to DV tool, cement shall:

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office, before proceeding with second stage cement job.

b. Second stage above DV tool, cement shall:

☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to Capitan Reef.**

Pilot hole is required to have a plug at the bottom of the hole. If two plugs are set, the BLM is to be contacted (575-361-2822) prior to tag of bottom plug, which must be a minimum of 205' in length. Operator can set one plug from bottom of pilot hole to kick-off point and save the WOC time for tagging the first plug.

3. The minimum required fill of cement behind the 5-1/2 inch production casing is:

c. First stage to DV tool, cement shall:

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office, before proceeding with second stage cement job.

d. Second stage above DV tool, cement shall:

☒ Cement should tie-back to **2300** feet and a minimum of 50 feet above the DV tool in the intermediate casing. This will provide a second barrier for the Capitan Reef and provide for cement across the DV tool in the intermediate casing. Operator shall provide method of verification. **Additional cement may be needed as excess calculates to 14%.**

4. 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 **2000 (2M)** psi.
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8"** intermediate casing shoe shall be **3000 (3M)** psi.
4. 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.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

WWI 092609

VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Containment Structures

The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color
Shale Green, Munsell Soil Color Chart # 5Y 4/2

B. PIPELINES

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

A copy of the grant and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the

Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. The holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. The holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

a. Activities of the holder including, but not limited to construction, operation, maintenance, and termination of the facility.

b. Activities of other parties including, but not limited to:

- (1) Land clearing.
- (2) Earth-disturbing and earth-moving work.
- (3) Blasting.
- (4) Vandalism and sabotage.

c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars (\$1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder of any responsibility as provided herein.

6. All construction and maintenance activity will be confined to the authorized right-of-way width of 25 feet.
7. No blading or clearing of any vegetation will be allowed unless approved in writing by the Authorized Officer.
8. The holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky or dune areas, the pipeline will be "snaked" around hummocks and dunes rather than suspended across these features.
9. The pipeline shall be buried with a minimum of 24 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.
10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.
11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.
12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.
13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.
14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.
15. Any cultural and/or paleontological resource (historic or prehistoric site or object)

discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.

(March 1989)

IX. INTERIM RECLAMATION & RESERVE PIT CLOSURE

A. INTERIM RECLAMATION

If the well is a producer, interim reclamation shall be conducted on the well site in accordance with the orders of the Authorized Officer. The operator shall submit a Sundry Notices and Reports on Wells (Notice of Intent), Form 3160-5, prior to conducting interim reclamation.

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Operators should work with BLM surface management specialists to devise the best strategies to reduce the size of the location. Any reductions should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

Seed Mixture 2, for Sandy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

<u>Species</u>	<u>lb/acre</u>
Sand dropseed (<i>Sporobolus cryptandrus</i>)	1.0
Sand love grass (<i>Eragrostis trichodes</i>)	1.0
Plains bristlegrass (<i>Setaria macrostachya</i>)	2.0

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed

X. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS

Upon abandonment of the well and/or when the access road is no longer in service the Authorized Officer shall issue instructions and/or orders for surface reclamation and restoration of all disturbed areas.

On private surface/federal mineral estate land the reclamation procedures on the road and well pad shall be accomplished in accordance with the private surface land owner agreement.