

OCD-ARTESIA

RECEIVED  
FEB 22 2010  
NMOCD ARTESIA

ATS-10-170

EA 10-293  
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. <b>SURF &amp; BHL: NMNM117120</b>
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 <b>Marbob Energy Corporation</b>		7. If Unit or CA Agreement, Name and No
3a. Address <b>P.O. Box 227, Artesia, NM 88211-0227</b>		8. Lease Name and Well No. <b>Morning Federal #1</b>
3b. Phone No. (include area code) <b>575-748-3303</b>		9. API Well No. <b>30-015-37644</b>
4. Location of Well (Report location clearly and in accordance with any State requirements *) At surface <b>1980' FNL &amp; 330' FWL</b> At proposed prod zone <b>BHL: 2310' FNL &amp; 330' FEL</b>		10. Field and Pool, or Exploratory <b>Cedar Canyon; Bone Spring</b>
14. Distance in miles and direction from nearest town or post office* <b>About 4 miles from Malaga, NM</b>		11. Sec., T, R M or Blk and Survey or Area <b>Section 8, T24S - R29E</b>
15. Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig unit line, if any) <b>330'</b>		12. County or Parish <b>Eddy County</b>
16. No of acres in lease <b>520</b>		13. State <b>NM</b>
17. Spacing Unit dedicated to this well <b>160</b>		
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft <b>12,150' MD</b>		20. BLM/BIA Bond No. on file <b>NMB000412</b>
21. Elevations (Show whether DF, KDB, RT, GL, etc) <b>3010' GL</b>		22. Approximate date work will start* <b>01/21/2009</b>
		23. Estimated duration <b>30 Days</b>

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 <i>Nancy T. Agnew</i>	Name (Printed/Typed) <b>Nancy T. Agnew</b>	Date <b>12/21/2009</b>
Title <b>Land Department</b>		

Approved by (Signature) <i>/s/ Don Peterson</i>	Name (Printed/Typed) <b>Don Peterson</b>	Date <b>FEB 18 2010</b>
Title <b>FIELD MANAGER</b>		Office <b>CARLSBAD FIELD OFFICE</b>

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)

Carlsbad Controlled Water Basin

Approval Subject to General Requirements & Special Stipulations Attached

*WJZ*  
**SEE ATTACHED FOR  
CONDITIONS OF APPROVAL**

STATEMENT ACCEPTING RESPONSIBILITY FOR OPERATIONS

The undersigned accepts all applicable terms, conditions, stipulations, and restrictions concerning operations conducted on the leased land or portion thereof, as described below:

Date: December 21, 2009

Lease #: MNM 117120  
Morning Federal #1

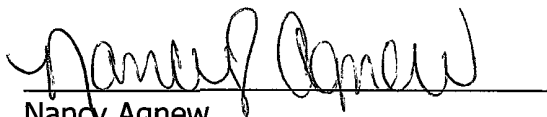
Legal Description: Sec. 8-T24S-R29E  
Eddy County, New Mexico

Formation(s): Permian

Bond Coverage: Statewide

BLM Bond File #: NMB000412

Marbob Energy Corporation



Nancy Agnew  
Land Department

State of New Mexico

DISTRICT I  
1625 N. FRENCH DR., HOBBS, NM 88240

Energy, Minerals and Natural Resources Department

DEC 07 2009

Form C-102

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

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

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 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

AMENDED REPORT

API Number <b>30-015-37644</b>	Pool Code <b>11520</b>	Pool Name <b>Cedar Canyon; Bone Spring</b>
Property Code <b>38062</b>	Property Name <b>MORNING FEDERAL</b>	Well Number <b>1H</b>
OGRID No. <b>14049</b>	Operator Name <b>MARBOB ENERGY CORPORATION</b>	Elevation <b>3010'</b>

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	8	24-S	29-E		1980	NORTH	330	WEST	EDDY

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
H	8	24-S	29-E		2310	NORTH	330	EAST	EDDY

Dedicated Acres <b>160</b>	Joint or Infill	Consolidation Code	Order No.
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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

GRID. AZ. -94°22'43"  
HORZ. DIST. -4652.6'

SEE DETAIL

DETAIL  
3001.4' 3028.3'  
600'  
600'  
2992.5' 3012.7'

GEODETIC COORDINATES  
NAD 27 NME  
SURFACE LOCATION  
Y=448995.3 N  
X=598855.8 E

LAT.=32.234006° N  
LONG.=104.013624° W

BOTTOM HOLE LOCATION  
Y=448640.1 N  
X=603493.6 E

**OPERATOR CERTIFICATION**

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.

*Nancy T. Agnew* 12/21/09  
Signature Date

**Nancy T. Agnew**  
Printed Name

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**SURVEYOR CERTIFICATION**

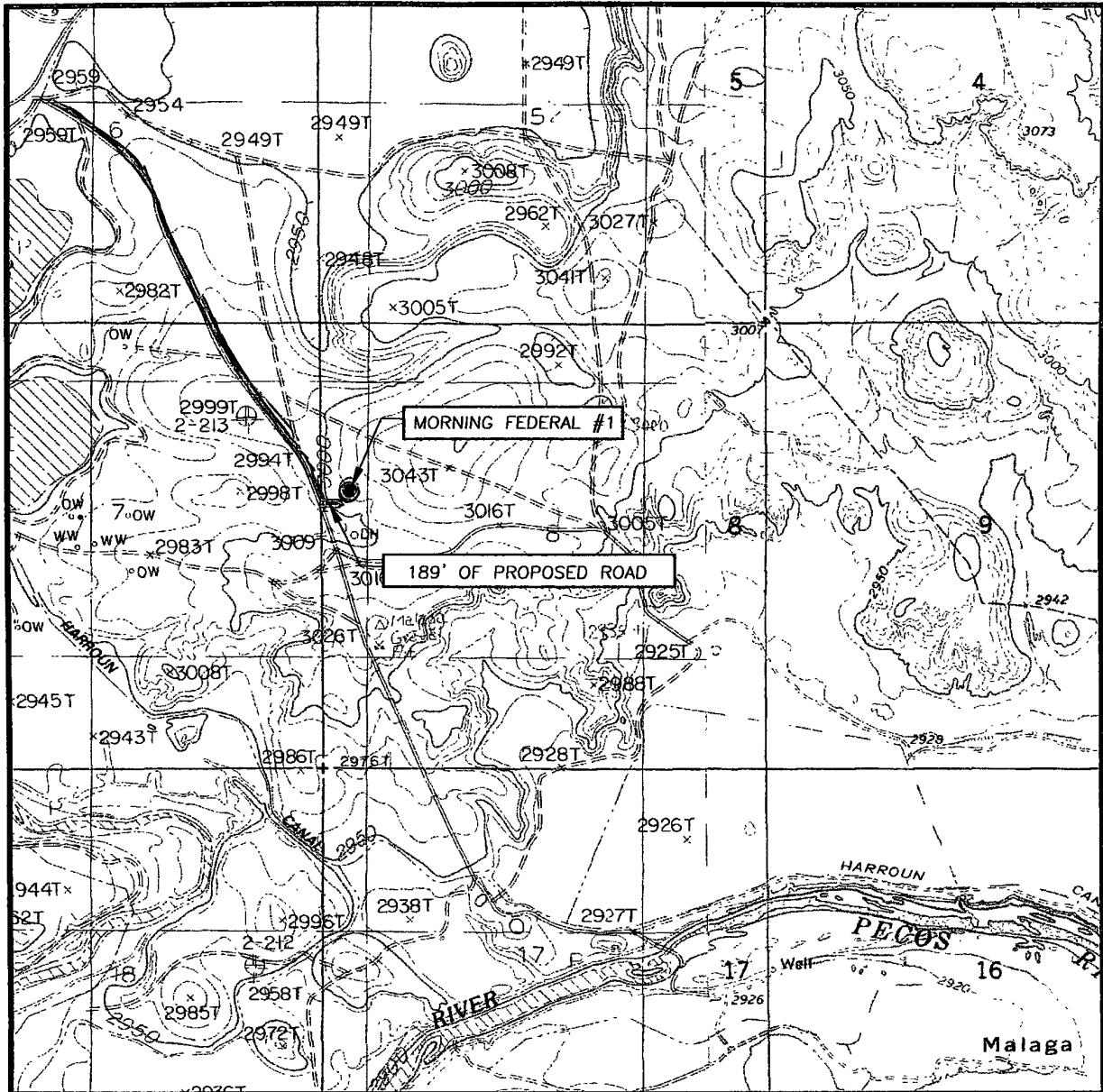
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

NOVEMBER 23 2009  
Date Surveyed LA

Signature & Seal of Professional Surveyor  
*Ronald J. Eidson* 12-04-09  
10911092

Certificate No. RONALD EIDSON 3239

# LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:  
MALAGA, N.M. - 10'  
PIERCE CANYON, N.M. - 10'

SEC. 8 TWP. 24-S RGE. 29-E

SURVEY \_\_\_\_\_ N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 1980' FNL & 330' FWL


ELEVATION \_\_\_\_\_ 3010'

OPERATOR MARBOB ENERGY CORPORATION

LEASE MORNING FEDERAL

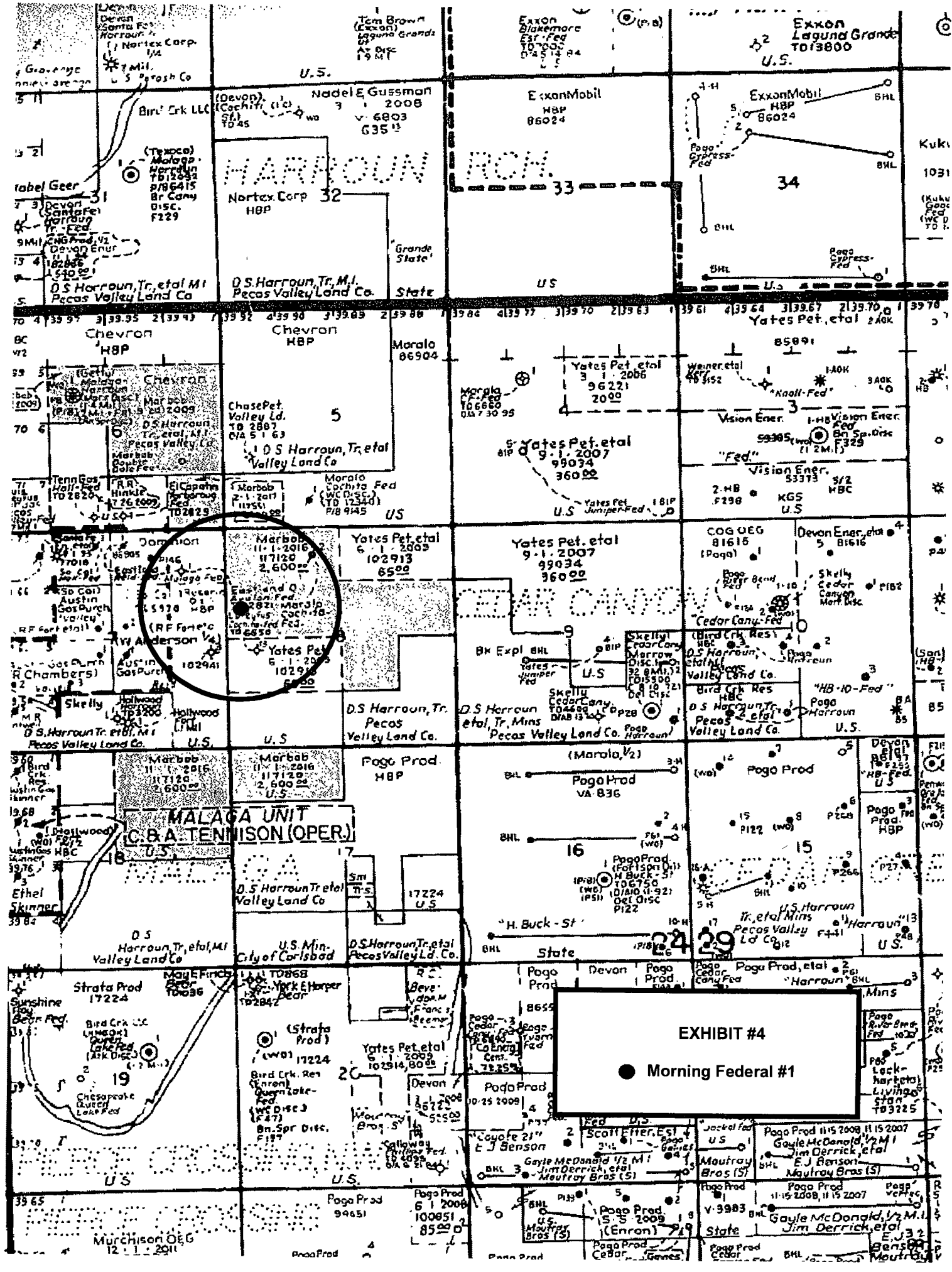
U.S.G.S. TOPOGRAPHIC MAP  
MALAGA, N.M.

## Existing Roads



PROVIDING SURVEYING SERVICES  
SINCE 1946  
**JOHN WEST SURVEYING COMPANY**  
412 N. DAL PASO  
HOBBS, N.M. 88240  
(575) 393-3117

## EXHIBIT #2



**MARBOB ENERGY CORPORATION  
DRILLING AND OPERATIONS PROGRAM**

**Morning Federal #1  
Surf: 1980' FNL & 330' FWL  
BHL: 2310' FNL & 330' FEL  
Section 8, T24S, R29E  
Eddy 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:

Top of Salt	400'	
Base of Salt	2700'	
Delaware	2900'	Oil
Bone Spring	6650'	Oil
TVD	7700'	
TMD	12150'	

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 300' 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 9 5/8" casing.

**3. Proposed Casing Program:**

Hole Size	Interval	OD Casing	New or Used	Wt	Collar	Grade	Collapse Design Factor	Burst Design Factor	Tension Design Factor
17 1/2"	0' - 300'	13 3/8"	New	48#	STC	H-40	1.125	1.125	1.6
12 1/4"	300' - 2800'	9 5/8"	New	36#	BUTT	J-55	1.125	1.125	1.6
7 7/8"	2800' - 12150'	5 1/2"	New	17#	LTC	N-80	1.125	1.125	1.6

**5. Proposed Cement Program:** *See COA*

- a. 13 3/8" Surf Cement to surface with 350 sk "C" wt 14.8 ppg yield 1.34.
- b. 9 5/8" Int *See COA* Cement to surface with 450 sk "C" Light wt 12.7 yield 1.91  
*COA* Tail in with 200 sk "C" yield 1.34 wt 14.8
- c. 5 1/2" Prod Cement 1<sup>st</sup> stage with 425 sk "H" acid soluble cement wt 15.0 yield 2.6, second stage with 450 sk "H" light wt 12.7  
*See COA* yield 1.91 Tail in with 100 sk "H" wt 13.0 yield 1.64 DV @ 7000 TOC 2500'

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 with a 2m system (Hydril) tested to 2000# by independent tester, nipple up on 9 5/8 with 3m system tested to 3000# by 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.

**7. Estimated BHP:** 3203.2 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' - 300'	Fresh Water	8.4	29	N.C.
300' - 2800'	Brine	9.9 - 10.0	29	N.C.
2800' - 12150'	Cut Brine	8.9 - 9.0	29	N.C.

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

**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:** *See COA*

- 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 H<sub>2</sub>S in this area. If H<sub>2</sub>S 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: 3203.2 psi. No H<sub>2</sub>S 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.





# **Marbob**

**Eddy County**

**Morning Federal**

**#1**

**OH**

**Plan: Plan #1**

## **Pathfinder X & Y Planning Report**

**16 December, 2009**

# **PATHFINDER**



**Pathfinder Energy Services**  
Pathfinder X & Y Planning Report



Company: Marbob  
Project: Eddy County  
Site: Morning Federal  
Well: #1  
Wellbore: OH  
Design: Plan #1

Local Co-ordinate Reference: Well #1  
TVD Reference: WELL @ 3032.00ft (Original Well Elev)  
MD Reference: WELL @ 3032.00ft (Original Well Elev)  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: Midland Database

<b>Project</b>	Eddy County		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	New Mexico East 3001		

<b>Site</b>	Morning Federal		
<b>Site Position:</b>		<b>Northing:</b>	448,995.300 ft
<b>From:</b>	Map	<b>Easting:</b>	598,855.800 ft
<b>Position Uncertainty:</b>	0 00 ft	<b>Slot Radius:</b>	"
		<b>Latitude:</b>	32° 14' 2.403 N
		<b>Longitude:</b>	104° 0' 49.048 W
		<b>Grid Convergence:</b>	0 17 °

<b>Well</b>	#1			
<b>Well Position</b>	+N/-S	0.00 ft	<b>Northing:</b>	448,995.300 ft
	+E/-W	0.00 ft	<b>Easting:</b>	598,855.800 ft
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	ft
			<b>Latitude:</b>	32° 14' 2.403 N
			<b>Longitude:</b>	104° 0' 49.048 W
			<b>Ground Level:</b>	3,010.00 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b>	<b>Dip Angle</b>	<b>Field Strength</b>
	IGRF200510	12/16/2009	(°) 7.96	(°) 60.17	(nT) 48,755

<b>Design</b>	Plan #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b> 0 00	
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>
	(ft)	(ft)	(ft)	(°)
	0.00	0 00	0.00	94.39

<b>Survey Tool Program</b>	Date 12/16/2009			
<b>From</b>	<b>To</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
(ft) 0.00	(ft) 12,146.44	Plan #1 (OH)	MWD	MWD - Standard



Pathfinder Energy Services  
Pathfinder X & Y Planning Report



Company: Marbob  
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MD Reference: WELL @ 3032.00ft (Original Well Elev)  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	EW (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
0.00	0.00	0.00	0.00	-3,032.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
100.00	0.00	0.00	100.00	-2,932.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
200.00	0.00	0.00	200.00	-2,832.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
300.00	0.00	0.00	300.00	-2,732.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
400.00	0.00	0.00	400.00	-2,632.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
500.00	0.00	0.00	500.00	-2,532.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
600.00	0.00	0.00	600.00	-2,432.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
700.00	0.00	0.00	700.00	-2,332.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
800.00	0.00	0.00	800.00	-2,232.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
900.00	0.00	0.00	900.00	-2,132.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
1,000.00	0.00	0.00	1,000.00	-2,032.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
1,100.00	0.00	0.00	1,100.00	-1,932.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
1,200.00	0.00	0.00	1,200.00	-1,832.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
1,300.00	0.00	0.00	1,300.00	-1,732.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
1,400.00	0.00	0.00	1,400.00	-1,632.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
1,500.00	0.00	0.00	1,500.00	-1,532.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
1,600.00	0.00	0.00	1,600.00	-1,432.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
1,700.00	0.00	0.00	1,700.00	-1,332.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
1,800.00	0.00	0.00	1,800.00	-1,232.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
1,900.00	0.00	0.00	1,900.00	-1,132.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
2,000.00	0.00	0.00	2,000.00	-1,032.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
2,100.00	0.00	0.00	2,100.00	-932.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
2,200.00	0.00	0.00	2,200.00	-832.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
2,300.00	0.00	0.00	2,300.00	-732.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
2,400.00	0.00	0.00	2,400.00	-632.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
2,500.00	0.00	0.00	2,500.00	-532.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
2,600.00	0.00	0.00	2,600.00	-432.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80



**Pathfinder Energy Services**  
Pathfinder X & Y Planning Report



Company: Marbob  
Project: Eddy County  
Site: Morning Federal  
Well: #1  
Wellbore: OH  
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**Planned Survey**

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2,700.00	0.00	0.00	2,700.00	-332.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
2,800.00	0.00	0.00	2,800.00	-232.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
2,900.00	0.00	0.00	2,900.00	-132.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
3,000.00	0.00	0.00	3,000.00	-32.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
3,100.00	0.00	0.00	3,100.00	68.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
3,200.00	0.00	0.00	3,200.00	168.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
3,300.00	0.00	0.00	3,300.00	268.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
3,400.00	0.00	0.00	3,400.00	368.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
3,500.00	0.00	0.00	3,500.00	468.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
3,600.00	0.00	0.00	3,600.00	568.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
3,700.00	0.00	0.00	3,700.00	668.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
3,800.00	0.00	0.00	3,800.00	768.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
3,900.00	0.00	0.00	3,900.00	868.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
4,000.00	0.00	0.00	4,000.00	968.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
4,100.00	0.00	0.00	4,100.00	1,068.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
4,200.00	0.00	0.00	4,200.00	1,168.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
4,300.00	0.00	0.00	4,300.00	1,268.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
4,400.00	0.00	0.00	4,400.00	1,368.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
4,500.00	0.00	0.00	4,500.00	1,468.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
4,600.00	0.00	0.00	4,600.00	1,568.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
4,700.00	0.00	0.00	4,700.00	1,668.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
4,800.00	0.00	0.00	4,800.00	1,768.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
4,900.00	0.00	0.00	4,900.00	1,868.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
5,000.00	0.00	0.00	5,000.00	1,968.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
5,100.00	0.00	0.00	5,100.00	2,068.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
5,200.00	0.00	0.00	5,200.00	2,168.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80
5,300.00	0.00	0.00	5,300.00	2,268.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80



Pathfinder Energy Services  
Pathfinder X & Y Planning Report



Company: Marbob  
Project: Eddy County  
Site: Morning Federal  
Well: #1  
Wellbore: OH  
Design: Plan #1

Local Co-ordinate Reference: Well #1  
TVD Reference: WELL @ 3032.00ft (Original Well Elev)  
MD Reference: WELL @ 3032.00ft (Original Well Elev)  
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	2,368.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80		
5,500.00	0.00	0.00	5,500.00	2,468.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80		
5,600.00	0.00	0.00	5,600.00	2,568.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80		
5,700.00	0.00	0.00	5,700.00	2,668.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80		
5,800.00	0.00	0.00	5,800.00	2,768.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80		
5,900.00	0.00	0.00	5,900.00	2,868.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80		
6,000.00	0.00	0.00	6,000.00	2,968.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80		
6,100.00	0.00	0.00	6,100.00	3,068.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80		
6,200.00	0.00	0.00	6,200.00	3,168.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80		
6,300.00	0.00	0.00	6,300.00	3,268.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80		
6,400.00	0.00	0.00	6,400.00	3,368.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80		
6,500.00	0.00	0.00	6,500.00	3,468.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80		
6,600.00	0.00	0.00	6,600.00	3,568.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80		
6,700.00	0.00	0.00	6,700.00	3,668.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80		
6,800.00	0.00	0.00	6,800.00	3,768.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80		
6,900.00	0.00	0.00	6,900.00	3,868.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80		
7,000.00	0.00	0.00	7,000.00	3,968.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80		
7,100.00	0.00	0.00	7,100.00	4,068.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80		
7,200.00	0.00	0.00	7,200.00	4,168.00	0.00	0.00	0.00	0.00	448,995.30	598,855.80		
7,222.50	0.00	0.00	7,222.50	4,190.50	0.00	0.00	0.00	0.00	448,995.30	598,855.80		
7,225.00	0.30	94.39	7,225.00	4,193.00	0.00	0.01	0.01	12.00	448,995.30	598,855.81		
7,250.00	3.30	94.39	7,249.98	4,217.98	-0.06	0.79	0.79	12.00	448,995.24	598,856.59		
7,275.00	6.30	94.39	7,274.89	4,242.89	-0.22	2.87	2.88	12.00	448,995.08	598,858.67		
7,300.00	9.30	94.39	7,299.66	4,267.66	-0.48	6.26	6.28	12.00	448,994.82	598,862.06		
7,325.00	12.30	94.39	7,324.21	4,292.21	-0.84	10.93	10.96	12.00	448,994.46	598,866.73		
7,350.00	15.30	94.39	7,348.49	4,316.49	-1.30	16.87	16.92	12.00	448,994.00	598,872.67		
7,375.00	18.30	94.39	7,372.42	4,340.42	-1.85	24.07	24.15	12.00	448,993.45	598,879.87		



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Pathfinder X & Y Planning Report



Company: Marbob  
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 Site: Morning Federal  
 Well: #1  
 Wellbore: OH  
 Design: Plan #1

Local Co-ordinate Reference:  
 TVD Reference:  
 MD Reference:  
 North Reference:  
 Survey Calculation Method:  
 Database:

Well #1  
 WELL @ 3032.00ft (Original Well Elev)  
 WELL @ 3032.00ft (Original Well Elev)  
 Grid  
 Minimum Curvature  
 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)
7,400.00	21.30	94.39	7,395.94	4,363.94	-2.50	32.52	32.61	12.00	448,992.80	598,888.32
7,425.00	24.30	94.39	7,418.98	4,386.98	-3.24	42.17	42.30	12.00	448,992.06	598,897.97
7,450.00	27.30	94.39	7,441.49	4,409.49	-4.07	53.02	53.18	12.00	448,991.23	598,908.82
7,475.00	30.30	94.39	7,463.40	4,431.40	-4.99	65.03	65.22	12.00	448,990.31	598,920.83
7,500.00	33.30	94.39	7,484.64	4,452.64	-6.00	78.16	78.39	12.00	448,989.30	598,933.96
7,525.00	36.30	94.39	7,505.17	4,473.17	-7.09	92.38	92.66	12.00	448,988.21	598,948.18
7,550.00	39.30	94.39	7,524.92	4,492.92	-8.27	107.66	107.98	12.00	448,987.03	598,963.46
7,575.00	42.30	94.39	7,543.84	4,511.84	-9.52	123.94	124.31	12.00	448,985.78	598,979.74
7,600.00	45.30	94.39	7,561.89	4,529.89	-10.84	141.19	141.61	12.00	448,984.46	598,996.99
7,625.00	48.30	94.39	7,579.00	4,547.00	-12.23	159.36	159.83	12.00	448,983.07	599,015.16
7,650.00	51.30	94.39	7,595.14	4,563.14	-13.70	178.40	178.92	12.00	448,981.60	599,034.20
7,675.00	54.30	94.39	7,610.25	4,578.25	-15.22	198.25	198.83	12.00	448,980.08	599,054.05
7,700.00	57.30	94.39	7,624.30	4,592.30	-16.80	218.86	219.51	12.00	448,978.50	599,074.66
7,725.00	60.30	94.39	7,637.25	4,605.25	-18.44	240.18	240.89	12.00	448,976.86	599,095.98
7,750.00	63.30	94.39	7,649.07	4,617.07	-20.12	262.14	262.92	12.00	448,975.18	599,117.94
7,775.00	66.30	94.39	7,659.71	4,627.71	-21.86	284.69	285.53	12.00	448,973.44	599,140.49
7,800.00	69.29	94.39	7,669.16	4,637.16	-23.63	307.77	308.68	12.00	448,971.67	599,163.57
7,825.00	72.29	94.39	7,677.38	4,645.38	-25.43	331.31	332.28	12.00	448,969.87	599,187.11
7,850.00	75.29	94.39	7,684.36	4,652.36	-27.27	355.24	356.29	12.00	448,968.03	599,211.04
7,875.00	78.29	94.39	7,690.07	4,658.07	-29.13	379.51	380.62	12.00	448,966.17	599,235.31
7,900.00	81.29	94.39	7,694.50	4,662.50	-31.02	404.03	405.22	12.00	448,964.28	599,259.83
7,925.00	84.29	94.39	7,697.63	4,665.63	-32.92	428.76	430.02	12.00	448,962.38	599,284.56
7,950.00	87.29	94.39	7,699.47	4,667.47	-34.82	453.62	454.95	12.00	448,960.48	599,309.42
7,972.56	90.00	94.39	7,700.00	4,668.00	-36.55	476.10	477.50	12.00	448,958.75	599,331.90
8,000.00	90.00	94.39	7,700.00	4,668.00	-38.65	503.46	504.94	0.00	448,956.65	599,359.26
8,100.00	90.00	94.39	7,700.00	4,668.00	-46.31	603.17	604.94	0.00	448,948.99	599,458.97
8,200.00	90.00	94.39	7,700.00	4,668.00	-53.96	702.88	704.94	0.00	448,941.34	599,558.68



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**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)
8,300.00	90.00	94.39	7,700.00	4,668.00	-61.61	802.58	804.94	0.00	448,933.69	599,658.38
8,400.00	90.00	94.39	7,700.00	4,668.00	-69.27	902.29	904.94	0.00	448,926.03	599,758.09
8,500.00	90.00	94.39	7,700.00	4,668.00	-76.92	1,002.00	1,004.94	0.00	448,918.38	599,857.80
8,600.00	90.00	94.39	7,700.00	4,668.00	-84.58	1,101.70	1,104.94	0.00	448,910.72	599,957.50
8,700.00	90.00	94.39	7,700.00	4,668.00	-92.23	1,201.41	1,204.94	0.00	448,903.07	600,057.21
8,800.00	90.00	94.39	7,700.00	4,668.00	-99.89	1,301.12	1,304.94	0.00	448,895.41	600,156.92
8,900.00	90.00	94.39	7,700.00	4,668.00	-107.54	1,400.82	1,404.94	0.00	448,887.76	600,256.62
9,000.00	90.00	94.39	7,700.00	4,668.00	-115.20	1,500.53	1,504.94	0.00	448,880.10	600,356.33
9,100.00	90.00	94.39	7,700.00	4,668.00	-122.85	1,600.24	1,604.94	0.00	448,872.45	600,456.04
9,200.00	90.00	94.39	7,700.00	4,668.00	-130.51	1,699.94	1,704.94	0.00	448,864.79	600,555.74
9,300.00	90.00	94.39	7,700.00	4,668.00	-138.16	1,799.65	1,804.94	0.00	448,857.14	600,655.45
9,400.00	90.00	94.39	7,700.00	4,668.00	-145.81	1,899.36	1,904.94	0.00	448,849.49	600,755.16
9,500.00	90.00	94.39	7,700.00	4,668.00	-153.47	1,999.06	2,004.94	0.00	448,841.83	600,854.86
9,600.00	90.00	94.39	7,700.00	4,668.00	-161.12	2,098.77	2,104.94	0.00	448,834.18	600,954.57
9,700.00	90.00	94.39	7,700.00	4,668.00	-168.78	2,198.48	2,204.94	0.00	448,826.52	601,054.28
9,800.00	90.00	94.39	7,700.00	4,668.00	-176.43	2,298.18	2,304.94	0.00	448,818.87	601,153.98
9,900.00	90.00	94.39	7,700.00	4,668.00	-184.09	2,397.89	2,404.94	0.00	448,811.21	601,253.69
10,000.00	90.00	94.39	7,700.00	4,668.00	-191.74	2,497.60	2,504.94	0.00	448,803.56	601,353.40
10,100.00	90.00	94.39	7,700.00	4,668.00	-199.40	2,597.30	2,604.94	0.00	448,795.90	601,453.10
10,200.00	90.00	94.39	7,700.00	4,668.00	-207.05	2,697.01	2,704.94	0.00	448,788.25	601,552.81
10,300.00	90.00	94.39	7,700.00	4,668.00	-214.70	2,796.72	2,804.94	0.00	448,780.60	601,652.52
10,400.00	90.00	94.39	7,700.00	4,668.00	-222.36	2,896.42	2,904.94	0.00	448,772.94	601,752.22
10,500.00	90.00	94.39	7,700.00	4,668.00	-230.01	2,996.13	3,004.94	0.00	448,765.29	601,851.93
10,600.00	90.00	94.39	7,700.00	4,668.00	-237.67	3,095.84	3,104.94	0.00	448,757.63	601,951.64
10,700.00	90.00	94.39	7,700.00	4,668.00	-245.32	3,195.54	3,204.94	0.00	448,749.98	602,051.34
10,800.00	90.00	94.39	7,700.00	4,668.00	-252.98	3,295.25	3,304.94	0.00	448,742.32	602,151.05
10,900.00	90.00	94.39	7,700.00	4,668.00	-260.63	3,394.96	3,404.94	0.00	448,734.67	602,250.76



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**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)
11,000.00	90.00	94.39	7,700.00	4,668.00	-268.29	3,494.66	3,504.94	0.00	448,727.01	602,350.46
11,100.00	90.00	94.39	7,700.00	4,668.00	-275.94	3,594.37	3,604.94	0.00	448,719.36	602,450.17
11,200.00	90.00	94.39	7,700.00	4,668.00	-283.60	3,694.07	3,704.94	0.00	448,711.70	602,549.87
11,300.00	90.00	94.39	7,700.00	4,668.00	-291.25	3,793.78	3,804.94	0.00	448,704.05	602,649.58
11,400.00	90.00	94.39	7,700.00	4,668.00	-298.90	3,893.49	3,904.94	0.00	448,696.40	602,749.29
11,500.00	90.00	94.39	7,700.00	4,668.00	-306.56	3,993.19	4,004.94	0.00	448,688.74	602,848.99
11,600.00	90.00	94.39	7,700.00	4,668.00	-314.21	4,092.90	4,104.94	0.00	448,681.09	602,948.70
11,700.00	90.00	94.39	7,700.00	4,668.00	-321.87	4,192.61	4,204.94	0.00	448,673.43	603,048.41
11,800.00	90.00	94.39	7,700.00	4,668.00	-329.52	4,292.31	4,304.94	0.00	448,665.78	603,148.11
11,900.00	90.00	94.39	7,700.00	4,668.00	-337.18	4,392.02	4,404.94	0.00	448,658.12	603,247.82
12,000.00	90.00	94.39	7,700.00	4,668.00	-344.83	4,491.73	4,504.94	0.00	448,650.47	603,347.53
12,100.00	90.00	94.39	7,700.00	4,668.00	-352.49	4,591.43	4,604.94	0.00	448,642.81	603,447.23
12,146.44	90.00	94.39	7,700.00	4,668.00	-356.04	4,637.74	4,651.38	0.00	448,639.26	603,493.54

**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(MF#1) - plan hits target - Point	0.00	0.00	7,700.00	-355.20	4,637.80	448,640.100	603,493.600	32° 13' 58.748 N	103° 59' 55.064 W

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_





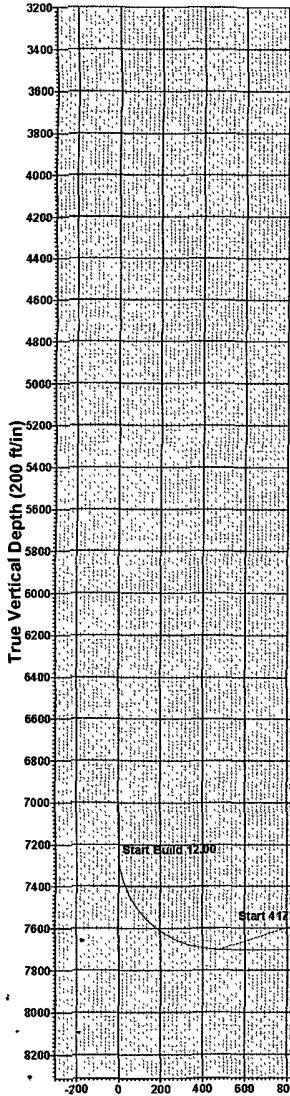
**marbob**  
energy corporation  
Artesia, N.M.

Project: Eddy County  
Site: Morning Federal  
Well: #1  
Wellbore: OH  
Plan: Plan #1 (#1/OH)

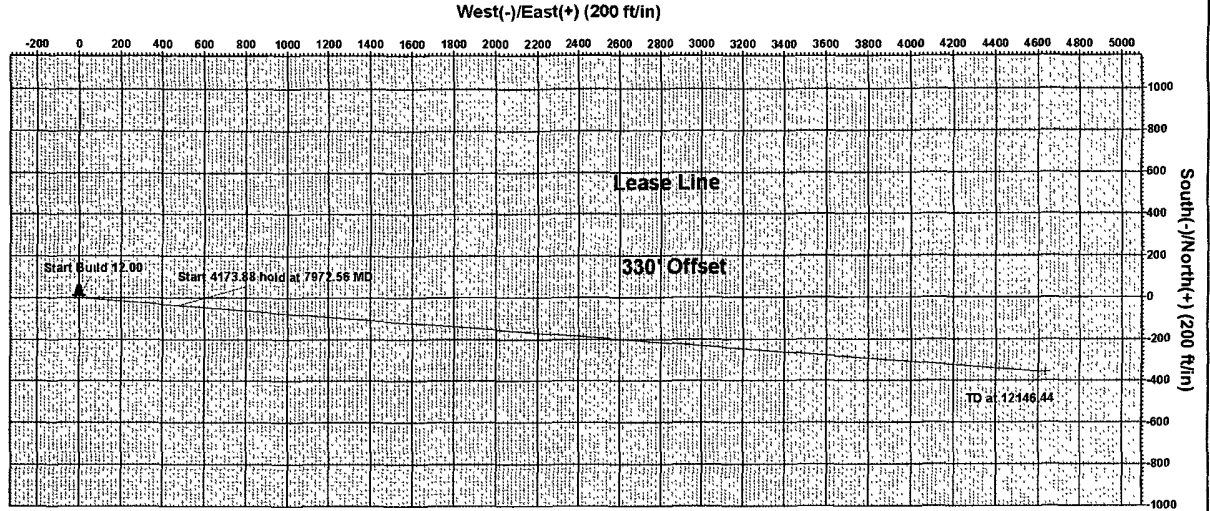


Azimuths to Grid North  
True North: -0.17°  
Magnetic North: 7.78°  
  
Magnetic Field  
Strength: 48755.0snT  
Dip Angle: 60.47°

**PATHFINDER**



Vertical Section at 94.39° (200 ft/in)



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	7222.50	0.00	0.00	7222.50	0.00	0.00	0.00	0.00	0.00	
3	7972.56	90.00	94.39	7700.00	-36.55	476.10	12.00	94.39	477.50	
4	12146.44	90.00	94.39	7700.00	-356.04	4637.74	0.00	0.00	4651.38	PBHL(MF#1)

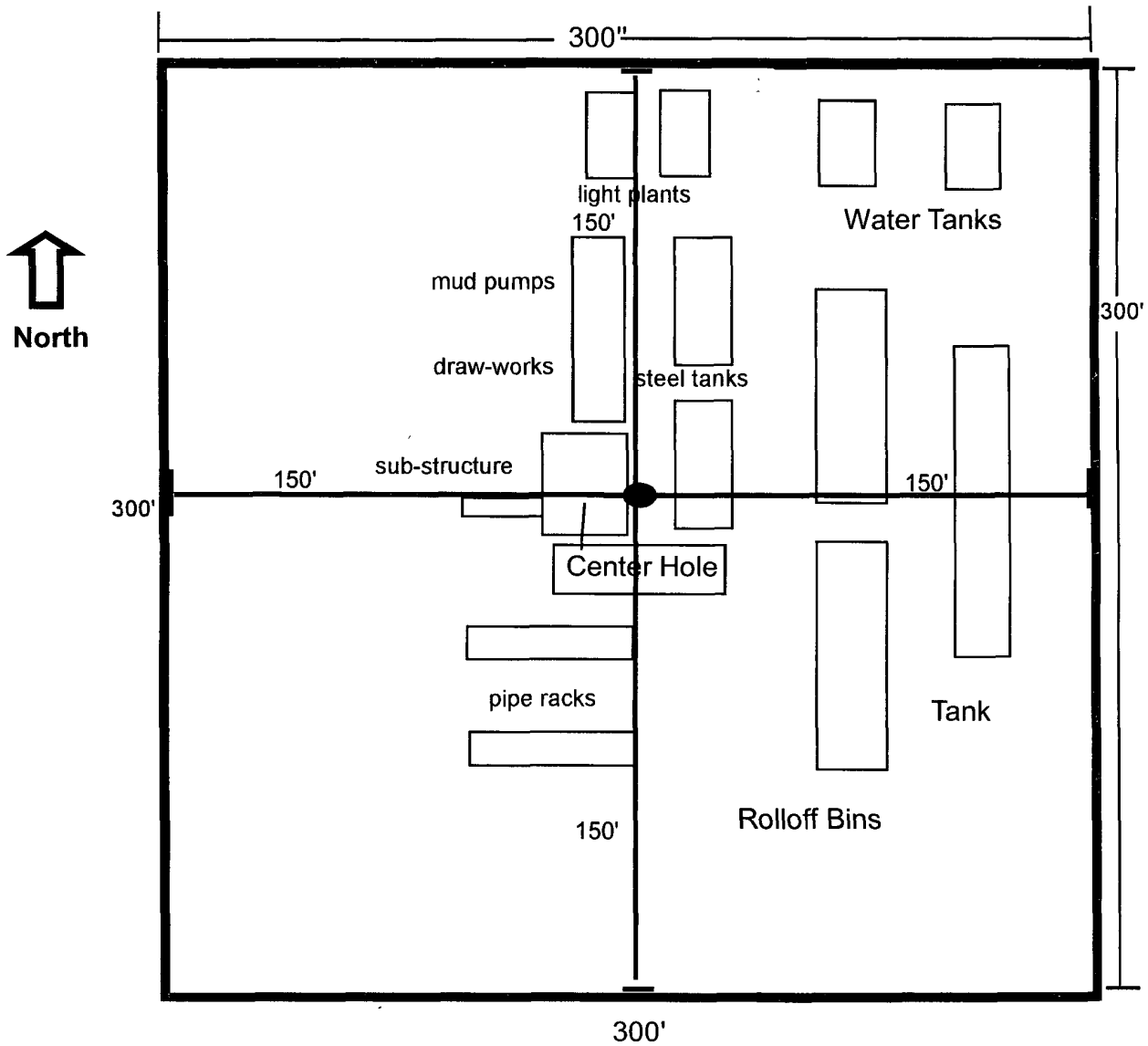
WELLBORE TARGET DETAILS (MAP CO-ORDINATES)						
Name	TVD	+N-S	+E-W	Northing	Easting	Shape
PBHL(MF#1)	7700.00	-355.20	4637.80	448640.100	603493.600	Point

WELL DETAILS: #1						
Ground Elevation: 3010.00						
RKB Elevation: WELL @ 3032.00ft (Original Well Elev)						
Rig Name: Original Well Elev						
+N-S	+E-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	448995.300	598655.800	32° 14' 2.403 N	104° 0' 49.048 W	

PROJECT DETAILS: Eddy 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

Plan Plan #1 (#1/OH)			
Created By	Nate Bingham	Date	16 07, December 16 2009
Checked		Date	

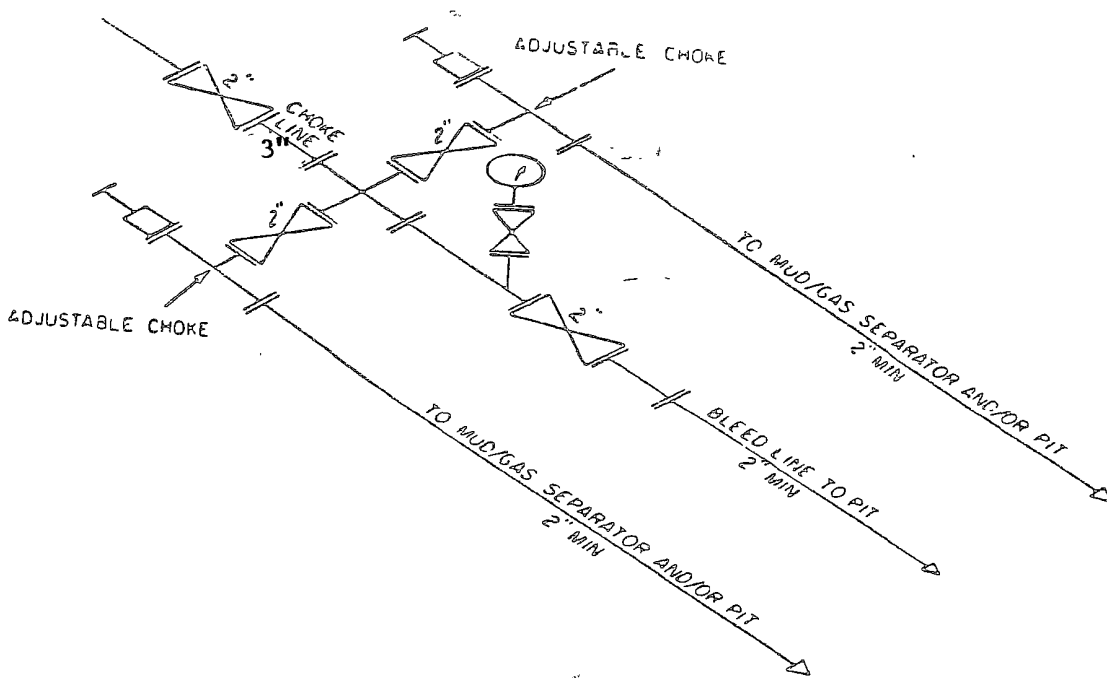
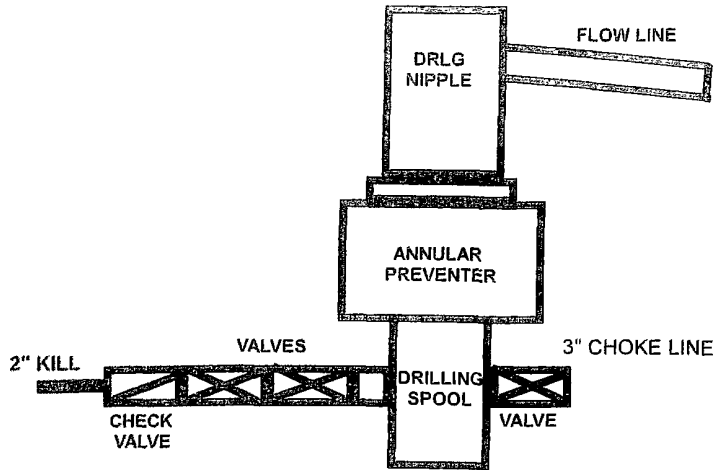
# Well Site Lay-Out Plat



**Morning Federal #1**  
**Surf: 1980' FNL & 330' FWL**  
**BHL: 2310' FNL & 330' FEL**  
**Section 8, T24S, R29E**  
**Eddy County, New Mexico**

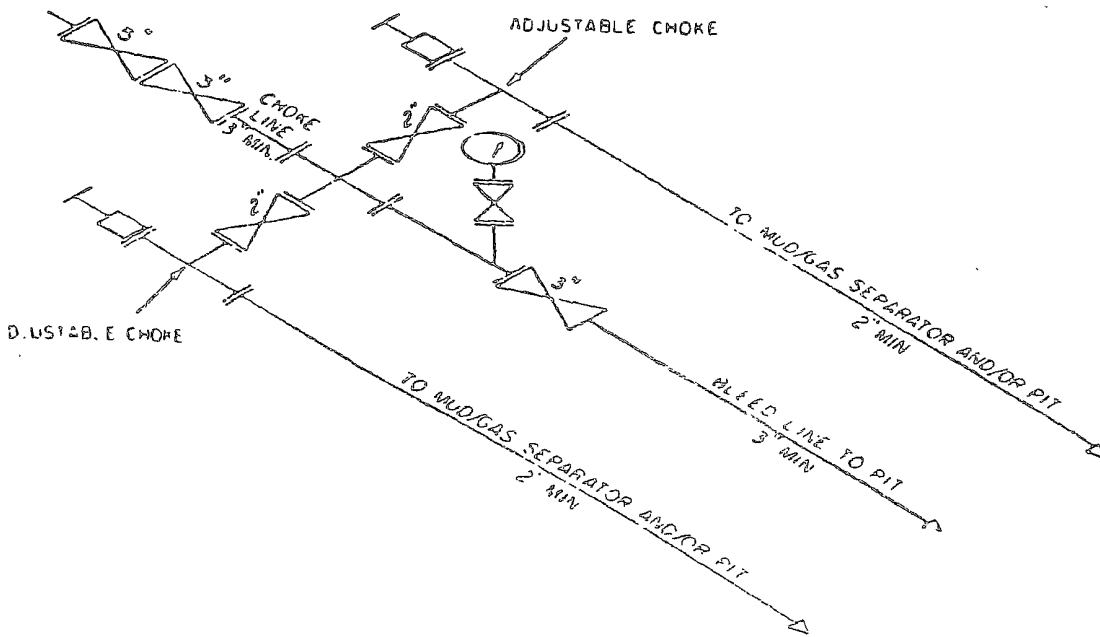
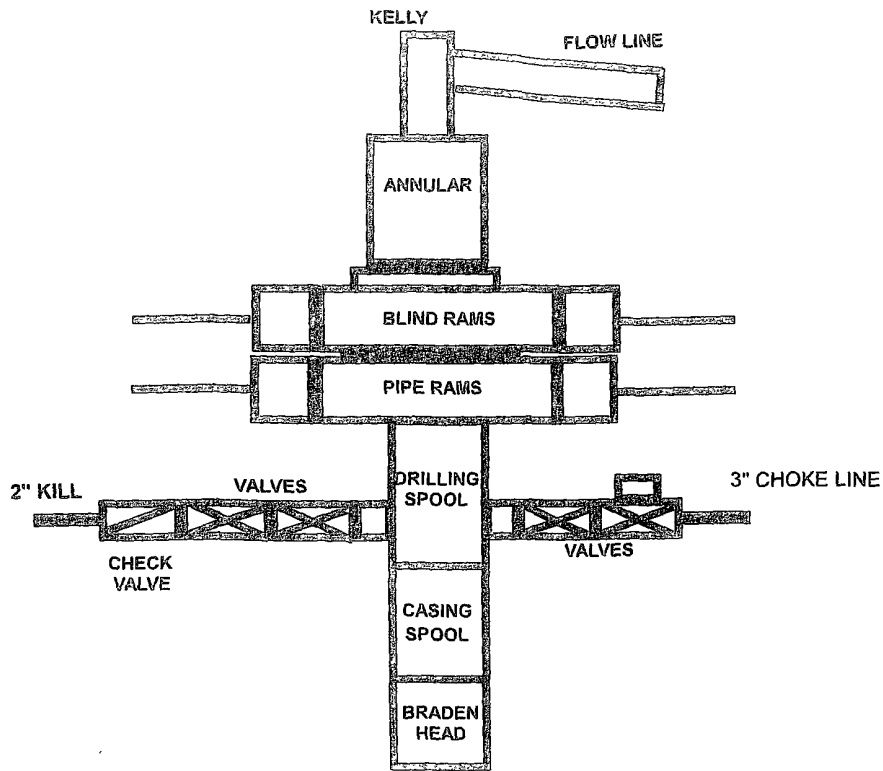
EXHIBIT THREE

# 2M SYSTEM



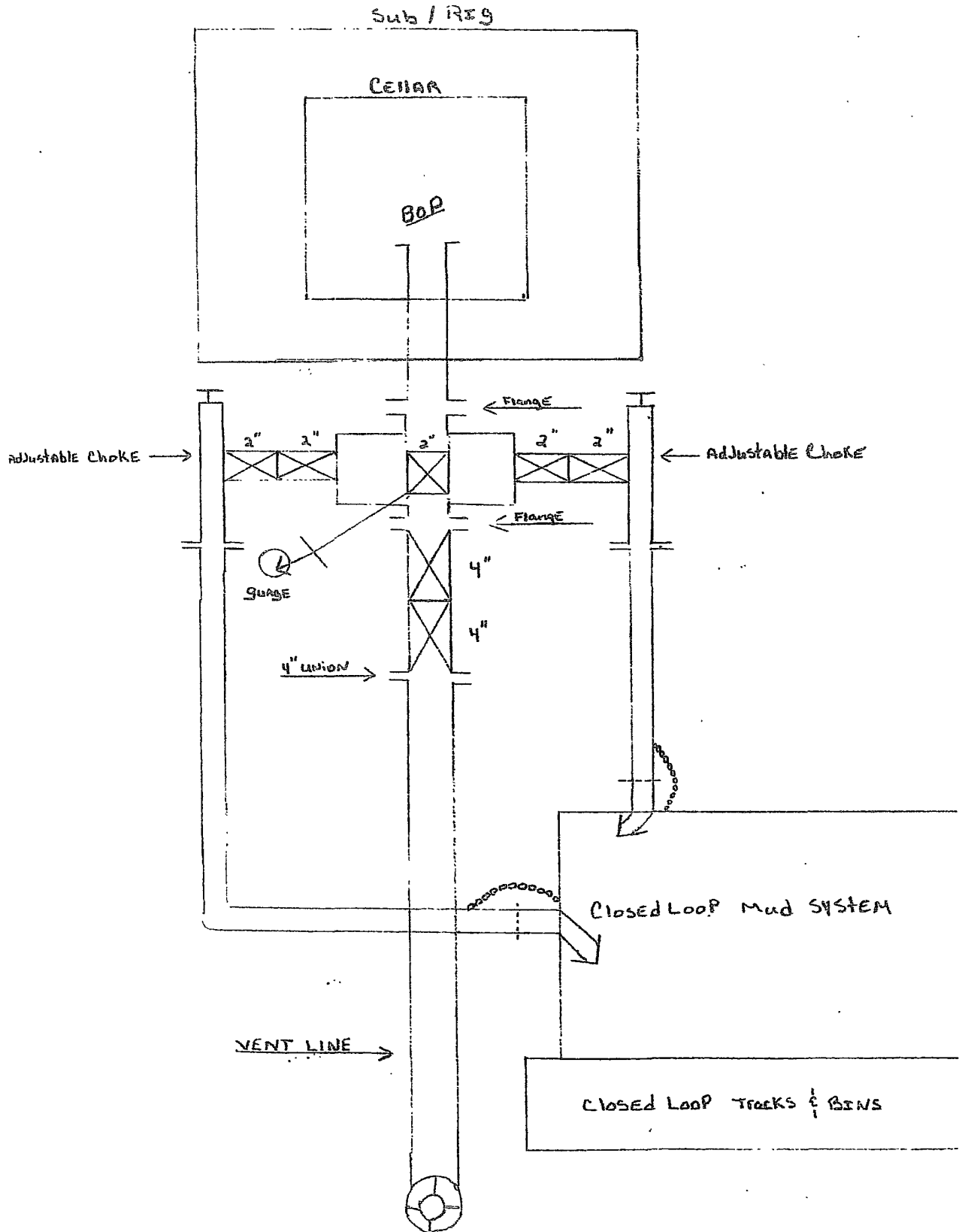
2M CHOKE MANIFOLD EQUIPMENT — CONFIGURATION OF CHOKES  
MAY VARY

# 3M SYSTEM

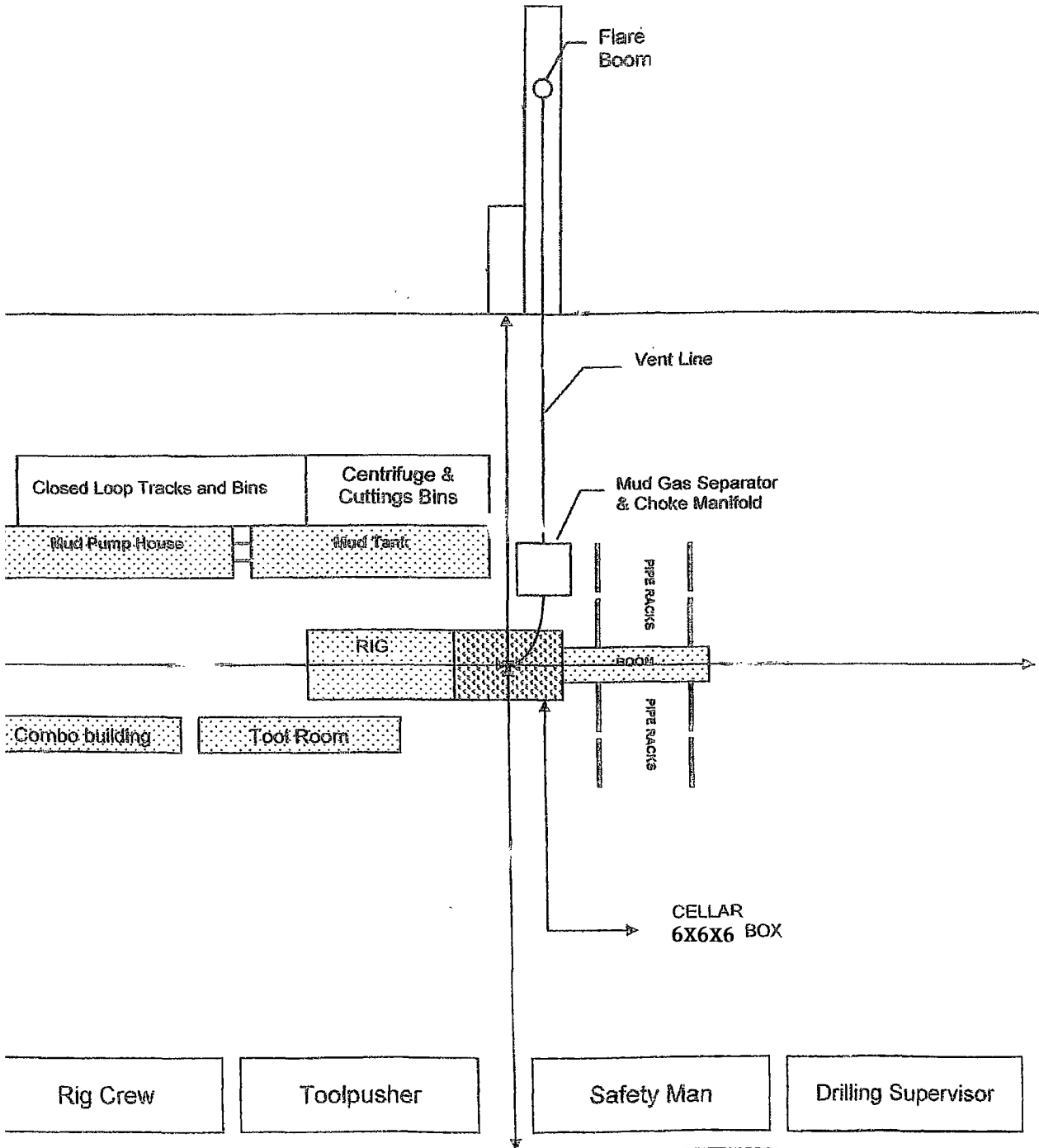


3M CHOKE MANIFOLD EQUIPMENT — CONFIGURATION OF CHOKES  
MAY VARY

# 2M Choke Manifold Equipment



# 3M Choke Manifold Equipment



# 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 (H<sub>2</sub>S).
- B. The proper use and maintenance of personal protective equipment and life support systems.
- C. The proper use of H<sub>2</sub>S 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 H<sub>2</sub>S 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 H<sub>2</sub>S Drilling Operations Plan and the Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H<sub>2</sub>S zone (within 3 days or 500 feet) and weekly H<sub>2</sub>S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H<sub>2</sub>S 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. H<sub>2</sub>S SAFETY EQUIPMENT AND SYSTEMS**

Note: All H<sub>2</sub>S 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 H<sub>2</sub>S.

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. H<sub>2</sub>S detection and monitoring equipment:

2 - portable H<sub>2</sub>S monitor positioned on location for best coverage and response. These units have warning lights and audible sirens when H<sub>2</sub>S 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 H<sub>2</sub>S 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 H<sub>2</sub>S service.

G. Communication:

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

Marbob Energy has conducted a review to determine if an H<sub>2</sub>S contingency plan is required for the above referenced well. We were able to conclude that any potential hazardous volume would be minimal. H<sub>2</sub>S concentrations of wells in this area from surface to TD are low enough; therefore we do not believe that an H<sub>2</sub>S Contingency Plan would be necessary.

# **W A R N I N G**

**YOU ARE ENTERING AN H<sub>2</sub>S 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**

**1-505-748-3303**

## **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

**MARBOB ENERGY CORPORATION**  
**MULTI-POINT SURFACE USE AND OPERATIONS PLAN**

**Morning Federal #1**  
**Surf: 1980' FNL & 330' FWL**  
**BHL: 2310' FNL & 330' FEL**  
**Section 8, T24S, R29E**  
**Eddy County, New Mexico**

This plan is submitted with Form 3160-3, Application for Permit to Drill, covering the above described well. The purpose of this plan is to describe the location of the proposed well, the proposed construction activities and operations plan, the magnitude of the surface disturbance involved and the procedures to be followed in rehabilitating the surface after completion of the operations, so that a complete appraisal can be made of the environmental effect associated with the operations.

**1. EXISTING ROADS:**

- a. The well site and elevation plat for the proposed well are reflected on the well site layout; Form C-102. The well was staked by John West Surveying Company.
- b. Exhibit 2 is a portion of a topo map showing the well and roads in the vicinity of the proposed location. The proposed wellsite and the access route to the location are indicated in red on Exhibit 2. Right of way using this proposed route is being requested if necessary.
- c. Routine grading and maintenance of existing roads will be conducted as necessary to maintain their condition as long as any operations continue on this lease.

**DIRECTIONS:**

From the intersection of Co. Rd. #745 (Harroun Rd) and Co. Rd. #788 (Dog Town) go southeast on Co. Rd. #788 for approx. 1.4 miles to proposed road survey. Follow road survey 189 feet east to this location

**2. PLANNED ACCESS ROAD:**

Marbob will be using a proposed access road of 189' coming in on the southwestern side of the well pad.

**3. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES:**

- A. In the event the well is found productive, the Morning Federal #1 tank battery would be utilized and the necessary production equipment will be installed at the well site. A Site Facilities Diagram will be submitted upon completion of facility.
- B. All flowlines will adhere to API standards
- C. If electricity is needed, power will be obtained from Central Valley Electric. Central Valley Electric will apply for ROW for their power lines.

- D. If the well is productive, rehabilitation plans are as follows:
- i. The original topsoil from the well site will be returned to the location. The drill site will then be contoured as close as possible to the original state.

**4. LOCATION AND TYPES OF WATER SUPPLY:**

This location will be drilled using a combination of water mud systems (outlined in the Drilling Program). The water will be obtained from commercial water stations in the area and hauled to location by transport truck using the existing and proposed roads shown in Exhibit #2. On occasion, water will be obtained from a pre-existing water well, running a pump directly to the drill rig. In these cases where a poly pipeline is used to transport water for drilling purposes, the existing and proposed road shown in Exhibit "2" will be utilized.

**5. CONSTRUCTION MATERIALS:**

All Caliche utilized for the drilling pad and proposed access road will be obtained from an existing BLM approved pit or from prevailing deposits found under the location. All roads will be constructed of 6" rolled and compacted caliche. Will use BLM recommended use of extra caliche from other locations close by for roads, if available.

**6. METHODS OF HANDLING WASTE MATERIAL:**

- a. All trash, junk and other waste material will be removed from the wellsite within 30 days after finishing drilling and/or completion operations. All waste material will be contained in trash cages or trash bins to prevent scattering. When the job is completed, all contents will be removed and disposed of in an approved sanitary landfill.
- b. The supplier, including broken sacks, will pick up slats remaining after completion of well.
- c. A porto-john will be provided for the rig crews. This equipment will be properly maintained during the drilling and completion operations and will be removed when all operations are complete.
- d. Disposal of fluids to be transported by an approved disposal company.

**7. ANCILLARY FACILITIES:**

No campsite or other facilities will be constructed as a result of this well.

**8. WELLSITE LAYOUT:**

- a. Exhibit 3 shows the proposed well site layout with dimensions of the pad layout.
- b. This exhibit indicates proposed location of fresh water sump pits if utilized and living facilities.
- c. Mud pits in the active circulating system will be steel pits and a closed loop system will be utilized.

## **9. PLANS FOR SURFACE RECLAMATION:**

- a. After finishing drilling and/or completion operations, if the well is found non-commercial, the caliche will be removed from the pad and transported to the original caliche pit or used for other drilling locations. The road will be reclaimed as directed by the BLM. The original top soil will again be returned to the pad and contoured, as close as possible, to the original state.
- b. The location and road will be rehabilitated as recommended by the BLM.
- c. If the well is deemed commercially productive, the reserve pit will be restored as described in 10(A) within 120 days subsequent to the completion date. Caliche from areas of the pad site not required for operations will be reclaimed. The original top soil will be returned to the area of the drill pad not necessary to operate the well. These unused areas of the drill pad will be contoured, as close as possible, to match the original topography.

## **10. SURFACE OWNERSHIP:**

The surface is owned by the US Government and is administered by the Bureau of Land Management. The surface is multiple use with the primary uses of the region for the grazing of livestock and the production of oil and gas. The proposed road routes and the surface location will be restored as directed by the BLM.

## **11. OTHER INFORMATION:**

- a. The area surrounding the well site is grassland. The topsoil is very sandy in nature. The vegetation is moderately sparse with native prairie grass, some mesquite bushes and shinnery oak. No wildlife was observed but it is likely that deer, rabbits, coyotes, and rodents traverse the area.
- b. There is no permanent or live water in the general proximity of the location.
- c. There are no dwellings within 2 miles of location.
- d. A Cultural Resources Examination will be completed by Boone Archeological and forwarded to the BLM office in Carlsbad, New Mexico.

## **12. OPERATOR'S REPRESENTATIVE:**

A. Through A.P.D. Approval:  
Dean Chumbley, Landman  
Marbob Energy Corporation  
P. O. Box 227  
Artesia, NM 88211-0227  
Phone (575)748-3303  
Cell (575) 748-5988

B. Through Drilling Operations  
Sheryl Baker, Drilling Supervisor  
Marbob Energy Corporation  
P. O. Box 227  
Artesia, NM 88211-0227  
Phone (575)748-3303  
Cell (575)748-5489

**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.

12/19/2009  
Date

Marbob Energy Corporation



\_\_\_\_\_  
William Miller  
Land Department

# PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Marbob Energy Corp
LEASE NO.:	NM117120
WELL NAME & NO.:	1 Morning Federal
SURFACE HOLE FOOTAGE:	1980' FNL & 330' FWL
BOTTOM HOLE FOOTAGE:	2310' FNL & 330' FEL
LOCATION:	Section 8, T. 24 S., R 29 E., NMPM
COUNTY:	Eddy 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**
- Construction**
  - Berming and Other Special Requirements (Page 3)**
  - Notification
  - Topsoil
  - Closed Loop System
  - Federal Mineral Material Pits
  - Well Pads
  - Roads
- Road Section Diagram**
- Drilling**
  - Medium Cave Karst
  - Logging Requirements
- Production (Post Drilling)**
  - Well Structures & Facilities
  - Pipelines
  - Electric Lines
- 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)

- The entire well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The berm shall be maintained through the life of the well and after interim reclamation has been completed.
- Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion.
- Stockpiling of topsoil is required. The top soil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control.
- Exhaust noise from pump jack engines must be muffled or otherwise controlled.

### **Tank Battery COAs Only:**

- Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.
- Automatic shut off, check valves, or similar systems will be installed for tanks to minimize the effects of catastrophic line failures used in production or drilling.

### **Surface Pipeline COAs Only:**

- A leak detection plan will be submitted to the BLM Carlsbad Field Office for approval prior to pipeline installation. The method could incorporate gauges to detect pressure drops, situating valves and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.



## **VI. CONSTRUCTION**

### **A. NOTIFICATION**

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5972 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. V-DOOR DIRECTION: Not Stipulated**

### **C. TOPSOIL**

The operator shall stockpile the topsoil in a low profile manner in order to prevent wind/water erosion of the topsoil. The topsoil to be stripped is approximately 8 inches in depth. The topsoil will be used for interim and final reclamation.

### **D. CLOSED LOOP SYSTEM**

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

### **E. FEDERAL MINERAL MATERIALS PIT**

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

### **F. 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.

### **G. ON LEASE ACCESS ROADS**

#### **Road Width**

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed thirty (30) feet.

### **Surfacing**

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

### **Crowning**

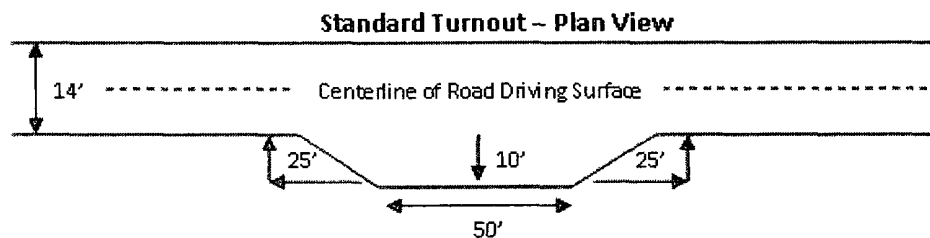
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

### **Ditching**

Ditching shall be required on both sides of the road.

### **Turnouts**

Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:

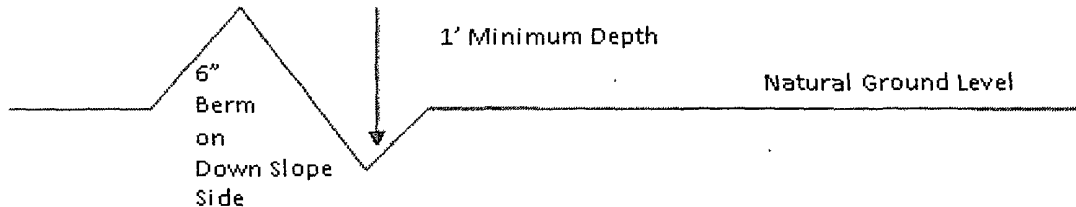


### **Drainage**

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

#### Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

#### Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

#### Culvert Installations

Appropriately sized culvert(s) shall be installed at the deep waterway channel flow crossing.

#### Cattleguards

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s).

Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations.

A gate shall be constructed and fastened securely to H-braces.

#### Fence Requirement

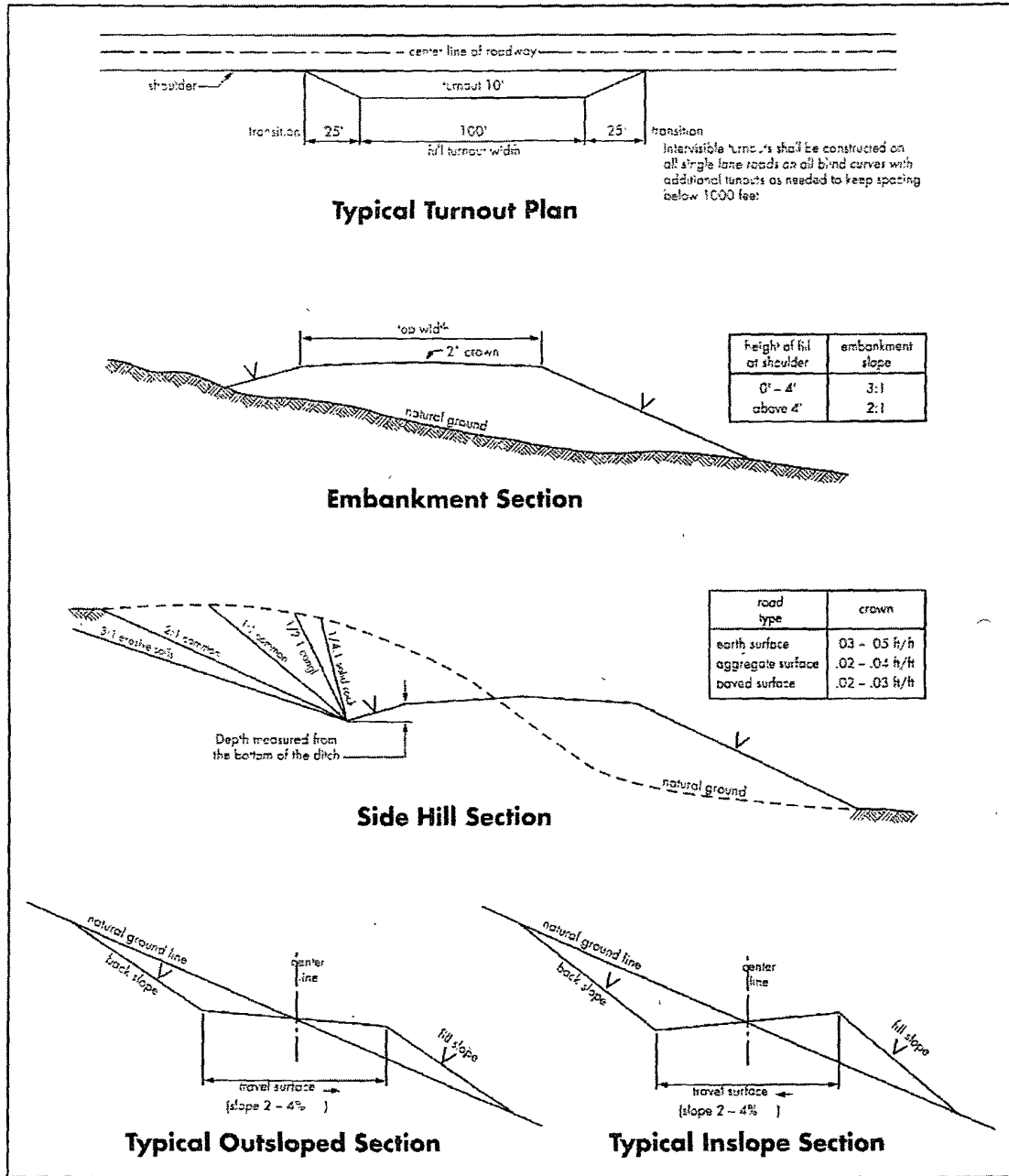
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

**Public Access**

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Figure 1 – Cross Sections and Plans For Typical Road Sections



## 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. **Although Hydrogen Sulfide has not been reported in this section, it is always a potential hazard. If Hydrogen Sulfide is encountered, please report measured amounts 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. If available, a digital copy of the logs is to be submitted in addition to the paper copies. 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.

Medium cave/karst.

Possible lost circulation in the Delaware Mountain Group and the Bone Spring Formation.

1. The 13-3/8 inch surface casing shall be set at **approximately 300 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt)** and cemented to the surface. **If the salt is encountered the casing is to be set 25 feet above the top of the salt.**
  - 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. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - 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.
2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:
  - 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 cave/karst or potash. Additional cement may be required as the excess calculates to be 23%.**

**If 75% or greater lost circulation occurs while drilling the intermediate casing hole, the cement on the production casing must come to surface.**

**Centralizers required on horizontal leg, must be type for horizontal service and minimum of one every other joint.**

3. The minimum required fill of cement behind the **5-1/2** inch production 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. **Additional cement may be required as the excess calculates to be 23%.**
  - b. Second stage above DV tool, cement shall:
    - Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.
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.
  - a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.
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. Casing cut-off and BOP installation will not be initiated until the cement has had 4-6 hours of setup time in a water basin and 12 hours in the potash areas. This time will start after the cement plug is bumped. Testing the BOP/BOPE against a plug can commence after meeting the above conditions plus the BOP installation time.
  - b. The tests shall be done by an independent service company utilizing a test plug.
  - c. The results of the test shall be reported to the appropriate BLM office.
  - d. 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.**
  - e. 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.

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## **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

#### **VRM Facility Requirement**

Low-profile tanks not greater than eight-feet-high shall be used.

### **B. PIPELINES**

### **C. ELECTRIC LINES**



## IX. 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.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation 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 that is free of contaminants 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.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

## **X. FINAL ABANDONMENT & RECLAMATION**

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared; these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

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