

OCD-ARTESIA

09-707

ATS-09-405
RMForm 3160-3
(February 2005)

JUL 17 2009

FORM APPROVED
OMB No 1004-0137
Expires March 31, 2007UNITED 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. NMNM 111946
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. Noose Federal #6
3b Phone No. (include area code) 575-748-3303		9 API Well No. 30-015-37163
4 Location of Well (Report location clearly and in accordance with any State requirements *) At surface 330' FSL & 430' FWL At proposed prod zone 2310' FSL & 430' FWL		10 Field and Pool, or Exploratory North Seven Rivers; Glorieta-Yeso
14 Distance in miles and direction from nearest town or post office* About 6 miles from Lakewood, NM		11 Sec, T R M or Blk and Survey or Area Section 35, T19S - R25E
15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drg unit line, if any) 330'	16 No of acres in lease 320.00	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 5000' MD	20 BLM/BIA Bond No. on file NMB000412
21 Elevations (Show whether DF, KDB, RT, GL, etc) 3493' GL	22 Approximate date work will start* 05/28/2009	23 Estimated duration 14 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 <i>Nancy T. Agnew</i>	Name (Printed/Typed) Nancy T. Agnew	Date 04/28/2009
Title Land Department		

Approved by (Signature) <i>/s/ Don Peterson</i>	Name (Printed/Typed) /s/ Don Peterson	Date JUL 10 2009
Title FOR FIELD MANAGER		Office CARLSBAD FIELD OFFICE

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)

Roswell Controlled Water Basin

SEE ATTACHED FOR
CONDITIONS OF APPROVALApproval Subject to General Requirements
& Special Stipulations Attached

APR 08 2009

DISTRICT I

1625 N. FRENCH DR., HOBBBS, NM 88240

State of New Mexico

Energy, Minerals and Natural Resources Department

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 30-015-37 163	Pool Code 92565	Pool Name North Seven Rivers; Gricka-Yeso
Property Code 36300	Property Name NOOSE FEDERAL	Well Number 6
OGRID No. 14049	Operator Name MARBOB ENERGY CORPORATION	Elevation 3493'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	35	19-S	25-E		330	SOUTH	430	WEST	EDDY

Bottom Hole Location If Different From Surface

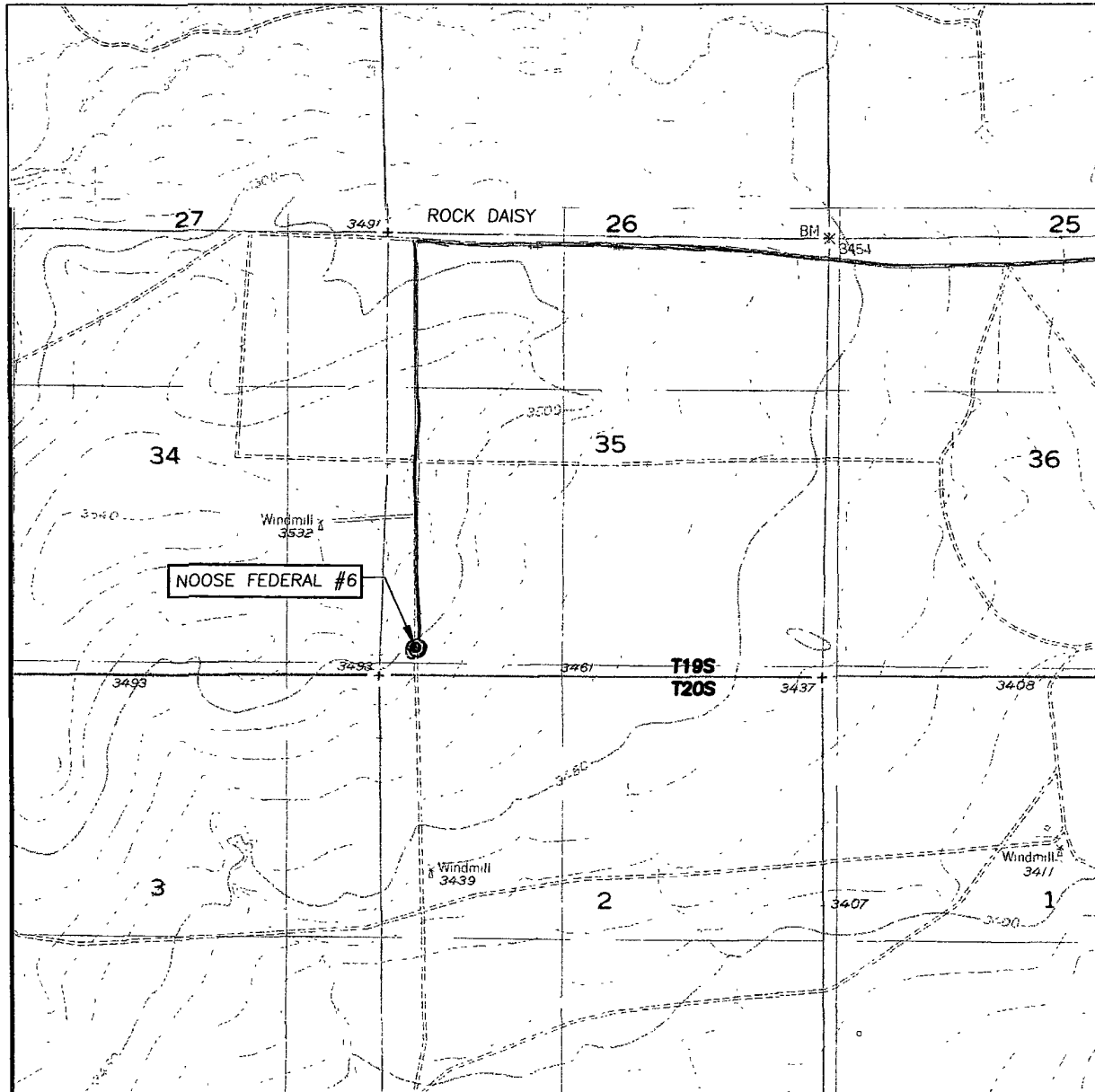
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	35	19-S	25-E		2310	SOUTH	430	WEST	EDDY
Dedicated Acres 80	Joint or Infill	Consolidation Code	Order No.						

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

<p>BOTTOM HOLE LOCATION Y=587814.7 N X=460335.5 E</p> <p>GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION Y=585835.3 N X=460335.7 E</p> <p>LAT.=32.610499° N LONG.=104.462146° W</p> <p>DETAIL 3507.6' 3494.0' 600' 600' 3492.7' 3481.7'</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> 4/28/09 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><i>Ronald J. Eidson</i> MARCH 31 2009 Date Surveyed</p> <p><i>Ronald J. Eidson</i> 4/06/09 Signature & Seal of Professional Surveyor</p>
	<p>Certificate No. GARY EIDSON 12641 RONALD J. EIDSON 3239</p>

APR 08 2009

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:
SEVEN RIVERS, N.M. - 10'
DAYTON, N.M. - 10'

SEC. 35 TWP. 19-S RGE. 25-E

SURVEY _____ N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 330' FSL & 430' FWL

ELEVATION 3493'

OPERATOR MARBOB ENERGY CORPORATION

LEASE NOOSE FEDERAL

U.S.G.S. TOPOGRAPHIC MAP
SEVEN RIVERS, N.M.

— Existing Roads

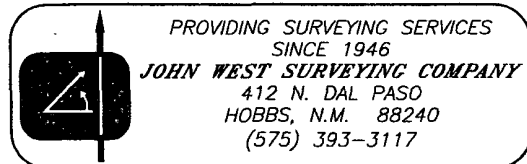


Exhibit #2



**MARBOB ENERGY CORPORATION
DRILLING AND OPERATIONS PROGRAM**

**Noose Federal #6
SHL: 330' FSL & 430' FWL
BHL: 2310' FSL & 430' FWL
Section 35, T19S-R25E
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:

Grayburg	Surface	
San Andres	846'	Oil
Glorieta	2433'	
Yeso	2586'	Oil
TVD	2636'	
TMD	5000'	

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 8 5/8" casing at 1000' 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 8 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
12 1/4"	0' - 1000'	8 5/8"	New	24#	STC	J-55	1.125	1.125	1.6
7 7/8"	1000' - 5000'	5 1/2"	New	17#	LTC	J-55	1.125	1.125	1.6

**Noose Federal #6
Revised 5/4/09**

5. Proposed Cement Program:

- a. 8 5/8" Surf Cement to surface with 200 sk "C" light wt 12.7 yield 1.91
Tail in with 200 sk "c" wt 14.8 yield 1.34
- d. 5 1/2" Prod 1st stage cement with 250 sk Acid Soluble "C" wt 15.0 yield
2.6. 2nd stage with 250 sk "c" light wt 12.7 yield 1.91 DV
@ 2500' TOC 700'

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 8 5/8" casing shoe. **All casing is new and API approved.**

See A

300'

6. Minimum Specifications for Pressure Control:

Nipple up on 8 5/8 2M system test to 2000# with independent tester (Hydril)

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 2000 psi WP rating.

7. Estimated BHP: 2080 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' - 1000'	Fresh Water	8.4	29	N.C.
1000' - 5000'	Cut Brine	8.8	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 8 5/8" casing shoe until the 5 1/2" casing is cemented. Breathing equipment will be on location upon drilling the 8 5/8" 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: 2080 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 14 days.



Marbob

**Eddy County
Noose Federal
Noose Fed #6
OH**

Plan: Plan #1

Pathfinder X & Y Survey Report

23 April, 2009

PATHFINDER



Project: Eddy County
Site: Moose Federal
Well: Moose Fed #6
Wellbore: OH
Plan: Plan #1 (Moose Fed #6/OH)



Azimuths to Grid North
True North: 0.07°
Magnetic North: 8.33°

Magnetic Field
Strength: 48988.3snT
Dip Angle: 60.45°
Date: 04/23/2009
Model: IGRF200510

PATHFINDER

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

WELL DETAILS: Moose Fed #6

Ground Elevation: 3493.00
RKB Elevation: WELL @ 3509.00ft (16" KB)
Rig Name: 16" KB

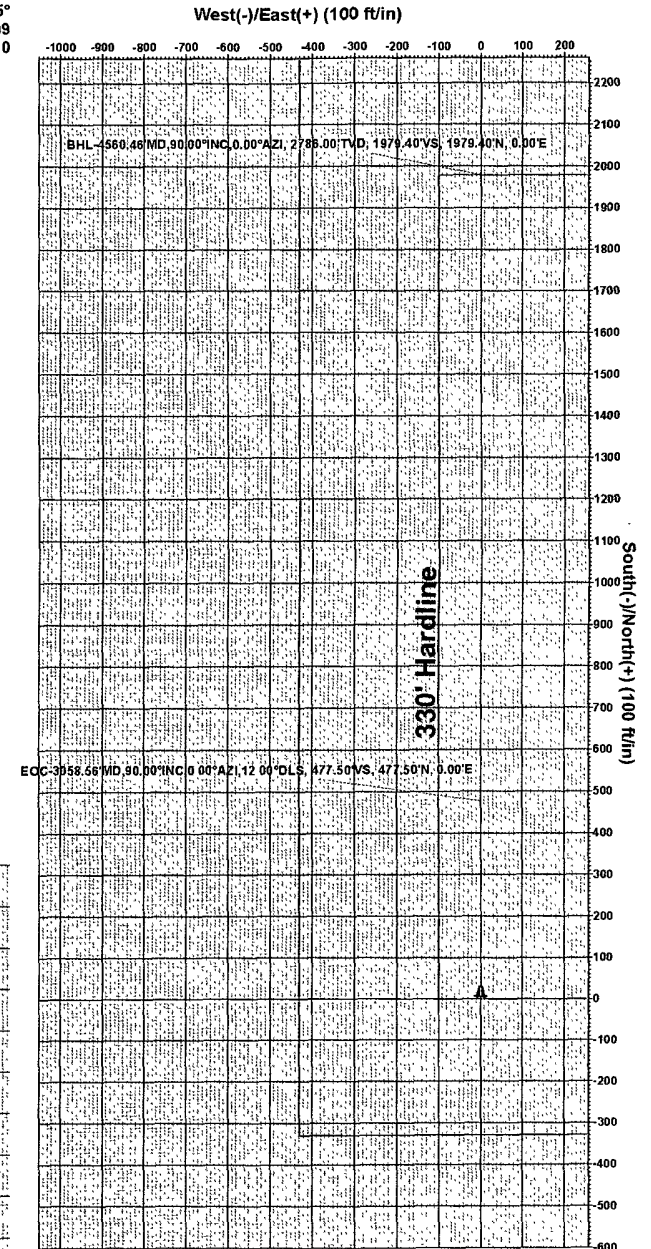
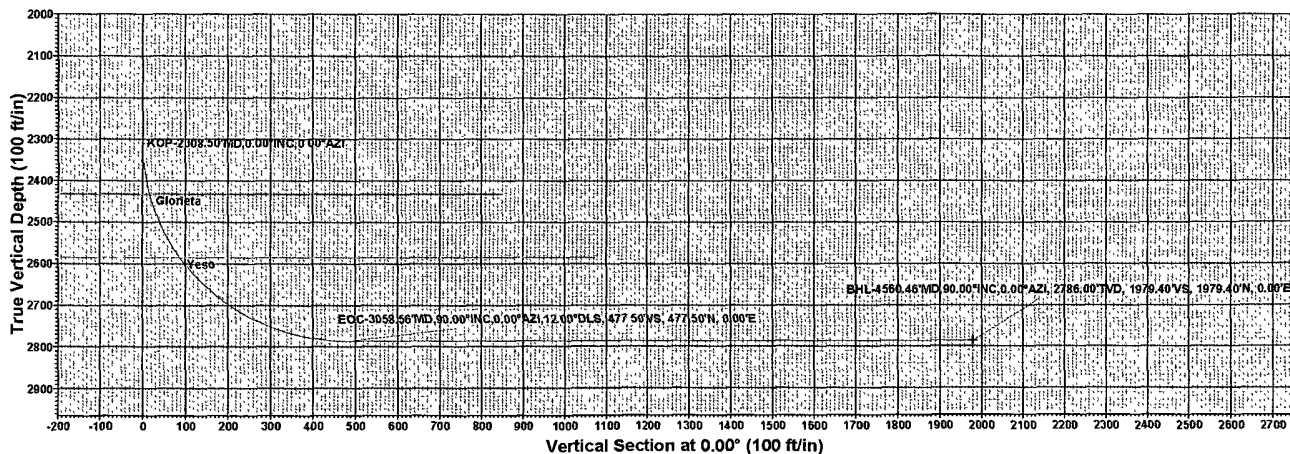
±N/-S	±E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	585835.300	460335.700	32° 36' 37.799 N	104° 27' 43.724 W	

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	2308.50	0.00	0.00	2308.50	0.00	0.00	0.00	0.00	0.00	
3	3058.56	90.00	0.00	2786.00	477.50	0.00	12.00	0.00	477.50	
4	4560.46	90.00	0.00	2786.00	1979.40	0.00	0.00	0.00	1979.40	PBHL(#6H)

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	±N/-S	±E/-W	Northing	Easting	Shape
PBHL(#6H) 35.00	1979.40	-0.20	587814.700	460335.500	Point	



Plan Plan #1 (Moose Fed #6/OH)

Created By: Nate Bingham Date: 15 03, April 23 2009



Pathfinder Energy Services

Pathfinder X & Y Survey Report



Company: Marbob
Project: Eddy County
Site: Moose Federal
Well: Moose Fed #6
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well Moose Fed #6
TVD Reference: WELL @ 3509.00ft (16' KB)
MD Reference: WELL @ 3509.00ft (16' KB)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

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

Site	Noose Federal				
Site Position:		Northing:	585,835.300 ft	Latitude:	32° 36' 37.799 N
From:	Map	Easting:	460,335.700 ft	Longitude:	104° 27' 43.724 W
Position Uncertainty:	0.00 ft	Slot Radius:	"	Grid Convergence:	-0.07 °

Well		Noose Fed #6				
Well Position	+N/-S	0.00 ft	Northing:	585,835.300 ft	Latitude:	32° 36' 37.799 N
	+E/-W	0.00 ft	Easting:	460,335.700 ft	Longitude:	104° 27' 43.724 W
Position Uncertainty	0.00 ft	Wellhead Elevation:	ft	Ground Level:	3,493.00 ft	

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF200510	04/23/2009	8.26	60.45	48,988

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

Survey Tool Program		Date 04/23/2009		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0 00	4,560 46	Plan #1 (OH)	MWD	MWD - Standard



Pathfinder Energy Services

Pathfinder X & Y Survey Report



Company: Marbob
 Project: Eddy County
 Site: Moose Federal
 Well: Moose Fed #6
 Wellbore: OH
 Design: Plan #1

Local Co-ordinate Reference: Well Moose Fed #6
 TVD Reference: WELL @ 3509.00ft (16' KB)
 MD Reference: WELL @ 3509.00ft (16' KB)
 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	-3,509.00	0.00	0.00	0.00	0.00	585,835.30	460,335.70
100.00	0.00	0.00	100.00	-3,409.00	0.00	0.00	0.00	0.00	585,835.30	460,335.70
200.00	0.00	0.00	200.00	-3,309.00	0.00	0.00	0.00	0.00	585,835.30	460,335.70
300.00	0.00	0.00	300.00	-3,209.00	0.00	0.00	0.00	0.00	585,835.30	460,335.70
400.00	0.00	0.00	400.00	-3,109.00	0.00	0.00	0.00	0.00	585,835.30	460,335.70
500.00	0.00	0.00	500.00	-3,009.00	0.00	0.00	0.00	0.00	585,835.30	460,335.70
600.00	0.00	0.00	600.00	-2,909.00	0.00	0.00	0.00	0.00	585,835.30	460,335.70
700.00	0.00	0.00	700.00	-2,809.00	0.00	0.00	0.00	0.00	585,835.30	460,335.70
800.00	0.00	0.00	800.00	-2,709.00	0.00	0.00	0.00	0.00	585,835.30	460,335.70
900.00	0.00	0.00	900.00	-2,609.00	0.00	0.00	0.00	0.00	585,835.30	460,335.70
1,000.00	0.00	0.00	1,000.00	-2,509.00	0.00	0.00	0.00	0.00	585,835.30	460,335.70
1,100.00	0.00	0.00	1,100.00	-2,409.00	0.00	0.00	0.00	0.00	585,835.30	460,335.70
1,200.00	0.00	0.00	1,200.00	-2,309.00	0.00	0.00	0.00	0.00	585,835.30	460,335.70
1,300.00	0.00	0.00	1,300.00	-2,209.00	0.00	0.00	0.00	0.00	585,835.30	460,335.70
1,400.00	0.00	0.00	1,400.00	-2,109.00	0.00	0.00	0.00	0.00	585,835.30	460,335.70
1,500.00	0.00	0.00	1,500.00	-2,009.00	0.00	0.00	0.00	0.00	585,835.30	460,335.70
1,600.00	0.00	0.00	1,600.00	-1,909.00	0.00	0.00	0.00	0.00	585,835.30	460,335.70
1,700.00	0.00	0.00	1,700.00	-1,809.00	0.00	0.00	0.00	0.00	585,835.30	460,335.70
1,800.00	0.00	0.00	1,800.00	-1,709.00	0.00	0.00	0.00	0.00	585,835.30	460,335.70
1,900.00	0.00	0.00	1,900.00	-1,609.00	0.00	0.00	0.00	0.00	585,835.30	460,335.70
2,000.00	0.00	0.00	2,000.00	-1,509.00	0.00	0.00	0.00	0.00	585,835.30	460,335.70
2,100.00	0.00	0.00	2,100.00	-1,409.00	0.00	0.00	0.00	0.00	585,835.30	460,335.70
2,200.00	0.00	0.00	2,200.00	-1,309.00	0.00	0.00	0.00	0.00	585,835.30	460,335.70
2,308.50	0.00	0.00	2,308.50	-1,200.50	0.00	0.00	0.00	0.00	585,835.30	460,335.70
KOP-2308.50°MD,0.00°INC,0.00°AZI										
2,325.00	1.98	0.00	2,325.00	-1,184.00	0.29	0.00	0.29	12.00	585,835.59	460,335.70
2,350.00	4.98	0.00	2,349.95	-1,159.05	1.80	0.00	1.80	12.00	585,837.10	460,335.70



Pathfinder Energy Services

Pathfinder X & Y Survey Report



Company: Marbob
Project: Eddy County
Site: Noose Federal
Well: Noose Fed #6
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well Noose Fed #6
TVD Reference: WELL @ 3509.00ft (16' KB)
MD Reference: WELL @ 3509.00ft (16' KB)
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)
2,375.00	7.98	0.00	2,374.79	-1,134.21	4.62	0.00	4.62	12.00	585,839.92	460,335.70
2,400.00	10.98	0.00	2,399.44	-1,109.56	8.74	0.00	8.74	12.00	585,844.04	460,335.70
2,425.00	13.98	0.00	2,423.85	-1,085.15	14.14	0.00	14.14	12.00	585,849.44	460,335.70
2,450.00	16.98	0.00	2,447.94	-1,061.06	20.81	0.00	20.81	12.00	585,856.11	460,335.70
2,475.00	19.98	0.00	2,471.65	-1,037.35	28.74	0.00	28.74	12.00	585,864.04	460,335.70
2,500.00	22.98	0.00	2,494.91	-1,014.09	37.89	0.00	37.89	12.00	585,873.19	460,335.70
2,525.00	25.98	0.00	2,517.66	-991.34	48.25	0.00	48.25	12.00	585,883.55	460,335.70
2,550.00	28.98	0.00	2,539.84	-969.16	59.78	0.00	59.78	12.00	585,895.08	460,335.70
2,575.00	31.98	0.00	2,561.38	-947.62	72.46	0.00	72.46	12.00	585,907.76	460,335.70
2,600.00	34.98	0.00	2,582.23	-926.77	86.25	0.00	86.25	12.00	585,921.55	460,335.70
2,625.00	37.98	0.00	2,602.33	-906.67	101.11	0.00	101.11	12.00	585,936.41	460,335.70
2,650.00	40.98	0.00	2,621.62	-887.38	117.00	0.00	117.00	12.00	585,952.30	460,335.70
2,675.00	43.98	0.00	2,640.06	-868.94	133.88	0.00	133.88	12.00	585,969.18	460,335.70
2,700.00	46.98	0.00	2,657.59	-851.41	151.70	0.00	151.70	12.00	585,987.00	460,335.70
2,725.00	49.98	0.00	2,674.16	-834.84	170.42	0.00	170.42	12.00	586,005.72	460,335.70
2,750.00	52.98	0.00	2,689.73	-819.27	189.97	0.00	189.97	12.00	586,025.27	460,335.70
2,775.00	55.98	0.00	2,704.25	-804.75	210.32	0.00	210.32	12.00	586,045.62	460,335.70
2,800.00	58.98	0.00	2,717.69	-791.31	231.40	0.00	231.40	12.00	586,066.70	460,335.70
2,825.00	61.98	0.00	2,730.01	-778.99	253.15	0.00	253.15	12.00	586,088.45	460,335.70
2,850.00	64.98	0.00	2,741.17	-767.83	275.51	0.00	275.51	12.00	586,110.81	460,335.70
2,875.00	67.97	0.00	2,751.15	-757.85	298.43	0.00	298.43	12.00	586,133.73	460,335.70
2,900.00	70.97	0.00	2,759.92	-749.08	321.84	0.00	321.84	12.00	586,157.14	460,335.70
2,925.00	73.97	0.00	2,767.44	-741.56	345.68	0.00	345.68	12.00	586,180.98	460,335.70
2,950.00	76.97	0.00	2,773.71	-735.29	369.88	0.00	369.88	12.00	586,205.18	460,335.70
2,975.00	79.97	0.00	2,778.71	-730.29	394.37	0.00	394.37	12.00	586,229.67	460,335.70
3,000.00	82.97	0.00	2,782.41	-726.59	419.09	0.00	419.09	12.00	586,254.39	460,335.70
3,025.00	85.97	0.00	2,784.82	-724.18	443.97	0.00	443.97	12.00	586,279.27	460,335.70



Pathfinder Energy Services Pathfinder X & Y Survey Report



Company: Marbob
Project: Eddy County
Site: Noose Federal
Well: Noose Fed #6
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well Noose Fed #6
TVD Reference: WELL @ 3509.00ft (16' KB)
MD Reference: WELL @ 3509.00ft (16' KB)
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)
3,050.00	88.97	0.00	2,785.92	-723.08	468.95	0.00	468.95	12.00	586,304.25	460,335.70
3,058.56	90.00	0.00	2,786.00	-723.00	477.50	0.00	477.50	12.00	586,312.80	460,335.70
EOC-3058.56'MD,90.00°INC,0.00°AZI,12.00°DLS, 477.50°VS, 477.50°N, 0.00°E										
3,100.00	90.00	0.00	2,786.00	-723.00	518.94	0.00	518.94	0.00	586,354.24	460,335.70
3,200.00	90.00	0.00	2,786.00	-723.00	618.94	0.00	618.94	0.00	586,454.24	460,335.70
3,300.00	90.00	0.00	2,786.00	-723.00	718.94	0.00	718.94	0.00	586,554.24	460,335.70
3,400.00	90.00	0.00	2,786.00	-723.00	818.94	0.00	818.94	0.00	586,654.24	460,335.70
3,500.00	90.00	0.00	2,786.00	-723.00	918.94	0.00	918.94	0.00	586,754.24	460,335.70
3,600.00	90.00	0.00	2,786.00	-723.00	1,018.94	0.00	1,018.94	0.00	586,854.24	460,335.70
3,700.00	90.00	0.00	2,786.00	-723.00	1,118.94	0.00	1,118.94	0.00	586,954.24	460,335.70
3,800.00	90.00	0.00	2,786.00	-723.00	1,218.94	0.00	1,218.94	0.00	587,054.24	460,335.70
3,900.00	90.00	0.00	2,786.00	-723.00	1,318.94	0.00	1,318.94	0.00	587,154.24	460,335.70
4,000.00	90.00	0.00	2,786.00	-723.00	1,418.94	0.00	1,418.94	0.00	587,254.24	460,335.70
4,100.00	90.00	0.00	2,786.00	-723.00	1,518.94	0.00	1,518.94	0.00	587,354.24	460,335.70
4,200.00	90.00	0.00	2,786.00	-723.00	1,618.94	0.00	1,618.94	0.00	587,454.24	460,335.70
4,300.00	90.00	0.00	2,786.00	-723.00	1,718.94	0.00	1,718.94	0.00	587,554.24	460,335.70
4,400.00	90.00	0.00	2,786.00	-723.00	1,818.94	0.00	1,818.94	0.00	587,654.24	460,335.70
4,500.00	90.00	0.00	2,786.00	-723.00	1,918.94	0.00	1,918.94	0.00	587,754.24	460,335.70
4,560.46	90.00	0.00	2,786.00	-723.00	1,979.40	0.00	1,979.40	0.00	587,814.70	460,335.70
BHL-4560.46'MD,90.00°INC,0.00°AZI, 2786.00°TVD, 1979.40°VS, 1979.40°N, 0.00°E - PBHL(#6H)										



Pathfinder Energy Services

Pathfinder X & Y Survey Report



Company: Marbob
Project: Eddy County
Site: Moose Federal
Well: Moose Fed #6
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well Moose Fed #6
TVD Reference: WELL @ 3509.00ft (16' KB)
MD Reference: WELL @ 3509.00ft (16' KB)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Targets

Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
PBHL(#6H)	0 00	0.00	2,786.00	1,979.40	-0.20	587,814.700	460,335.500	32° 36' 57.386 N	104° 27' 43.755 W
- plan hits target									
- Point									

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,604.62	2,586.00	Yeso		0.00	
846.00	846.00	San Andres		0.00	
2,434.46	2,433.00	Glorieta		0.00	

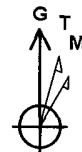
Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,308.50	2,308.50	0.00	0.00	KOP-2308.50°MD,0.00°INC,0.00°AZI
3,058.56	2,786.00	477.50	0.00	EOC-3058.56°MD,90.00°INC,0.00°AZI,12.00°DLS, 477.50°VS, 477.50°N
4,560.46	2,786.00	1,979.40	0.00	BHL-4560.46°MD,90.00°INC,0.00°AZI, 2786.00°TVD, 1979.40°VS, 1979

Checked By: _____ Approved By: _____ Date: _____



Project: Eddy County
Site: Moose Federal
Well: Moose Fed #6
Wellbore: OH
Plan: Plan #1 (Moose Fed #6/OH)



Azimuths to Grid North
True North: 0.07°
Magnetic North: 8.33°

Magnetic Field
Strength: 48988.3snT
Dip Angle: 60.45°
Date: 04/23/2009
Model: IGRF200510

PATHFINDER

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

WELL DETAILS: Moose Fed #6

Ground Elevation: 3493.00
RKB Elevation: WELL @ 3509.00ft (16' KB)
Rig Name: 16' KB

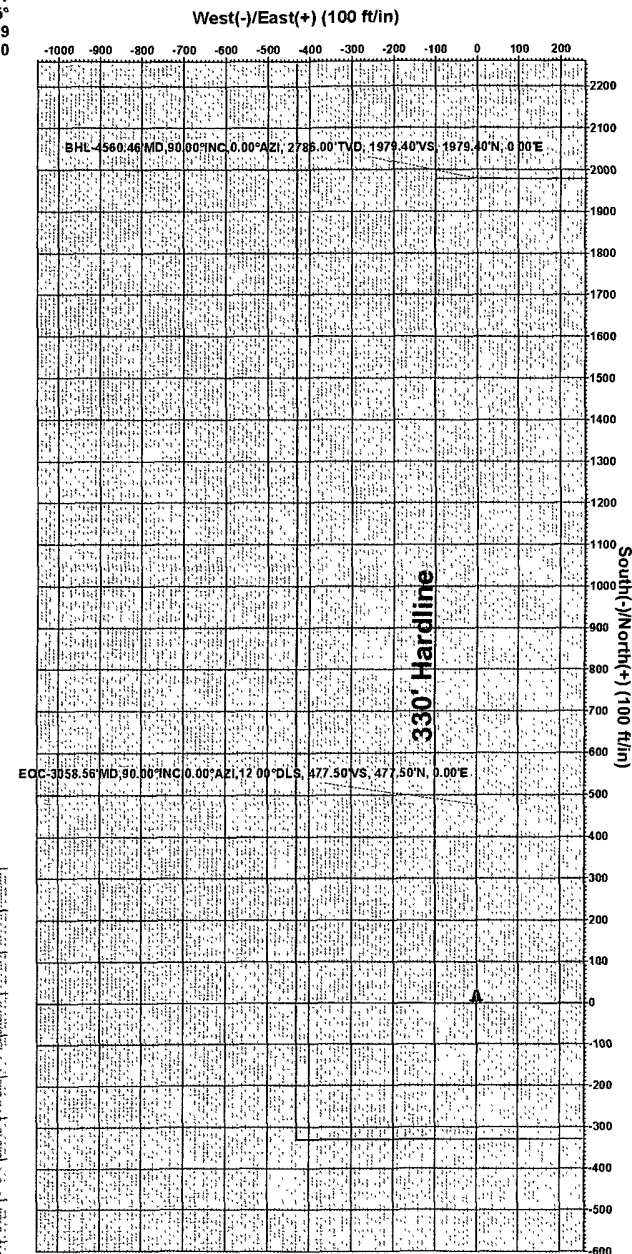
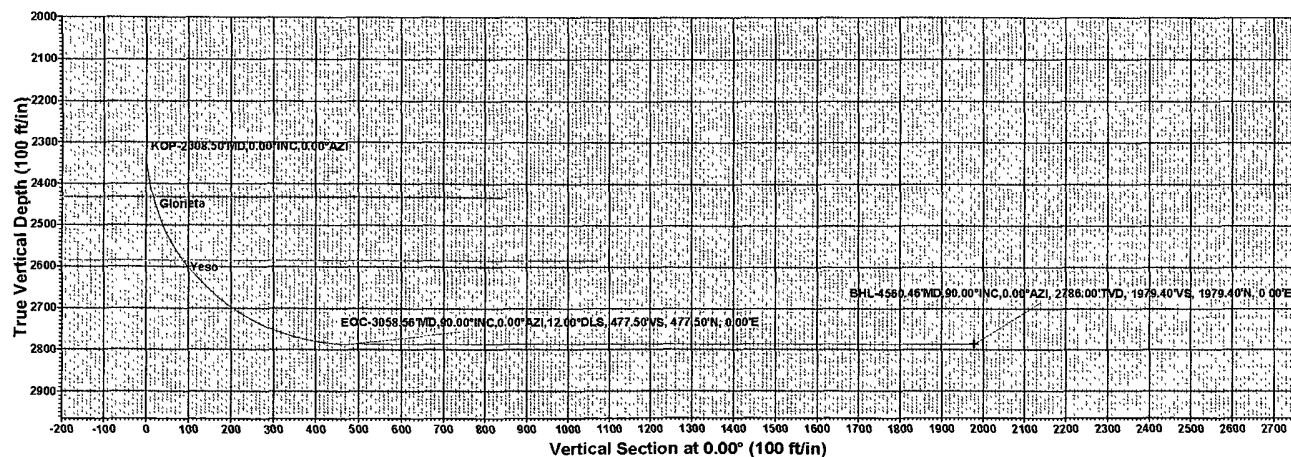
+N-S	+E-W	Northing	Easting	Latitude	Longitude	Slot
0 00	0.00	585835.300	460335.700	32° 36' 37.799 N	104° 27' 43.724 W	

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	2308.50	0.00	0.00	2308.50	0.00	0.00	0.00	0.00	0.00	
3	3058.56	90.00	0.00	2786.00	477.50	0.00	12.00	0.00	477.50	
4	4560.46	90.00	0.00	2786.00	1979.40	0.00	0.00	0.00	1979.40	PBHL(#6H)

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

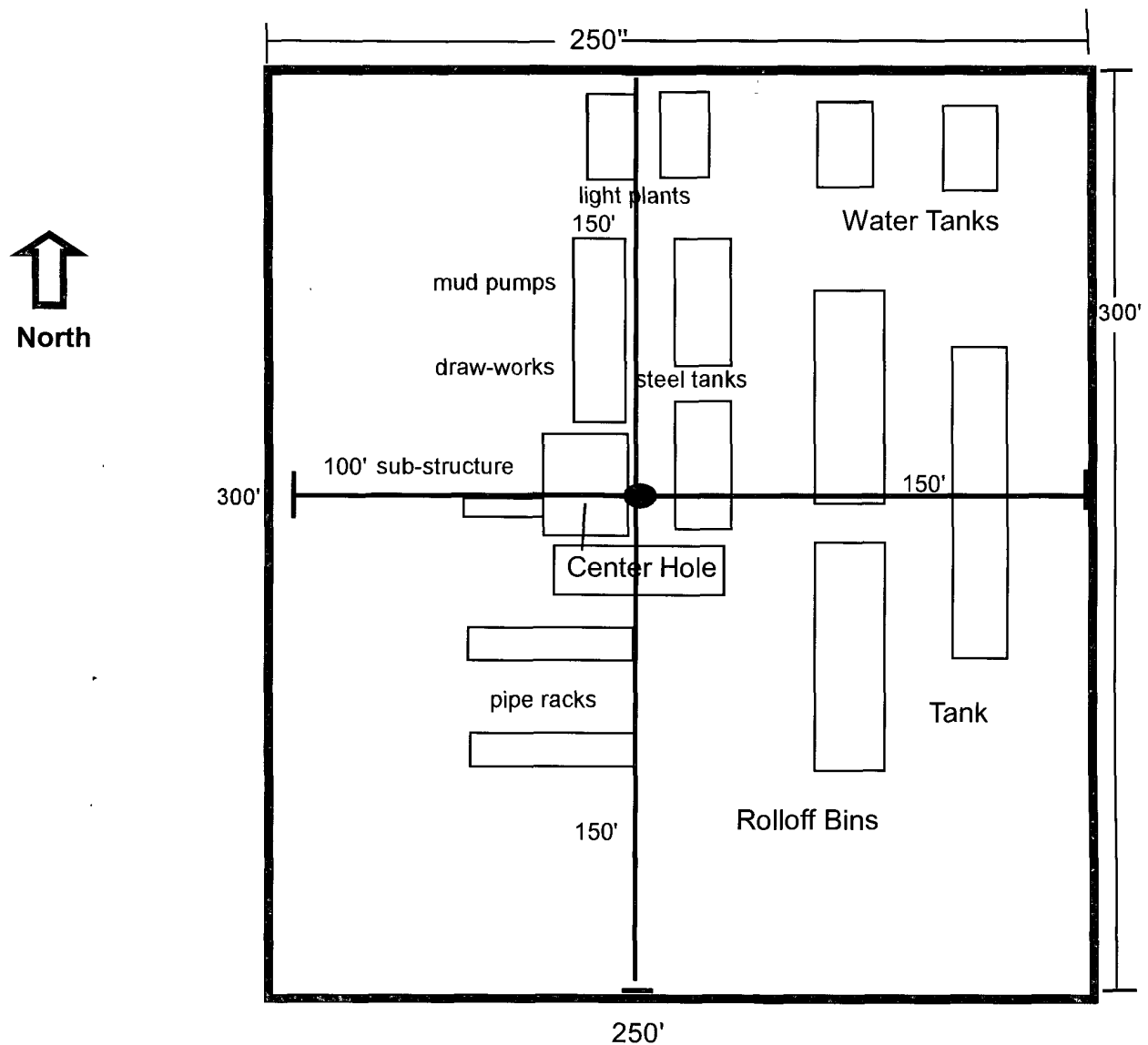
Name	TVD	+N-S	+E-W	Northing	Easting	Shape
PBHL(#6H) 86 00	1979.40	-0.20	587814.700	460335.500		Point



Plan Plan #1 (Moose Fed #6/OH)

Created By: Nate Bingham Date: 15 03, April 23 2009

Well Site Lay-Out Plat

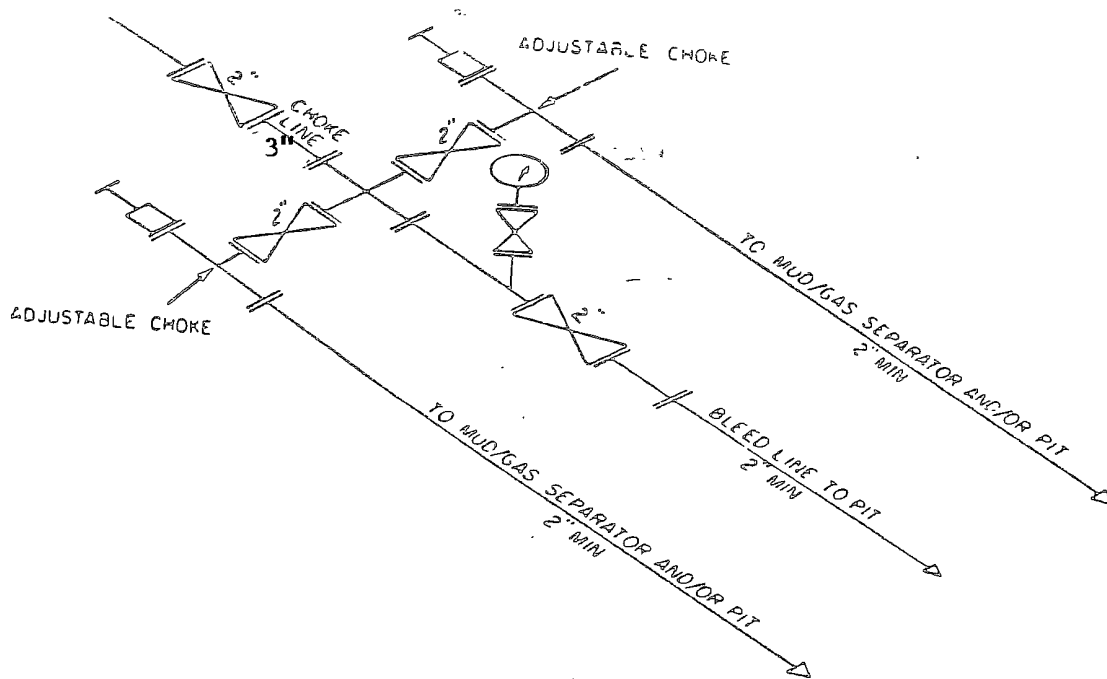
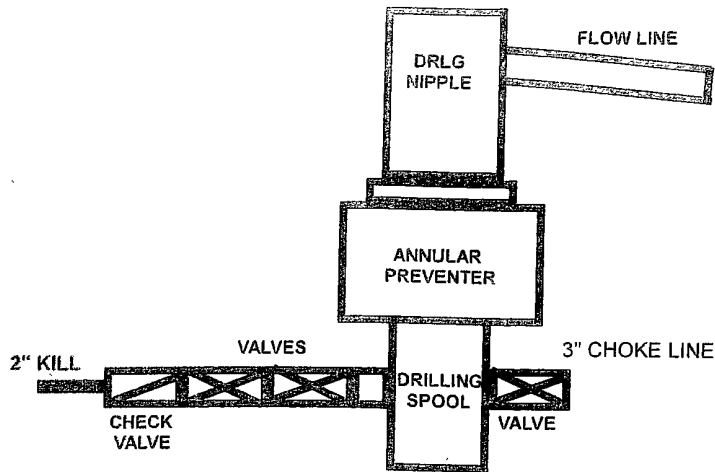


Noose Federal #6
SHL: 330' FSL & 430' FWL
BHL: 2310' FSL & 430' FWL
Section 35, T19S-R25E
Eddy County, New Mexico

EXHIBIT THREE

REVISED 5/20/2009

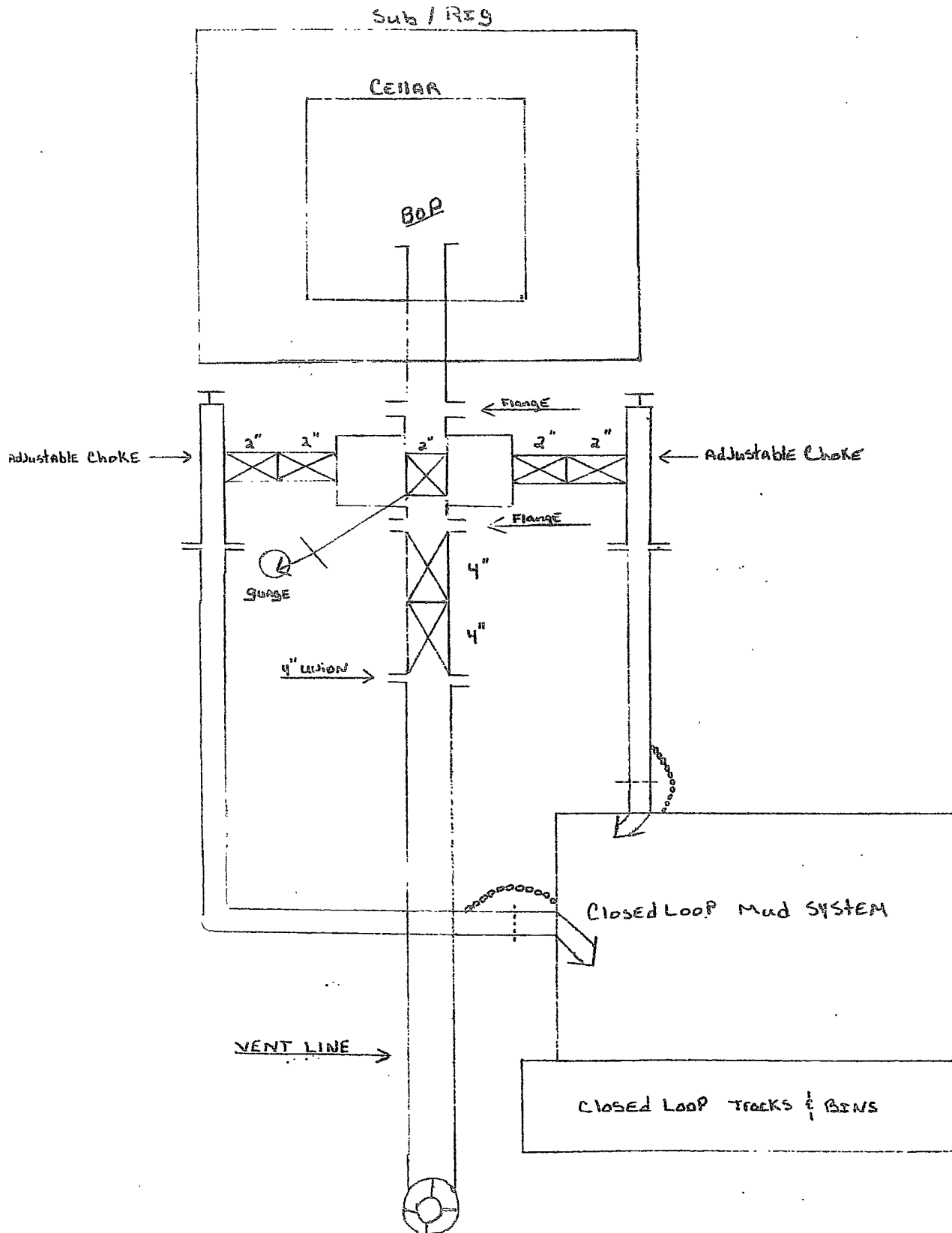
2M SYSTEM



2M CHOKE MANIFOLD EQUIPMENT — CONFIGURATION OF CHOKES

MAY VARY

2M 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 (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

MARBOB ENERGY CORPORATION
MULTI-POINT SURFACE USE AND OPERATIONS PLAN

Noose Federal #6
SHL: 330' FSL & 430' FWL
BHL: 2310' FSL & 430' FWL
Section 35, T19S-R25E
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.
- 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 U.S. Hwy #285 and Rock Daisy Road, go west on Rock Daisy Road approx. 3.0 miles. Turn left and go south approx. 0.9 miles. This location is approx. 140 feet East.

2. PLANNED ACCESS ROAD:

There is an existing road. See directions on Exhibit #2

3. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES:

- A. In the event the well is found productive, the Noose Federal #6 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 reserve and 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.

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

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: April 28, 2009

Lease #: mmmm111946
Noose Federal #6

Legal Description: Sec. 35-T19S-R25E
Eddy County, New Mexico

Formation(s): Permian

Bond Coverage: Statewide

BLM Bond File #: NMB000412

Marbob Energy Corporation

Nancy Agnew
Nancy Agnew
Land Department

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.

4/29/09

Date

Marbob Energy Corporation

W R Miller

William Miller

Land Department

PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Marbob Energy Corporation
LEASE NO.:	NM-111946
WELL NAME & NO.:	Noose Federal #6
SURFACE HOLE FOOTAGE:	330' FSL & 430' FWL
BOTTOM HOLE FOOTAGE:	2310' FSL & 430' FWL
LOCATION:	Section 35, T. 19 S., R 25 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**
 - Pad limitation of on west side of well location
 - Medium Cave/Karst occurrence zone
- ☒ **Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☒ **Road Section Diagram**
- ☒ **Drilling**
- ☐ **Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines
- ☒ **Closed Loop System/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 well pad should not exceed 100 feet from the center hole on the west side in order to limit cut into the slope.

Cave/Karst

Due to the projects proximately to 27 known cave and karst features the following COAs for Cave and Karst protection will apply.

Construction:

In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

No Blasting:

No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

Rotary Drilling with Fresh Water:

Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

Directional Drilling:

Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

Lost Circulation:

ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.

Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

Abandonment Cementing:

Upon well abandonment in high cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

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. 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

Closed loop system- V door east

Tanks are required for drilling operations: No Pits.

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.

F. 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

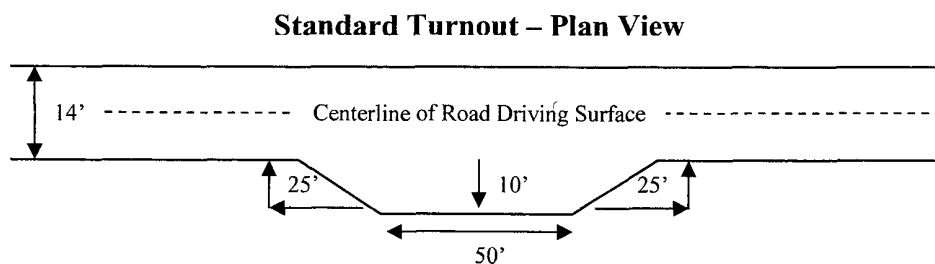
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching

Ditching shall be required on both sides of the road.

Turnouts

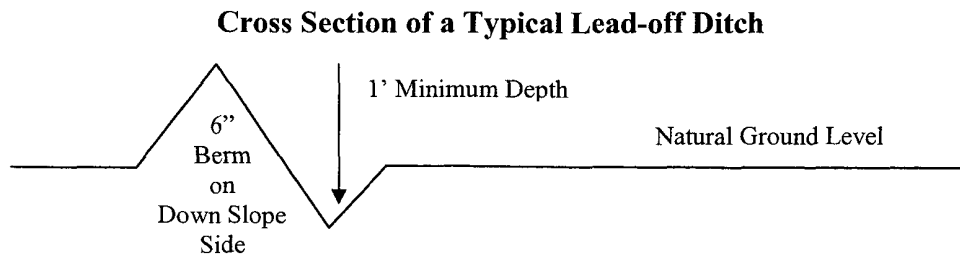
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



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.



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

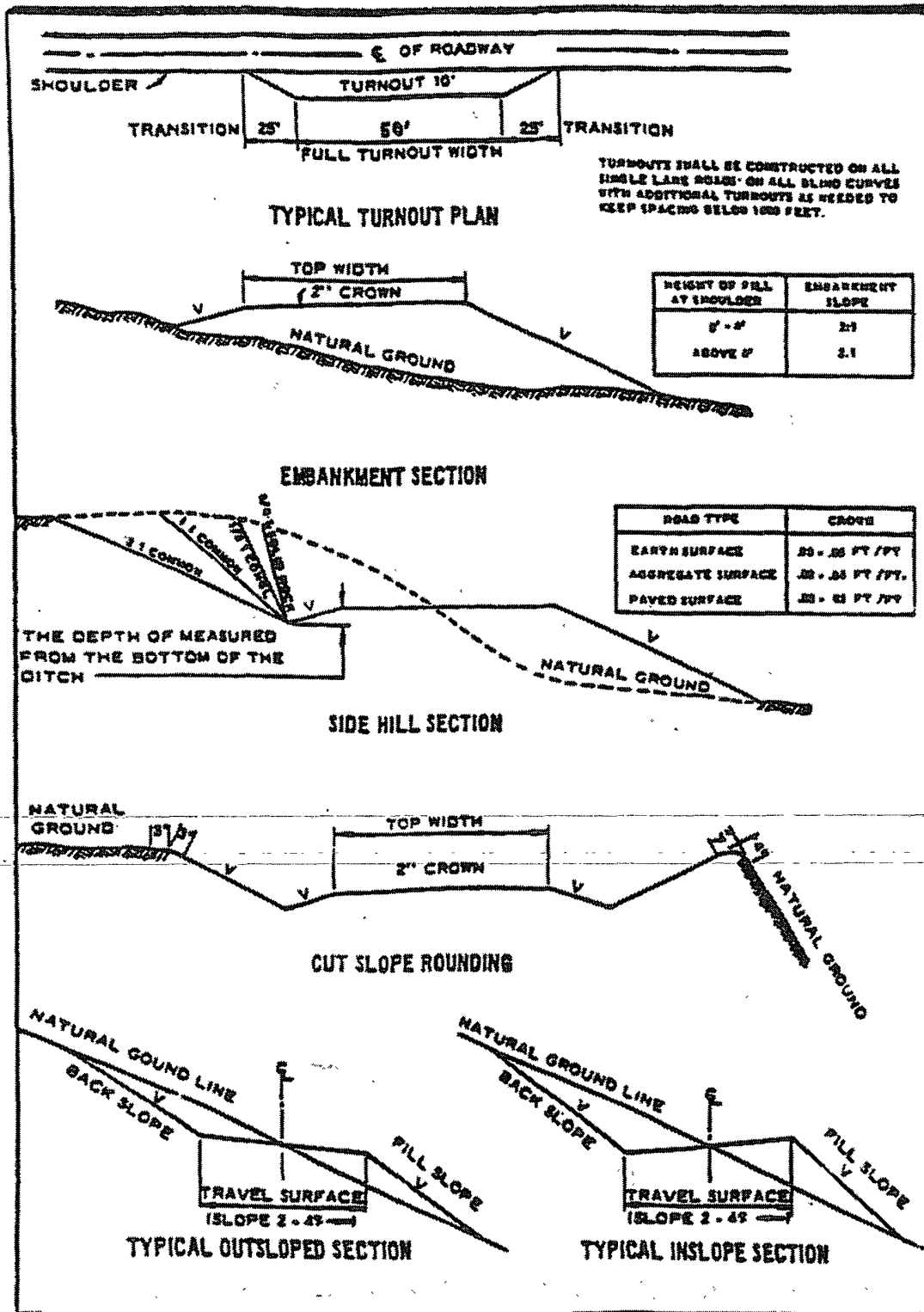
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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

☐ **Chaves and Roosevelt Counties**

Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.

During office hours call (575) 627-0272.

After office hours call (575) 200-7902.

☐ **Eddy County**

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

☐ **Lea County**

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

1. A Hydrogen Sulfide (H₂S) Drilling Plan should be activated 500 feet prior to drilling into the formation.
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. When floor controls are required, (3M or Greater) 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. Gamma-Ray/Neutron logs shall be run from the base of the Salado formation to the surface. The logs shall be run at a speed which allows the logs to be legible and no faster than manufactures of the logging tools recommended speed. (R-111-P area only)

B. CASING

1. The inch surface casing shall be set at feet 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 will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement).
 - 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 action will be done prior to drilling out that string.
2. The minimum required fill of cement behind the inch intermediate casing is:
- ☐ Cement to surface. If cement does not circulate see B.1.a-d above.
- ☐ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.
3. The minimum required fill of cement behind the inch production casing is:
- ☐ Cement to surface. If cement does not circulate, contact the appropriate BLM office.
-
- ☐ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.
-
- ☐ Top of cement to reach at least 500 feet above the top of the uppermost hydrocarbon productive interval.
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.
5. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

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 intermediate casing shoe shall be 2000 (2M) 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.
 - e. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the formation. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.
 - f. A variance to test the surface casing and BOP/BOPE to the reduced pressure of psi with the rig pumps is approved.

D. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the formation, and shall be used until production casing is run and cemented.

E. DRILL STEM TEST

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

ACS/ (date)

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

C. ELECTRIC LINES

IX. INTERIM RECLAMATION

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.

The 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 1, for Loamy 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 regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (small/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>
Plains lovegrass (<i>Eragrostis intermedia</i>)	0.5
Sand dropseed (<i>Sporobolus cryptandrus</i>)	1.0
Sideoats grama (<i>Bouteloua curtipendula</i>)	5.0

*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.