

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

OCD Artesia

FORM APPROVED  
OMB No. 1004-0137  
Expires July 31, 2010

13-359  
TB  
4/15/2013

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. Fee (SL) & NM 117119 (BHL)	
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 Mewbourne Oil Company		7. If Unit or CA Agreement, Name and No.	
3a. Address PO Box 5270 Hobbs, NM 88241		8. Lease Name and Well No. Delaware Ranch 13 EH Fed Com #1H	
3b. Phone No. (include area code) 575-393-5905		9. API Well No. 30-015-41271	
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 2100' FNL & 95' FWL, Sec. 13 T26S R28E At proposed prod. zone 2100' FNL & 330' FEL, Sec. 13 T26S R28E		10. Field and Pool, or Exploratory Red Bluff, South Bone Spring (51010)	
14. Distance in miles and direction from nearest town or post office* 12.5 miles from Malaga, NM		12. County or Parish Eddy	13. State NM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 95'	16. No. of acres in lease NM117119 - 1,440	17. Spacing Unit dedicated to this well 160	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 830' COG - Baby Budah 13 Fed. #1H	19. Proposed Depth 12,972 - MD 8357 - TVD	20. BLM/BIA Bond No. on file NM-1693 Nationwide, NMB-000919	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 2947'	22. Approximate date work will start* 04/01/2013	23. Estimated duration 60 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:

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

25. Signature <i>Bradley Bishop</i>	Name (Printed/Typed) Bradley Bishop	Date 3-4-13
Title		

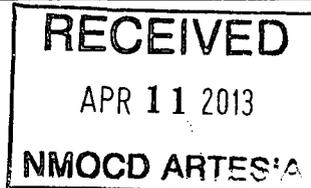
Approved by (Signature) <i>/s/George MacDonell</i>	Name (Printed/Typed)	Date APR - 9 2013
Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE	

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

(Continued on page 2)



Carlsbad Controlled Water Basin

\*(Instructions on page 2)

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

District I  
1625 N. French Dr., Hobbs, NM 88240  
Phone: (575) 393-6161 Fax: (575) 393-0720  
District II  
811 S. First St., Artesia, NM 88210  
Phone: (575) 748-1283 Fax: (575) 748-9720  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico  
Energy, Minerals & Natural Resources Department  
OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-102  
Revised August 1, 2011  
Submit one copy to appropriate  
District Office

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number 30-015-41271	<sup>2</sup> Pool Code 51010	<sup>3</sup> Pool Name Red Bluff South Bone Spring
<sup>4</sup> Property Code 39821	<sup>5</sup> Property Name DELAWARE RANCH 13 EH FED COM	
<sup>7</sup> SCRIP No. 14744	<sup>8</sup> Operator Name MEWBOURNE OIL COMPANY	<sup>6</sup> Well Number 1H  <sup>9</sup> Elevation 2947'

<sup>10</sup> Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	13	26-S	28-E		2100	NORTH	95	WEST	EDDY

<sup>11</sup> Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H.	13	26 S	28 E		2100	North	330	East	Eddy

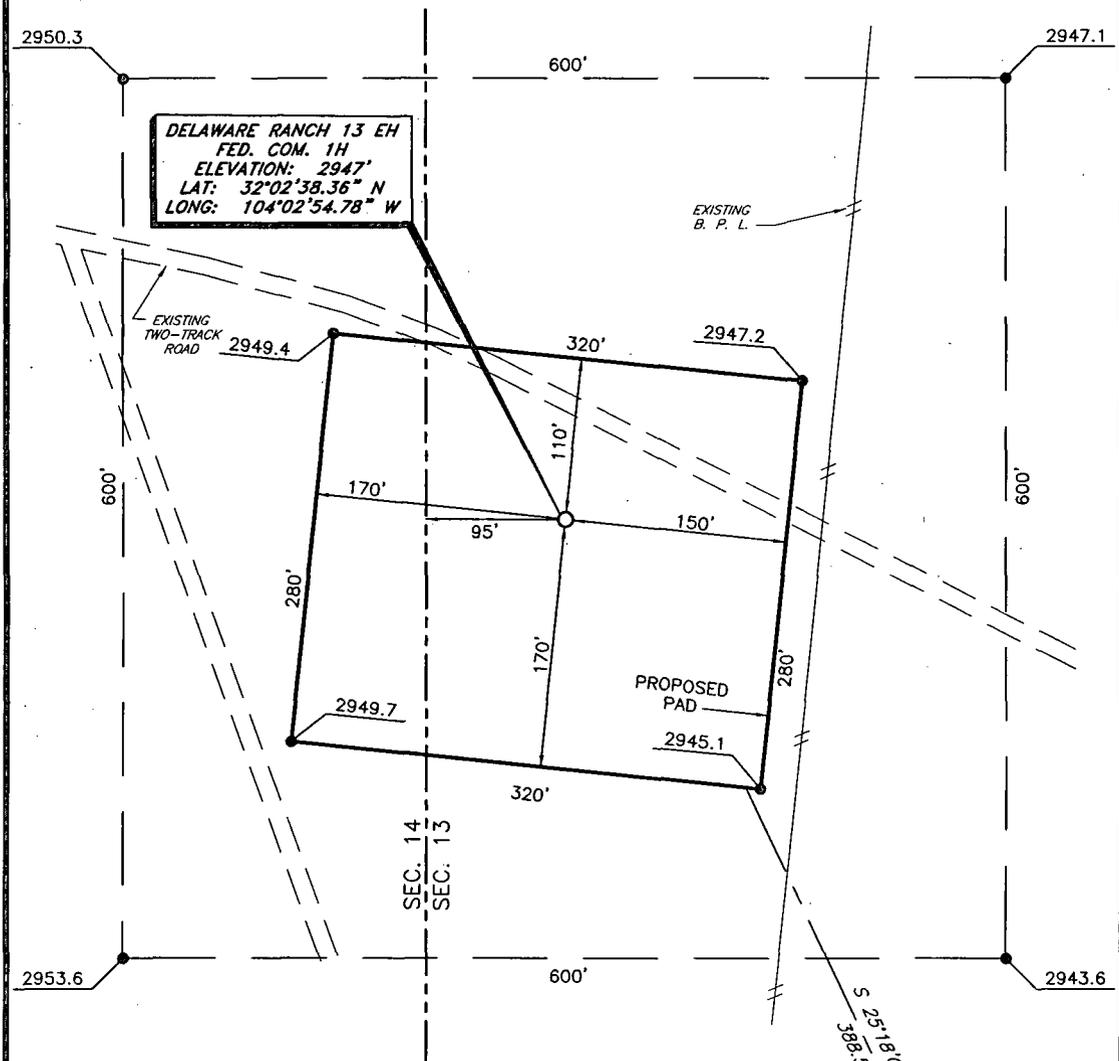
<sup>12</sup> Dedicated Acres 160	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.
--------------------------------------	-------------------------------	----------------------------------	-------------------------

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

	<p><sup>17</sup> OPERATOR CERTIFICATION</p> <p>I hereby certify that the information contained 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 a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p><i>Bradley Bischof</i> 2-14-13 Signature Date</p> <p>BRADLEY BISCHOP Printed Name</p> <p>E-mail Address</p>
	<p><sup>18</sup> 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>1/31/13 Date of Survey</p> <p>Signature and Seal of Professional Surveyor</p> <p><i>Robert M. Howett</i> ROBERT M. HOWETT NEW MEXICO 19680 PROFESSIONAL SURVEYOR</p> <p>19680 Certificate Number</p>

# MEWBOURNE OIL COMPANY

DELAWARE RANCH 13 EH FED COM 1H  
 (2100' FNL & 95' FWL)  
 Section 13, T-26-S, R-28-E,  
 N. M. P. M., Eddy Co., New Mexico



DELAWARE RANCH 13 EH  
 FED. COM. 1H  
 ELEVATION: 2947'  
 LAT: 32°02'38.36" N  
 LONG: 104°02'54.78" W

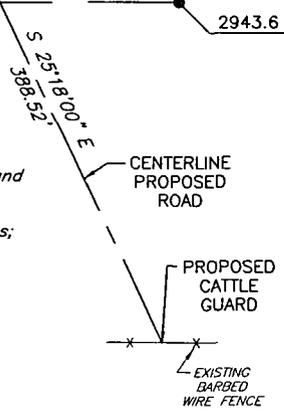
SEC. 14  
 SEC. 15

DIRECTIONS TO LOCATION

From the intersection of U. S. Hwy. No. 285 and County Road No. 725 (Longhorn Road);  
 Go Northeast on Co. Rd. 725 approx. 1.4 miles;  
 Turn Right on a lease road;  
 Follow lease road South for approx. 0.5 mile;  
 Turn right and go West 0.2 mile;  
 Turn left and go approx. 0.25 mile;  
 Turn right and go West approx. 350 feet  
 Turn right and go through an existing gate and continue along a two-track road for approx. 0.2 mile to the location.



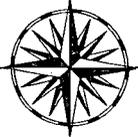
SCALE: 1" = 100'  
 0 50 100  
 BEARINGS ARE  
 NAD 27 - NM EAST  
 DISTANCES ARE  
 GROUND.



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NO.	REVISION	DATE
JOB NO.: LS130020		
DWG. NO.: 130020PAD		

PROSPERITY CONSULTANTS, LLC

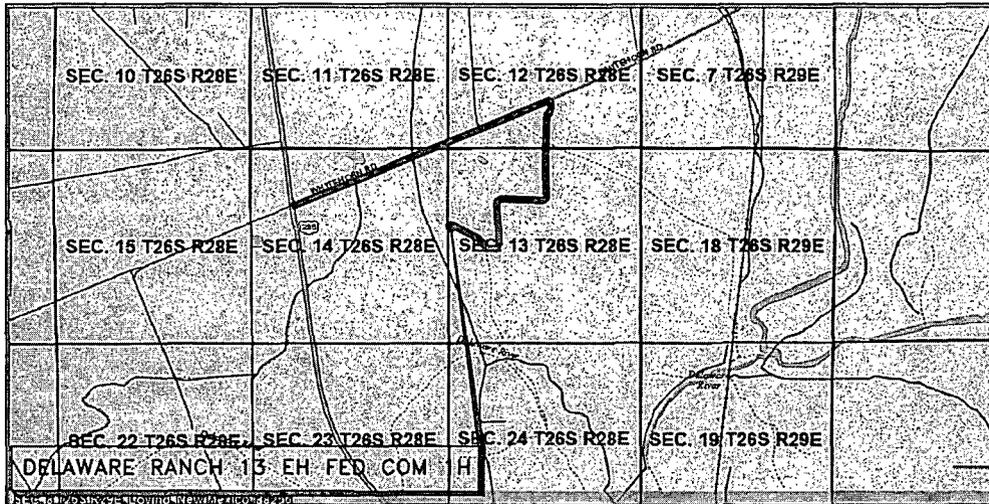


2251 Double Creek Drive, Suite 602, Round Rock, Texas 78664 o (512) 992-2087 f (512) 251-2518

SCALE: 1" = 100'
DATE: 1/31/13
SURVEYED BY: RH/GB
DRAWN BY: LWB
APPROVED BY: LWB
SHEET : 1 OF 1

# VICINITY MAP

NOT TO SCALE



**SECTION 13, TWP. 26 SOUTH, RGE. 28 EAST,  
N. M. P. M., EDDY COUNTY, NEW MEXICO**

OPERATOR: Mewbourne Oil Company  
 LEASE: Delaware Ranch 13 EH Fed. Com.  
 WELL NO.: 1H  
 ELEVATION: 2947'  
 LOCATION: 2100' FNL & 95' FWL

DIRECTIONS TO LOCATION

*From the intersection of U. S. Hwy. No. 285 and  
 County Road No. 725 (Longhorn Road);*

*Go Northeast on Co. Rd. 725 approx. 1.4 miles;*

*Turn Right on a lease road;*

*Follow lease road South for approx. 0.5 mile;*

*Turn right and go West 0.2 mile;*

*Turn left and go approx. 0.25 mile;*

*Turn right and go West approx. 350 feet*

*Turn right and go through an existing gate and  
 continue along a two-track road for approx. 0.2  
 mile to the location.*

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NO.	REVISION	DATE
JOB NO.:	LS130020	
DWG. NO.:	130020VM	

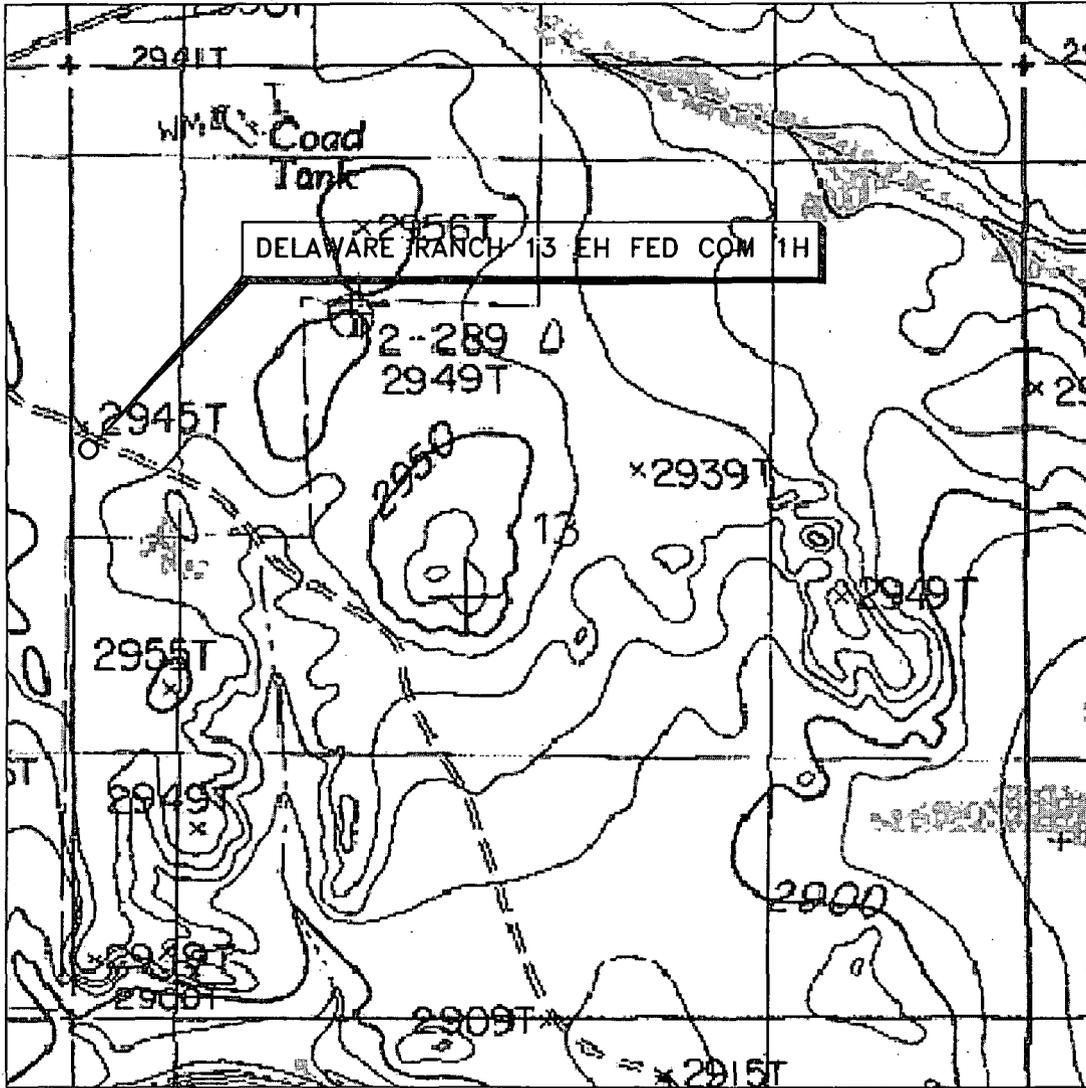
PROSPERITY CONSULTANTS, LLC



2251 Double Creek Drive, Suite 602, Round Rock, Texas 78664    ☎ (512) 992-2087 f (512) 251-2518

SCALE: 1" = 1000'
DATE: 1/31/13
SURVEYED BY: RH/GB
DRAWN BY: LWB
APPROVED BY: LWB
SHEET : 1 OF 1

# LOCATION VERIFICATION MAP



SECTION 13, TWP. 26 SOUTH, RGE. 28 EAST,  
N. M. P. M., EDDY COUNTY, NEW MEXICO

OPERATOR: Mewbourne Oil Company  
 LEASE: Delaware Ranch 13 EH Fed. Com  
 WELL NO.: 1H  
 ELEVATION: 2947'

LOCATION: 2100' FNL & 95' FWL  
 CONTOUR INTERVAL: 10'  
 USGS TOPO. SOURCE MAP:  
Red Bluff, NM (P. E. 1985)

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NO.	REVISION	DATE
JOB NO.: LS130020		
DWG. NO.: 130020LVM		

PROSPERITY CONSULTANTS, LLC



2251 Double Creek Drive, Suite 602, Round Rock, Texas 78664

o (512) 992-2087 f (512) 251-2518

SCALE: 1" = 1000'
DATE: 1/31/13
SURVEYED BY: RH/GB
DRAWN BY: LWB
APPROVED BY: LWB
SHEET : 1 OF 1

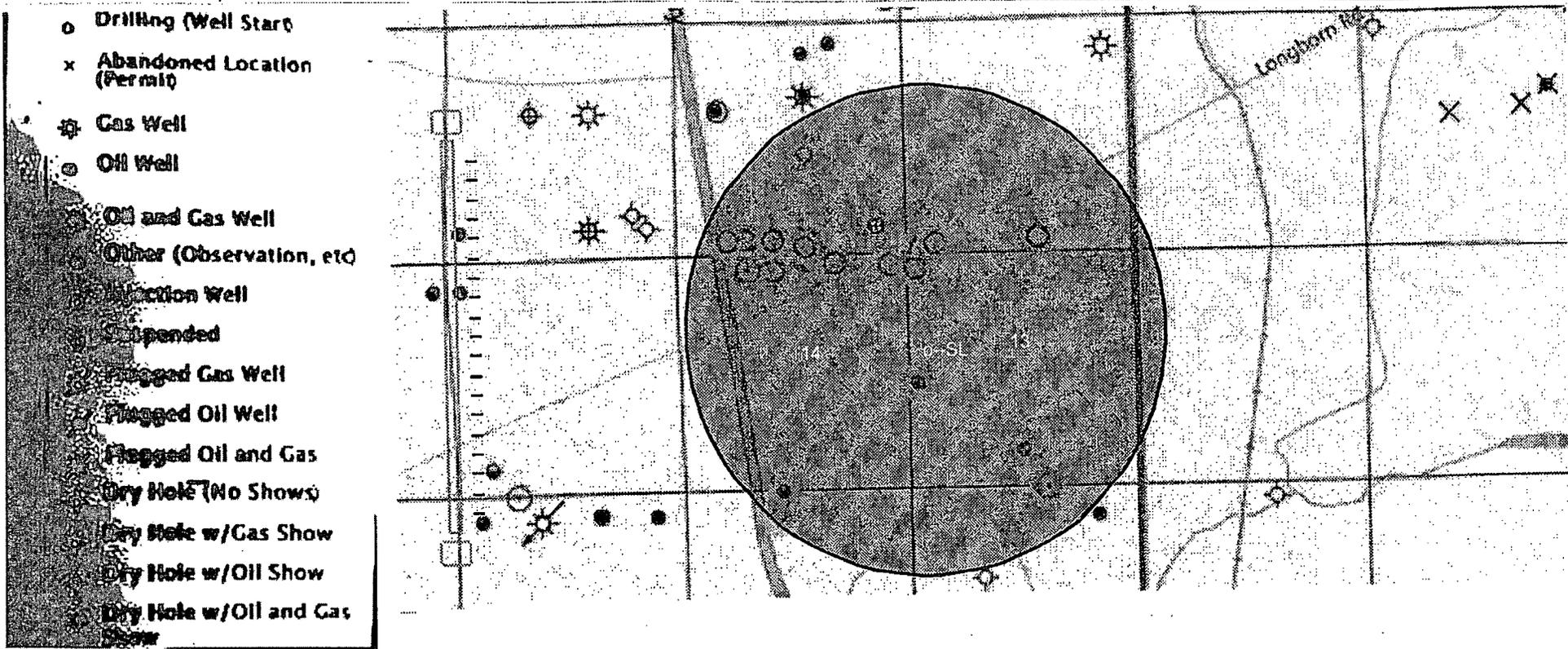


EXHIBIT "4" - SL - Delaware Ranch 13 EH Fed Com #1H, Sec. 13 T26S R28E, Eddy, Co. NM.

- Drilling (Well Start)
- × Abandoned Location (Permit)
- ⊗ Gas Well
- Oil Well
- ⊗ Oil and Gas Well
- Other (Observation, etc)
- Injection Well
- Suspended
- ⊗ Plugged Gas Well
- ⊗ Plugged Oil Well
- ⊗ Plugged Oil and Gas
- Dry Hole (No Shows)
- Dry Hole w/Gas Show
- Dry Hole w/Oil Show
- Dry Hole w/Oil and Gas Show

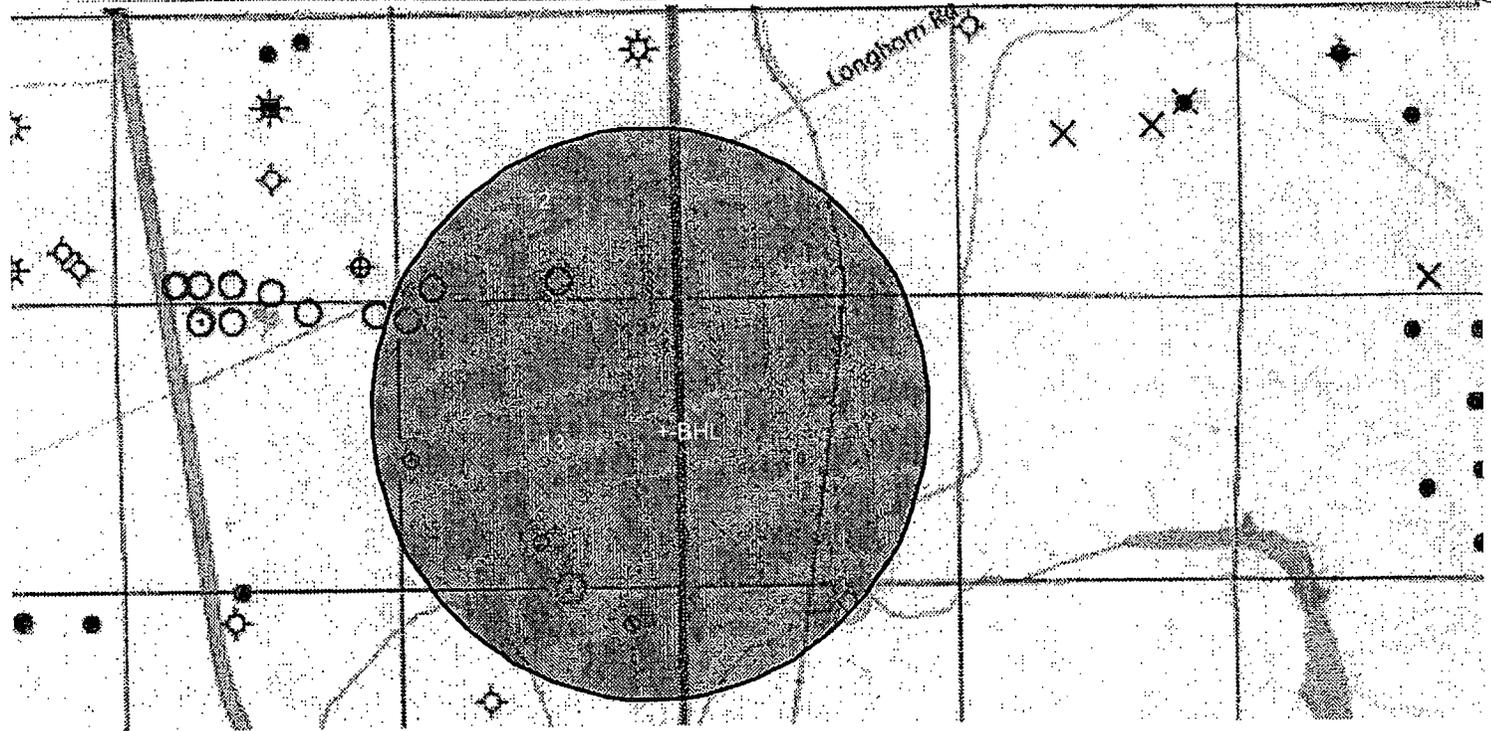


EXHIBIT "4A" - BHL - Delaware Ranch 13 EH Fed Com #1H - Sec. 13 T26S R28E, Eddy Co. NM

**Drilling Program**  
**Mewbourne Oil Company**  
 Delaware Ranch "13" EH Fed Com #1H  
 2100' FNL & 95' FWL (SHL)  
 Sec 13-T26S-R28E  
 Eddy County, New Mexico.

**1. The estimated tops of geological markers are as follows:**

Rustler	600'
Top Salt	900'
Base Salt	2400'
Delaware Lime	2580'
Lamar	2600'
*Bell Canyon	2620'
*Cherry Canyon	3500'
Manzanita Marker	3550'
*Brushy Canyon	5200'
*Bone Springs	6330'
*Upper Avalon	6640'
*Lower Avalon	6860'
*1 <sup>st</sup> Bone Spring Sand	7250'
*2 <sup>nd</sup> Bone Spring Sand	8100'
3rd BS Sand	Will not penetrate
Wolfcamp	Will not penetrate

**2. Estimated depths of anticipated fresh water, oil, or gas:**

Water	Fresh water is anticipated @ 55' & will be protected by setting surface casing at 625' and cementing to surface.
Hydrocarbons	Oil and gas are anticipated in the above (*) formations. These zones will be protected by casing as necessary.

**3. Pressure control equipment:**

A 2000# WP Annular will be installed after running 13 3/8" casing. A 5000# WP Double Ram BOP and 5000# WP Annular will be installed after running 7" & 9 5/8" casing. Pressure tests will be conducted prior to drilling out under all casing strings. BOP controls will be installed prior to drilling under surface casing and will remain in use until completion of drilling operations. BOPE will be inspected and operated as recommended in Onshore Order #2. A Kelly cock and a sub equipped with a full opening valve sized to fit the drill pipe and collars will be available on the rig floor in the open position when the Kelly is not in use. Will test the 13 3/8" Annular to 1000#, 7" & 9 5/8" BOPE to 5000# and the Annular to 2500# with a third party testing company before drilling below each shoe, but will test again, if needed, in 30 days from the 1<sup>st</sup> test as per BLM Onshore Oil and Gas Order #2.

4. MOC proposes to drill a vertical wellbore to 7800' & kick off to horizontal @ 8277' TVD. The well will be drilled to 12972' MD (8357' TVD). See attached directional plan.

**5. Proposed casing and cementing program:**

**A. Casing Program:**

<i>See EOA</i>	<u>Hole Size</u>	<u>Casing</u>	<u>Wt/Ft.</u>	<u>Grade</u>	<u>Depth</u>	<u>Jt Type</u>
	17 1/2"	13 3/8" (new)	48#	H40	0'-625' <i>SCO</i>	ST&C
	12 1/4"	9 5/8" (new)	36#	J55	0'-2550'	LT&C
	8 3/4"	7" (new)	26#	P110	0'-7800' MD	LT&C
	8 3/4"	7" (new)	26#	P110	7800'-8541' MD	BT&C
	6 1/8"	4 1/2" (new)	13.5#	P110	8341'-12972' MD	LT&C

Minimum casing design factors: Collapse 1.125, Burst 1.0, Tensile strength 1.8.

\*Subject to availability of casing.

**B. Cementing Program:**

*see COA*

- i. Surface Casing: 300 sks Class "C" cement w/ LCM additives. Yield at 2.10 cuft/sk. 200 sks Class "C" cement w/ 2% CaCl<sub>2</sub>. Yield at 1.34 cuft/sk. Cmt circulated to surface w/ 100% excess.
- ii. Intermediate Casing: 350 sacks Class "C" light cement w/ salt & LCM additives. Yield at 2.10 cuft/sk. 200 sacks Class "C" cement w/ 2% CaCl<sub>2</sub>. Yield at 1.34 cuft/sk. Cmt circulated to surface w/ 25% excess.
- iii. Production Casing: 360 sacks \*Lite "C" (60:40:0) cement w/salt and fluid loss additives. Yield at 2.12 cuft/sk. 400 sacks Class "H" cement w/ salt & FLA additives. Yield at 1.18 cuft/sk. Cmt calculated to tie back 200' into 9 5/8" csg w/ 25% excess.
- iv. Production Liner: This will be a Packer/Port completion from TD up inside 7" casing with packer type liner hanger.

\*Referring to above blends of light cement: (wt% fly ash : wt% cement : wt% bentonite of the total of first two numbers). Generic names of additives are used since the availability of specific company and products are unknown at this time.

**6. Mud Program:**

<u>Interval</u>	<u>Type System</u>	<u>Weight</u>	<u>Viscosity</u>	<u>Fluid Loss</u>
0' - 625'	FW spud mud	8.6-9.0	32-34	NA
625' - 2550'	Brine water	10.0-10.2	28-30	NA
2550' - 7800' (KOP)	FW	8.5-8.7	28-30	15
7800' - TD	FW w/Polymer	8.5-8.7	32-35	15

\*\*Visual mud monitoring system shall be in place to detect volume changes indicating loss or gain of circulation fluid volume. Sufficient mud materials will be kept on location at all times to combat abnormal conditions.

**7. Evaluation Program:**

*see COA*

Samples: 10' samples from surface casing to TD  
Logging: GR & Gyro from KOP -100' (7700') to surface. GR from 7700' to TD.

**8. Downhole Conditions**

Zones of abnormal pressure: None anticipated  
Zones of lost circulation: Anticipated in surface and intermediate holes  
Maximum bottom hole temperature: 120 degree F  
Maximum bottom hole pressure: 8.3 lbs/gal gradient or less (.43368 x 8357' = 3624 psi )

**9. Anticipated Starting Date:**

Mewbourne Oil Company intends to drill this well as soon as possible after receiving approval with approximately 40 days involved in drilling operations and an additional 10 days involved in completion operations on the project.

# **Mewbourne Oil Co**

**Eddy County, New Mexico**

**Sec 13, T26-S, R28-E**

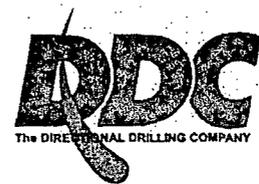
**Delaware Ranch 13 EH Fed Com #1H**

**Wellbore #1**

**Plan: Design #1**

## **DDC Well Planning Report**

**12 February, 2013**



DDC  
Well Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Delaware Ranch 13 EH Fed Com #1H
Company:	Mewbourne Oil Co	TVD Reference:	WELL @ 2967.0usft (Patterson #75)
Project:	Eddy County, New Mexico	MD Reference:	WELL @ 2967.0usft (Patterson #75)
Site:	Sec 13, T26-S, R28-E	North Reference:	Grid
Well:	Delaware Ranch 13 EH Fed Com #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project:	Eddy County, New Mexico		
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:	Sec 13, T26-S, R28-E				
Site Position:		Northing:	379,844.10 usft	Latitude:	32° 2' 38.351 N
From:	Map	Easting:	588,238.90 usft	Longitude:	104° 2' 54.785 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.15 °

Well:	Delaware Ranch 13 EH Fed Com #1H					
Well Position	+N/-S	0.0 usft	Northing:	379,844.10 usft	Latitude:	32° 2' 38.351 N
	+E/-W	0.0 usft	Easting:	588,238.90 usft	Longitude:	104° 2' 54.785 W
Position Uncertainty	0.0 usft		Wellhead Elevation:		Ground Level:	2,947.0 usft

Wellbore:	Wellbore #1				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/12/2013	7.59	59.90	48,292

Design:	Design #1				
---------	-----------	--	--	--	--

Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.0	

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	89.74

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Bulld Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
7,799.6	0.00	0.00	7,799.6	0.0	0.0	0.00	0.00	0.00	0.00	
8,541.0	88.97	89.74	8,277.0	2.1	468.8	12.00	12.00	12.10	89.74	
12,971.7	88.97	89.74	8,357.0	21.9	4,898.8	0.00	0.00	0.00	0.00	0.00 PBHL Delaware Ra

DDC  
Well Planning Report



Database:	EDM:5000.1 Single User Db	Local Co-ordinate Reference:	Well Delaware Ranch 13:EH Fed Com #1H
Company:	Mewbourne Oil Co	TVD Reference:	WELL @ 2967.0usft (Patterson #75)
Project:	Eddy County, New Mexico	MD Reference:	WELL @ 2967.0usft (Patterson #75)
Site:	Sec 13, T26-S, R28-E	North Reference:	Grid:
Well:	Delaware Ranch 13:EH Fed Com #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Buird Rate (°/100usft)	Turn Rate (°/100usft)
<b>Buird 12° / 100</b>									
7,799.6	0.00	0.00	7,799.6	0.0	0.0	0.0	0.00	0.00	0.00
7,800.0	0.05	89.74	7,800.0	0.0	0.0	0.0	12.00	12.00	0.00
7,900.0	12.05	89.74	7,899.3	0.0	10.5	10.5	12.00	12.00	0.00
8,000.0	24.05	89.74	7,994.2	0.2	41.4	41.4	12.00	12.00	0.00
8,100.0	36.05	89.74	8,080.6	0.4	91.4	91.4	12.00	12.00	0.00
8,200.0	48.05	89.74	8,154.7	0.7	158.3	158.3	12.00	12.00	0.00
8,300.0	60.05	89.74	8,213.3	1.1	239.1	239.1	12.00	12.00	0.00
8,400.0	72.05	89.74	8,253.8	1.5	330.3	330.3	12.00	12.00	0.00
8,500.0	84.05	89.74	8,274.5	1.9	427.9	428.0	12.00	12.00	0.00
<b>EOB @ 88.97° Inc / 89.74° Azm / 8277.7 TVD</b>									
8,541.0	88.97	89.74	8,277.0	2.1	468.8	468.8	12.00	12.00	0.00
8,600.0	88.97	89.74	8,278.1	2.4	527.9	527.9	0.00	0.00	0.00
8,700.0	88.97	89.74	8,279.9	2.8	627.8	627.8	0.00	0.00	0.00
8,800.0	88.97	89.74	8,281.7	3.3	727.8	727.8	0.00	0.00	0.00
8,900.0	88.97	89.74	8,283.5	3.7	827.8	827.8	0.00	0.00	0.00
9,000.0	88.97	89.74	8,285.3	4.2	927.8	927.8	0.00	0.00	0.00
9,100.0	88.97	89.74	8,287.1	4.6	1,027.8	1,027.8	0.00	0.00	0.00
9,200.0	88.97	89.74	8,288.9	5.0	1,127.7	1,127.8	0.00	0.00	0.00
9,300.0	88.97	89.74	8,290.7	5.5	1,227.7	1,227.7	0.00	0.00	0.00
9,400.0	88.97	89.74	8,292.5	5.9	1,327.7	1,327.7	0.00	0.00	0.00
9,500.0	88.97	89.74	8,294.3	6.4	1,427.7	1,427.7	0.00	0.00	0.00
9,600.0	88.97	89.74	8,296.1	6.8	1,527.7	1,527.7	0.00	0.00	0.00
9,700.0	88.97	89.74	8,297.9	7.3	1,627.7	1,627.7	0.00	0.00	0.00
9,800.0	88.97	89.74	8,299.7	7.7	1,727.6	1,727.7	0.00	0.00	0.00
9,900.0	88.97	89.74	8,301.5	8.2	1,827.6	1,827.6	0.00	0.00	0.00
10,000.0	88.97	89.74	8,303.3	8.6	1,927.6	1,927.6	0.00	0.00	0.00
10,100.0	88.97	89.74	8,305.1	9.1	2,027.6	2,027.6	0.00	0.00	0.00
10,200.0	88.97	89.74	8,306.9	9.5	2,127.6	2,127.6	0.00	0.00	0.00
10,300.0	88.97	89.74	8,308.8	10.0	2,227.6	2,227.6	0.00	0.00	0.00
10,400.0	88.97	89.74	8,310.6	10.4	2,327.5	2,327.6	0.00	0.00	0.00
10,500.0	88.97	89.74	8,312.4	10.9	2,427.5	2,427.5	0.00	0.00	0.00
10,600.0	88.97	89.74	8,314.2	11.3	2,527.5	2,527.5	0.00	0.00	0.00
10,700.0	88.97	89.74	8,316.0	11.8	2,627.5	2,627.5	0.00	0.00	0.00
10,800.0	88.97	89.74	8,317.8	12.2	2,727.5	2,727.5	0.00	0.00	0.00
10,900.0	88.97	89.74	8,319.6	12.7	2,827.5	2,827.5	0.00	0.00	0.00
11,000.0	88.97	89.74	8,321.4	13.1	2,927.4	2,927.5	0.00	0.00	0.00
11,100.0	88.97	89.74	8,323.2	13.5	3,027.4	3,027.4	0.00	0.00	0.00
11,200.0	88.97	89.74	8,325.0	14.0	3,127.4	3,127.4	0.00	0.00	0.00
11,300.0	88.97	89.74	8,326.8	14.4	3,227.4	3,227.4	0.00	0.00	0.00
11,400.0	88.97	89.74	8,328.6	14.9	3,327.4	3,327.4	0.00	0.00	0.00
11,500.0	88.97	89.74	8,330.4	15.3	3,427.3	3,427.4	0.00	0.00	0.00
11,600.0	88.97	89.74	8,332.2	15.8	3,527.3	3,527.4	0.00	0.00	0.00
11,700.0	88.97	89.74	8,334.0	16.2	3,627.3	3,627.4	0.00	0.00	0.00
11,800.0	88.97	89.74	8,335.8	16.7	3,727.3	3,727.3	0.00	0.00	0.00
11,900.0	88.97	89.74	8,337.6	17.1	3,827.3	3,827.3	0.00	0.00	0.00
12,000.0	88.97	89.74	8,339.5	17.6	3,927.3	3,927.3	0.00	0.00	0.00
12,100.0	88.97	89.74	8,341.3	18.0	4,027.2	4,027.3	0.00	0.00	0.00
12,200.0	88.97	89.74	8,343.1	18.5	4,127.2	4,127.3	0.00	0.00	0.00
12,300.0	88.97	89.74	8,344.9	18.9	4,227.2	4,227.3	0.00	0.00	0.00
12,400.0	88.97	89.74	8,346.7	19.4	4,327.2	4,327.2	0.00	0.00	0.00
12,500.0	88.97	89.74	8,348.5	19.8	4,427.2	4,427.2	0.00	0.00	0.00
12,600.0	88.97	89.74	8,350.3	20.3	4,527.2	4,527.2	0.00	0.00	0.00
12,700.0	88.97	89.74	8,352.1	20.7	4,627.1	4,627.2	0.00	0.00	0.00

DDC  
Well Planning Report



<b>Database:</b>	EDM-5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Delaware Ranch 13 EH Fed Com #1H
<b>Company:</b>	Mewbourne Oil Co.	<b>TVD Reference:</b>	WELL @ 2967.0usft (Patterson #75)
<b>Project:</b>	Eddy County New Mexico	<b>MD Reference:</b>	WELL @ 2967.0usft (Patterson #75)
<b>Site:</b>	Sec 13 T26 S R28-E	<b>North Reference:</b>	Grid
<b>Well:</b>	Delaware Ranch 13 EH Fed Com #1H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

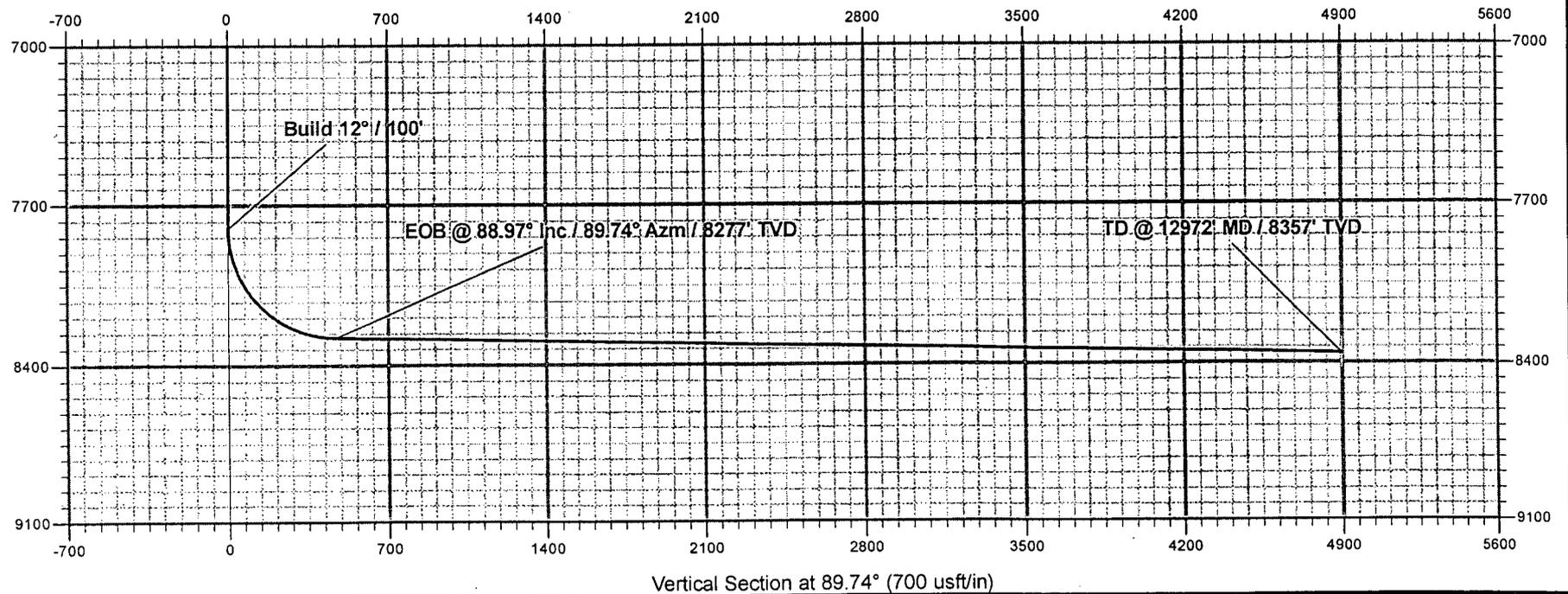
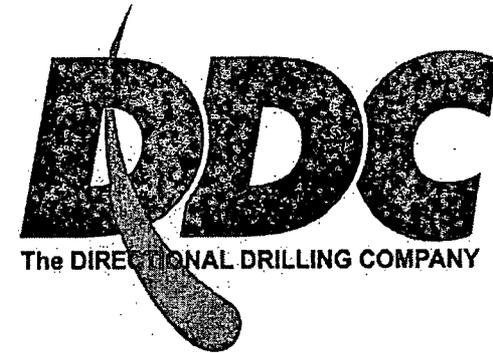
Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/S (usft)	+E/W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
12,800.0	88.97	89.74	8,353.9	21.2	4,727.1	4,727.2	0.00	0.00	0.00	
12,900.0	88.97	89.74	8,355.7	21.6	4,827.1	4,827.2	0.00	0.00	0.00	
12,971.7	88.97	89.74	8,357.0	21.9	4,898.8	4,898.8	0.00	0.00	0.00	

Design Targets										
Target Name	hit/miss/target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/S (usft)	+E/W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL Delaware Ranc		0.00	0.00	8,357.0	21.9	4,898.8	379,866.02	593,137.68	32° 2' 38.437 N	104° 1' 57.868 W
- plan hits target center										
- Point										

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/S (usft)	+E/W (usft)		
7,799.6	7,799.6	0.0	0.0	Build 12" / 100'	
8,541.0	8,277.0	2.1	468.8	EOB @ 88.97° Inc / 89.74° Azm / 8277' TVD	
12,971.7	8,357.0	21.9	4,898.8	TD @ 12972' MD / 8357' TVD	

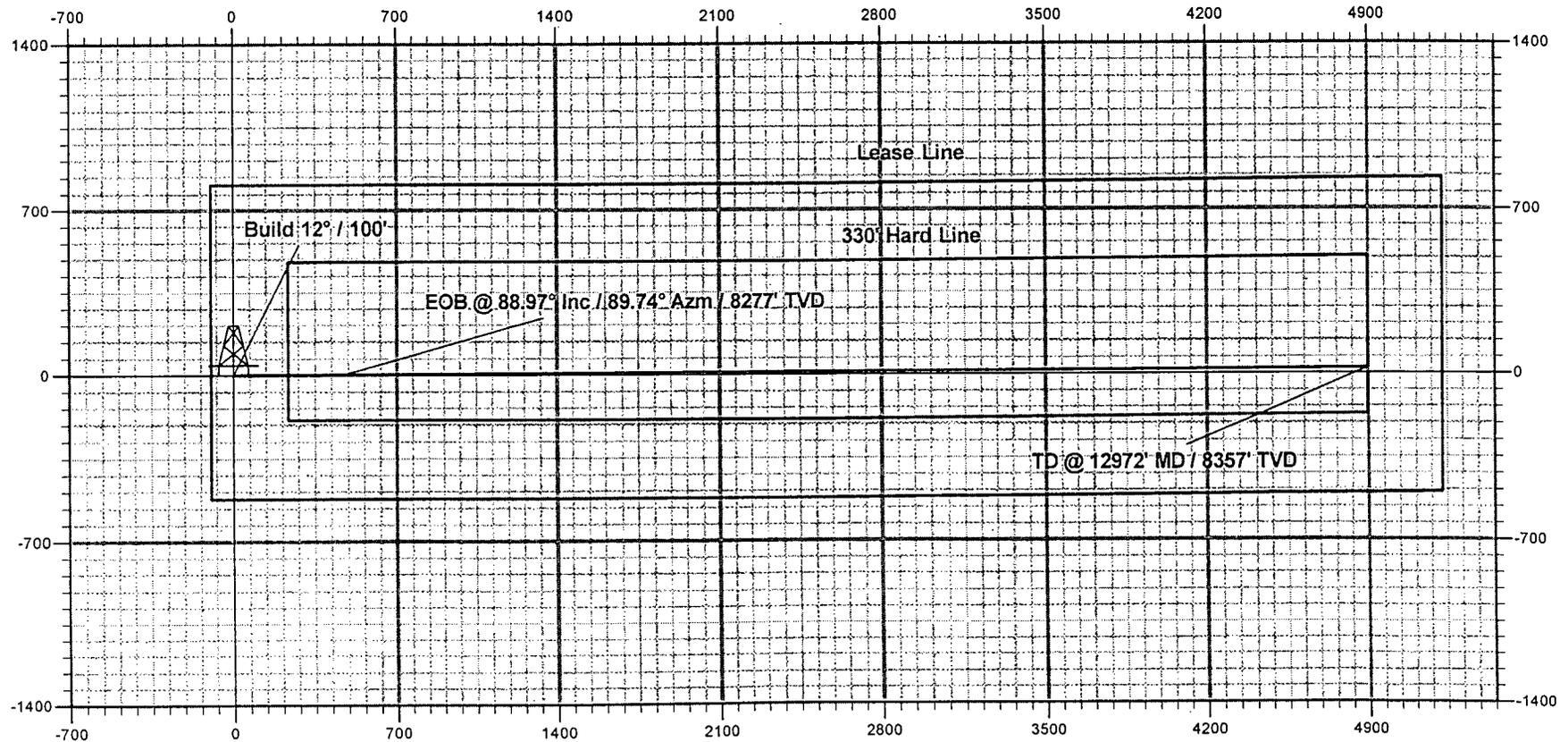
# Mewbourne Oil Company

Eddy County, New Mexico  
Delaware Ranch 13 EH Fed Com #1H  
Quote 130158  
Design #1



# Mewbourne Oil Company

Eddy County, New Mexico  
Delaware Ranch 13 EH Fed Com #1H  
Quote 130158  
Design #1



**Notes Regarding Blowout Preventer**

**Mewbourne Oil Company**

Delaware Ranch "13" EH Fed Com #1H

2100' FNL & 95" FWL (SHL)

Sec 13-T26S-R28E

Eddy County, New Mexico

- I. Drilling nipple (bell nipple) to be constructed so that it can be removed without the use of a welder through the opening of the rotary table, with minimum internal diameter equal to blowout preventer bore.
- II. Blowout preventer and all fittings must be in good condition with a minimum 2000 psi working pressure on 13 3/8" casing and 3000 psi working pressure on 9 5/8" & 7" casing.
- III. Safety valve must be available on the rig floor at all times with proper connections to install in the drill string. Valve must be full bore with minimum 3000 psi working pressure.
- IV. Equipment through which bit must pass shall be at least as large as internal diameter of the casing.
- V. A kelly cock shall be installed on the kelly at all times.

Blowout preventer closing equipment to include and accumulator of at least 40 gallon capacity, two independent sources of pressure on closing unit, and meet all other API specifications.

# 13 5/8" 2M BOPE & Closed Loop Equipment Schematic

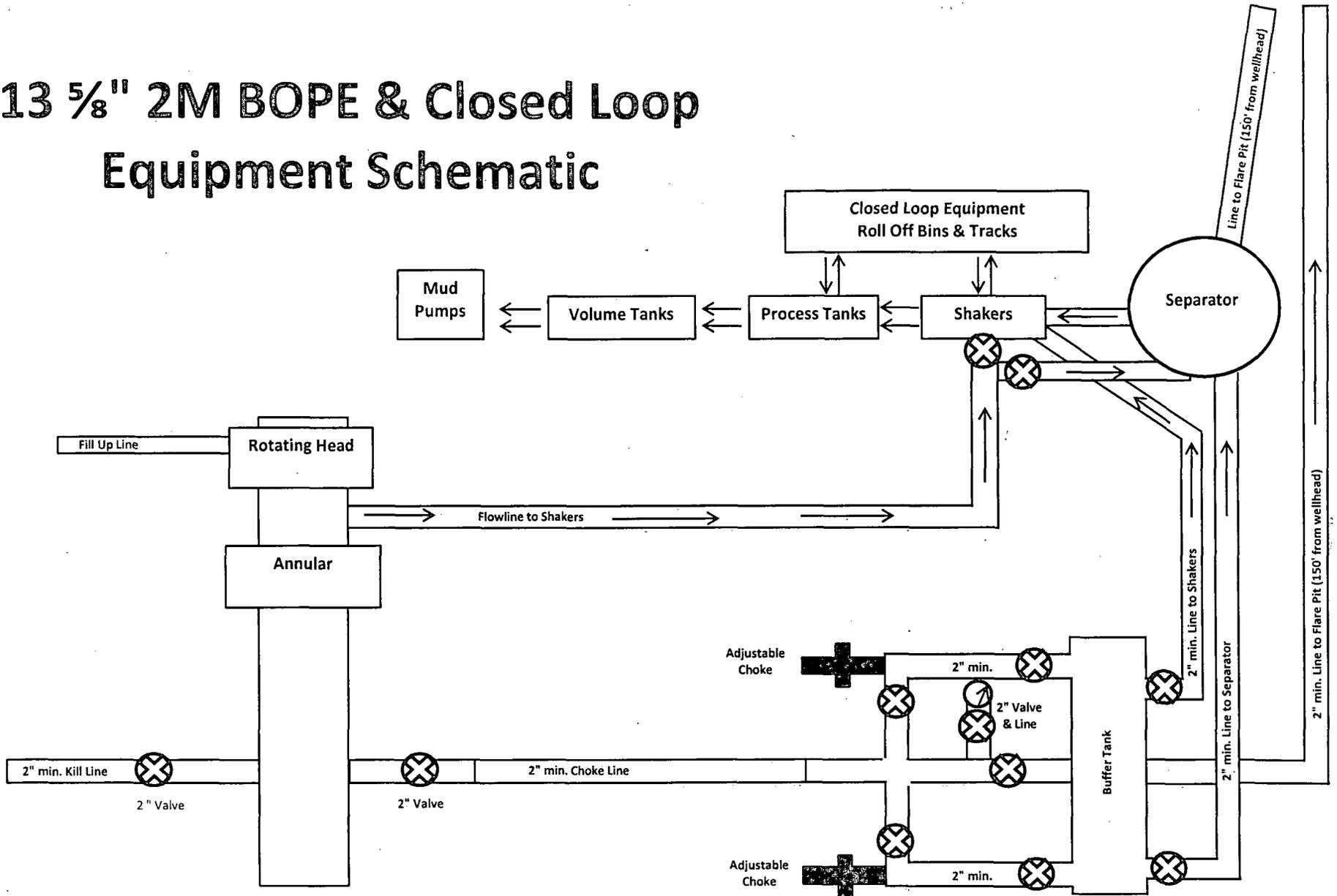
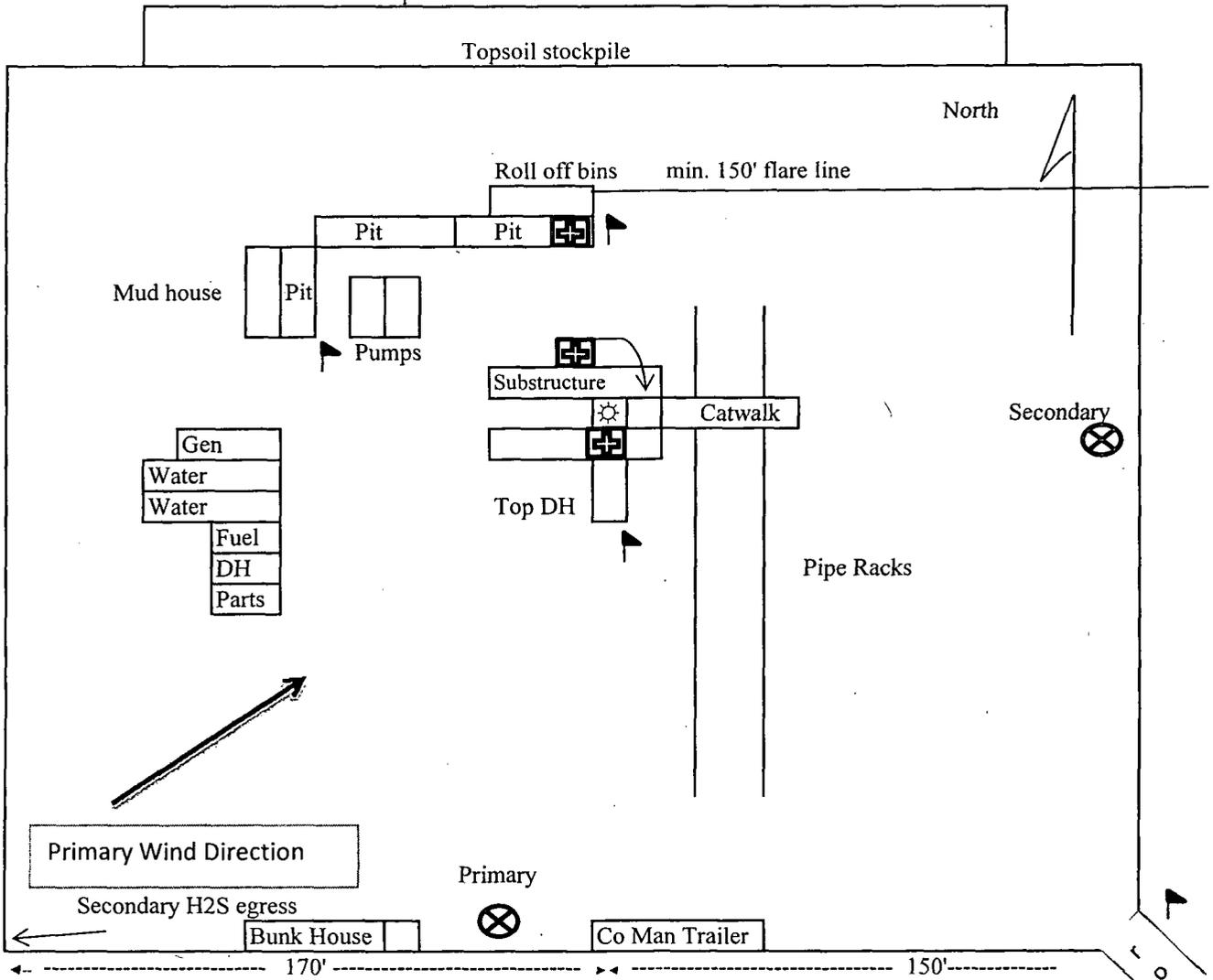


Exhibit 2A  
Well Name: Delaware Ranch 13 EH Fed Com #1H



H2S Diagram  
 Closed Loop Pad Dimensions 260' x 320'



Primary Wind Direction

Secondary H2S egress

Bunk House

Primary

Co Man Trailer

170'

150'

Exhibit 5



= Safety Stations



= Wind Markers



= H2S Monitors

Mewbourne Oil Company  
 Delaware Ranch 13 EH Fed Com #1H  
 2100' FNL & 95' FWL  
 Sec. 13 T26S R28E  
 Eddy County, NM

Hydrogen Sulfide Drilling Operations Plan  
**Mewbourne Oil Company**  
Delaware Ranch "13" EH Fed Com #1H  
2100' FNL & 95' FWL  
Sec 13-T26S-R28E  
Eddy County, New Mexico

**1. General Requirements**

Rule 118 does not apply to this well because MOC has researched this area and no high concentrations of H<sub>2</sub>S were found. MOC will have on location and working all H<sub>2</sub>S safety equipment before the Delaware formation for purposes of safety and insurance requirements.

**2. Hydrogen Sulfide Training**

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will have received training from a qualified instructor in the following areas prior to entering the drilling pad area of the well:

1. The hazards and characteristics of hydrogen sulfide gas.
2. The proper use of personal protective equipment and life support systems.
3. The proper use of hydrogen sulfide detectors, alarms, warning systems, briefing areas, evacuation procedures.
4. The proper techniques for first aid and rescue operations.

Additionally, supervisory personnel will be trained in the following areas:

- 1 The effects of hydrogen sulfide on metal components. If high tensile tubular systems are utilized, supervisory personnel will be trained in their special maintenance requirements.
- 2 Corrective action and shut in procedures, blowout prevention, and well control procedures while drilling a well.
- 3 The contents of the Hydrogen Sulfide Drilling Operations Plan.

There will be an initial training session prior to encountering a known hydrogen sulfide source. The initial training session shall include a review of the site specific Hydrogen Sulfide Drilling Operations Plan.

**3. Hydrogen Sulfide Safety Equipment and Systems**

All hydrogen sulfide safety equipment and systems will be installed, tested, and operational prior to drilling below the intermediate casing.

1. Well Control Equipment
  - A. Choke manifold with minimum of one adjustable choke.
  - B. Blowout preventers equipped with blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit
  - C. Auxiliary equipment including annular type blowout preventer.
2. Protective Equipment for Essential Personnel

Thirty minute self contained work unit located in the dog house and at briefing areas.

Additionally: If H<sub>2</sub>S is encountered in concentrations less than 10 ppm, fans will be placed in work areas to prevent the accumulation of hazardous amounts of poisonous gas. If higher concentrations of H<sub>2</sub>S are detected the well will be shut in and a rotating head, mud/gas separator, remote choke and flare line with igniter will be installed.

3. Hydrogen Sulfide Protection and Monitoring Equipment  
Two portable hydrogen sulfide monitors positioned on location for optimum coverage and detection. The units shall have audible sirens to notify personnel when hydrogen sulfide levels exceed 20 PPM.
4. Visual Warning Systems
  - A. Wind direction indicators as indicated on the wellsite diagram.
  - B. Caution signs shall be posted on roads providing access to location. Signs shall be painted a high visibility color with lettering of sufficient size to be readable at reasonable distances from potentially contaminated areas.

**4. Mud Program**

The mud program has been designed to minimize the amount of hydrogen sulfide, entrained in the mud system. Proper mud weight, safe drilling practices, and the use of hydrogen sulfide scavengers will minimize hazards while drilling the well.

**5. Metallurgy**

All tubular systems, wellheads, blowout preventers, drilling spools, kill lines, choke manifolds, and valves shall be suitable for service in a hydrogen sulfide environment when chemically treated.

**6. Communications**

State & County Officials phone numbers are posted on rig floor and supervisors trailer. Communications in company vehicles and toolpushers are either two way radios or cellular phones.

**7. Well Testing**

Drill stem testing is not an anticipated requirement for evaluation of this well. If a drill stem test is required, it will be conducted with a minimum number of personnel in the immediate vicinity. The test will be conducted during daylight hours only.

**8. Emergency Phone Numbers**

Eddy County Sheriff's Office	911 or 575-887-7551
Ambulance Service	911 or 575-885-2111
Carlsbad Fire Dept	911 or 575-885-2111
Loco Hills Volunteer Fire Dept.	911 or 575-677-3266
Closest Medical Facility - Columbia Medical Center of Carlsbad	575-492-5000

Mewbourne Oil Company	Hobbs District Office	575-393-5905
	Fax	575-397-6252
	2 <sup>nd</sup> Fax	575-393-7259

District Manager	Micky Young	575-390-0999
Drilling Superintendent	Frosty Lathan	575-390-4103
	Bradley Bishop	575-390-6838
Drilling Foreman	Wesley Noseff	575-441-0729

Closed Loop Pad Dimensions 280' x 320'

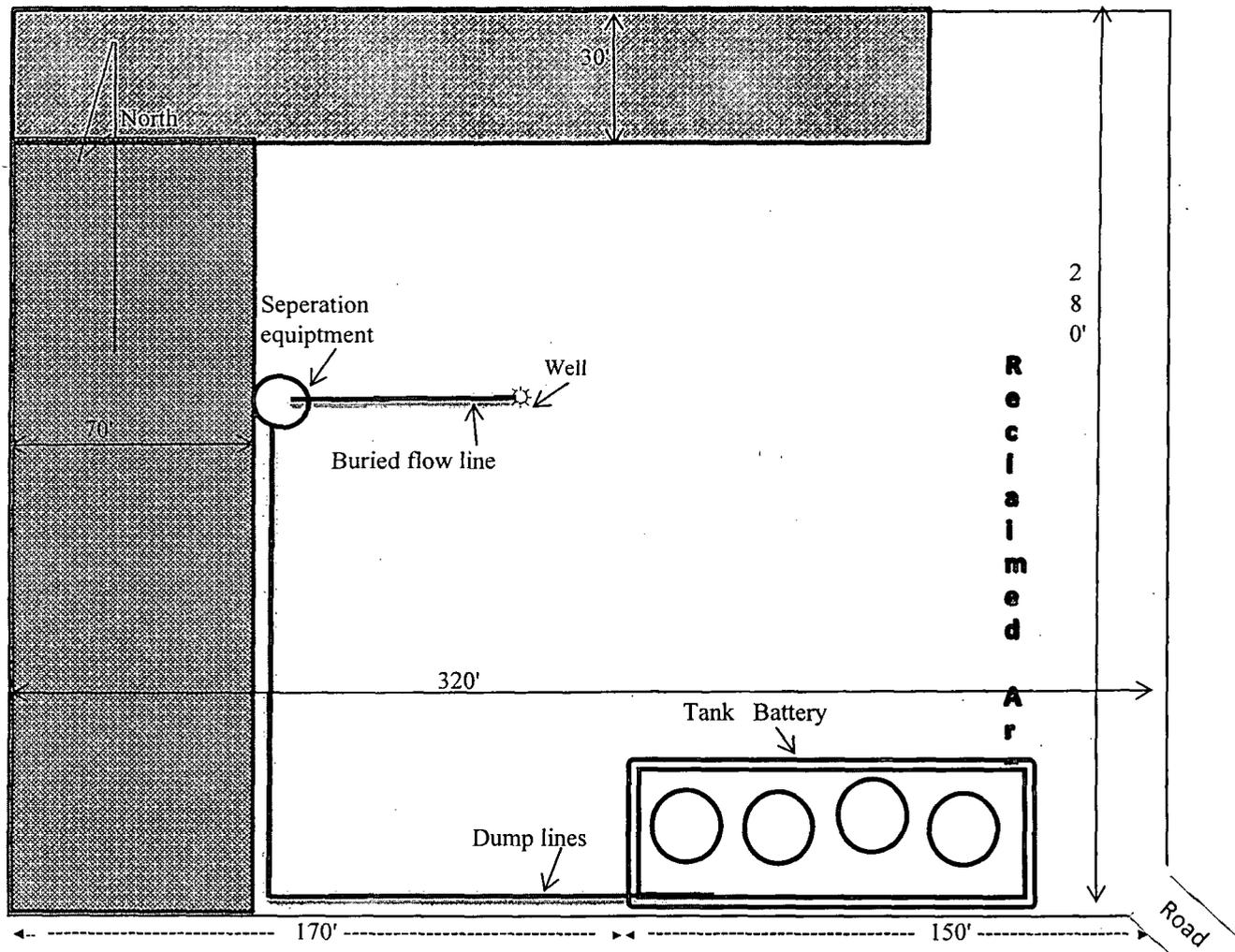


Exhibit 6

Mewbourne Oil Company  
Delaware Ranch 13 EH Fed Com #1H  
2100' FNL & 95' FWL  
Sec. 13 T26S R28E  
Eddy County, NM

## MULTI-POINT SURFACE USE AND OPERATIONS PLAN

### MEWBOURNE OIL COMPANY

Delaware Ranch "13" EH Fed Com #1H

1200' FNL & 95' FWL (SHL)

Sec 13-T26S-R28E

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 restoring the surface so that a complete appraisal can be made of the environmental impact associated with the proposed operations.

#### **1. Existing Roads:**

- A. Exhibit #3 is a road map showing the location of the proposed well. Existing roads are highlighted in black. Exhibits #3-#3C are maps showing the location of the proposed well and access road. Existing and proposed roads are highlighted in black.
- B. Directions to location from the intersection of HWY 285 and CR No. 725 go NE on CR 725 1.4 miles, turn right on lease road. Follow lease road South for .5 miles, turn West .2 mile, turn left .25 miles, turn right 350'. Turn right through existing gate and along 1056' two track road to location.
- C. Existing roads will be maintained in a condition the same as or better than before operations begin.

#### **2. Proposed Access Road:**

- A. Approx. 388.52' new road construction will be needed.
- B. The maximum width of the driving surface will be 14 feet. The road will be crowned and ditched with a 2% slope from the tip of the crown to the edge of the driving surface. The ditches will be 1 foot deep with 3:1 slopes. The road will be surfaced with rolled and compacted caliche.
- C. Mewbourne Oil Co. will cooperate with other operators in the maintenance of lease roads.

#### **3. Location of Existing Wells:**

There are producing wells within the immediate vicinity of the well site. Exhibit #4 shows the proposed well and existing wells within a one mile radius.

#### **4. Location of Existing and/or Proposed Facilities:**

- A. There are no production facilities on this lease at the present time.
- B. In the event that the well is productive, production facilities will be located on the South side of the well pad.
- C. Production vessels that will remain on this location will be painted to conform to BLM painting stipulations within 180 days of installation.

**5. Location and Type of Water Supply**

The well will be drilled with a combination of fresh water and brine water based mud systems. The water will be obtained from commercial suppliers in the area and/or hauled to the location by transport trucks over existing and proposed roads as indicated in Exhibit #3.

**6. Source of Construction Materials**

All material required for construction of the drill pad and access roads will be obtained from private, state, or federal pits. The construction contractor will be solely responsible for securing construction materials required for this operation and paying any royalties that may be required on those materials.

**7. Methods of Handling Waste Disposal:**

- A. Drill cuttings not retained for evaluation purposed will be hauled to a permitted off-site facility.
- B. Water produced during operations will be hauled to an off-site permitted SWD in the area.
- C. If any liquid hydrocarbons are produced during operations, those liquids will be stored in suitable tanks until sold.
- D. Sewage and gray water will be safely contained on-site, and then waste will be disposed at an approved off-site facility.
- E. All trash, junk, and other waste materials will be stored in proper containers to prevent dispersal and will be removed to an appropriate facility within one week of cessation of drilling and completion activities.

**8. Ancillary Facilities**

There are no ancillary facilities within the immediate vicinity of the proposed well site.

**9. Well Site Layout**

- A. A diagram of the drill pad is shown in Exhibit #5. Dimensions of the pad and location of major rig components are shown.
- B. The pad dimension of 280' x 320' has been staked and flagged.
- C. An archaeological survey has been conducted on the proposed well pad.

**10. Plans for Restoration of Surface**

- A. Within 90 days of cessation of drilling and completion operations, all equipment not necessary for production operations will be removed. The location will be cleaned of all trash and junk to assure the well site is left as aesthetically pleasing as reasonably possible.
- B. Interim reclamation:
  - i. All areas not needed for production operations will be reclaimed.
  - ii. Caliche will be removed, the land will be recontoured, the top soil from stockpile will be spread over these areas.
  - iii. The disturbed area will be restored by re-seeding during the proper growing season.

- iv. Any additional caliche required for production facilities will be obtained from the area shown in exhibit #6 as interim reclamation.

C. Final Reclamation:

- i. Upon cessation of the proposed operations, if the well is abandoned, all equipment and trash will be removed and taken to a proper facility.
- ii. The location and road surfacing material will be removed and used to patch area lease roads. The entire location will be restored to the original contour as much as reasonable possible. The top soil used for interim reclamation will be spread over the entire location. All restoration work will be completed within 180 days of cessation of activities.

**11. Surface Ownership:**

WP Ranches, Wayland Perry, PO Box 24, Cherokee, TX 76832  
A surface use agreement has been reached and a copy of this surface use plan has been sent to land owner.

**12. Other Information:**

- A. The primary use of the surface at the location is for grazing of livestock.

**13. Operator's Representative:**

- A. Through APD approval, drilling, completion and production operations:

**N.M. Young, District Manager**  
Mewbourne Oil Company  
PO Box 5270  
Hobbs, NM 88241  
575-393-5905

## PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Mewbourne Oil Co.
LEASE NO.:	NM117119
WELL NAME & NO.:	1H-DELAWARE RANCH 13 EH FED COM
SURFACE HOLE FOOTAGE:	2100' FNL & 95' FWL
BOTTOM HOLE FOOTAGE:	2100' FNL & 330' FEL
LOCATION:	Section 13, T. 26 S., R 28 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**
  - Fence Crossing Requirement
  - Communitization Agreement
- Construction**
  - Notification
  - Topsoil
  - Closed Loop System
  - Federal Mineral Material Pits
  - Well Pads
  - Roads
- Road Section Diagram**
- Drilling**
  - Medium Cave/Karst Potential
  - Logging requirements
  - Waste Material and Fluids
- Production (Post Drilling)**
  - Well Structures & Facilities
- 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)

### **Fence Crossing Requirement**

#### Fence Crossing

Where entry is granted across a fence line, the fence must be braced and tied off on both sides of the passageway with H-braces prior to cutting. Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

#### Cattleguards

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at road-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 on one side of the cattleguard and fastened securely to H-braces.

### **Communitization Agreement**

A Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the BLM. The effective date of the agreement shall be prior to any sales. In addition, the well sign shall include the surface and bottom hole lease numbers. If the Communitization Agreement number is known, it shall also be on the sign. If not, it shall be placed on the sign when the sign is replaced.

## **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) 234-5909 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 in a low profile manner in order to prevent wind/water erosion of the topsoil. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be used for interim and final reclamation.

### **C. CLOSED LOOP SYSTEM**

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**

Payment shall be made to the BLM prior to removal of any federal mineral materials. 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 twenty-five (25) 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:

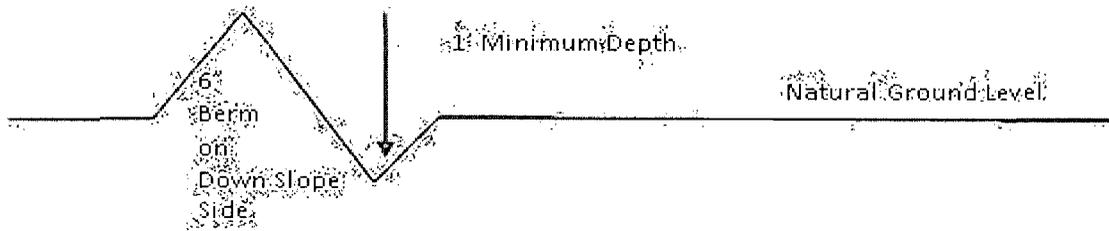


### Drainage

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:

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

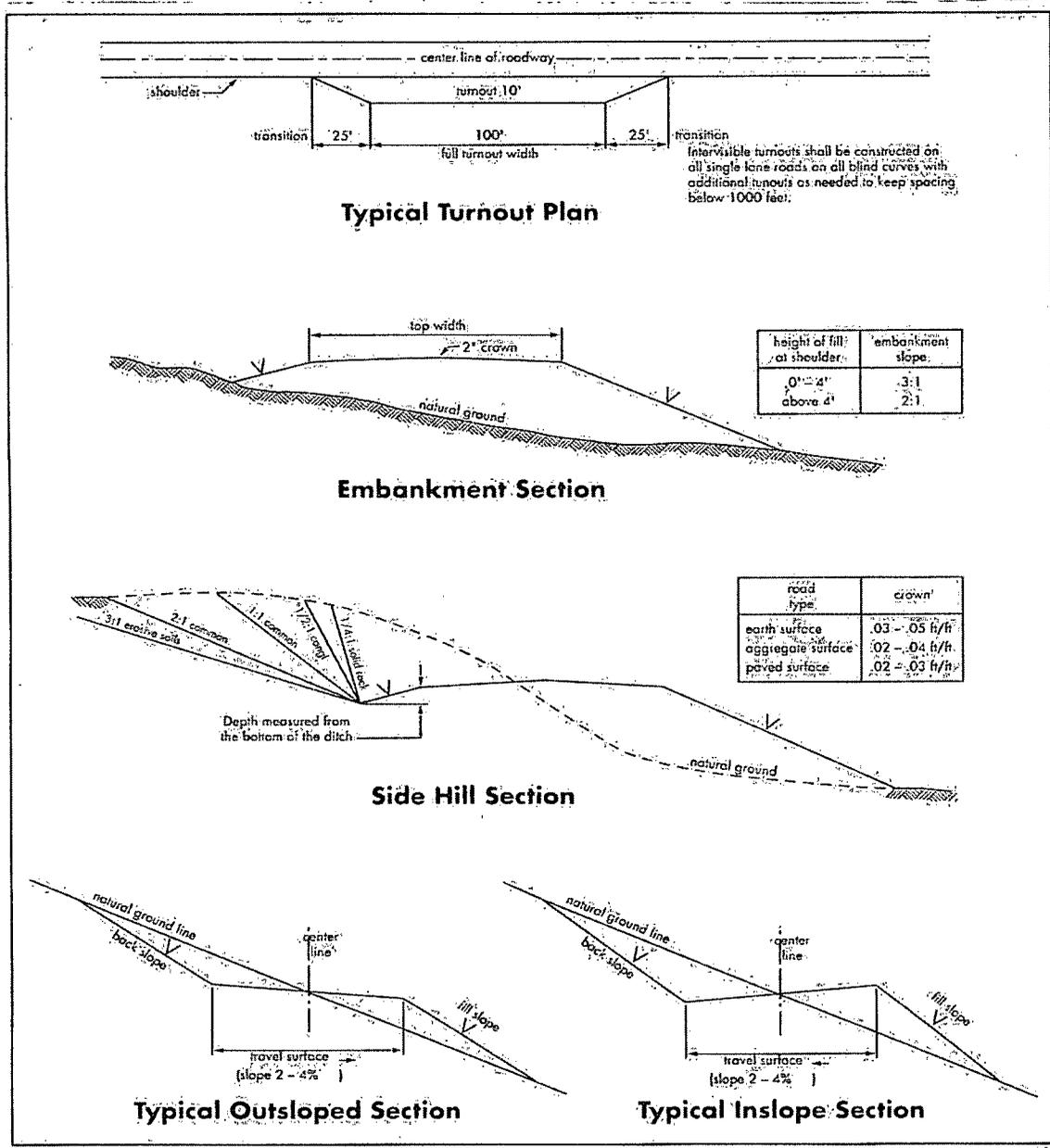
#### **Culvert Installations**

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

#### **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 in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

**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 the area, 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. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
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 is located, this does not include the dog house or stairway area.
4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall 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 top and bottom of Salt are to be recorded on the Completion Report.**

### B. CASING

**Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.).**

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

**Wait on cement (WOC) time prior to drilling out 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. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. 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 potential.**

**Possible lost circulation in the Delaware and Bones Springs formations.**

1. The 13-3/8 inch surface casing shall be set at approximately 500 feet (in a competent bed above the salt) and cemented to the surface. **If the salt is encountered set the surface casing 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 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. Additional cement may be required – excess calculates to 18%.**

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

3. The minimum required fill of cement behind the 7 inch production casing is:
  - Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.
4. The minimum required fill of cement behind the 4-1/2 inch production liner is:
  - Cement not required – Port/Packer system to be used.
5. 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** inch intermediate casing shoe shall be **5000 (5M)** psi.
4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

- b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock.
- d. The results of the test shall be reported to the appropriate BLM office.
- e. 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.**
- f. 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. This test shall be performed prior to the test at full stack pressure.

#### **D. DRILL STEM TEST**

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

#### **E. WASTE MATERIAL AND FLUIDS**

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

**CRW 040913**

## **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 from the BLM Standard Environmental Color Chart (CC-001: June 2008).

## **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 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
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