

RECEIVED

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FORM APPROVED  
OMB No. 1004-0137  
Expires: January 31, 2018

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

EMERALD OGDARTESIA

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM023765
1b. Type of Well: <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other		6. If Indian, Allottee or Tribe Name 327178
1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		7. If Unit or CA Agreement, Name and No. 8. Lease Name and Well No. BUFFALO TRACE-1/36 H3OB FEDCOM 1H
2. Name of Operator MEWBORNE OIL COMPANY		9. API Well No. 30015 46773
3a. Address PO Box 5270 Hobbs NM 88240	3b. Phone No. (include area code) (575)393-5905	10. Field and Pool, or Exploratory CORRAL CANYON SOUTH BONE SPRING
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface SWSE / 600 FSL / 1600 FEL / LAT 32.0659471 / LONG -103.9344009 At proposed prod. zone NWNE / 100 FNL / 1667 FEL / LAT 32.0933087 / LONG -103.9346731		11. Sec., T, R, M, or Blk. and Survey or Area SEC 17 / T26S / R29E / NMP
14. Distance in miles and direction from nearest town or post office* 10 miles		12. County or Parish EDDY
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 210 feet		13. State NM
16. No of acres in lease 320		17. Spacing Unit dedicated to this well 640
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 330 feet		20. BLM/BIA Bond No. in file FED: NM1693
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3019 feet		22. Approximate date work will start* 09/12/2019
23. Estimated duration 60 days		24. Attachments
The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)		
1. Well plat certified by a registered surveyor. 2. A Drilling Plan. 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).		
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). 5. Operator certification. 6. Such other site specific information and/or plans as may be requested by the BLM.		
25. Signature (Electronic Submission)	Name (Printed/Typed) Bradley Bishop / Ph: (575)393-5905	Date 07/16/2019
Title Regulatory		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Cody Layton / Ph: (575)234-5959	Date 02/19/2020
Title Assistant Field Manager Lands & Minerals		
Office CARLSBAD		
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.		
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.		

APPROVED WITH CONDITIONS

## INSTRUCTIONS

**GENERAL:** This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

**ITEM I:** If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

**ITEM 4:** Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

**ITEM 14:** Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the well, and any other required information, should be furnished when required by Federal agency offices.

**ITEMS 15 AND 18:** If well is to be, or has been directionally drilled, give distances for subsurface location of hole in any present or objective productive zone.

**ITEM 22:** Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

**ITEM 24:** If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

## NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

**AUTHORITY:** 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

**PRINCIPAL PURPOSES:** The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service well or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

**ROUTINE USE:** Information from the record and/or the record will be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

**EFFECT OF NOT PROVIDING INFORMATION:** Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM connects this information to a new evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

**BURDEN HOURS STATEMENT:** Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Connection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

Operator Name: MEWBOURNE OIL COMPANY

Well Name: BUFFALO TRACE 1/36 H3OB FEDCOM

Well Number: 1H

Pressure Rating (PSI): 5M

Rating Depth: 20087

Equipment: Annular, Pipe Ram, Blind Ram

Requesting Variance? YES

Variance request: A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. Anchors aren't required by manufacturer. A multi-bowl wellhead is being used. See attached schematic

Testing Procedure: BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested. Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

Choke Diagram Attachment:

Buffalo\_Trace\_1\_36\_H3OB\_Fed\_Com\_1H\_5M\_BOPE\_Choke\_Diagram\_20190712145114.pdf

Buffalo\_Trace\_1\_36\_H3OB\_Fed\_Com\_1H\_Flex\_Line\_Specs\_20190712145115.pdf

Buffalo\_Trace\_1\_36\_H3OB\_Fed\_Com\_1H\_Flex\_Line\_Specs\_API\_16C\_20191227133503.pdf

BOP Diagram Attachment:

Buffalo\_Trace\_1\_36\_H3OB\_Fed\_Com\_1H\_5M\_BOPE\_Schematic\_20190712145128.pdf

Buffalo\_Trace\_1\_36\_H3OB\_Fed\_Com\_1H\_Multi\_Bowl\_WH\_20190712145128.pdf

### Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	930	0	930			930	H-40	48	ST&C	1.81	4.07	DRY	7.21	DRY	12.12
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	3200	0	3200			3200	J-55	36	LT&C	1.21	2.12	DRY	3.93	DRY	4.9
3	PRODUCTION	8.75	7.0	NEW	API	N	0	10111	0	9765			10111	P-110	26	LT&C	1.29	2.06	DRY	2.64	DRY	3.16
4	LINER	6.125	4.5	NEW	API	N	9214	20087	9192	9816			10873	P-110	13.5	LT&C	1.9	2.21	DRY	2.3	DRY	2.87

Casing Attachments

**Operator Name:** MEWBOURNE OIL COMPANY

**Well Name:** BUFFALO TRACE 1/36 H3OB FEDCOM

**Well Number:** 1H

### Casing Attachments

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**Casing ID:** 1      **String Type:** SURFACE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Buffalo\_Trace\_1\_36\_H3OB\_Fed\_Com\_1H\_Csg\_Assumptions\_20190712145247.pdf

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**Casing ID:** 2      **String Type:** INTERMEDIATE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Buffalo\_Trace\_1\_36\_H3OB\_Fed\_Com\_1H\_Csg\_Assumptions\_20190712145401.pdf

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**Casing ID:** 3      **String Type:** PRODUCTION

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Buffalo\_Trace\_1\_36\_H3OB\_Fed\_Com\_1H\_Csg\_Assumptions\_20190712145519.pdf

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Operator Name: MEWBOURNE OIL COMPANY

Well Name: BUFFALO TRACE 1/36 H3OB FEDCOM

Well Number: 1H

### Casing Attachments

Casing ID: 4 String Type: LINER

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Buffalo\_Trace\_1\_36\_H3OB\_Fed\_Com\_1H\_Csg\_Assumptions\_20190712145705.pdf

### Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	739	490	2.12	12.5	1039	100	Class C	Salt, Gel, Extender, LCM
SURFACE	Tail		739	930	200	1.34	14.8	268	100	Class C	Retarder
INTERMEDIATE	Lead		0	2510	460	2.12	12.5	975	25	Class C	Salt, Gel, Extender, LCM
INTERMEDIATE	Tail		2510	3200	200	1.34	14.8	268	25	Class C	Retarder
PRODUCTION	Lead	4376	3000	3670	60	2.12	12.5	127	25	Class C	Gel, Retarder, Defoamer, Extender
PRODUCTION	Tail		3670	4376	100	1.34	14.8	134	25	Class C	Retarder
PRODUCTION	Lead	4376	4376	7500	290	2.12	12.5	615	25	Class C	Gel, Retarder, Defoamer, Extender
PRODUCTION	Tail		7500	10111	400	1.18	15.6	472	25	Class H	Retarder, Fluid Loss, Defoamer
LINER	Lead		9214	20087	430	2.97	11.2	1277	25	Class C	Salt, Gel, Fluid Loss, Retarder, Dispersant, Defoamer, Anti-Settling Agent

Operator Name: MEWBOURNE OIL COMPANY

Well Name: BUFFALO TRACE 1/36 H3OB FEDCOM

Well Number: 1H

## Section 5 - Circulating Medium

Lud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: Lost circulation material Sweeps Mud  
cavengers in surface hole

Describe the mud monitoring system utilized: Pason/PVT/Visual Monitoring

## Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	930	SPUD MUD	8.6	8.8							
930	3200	SALT SATURATED	10	10							
3200	9765	WATER-BASED MUD	9.5	9.5							
9765	9816	OIL-BASED MUD	10	11							

## Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

Will run GR/CNL from KOP (9,214') to surface

List of open and cased hole logs run in the well:

CNL, DS, GR, MWD, MUDLOG

Coring operation description for the well:

None

**Operator Name:** MEWBOURNE OIL COMPANY

**Well Name:** BUFFALO TRACE 1/36 H3OB FEDCOM

**Well Number:** 1H

### Section 7 - Pressure

**Anticipated Bottom Hole Pressure:** 5615

**Anticipated Surface Pressure:** 3455.48

**Anticipated Bottom Hole Temperature(F):** 150

**Anticipated abnormal pressures, temperatures, or potential geologic hazards?** NO

**Describe:**

**Contingency Plans geohazards description:**

**Contingency Plans geohazards attachment:**

**Hydrogen Sulfide drilling operations plan required?** YES

**Hydrogen sulfide drilling operations plan:**

Buffalo\_Trace\_1\_36\_H3OB\_Fed\_Com\_1H\_H2S\_Plan\_20190712150607.pdf

### Section 8 - Other Information

**Proposed horizontal/directional/multi-lateral plan submission:**

Buffalo\_Trace\_1\_36\_H3OB\_Fed\_Com\_1H\_Dir\_Plan\_20190712150637.pdf

Buffalo\_Trace\_1\_36\_H3OB\_Fed\_Com\_1H\_Dir\_Plot\_20190712150638.pdf

**Other proposed operations facets description:**

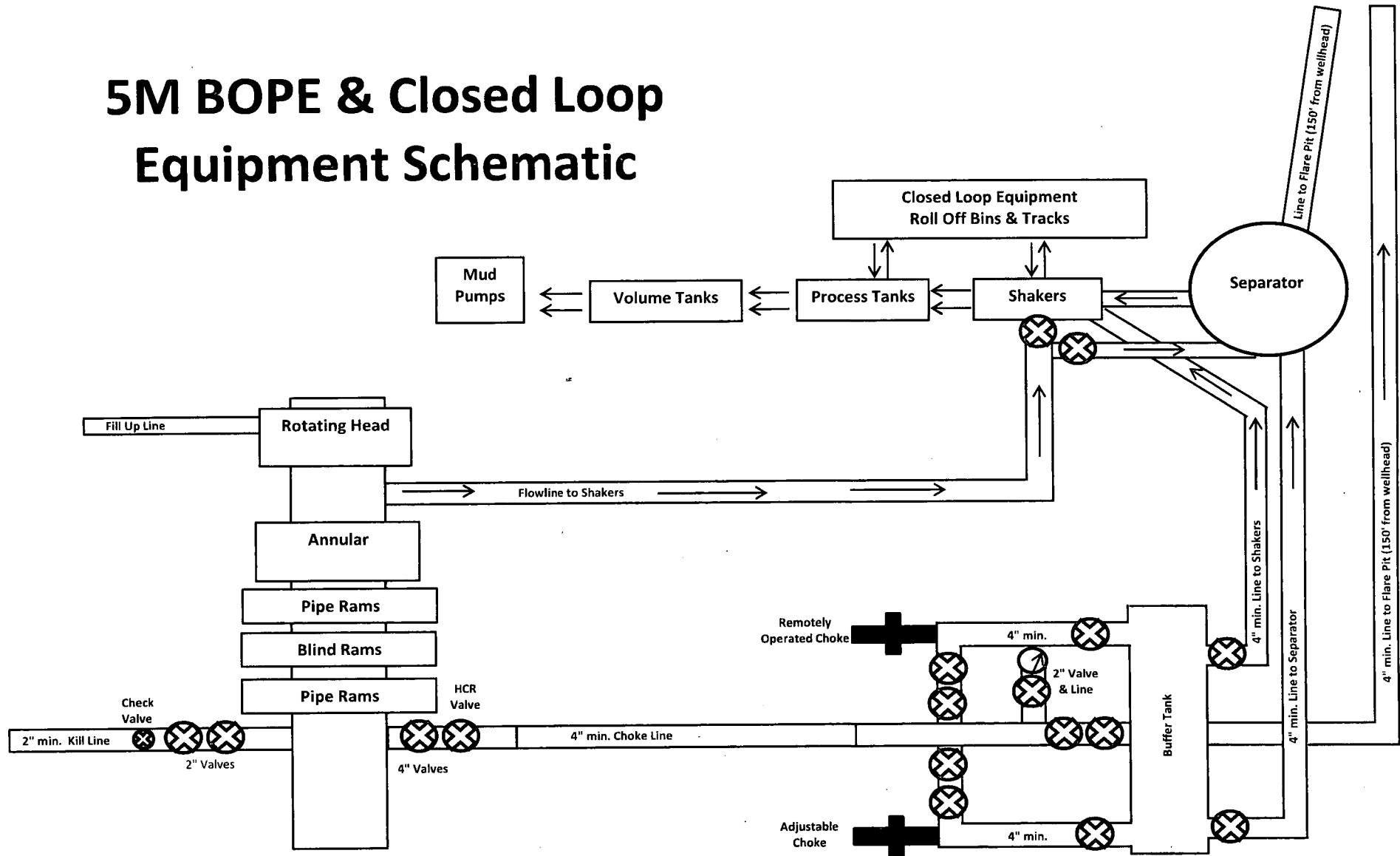
**Other proposed operations facets attachment:**

Buffalo\_Trace\_1\_36\_H3OB\_Fed\_Com\_1H\_Drllg\_Program\_20190712150654.doc

Buffalo\_Trace\_1\_36\_H3OB\_Fed\_Com\_1H\_C101\_20190712150922.pdf

**Other Variance attachment:**

# 5M BOPE & Closed Loop Equipment Schematic



Drawing not to scale

Note: All valves & lines on choke manifold are 4" unless otherwise noted. Exact manifold configuration may vary.





U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

# Operator Certification Data Report

02/20/2020

## Operator Certification

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

**NAME:** Bradley Bishop

**Signed on:** 07/16/2019

**Title:** Regulatory

**Street Address:** PO Box 5270

**City:** Hobbs

**State:** NM

**Zip:** 88260

**Phone:** (575)393-5905

**Email address:** bbishop@mewbourne.com

## Field Representative

**Representative Name:**

**Street Address:**

**City:**

**State:**

**Zip:**

**Phone:**

**Email address:**



U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

# Application Data Report

02/20/2020

APD ID: 10400043655

Submission Date: 07/16/2019

Highlighted data  
reflects the most  
recent changes

Operator Name: MEWBOURNE OIL COMPANY

Well Name: BUFFALO TRACE 1/36 H3OB FEDCOM

Well Number: 1H

Show Final Text

Well Type: CONVENTIONAL GAS WELL

Well Work Type: Drill

## Section 1 - General

APD ID: 10400043655

Tie to previous NOS?

Submission Date: 07/16/2019

BLM Office: CARLSBAD

User: Bradley Bishop

Title: Regulatory

Federal/Indian APD: FED

Is the first lease penetrated for production Federal or Indian? FED

Lease number: NMNM023765

Lease Acres: 320

Surface access agreement in place?

Allotted?

Reservation:

Agreement in place? NO

Federal or Indian agreement:

Agreement number:

Agreement name:

Keep application confidential? YES

Permitting Agent? NO

APD Operator: MEWBOURNE OIL COMPANY

Operator letter of designation:

## Operator Info

Operator Organization Name: MEWBOURNE OIL COMPANY

Operator Address: PO Box 5270

Zip: 88240

Operator PO Box:

Operator City: Hobbs

State: NM

Operator Phone: (575)393-5905

Operator Internet Address:

## Section 2 - Well Information

Well in Master Development Plan? NO

Master Development Plan name:

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Well Name: BUFFALO TRACE 1/36 H3OB FEDCOM

Well Number: 1H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: CORRAL CANYON Pool Name: BONE SPRING  
SOUTH BONE SPRING SOUTH

Is the proposed well in an area containing other mineral resources? USEABLE WATER NATURAL GAS OIL

Operator Name: MEWBORNE OIL COMPANY

Well Name: BUFFALO TRACE 1/36 H3OB FEDCOM

Well Number: 1H

Is the proposed well in an area containing other mineral resources? USEABLE WATER,NATURAL GAS,OIL

Is the proposed well in a Helium production area? N Use Existing Well Pad? NO New surface disturbance?

Type of Well Pad: MULTIPLE WELL

Multiple Well Pad Name:

Number: 3

Well Class: HORIZONTAL

BUFFALO TRACE 1/36 OB FED  
COM

Number of Legs: 1

Well Work Type: Drill

Well Type: CONVENTIONAL GAS WELL

Describe Well Type:

Well sub-Type: APPRAISAL

Describe sub-type:

Distance to town: 10 Miles

Distance to nearest well: 330 FT

Distance to lease line: 210 FT

Reservoir well spacing assigned acres Measurement: 640 Acres

Well plat: BuffaloTrace1\_36H3OBFedCom1H\_wellplat\_20190715090254.pdf

Well work start Date: 09/12/2019

Duration: 60 DAYS

### Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83

Vertical Datum: NAVD88

Survey number: 1

Reference Datum:

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
SHL Leg #1	600	FSL	160 0	FEL	26S	29E	1	Aliquot SWSE	32.06594 71	- 103.9344 009	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 023765	301 9	0	0	
KOP Leg #1	10	FSL	166 7	FEL	26S	29E	1	Aliquot SWSE	32.06432 18	- 103.9346 169	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 023765	- 617 3	921 4	919 2	

Operator Name: MEWBOURNE OIL COMPANY

Well Name: BUFFALO TRACE 1/36 H3OB FEDCOM

Well Number: 1H

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
PPP Leg #1-1	0	FSL	166 7	FEL	25S	29E	36	Aliquot SWSE	32.07897 98	- 103.9346 46	EDD Y	NEW MEXI CO	NEW MEXI CO	S	STATE	- 677 0	148 73	978 9	
PPP Leg #1-2	100	FSL	166 7	FEL	26S	29E	1	Aliquot SWSE	32.06456 92	- 103.9346 174	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 023765	- 648 1	953 9	950 0	
EXIT Leg #1	100	FNL	166 7	FEL	25S	29E	36	Aliquot NWNE	32.09330 87	- 103.9346 731	EDD Y	NEW MEXI CO	NEW MEXI CO	S	STATE	- 679 7	200 86	981 6	
BHL Leg #1	100	FNL	166 7	FEL	25S	29E	36	Aliquot NWNE	32.09330 87	- 103.9346 731	EDD Y	NEW MEXI CO	NEW MEXI CO	S	STATE	- 679 7	200 86	981 6	

**Mewbourne Oil Company, Buffalo Trace 1/36 H3OB Fed Com #1H**

**Sec 1 & 36, T26S, R29E**

**SL: 600' FSL & 1600' FEL (Sec 1)**

**BHL: 100' FNL & 1667' FEL (Sec 36)**

**2. Casing Program**

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
	From	To								
17.5"	0'	930'	13.375"	48	H40	STC	1.81	4.07	7.21	12.12
12.25"	0'	3200'	9.625"	36	J55	LTC	1.21	2.12	3.93	4.90
8.75"	0'	10111'	7"	26	P110	LTC	1.29	2.06	2.64	3.16
6.125"	9214'	20087'	4.5"	13.5	P110	LTC	1.90	2.21	2.30	2.87
BLM Minimum Safety Factor							1.125	1	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Must have table for contingency casing

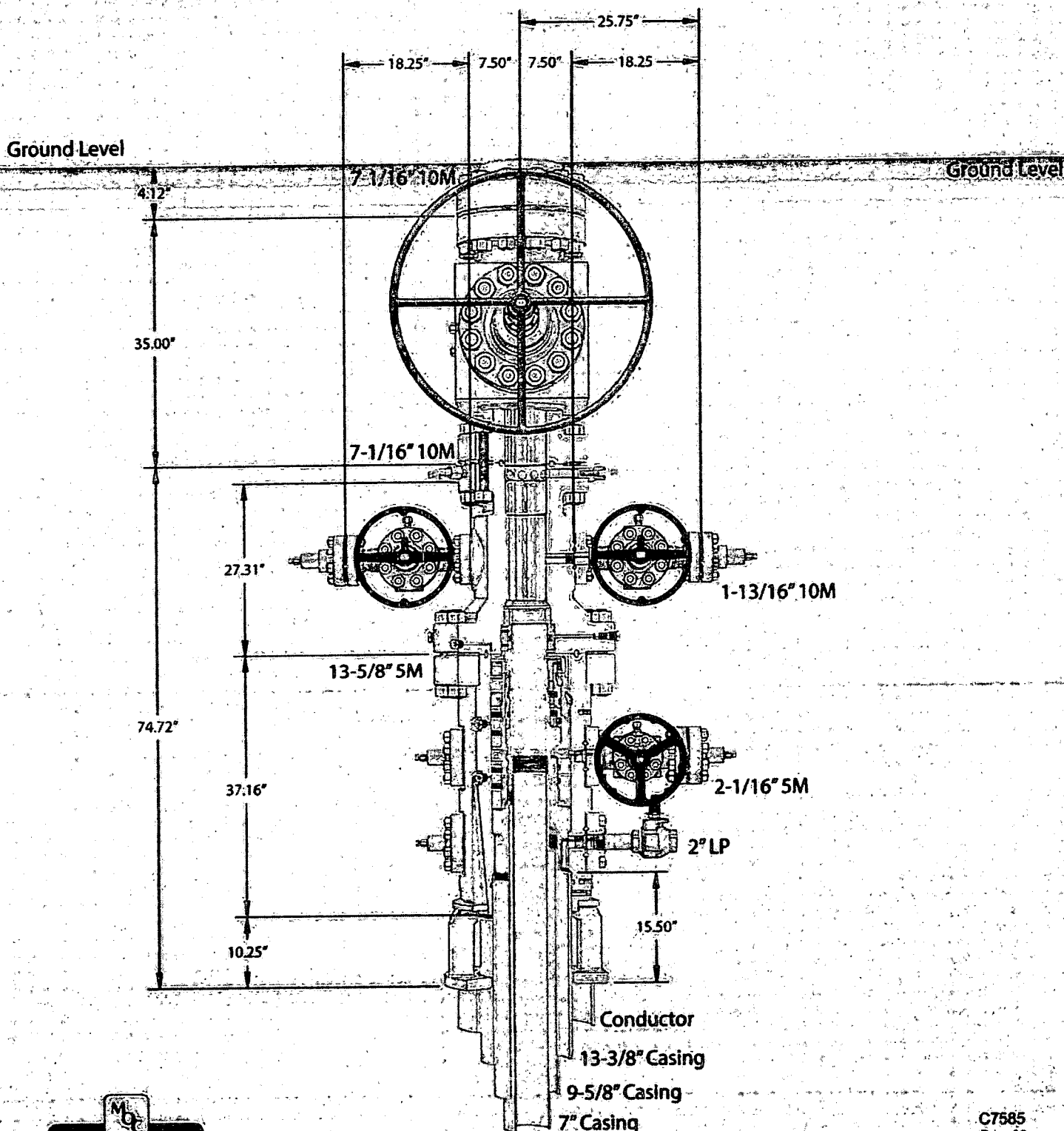
	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Is casing API approved? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 <sup>rd</sup> string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 <sup>nd</sup> string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	



# CAMERON

A Schlumberger Company

## 13-5/8" MN-DS Wellhead System



C7585  
Rev. 02

NOTE: All dimensions on this drawing are estimated measurements and should be evaluated by engineering.

*Capillary Hanger 57" conductor cut-off  
79*

**Mewbourne Oil Company, Buffalo Trace 1/36 H3OB Fed Com #1H**  
**Sec 1 & 36, T26S, R29E**  
**SL: 600' FSL & 1600' FEL (Sec 1)**  
**BHL: 100' FNL & 1667' FEL (Sec 36)**

**2. Casing Program**

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
	From	To								
17.5"	0'	930'	13.375"	48	H40	STC	1.81	4.07	7.21	12.12
12.25"	0'	3200'	9.625"	36	J55	LTC	1.21	2.12	3.93	4.90
8.75"	0'	10111'	7"	26	P110	LTC	1.29	2.06	2.64	3.16
6.125"	9214'	20087'	4.5"	13.5	P110	LTC	1.90	2.21	2.30	2.87
BLM Minimum Safety Factor							1.125	1	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Must have table for contingency casing

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Is casing API approved? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 <sup>rd</sup> string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 <sup>nd</sup> string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

**Mewbourne Oil Company, Buffalo Trace 1/36 H3OB Fed Com #1H**

**Sec 1 & 36, T26S, R29E**

**SL: 600' FSL & 1600' FEL (Sec 1)**

**BHL: 100' FNL & 1667' FEL (Sec 36)**

**2. Casing Program**

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
	From	To								
17.5"	0'	930'	13.375"	48	H40	STC	1.81	4.07	7.21	12.12
12.25"	0'	3200'	9.625"	36	J55	LTC	1.21	2.12	3.93	4.90
8.75"	0'	10111'	7"	26	P110	LTC	1.29	2.06	2.64	3.16
6.125"	9214'	20087'	4.5"	13.5	P110	LTC	1.90	2.21	2.30	2.87
BLM Minimum Safety Factor							1.125	1	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Must have table for contingency casing

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Is casing API approved? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 <sup>rd</sup> string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 <sup>nd</sup> string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	



**Mewbourne Oil Company, Buffalo Trace 1/36 H3OB Fed Com #1H**  
**Sec 1 & 36, T26S, R29E**  
**SL: 600' FSL & 1600' FEL (Sec 1)**  
**BHL: 100' FNL & 1667' FEL (Sec 36)**

**2. Casing Program**

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
	From	To								
17.5"	0'	930'	13.375"	48	H40	STC	1.81	4.07	7.21	12.12
12.25"	0'	3200'	9.625"	36	J55	LTC	1.21	2.12	3.93	4.90
8.75"	0'	10111'	7"	26	P110	LTC	1.29	2.06	2.64	3.16
6.125"	9214'	20087'	4.5"	13.5	P110	LTC	1.90	2.21	2.30	2.87
BLM Minimum Safety Factor							1.125	1	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Must have table for contingency casing

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Is casing API approved? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 <sup>rd</sup> string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 <sup>nd</sup> string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Hydrogen Sulfide Drilling Operations Plan  
**Mewbourne Oil Company**

**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 9 5/8" intermediate casing.

1. Well Control Equipment
  - A. Choke manifold with minimum of one adjustable choke/remote 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

Robin Terrell

575-390-4816

Drilling Superintendent

Frosty Lathan

575-390-4103

Bradley Bishop

575-390-6838

Drilling Foreman

Wesley Noseff

575-441-0729

# **Mewbourne Oil Company**

**Eddy County, New Mexico NAD 83**

**Buffalo Trace 1/36 H3OB Fed Com #1H**

**SL: 600 FSL & 1600 FEL (Sec 1)**

**Sec 1, T26S, R29E**

**BHL: 100 FNL & 1667 FEL (Sec 36)**

**Plan: Design #1**

## **Standard Planning Report**

**11 July, 2019**

# Planning Report

<b>Database:</b>	Hobbs	<b>Local Co-ordinate Reference:</b>	Site Buffalo Trace 1/36 H3OB Fed Com #1H
<b>Company:</b>	Mewbourne Oil Company	<b>TVD Reference:</b>	WELL @ 3046.0usft (Original Well Elev)
<b>Project:</b>	Eddy County, New Mexico NAD 83	<b>MD Reference:</b>	WELL @ 3046.0usft (Original Well Elev)
<b>Site:</b>	Buffalo Trace 1/36 H3OB Fed Com #1H	<b>North Reference:</b>	Grid
<b>Well:</b>	SL: 600 FSL & 1600 FEL (Sec 1)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	BHL: 100 FNL & 1667 FEL (Sec 36)		
<b>Design:</b>	Design #1		

<b>Project</b>	Eddy County, New Mexico NAD 83		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	New Mexico Eastern Zone		

<b>Site</b>	Buffalo Trace 1/36 H3OB Fed Com #1H		
<b>Site Position:</b>		<b>Northing:</b>	387,957.50 usft
<b>From:</b>	Map	<b>Easting:</b>	664,913.60 usft
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "
		<b>Latitude:</b>	32.0659471
		<b>Longitude:</b>	-103.9344010
		<b>Grid Convergence:</b>	0.21 °

<b>Well</b>	SL: 600 FSL & 1600 FEL (Sec 1)		
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b> 387,957.50 usft
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b> 664,913.60 usft
<b>Position Uncertainty</b>	0.0 usft	<b>Wellhead Elevation:</b>	3,046.0 usft
		<b>Latitude:</b>	32.0659471
		<b>Longitude:</b>	-103.9344010
		<b>Ground Level:</b>	3,019.0 usft

<b>Wellbore</b>	BHL: 100 FNL & 1667 FEL (Sec 36)		
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b>
			(°)
	IGRF2010	7/11/2019	6.75
			<b>Dip Angle</b>
			(°)
			<b>Field Strength</b>
			(nT)
			59.78
			47,682

<b>Design</b>	Design #1		
<b>Audit Notes:</b>			
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b> 0.0
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			<b>Direction</b>
			(°)
			359.30

<b>Plan Sections</b>										
<b>Measured Depth</b>	<b>Inclination</b>	<b>Azimuth</b>	<b>Vertical Depth</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Dogleg Rate</b>	<b>Build Rate</b>	<b>Turn Rate</b>	<b>TFO</b>	<b>Target</b>
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)	(°)	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
930.0	0.00	0.00	930.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,214.4	4.27	186.24	1,214.1	-10.5	-1.2	1.50	1.50	0.00	186.24	
8,929.5	4.27	186.24	8,907.9	-581.0	-63.5	0.00	0.00	0.00	0.00	
9,213.9	0.00	0.00	9,192.0	-591.5	-64.7	1.50	-1.50	0.00	180.00	KOP: 10 FSL & 1667
10,111.0	89.71	359.69	9,765.0	-21.4	-67.8	10.00	10.00	0.00	-0.31	
20,086.5	89.71	359.69	9,816.0	9,953.7	-121.5	0.00	0.00	0.00	0.00	BHL: 100 FNL & 1667

# Planning Report

Database:	Hobbs	Local Co-ordinate Reference:	Site Buffalo Trace 1/36 H3OB Fed Com #1H
Company:	Mewbourne Oil Company	TVD Reference:	WELL @ 3046.0usft (Original Well Elev)
Project:	Eddy County, New Mexico NAD 83	MD Reference:	WELL @ 3046.0usft (Original Well Elev)
Site:	Buffalo Trace 1/36 H3OB Fed Com #1H	North Reference:	Grid
Well:	SL: 600 FSL & 1600 FEL (Sec 1)	Survey Calculation Method:	Minimum Curvature
Wellbore:	BHL: 100 FNL & 1667 FEL (Sec 36)		
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)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
SL: 600 FSL & 1600 FEL (Sec 1)									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
930.0	0.00	0.00	930.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	1.05	186.24	1,000.0	-0.6	-0.1	-0.6	1.50	1.50	0.00
1,100.0	2.55	186.24	1,099.9	-3.8	-0.4	-3.8	1.50	1.50	0.00
1,200.0	4.05	186.24	1,199.8	-9.5	-1.0	-9.5	1.50	1.50	0.00
1,214.4	4.27	186.24	1,214.1	-10.5	-1.2	-10.5	1.50	1.50	0.00
1,300.0	4.27	186.24	1,299.5	-16.8	-1.8	-16.8	0.00	0.00	0.00
1,400.0	4.27	186.24	1,399.2	-24.2	-2.7	-24.2	0.00	0.00	0.00
1,500.0	4.27	186.24	1,498.9	-31.6	-3.5	-31.6	0.00	0.00	0.00
1,600.0	4.27	186.24	1,598.7	-39.0	-4.3	-39.0	0.00	0.00	0.00
1,700.0	4.27	186.24	1,698.4	-46.4	-5.1	-46.4	0.00	0.00	0.00
1,800.0	4.27	186.24	1,798.1	-53.8	-5.9	-53.7	0.00	0.00	0.00
1,900.0	4.27	186.24	1,897.8	-61.2	-6.7	-61.1	0.00	0.00	0.00
2,000.0	4.27	186.24	1,997.6	-68.6	-7.5	-68.5	0.00	0.00	0.00
2,100.0	4.27	186.24	2,097.3	-76.0	-8.3	-75.9	0.00	0.00	0.00
2,200.0	4.27	186.24	2,197.0	-83.4	-9.1	-83.3	0.00	0.00	0.00
2,300.0	4.27	186.24	2,296.7	-90.8	-9.9	-90.7	0.00	0.00	0.00
2,400.0	4.27	186.24	2,396.5	-98.2	-10.7	-98.0	0.00	0.00	0.00
2,500.0	4.27	186.24	2,496.2	-105.6	-11.5	-105.4	0.00	0.00	0.00
2,600.0	4.27	186.24	2,595.9	-113.0	-12.4	-112.8	0.00	0.00	0.00
2,700.0	4.27	186.24	2,695.6	-120.4	-13.2	-120.2	0.00	0.00	0.00
2,800.0	4.27	186.24	2,795.3	-127.8	-14.0	-127.6	0.00	0.00	0.00
2,900.0	4.27	186.24	2,895.1	-135.2	-14.8	-135.0	0.00	0.00	0.00
3,000.0	4.27	186.24	2,994.8	-142.5	-15.6	-142.3	0.00	0.00	0.00
3,100.0	4.27	186.24	3,094.5	-149.9	-16.4	-149.7	0.00	0.00	0.00
3,200.0	4.27	186.24	3,194.2	-157.3	-17.2	-157.1	0.00	0.00	0.00
3,300.0	4.27	186.24	3,294.0	-164.7	-18.0	-164.5	0.00	0.00	0.00
3,400.0	4.27	186.24	3,393.7	-172.1	-18.8	-171.9	0.00	0.00	0.00
3,500.0	4.27	186.24	3,493.4	-179.5	-19.6	-179.3	0.00	0.00	0.00
3,600.0	4.27	186.24	3,593.1	-186.9	-20.4	-186.6	0.00	0.00	0.00
3,700.0	4.27	186.24	3,692.9	-194.3	-21.3	-194.0	0.00	0.00	0.00
3,800.0	4.27	186.24	3,792.6	-201.7	-22.1	-201.4	0.00	0.00	0.00
3,900.0	4.27	186.24	3,892.3	-209.1	-22.9	-208.8	0.00	0.00	0.00
4,000.0	4.27	186.24	3,992.0	-216.5	-23.7	-216.2	0.00	0.00	0.00
4,100.0	4.27	186.24	4,091.7	-223.9	-24.5	-223.6	0.00	0.00	0.00
4,200.0	4.27	186.24	4,191.5	-231.3	-25.3	-231.0	0.00	0.00	0.00
4,300.0	4.27	186.24	4,291.2	-238.7	-26.1	-238.3	0.00	0.00	0.00
4,400.0	4.27	186.24	4,390.9	-246.1	-26.9	-245.7	0.00	0.00	0.00
4,500.0	4.27	186.24	4,490.6	-253.5	-27.7	-253.1	0.00	0.00	0.00
4,600.0	4.27	186.24	4,590.4	-260.9	-28.5	-260.5	0.00	0.00	0.00
4,700.0	4.27	186.24	4,690.1	-268.2	-29.3	-267.9	0.00	0.00	0.00
4,800.0	4.27	186.24	4,789.8	-275.6	-30.2	-275.3	0.00	0.00	0.00
4,900.0	4.27	186.24	4,889.5	-283.0	-31.0	-282.6	0.00	0.00	0.00
5,000.0	4.27	186.24	4,989.3	-290.4	-31.8	-290.0	0.00	0.00	0.00

# Planning Report

Database:	Hobbs	Local Co-ordinate Reference:	Site Buffalo Trace 1/36 H3OB Fed Com #1H
Company:	Mewbourne Oil Company	TVD Reference:	WELL @ 3046.0usft (Original Well Elev)
Project:	Eddy County, New Mexico NAD 83	MD Reference:	WELL @ 3046.0usft (Original Well Elev)
Site:	Buffalo Trace 1/36 H3OB Fed Com #1H	North Reference:	Grid
Well:	SL: 600 FSL & 1600 FEL (Sec 1)	Survey Calculation Method:	Minimum Curvature
Wellbore:	BHL: 100 FNL & 1667 FEL (Sec 36)		
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)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,100.0	4.27	186.24	5,089.0	-297.8	-32.6	-297.4	0.00	0.00	0.00
5,200.0	4.27	186.24	5,188.7	-305.2	-33.4	-304.8	0.00	0.00	0.00
5,300.0	4.27	186.24	5,288.4	-312.6	-34.2	-312.2	0.00	0.00	0.00
5,400.0	4.27	186.24	5,388.1	-320.0	-35.0	-319.6	0.00	0.00	0.00
5,500.0	4.27	186.24	5,487.9	-327.4	-35.8	-326.9	0.00	0.00	0.00
5,600.0	4.27	186.24	5,587.6	-334.8	-36.6	-334.3	0.00	0.00	0.00
5,700.0	4.27	186.24	5,687.3	-342.2	-37.4	-341.7	0.00	0.00	0.00
5,800.0	4.27	186.24	5,787.0	-349.6	-38.2	-349.1	0.00	0.00	0.00
5,900.0	4.27	186.24	5,886.8	-357.0	-39.0	-356.5	0.00	0.00	0.00
6,000.0	4.27	186.24	5,986.5	-364.4	-39.9	-363.9	0.00	0.00	0.00
6,100.0	4.27	186.24	6,086.2	-371.8	-40.7	-371.2	0.00	0.00	0.00
6,200.0	4.27	186.24	6,185.9	-379.2	-41.5	-378.6	0.00	0.00	0.00
6,300.0	4.27	186.24	6,285.6	-386.6	-42.3	-386.0	0.00	0.00	0.00
6,400.0	4.27	186.24	6,385.4	-393.9	-43.1	-393.4	0.00	0.00	0.00
6,500.0	4.27	186.24	6,485.1	-401.3	-43.9	-400.8	0.00	0.00	0.00
6,600.0	4.27	186.24	6,584.8	-408.7	-44.7	-408.2	0.00	0.00	0.00
6,700.0	4.27	186.24	6,684.5	-416.1	-45.5	-415.5	0.00	0.00	0.00
6,800.0	4.27	186.24	6,784.3	-423.5	-46.3	-422.9	0.00	0.00	0.00
6,900.0	4.27	186.24	6,884.0	-430.9	-47.1	-430.3	0.00	0.00	0.00
7,000.0	4.27	186.24	6,983.7	-438.3	-47.9	-437.7	0.00	0.00	0.00
7,100.0	4.27	186.24	7,083.4	-445.7	-48.8	-445.1	0.00	0.00	0.00
7,200.0	4.27	186.24	7,183.2	-453.1	-49.6	-452.5	0.00	0.00	0.00
7,300.0	4.27	186.24	7,282.9	-460.5	-50.4	-459.8	0.00	0.00	0.00
7,400.0	4.27	186.24	7,382.6	-467.9	-51.2	-467.2	0.00	0.00	0.00
7,500.0	4.27	186.24	7,482.3	-475.3	-52.0	-474.6	0.00	0.00	0.00
7,600.0	4.27	186.24	7,582.0	-482.7	-52.8	-482.0	0.00	0.00	0.00
7,700.0	4.27	186.24	7,681.8	-490.1	-53.6	-489.4	0.00	0.00	0.00
7,800.0	4.27	186.24	7,781.5	-497.5	-54.4	-496.8	0.00	0.00	0.00
7,900.0	4.27	186.24	7,881.2	-504.9	-55.2	-504.1	0.00	0.00	0.00
8,000.0	4.27	186.24	7,980.9	-512.3	-56.0	-511.5	0.00	0.00	0.00
8,100.0	4.27	186.24	8,080.7	-519.6	-56.8	-518.9	0.00	0.00	0.00
8,200.0	4.27	186.24	8,180.4	-527.0	-57.6	-526.3	0.00	0.00	0.00
8,300.0	4.27	186.24	8,280.1	-534.4	-58.5	-533.7	0.00	0.00	0.00
8,400.0	4.27	186.24	8,379.8	-541.8	-59.3	-541.1	0.00	0.00	0.00
8,500.0	4.27	186.24	8,479.6	-549.2	-60.1	-548.4	0.00	0.00	0.00
8,600.0	4.27	186.24	8,579.3	-556.6	-60.9	-555.8	0.00	0.00	0.00
8,700.0	4.27	186.24	8,679.0	-564.0	-61.7	-563.2	0.00	0.00	0.00
8,800.0	4.27	186.24	8,778.7	-571.4	-62.5	-570.6	0.00	0.00	0.00
8,900.0	4.27	186.24	8,878.4	-578.8	-63.3	-578.0	0.00	0.00	0.00
8,929.5	4.27	186.24	8,907.9	-581.0	-63.5	-580.2	0.00	0.00	0.00
9,000.0	3.21	186.24	8,978.2	-585.5	-64.0	-584.7	1.50	-1.50	0.00
9,100.0	1.71	186.24	9,078.1	-589.8	-64.5	-589.0	1.50	-1.50	0.00
9,200.0	0.21	186.24	9,178.1	-591.5	-64.7	-590.6	1.50	-1.50	0.00
9,213.9	0.00	0.00	9,192.0	-591.5	-64.7	-590.7	1.50	-1.50	0.00
KOP: 10 FSL & 1667 FEL (Sec 1)									
9,300.0	8.61	359.69	9,277.8	-585.0	-64.7	-584.2	10.00	10.00	0.00
9,400.0	18.61	359.69	9,374.8	-561.5	-64.9	-560.7	10.00	10.00	0.00
9,500.0	28.61	359.69	9,466.4	-521.5	-65.1	-520.7	10.00	10.00	0.00
9,539.4	32.55	359.69	9,500.3	-501.5	-65.2	-500.7	10.00	10.00	0.00
FTP: 100 FSL & 1667 FEL (Sec 1)									
9,600.0	38.61	359.69	9,549.5	-466.3	-65.4	-465.4	10.00	10.00	0.00
9,700.0	48.61	359.69	9,621.9	-397.4	-65.7	-396.6	10.00	10.00	0.00
9,800.0	58.61	359.69	9,681.1	-317.0	-66.2	-316.2	10.00	10.00	0.00
9,900.0	68.60	359.69	9,725.5	-227.5	-66.7	-226.7	10.00	10.00	0.00

# Planning Report

Database:	Hobbs	Local Co-ordinate Reference:	Site Buffalo Trace 1/36 H3OB Fed Com #1H
Company:	Mewbourne Oil Company	TVD Reference:	WELL @ 3046.0usft (Original Well Elev)
Project:	Eddy County, New Mexico NAD 83	MD Reference:	WELL @ 3046.0usft (Original Well Elev)
Site:	Buffalo Trace 1/36 H3OB Fed Com #1H	North Reference:	Grid.
Well:	SL: 600 FSL & 1600 FEL (Sec 1)	Survey Calculation Method:	Minimum Curvature
Wellbore:	BHL: 100 FNL & 1667 FEL (Sec 36)		
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)	Build Rate (%/100usft)	Turn Rate (%/100usft)
10,000.0	78.60	359.69	9,753.7	-131.7	-67.2	-130.9	10.00	10.00	0.00
10,100.0	88.60	359.69	9,764.8	-32.5	-67.7	-31.6	10.00	10.00	0.00
10,111.0	89.71	359.69	9,765.0	-21.4	-67.8	-20.6	10.00	10.00	0.00
10,200.0	89.71	359.69	9,765.5	67.5	-68.2	68.3	0.00	0.00	0.00
10,300.0	89.71	359.69	9,766.0	167.5	-68.8	168.3	0.00	0.00	0.00
10,400.0	89.71	359.69	9,766.5	267.5	-69.3	268.3	0.00	0.00	0.00
10,500.0	89.71	359.69	9,767.0	367.5	-69.9	368.3	0.00	0.00	0.00
10,600.0	89.71	359.69	9,767.5	467.5	-70.4	468.3	0.00	0.00	0.00
10,700.0	89.71	359.69	9,768.0	567.5	-70.9	568.3	0.00	0.00	0.00
10,800.0	89.71	359.69	9,768.5	667.5	-71.5	668.3	0.00	0.00	0.00
10,900.0	89.71	359.69	9,769.0	767.5	-72.0	768.3	0.00	0.00	0.00
11,000.0	89.71	359.69	9,769.5	867.5	-72.6	868.3	0.00	0.00	0.00
11,100.0	89.71	359.69	9,770.1	967.5	-73.1	968.3	0.00	0.00	0.00
11,200.0	89.71	359.69	9,770.6	1,067.5	-73.6	1,068.3	0.00	0.00	0.00
11,300.0	89.71	359.69	9,771.1	1,167.5	-74.2	1,168.3	0.00	0.00	0.00
11,400.0	89.71	359.69	9,771.6	1,267.5	-74.7	1,268.3	0.00	0.00	0.00
11,500.0	89.71	359.69	9,772.1	1,367.5	-75.3	1,368.3	0.00	0.00	0.00
11,600.0	89.71	359.69	9,772.6	1,467.5	-75.8	1,468.3	0.00	0.00	0.00
11,700.0	89.71	359.69	9,773.1	1,567.5	-76.3	1,568.3	0.00	0.00	0.00
11,800.0	89.71	359.69	9,773.6	1,667.5	-76.9	1,668.3	0.00	0.00	0.00
11,900.0	89.71	359.69	9,774.1	1,767.5	-77.4	1,768.3	0.00	0.00	0.00
12,000.0	89.71	359.69	9,774.7	1,867.5	-77.9	1,868.3	0.00	0.00	0.00
12,100.0	89.71	359.69	9,775.2	1,967.5	-78.5	1,968.3	0.00	0.00	0.00
12,200.0	89.71	359.69	9,775.7	2,067.5	-79.0	2,068.3	0.00	0.00	0.00
12,300.0	89.71	359.69	9,776.2	2,167.5	-79.6	2,168.3	0.00	0.00	0.00
12,400.0	89.71	359.69	9,776.7	2,267.5	-80.1	2,268.3	0.00	0.00	0.00
12,500.0	89.71	359.69	9,777.2	2,367.5	-80.6	2,368.3	0.00	0.00	0.00
12,600.0	89.71	359.69	9,777.7	2,467.5	-81.2	2,468.3	0.00	0.00	0.00
12,700.0	89.71	359.69	9,778.2	2,567.5	-81.7	2,568.3	0.00	0.00	0.00
12,800.0	89.71	359.69	9,778.7	2,667.4	-82.3	2,668.3	0.00	0.00	0.00
12,900.0	89.71	359.69	9,779.3	2,767.4	-82.8	2,768.3	0.00	0.00	0.00
13,000.0	89.71	359.69	9,779.8	2,867.4	-83.3	2,868.2	0.00	0.00	0.00
13,100.0	89.71	359.69	9,780.3	2,967.4	-83.9	2,968.2	0.00	0.00	0.00
13,200.0	89.71	359.69	9,780.8	3,067.4	-84.4	3,068.2	0.00	0.00	0.00
13,300.0	89.71	359.69	9,781.3	3,167.4	-84.9	3,168.2	0.00	0.00	0.00
13,400.0	89.71	359.69	9,781.8	3,267.4	-85.5	3,268.2	0.00	0.00	0.00
13,500.0	89.71	359.69	9,782.3	3,367.4	-86.0	3,368.2	0.00	0.00	0.00
13,600.0	89.71	359.69	9,782.8	3,467.4	-86.6	3,468.2	0.00	0.00	0.00
13,700.0	89.71	359.69	9,783.3	3,567.4	-87.1	3,568.2	0.00	0.00	0.00
13,800.0	89.71	359.69	9,783.9	3,667.4	-87.6	3,668.2	0.00	0.00	0.00
13,900.0	89.71	359.69	9,784.4	3,767.4	-88.2	3,768.2	0.00	0.00	0.00
14,000.0	89.71	359.69	9,784.9	3,867.4	-88.7	3,868.2	0.00	0.00	0.00
14,100.0	89.71	359.69	9,785.4	3,967.4	-89.3	3,968.2	0.00	0.00	0.00
14,200.0	89.71	359.69	9,785.9	4,067.4	-89.8	4,068.2	0.00	0.00	0.00
14,300.0	89.71	359.69	9,786.4	4,167.4	-90.3	4,168.2	0.00	0.00	0.00
14,400.0	89.71	359.69	9,786.9	4,267.4	-90.9	4,268.2	0.00	0.00	0.00
14,500.0	89.71	359.69	9,787.4	4,367.4	-91.4	4,368.2	0.00	0.00	0.00
14,600.0	89.71	359.69	9,787.9	4,467.4	-91.9	4,468.2	0.00	0.00	0.00
14,700.0	89.71	359.69	9,788.5	4,567.4	-92.5	4,568.2	0.00	0.00	0.00
14,800.0	89.71	359.69	9,789.0	4,667.4	-93.0	4,668.2	0.00	0.00	0.00
14,873.3	89.71	359.69	9,789.3	4,740.7	-93.4	4,741.5	0.00	0.00	0.00
PPP2: 0 FSL & 1667 FEL (Sec 36)									
14,900.0	89.71	359.69	9,789.5	4,767.4	-93.6	4,768.2	0.00	0.00	0.00



# Planning Report

Database:	Hobbs	Local Co-ordinate Reference:	Site Buffalo Trace 1/36 H3OB Fed Com #1H
Company:	Mewbourne Oil Company	TVD Reference:	WELL @ 3046.0usft (Original Well Elev)
Project:	Eddy County, New Mexico NAD 83	MD Reference:	WELL @ 3046.0usft (Original Well Elev)
Site:	Buffalo Trace 1/36 H3OB Fed Com #1H	North Reference:	Grid
Well:	SL: 600 FSL & 1600 FEL (Sec 1)	Survey Calculation Method:	Minimum Curvature
Wellbore:	BHL: 100 FNL & 1667 FEL (Sec 36)		
Design:	Design #1		

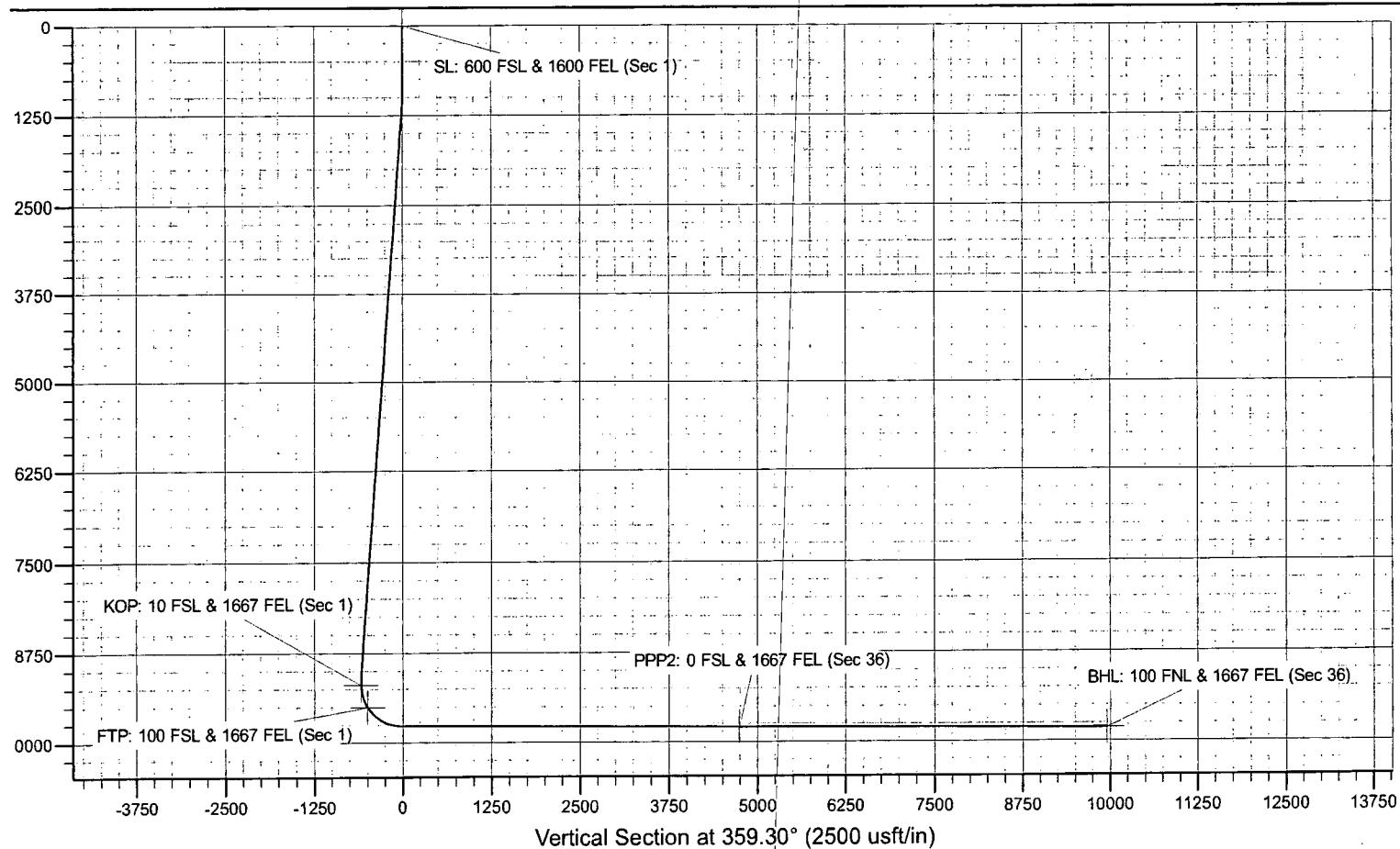
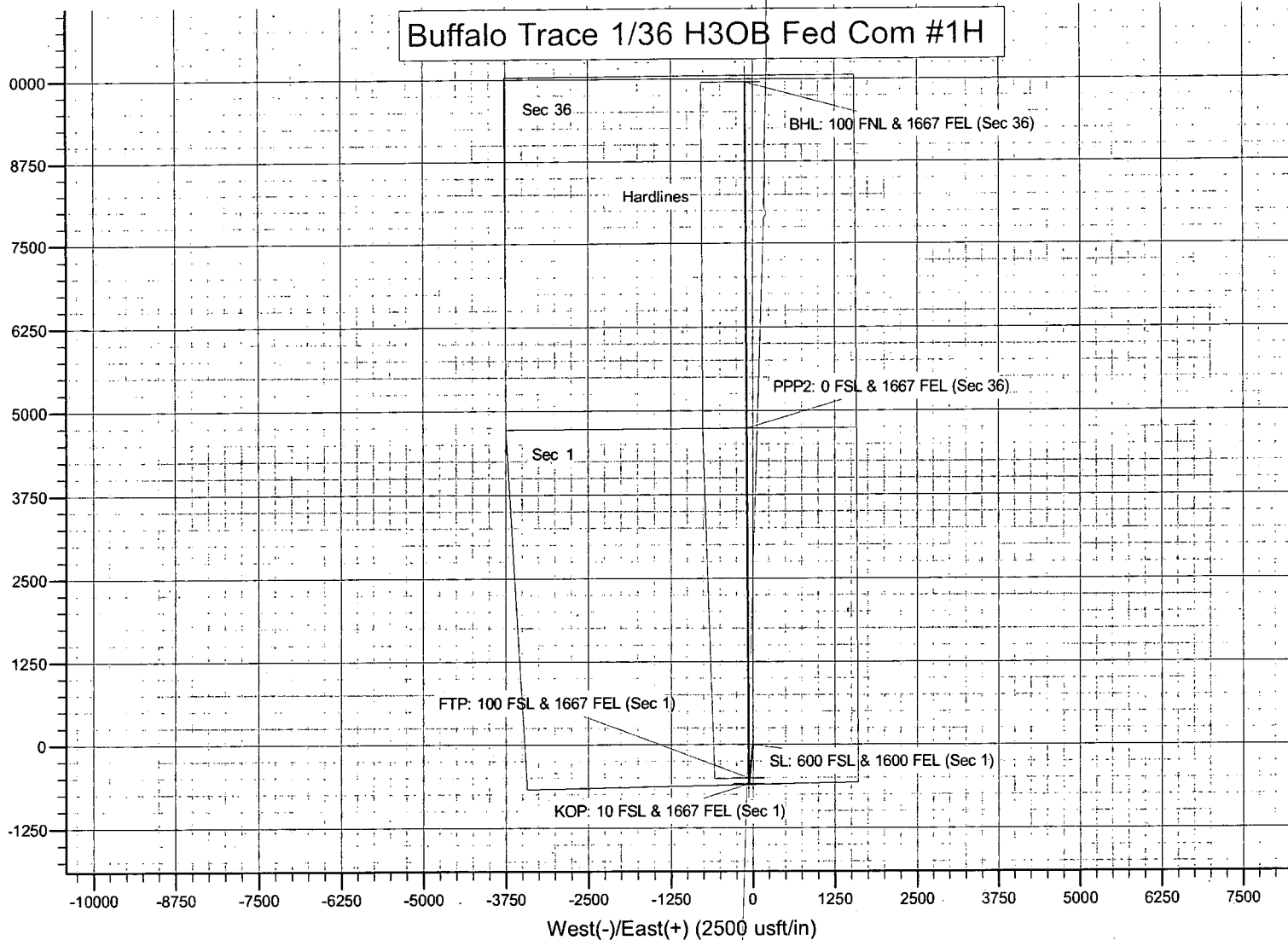
Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/S (usft)	+E/W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
15,000.0	89.71	359.69	9,790.0	4,867.4	-94.1	4,868.2	0.00	0.00	0.00	
15,100.0	89.71	359.69	9,790.5	4,967.4	-94.6	4,968.2	0.00	0.00	0.00	
15,200.0	89.71	359.69	9,791.0	5,067.4	-95.2	5,068.2	0.00	0.00	0.00	
15,300.0	89.71	359.69	9,791.5	5,167.4	-95.7	5,168.2	0.00	0.00	0.00	
15,400.0	89.71	359.69	9,792.0	5,267.4	-96.3	5,268.2	0.00	0.00	0.00	
15,500.0	89.71	359.69	9,792.6	5,367.4	-96.8	5,368.2	0.00	0.00	0.00	
15,600.0	89.71	359.69	9,793.1	5,467.4	-97.3	5,468.2	0.00	0.00	0.00	
15,700.0	89.71	359.69	9,793.6	5,567.4	-97.9	5,568.1	0.00	0.00	0.00	
15,800.0	89.71	359.69	9,794.1	5,667.4	-98.4	5,668.1	0.00	0.00	0.00	
15,900.0	89.71	359.69	9,794.6	5,767.4	-99.0	5,768.1	0.00	0.00	0.00	
16,000.0	89.71	359.69	9,795.1	5,867.4	-99.5	5,868.1	0.00	0.00	0.00	
16,100.0	89.71	359.69	9,795.6	5,967.4	-100.0	5,968.1	0.00	0.00	0.00	
16,200.0	89.71	359.69	9,796.1	6,067.4	-100.6	6,068.1	0.00	0.00	0.00	
16,300.0	89.71	359.69	9,796.6	6,167.4	-101.1	6,168.1	0.00	0.00	0.00	
16,400.0	89.71	359.69	9,797.2	6,267.4	-101.6	6,268.1	0.00	0.00	0.00	
16,500.0	89.71	359.69	9,797.7	6,367.3	-102.2	6,368.1	0.00	0.00	0.00	
16,600.0	89.71	359.69	9,798.2	6,467.3	-102.7	6,468.1	0.00	0.00	0.00	
16,700.0	89.71	359.69	9,798.7	6,567.3	-103.3	6,568.1	0.00	0.00	0.00	
16,800.0	89.71	359.69	9,799.2	6,667.3	-103.8	6,668.1	0.00	0.00	0.00	
16,900.0	89.71	359.69	9,799.7	6,767.3	-104.3	6,768.1	0.00	0.00	0.00	
17,000.0	89.71	359.69	9,800.2	6,867.3	-104.9	6,868.1	0.00	0.00	0.00	
17,100.0	89.71	359.69	9,800.7	6,967.3	-105.4	6,968.1	0.00	0.00	0.00	
17,200.0	89.71	359.69	9,801.2	7,067.3	-106.0	7,068.1	0.00	0.00	0.00	
17,300.0	89.71	359.69	9,801.8	7,167.3	-106.5	7,168.1	0.00	0.00	0.00	
17,400.0	89.71	359.69	9,802.3	7,267.3	-107.0	7,268.1	0.00	0.00	0.00	
17,500.0	89.71	359.69	9,802.8	7,367.3	-107.6	7,368.1	0.00	0.00	0.00	
17,600.0	89.71	359.69	9,803.3	7,467.3	-108.1	7,468.1	0.00	0.00	0.00	
17,700.0	89.71	359.69	9,803.8	7,567.3	-108.6	7,568.1	0.00	0.00	0.00	
17,800.0	89.71	359.69	9,804.3	7,667.3	-109.2	7,668.1	0.00	0.00	0.00	
17,900.0	89.71	359.69	9,804.8	7,767.3	-109.7	7,768.1	0.00	0.00	0.00	
18,000.0	89.71	359.69	9,805.3	7,867.3	-110.3	7,868.1	0.00	0.00	0.00	
18,100.0	89.71	359.69	9,805.8	7,967.3	-110.8	7,968.1	0.00	0.00	0.00	
18,200.0	89.71	359.69	9,806.4	8,067.3	-111.3	8,068.1	0.00	0.00	0.00	
18,300.0	89.71	359.69	9,806.9	8,167.3	-111.9	8,168.1	0.00	0.00	0.00	
18,400.0	89.71	359.69	9,807.4	8,267.3	-112.4	8,268.1	0.00	0.00	0.00	
18,500.0	89.71	359.69	9,807.9	8,367.3	-113.0	8,368.0	0.00	0.00	0.00	
18,600.0	89.71	359.69	9,808.4	8,467.3	-113.5	8,468.0	0.00	0.00	0.00	
18,700.0	89.71	359.69	9,808.9	8,567.3	-114.0	8,568.0	0.00	0.00	0.00	
18,800.0	89.71	359.69	9,809.4	8,667.3	-114.6	8,668.0	0.00	0.00	0.00	
18,900.0	89.71	359.69	9,809.9	8,767.3	-115.1	8,768.0	0.00	0.00	0.00	
19,000.0	89.71	359.69	9,810.4	8,867.3	-115.6	8,868.0	0.00	0.00	0.00	
19,100.0	89.71	359.69	9,811.0	8,967.3	-116.2	8,968.0	0.00	0.00	0.00	
19,200.0	89.71	359.69	9,811.5	9,067.3	-116.7	9,068.0	0.00	0.00	0.00	
19,300.0	89.71	359.69	9,812.0	9,167.3	-117.3	9,168.0	0.00	0.00	0.00	
19,400.0	89.71	359.69	9,812.5	9,267.3	-117.8	9,268.0	0.00	0.00	0.00	
19,500.0	89.71	359.69	9,813.0	9,367.3	-118.3	9,368.0	0.00	0.00	0.00	
19,600.0	89.71	359.69	9,813.5	9,467.3	-118.9	9,468.0	0.00	0.00	0.00	
19,700.0	89.71	359.69	9,814.0	9,567.3	-119.4	9,568.0	0.00	0.00	0.00	
19,800.0	89.71	359.69	9,814.5	9,667.3	-120.0	9,668.0	0.00	0.00	0.00	
19,900.0	89.71	359.69	9,815.0	9,767.3	-120.5	9,768.0	0.00	0.00	0.00	
20,000.0	89.71	359.69	9,815.6	9,867.3	-121.0	9,868.0	0.00	0.00	0.00	
20,086.5	89.71	359.69	9,816.0	9,953.7	-121.5	9,954.4	0.00	0.00	0.00	
BHL: 100 FNL & 1667 FEL (Sec 36)										

# Planning Report

<b>Database:</b>	Hobbs	<b>Local Co-ordinate Reference:</b>	Site Buffalo Trace 1/36 H3OB Fed Com #1H
<b>Company:</b>	Mewbourne Oil Company	<b>TVD Reference:</b>	WELL @ 3046.0usft (Original Well Elev)
<b>Project:</b>	Eddy County, New Mexico NAD 83	<b>MD Reference:</b>	WELL @ 3046.0usft (Original Well Elev)
<b>Site:</b>	Buffalo Trace 1/36 H3OB Fed Com #1H	<b>North Reference:</b>	Grid
<b>Well:</b>	SL: 600 FSL & 1600 FEL (Sec 1)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	BHL: 100 FNL & 1667 FEL (Sec 36)		
<b>Design:</b>	Design #1		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
SL: 600 FSL & 1600 FEL - plan hits target center - Point	0.00	0.00	0.0	0.0	0.0	387,957.50	664,913.60	32.0659471	-103.9344010
KOP: 10 FSL & 1667 FE - plan hits target center - Point	0.00	0.00	9,192.0	-591.5	-64.7	387,366.00	664,848.90	32.0643218	-103.9346169
FTP: 100 FSL & 1667 FE - plan hits target center - Point	0.00	0.01	9,500.3	-501.5	-65.2	387,456.00	664,848.42	32.0645692	-103.9346174
PPP2: 0 FSL & 1667 FE - plan hits target center - Point	0.00	0.00	9,789.3	4,740.7	-93.4	392,698.20	664,820.18	32.0789798	-103.9346460
BHL: 100 FNL & 1667 FE - plan hits target center - Point	0.00	0.00	9,816.0	9,953.7	-121.5	397,911.20	664,792.10	32.0933101	-103.9346745

# Buffalo Trace 1/36 H3OB Fed Com #1H



**Mewbourne Oil Company, Buffalo Trace 1/36 H3OB Fed Com #1H**

**Sec 1 & 36, T26S, R29E**

**SL: 600' FSL & 1600' FEL (Sec 1)**

**BHL: 100' FNL & 1667' FEL (Sec 36)**

**1. Geologic Formations**

TVD of target	9,816'	Pilot hole depth	NA
MD at TD:	20,087'	Deepest expected fresh water:	185'

**Basin**

<b>Formation</b>	<b>Depth (TVD) from KB</b>	<b>Water/Mineral Bearing/ Target Zone?</b>	<b>Hazards*</b>
Quaternary Fill	Surface		
Rustler	880		
Top of Salt	1006		
Base of Salt	3089		
Delaware (Lamar)	3278		
Bell Canyon	3326		
Cherry Canyon	4206		
Manzanita Marker	4376		
Brushy Canyon	6826		
Bone Spring	7056	Oil/Gas	
1 <sup>st</sup> Bone Spring Sand	7966		
2 <sup>nd</sup> Bone Spring Sand	8638		
3 <sup>rd</sup> Bone Spring Sand	10046	Target Zone	
Abo			
Wolfcamp			
Devonian			
Fusselman			
Ellenburger			
Granite Wash			

\*H<sub>2</sub>S, water flows, loss of circulation, abnormal pressures, etc.

**Mewbourne Oil Company, Buffalo Trace 1/36 H3OB Fed Com #1H**

**Sec 1 & 36, T26S, R29E**

**SL: 600' FSL & 1600' FEL (Sec 1)**

**BHL: 100' FNL & 1667' FEL (Sec 36)**

**2. Casing Program**

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
	From	To								
17.5"	0'	930'	13.375"	48	H40	STC	1.81	4.07	7.21	12.12
12.25"	0'	3200'	9.625"	36	J55	LTC	1.21	2.12	3.93	4.90
8.75"	0'	10111'	7"	26	P110	LTC	1.29	2.06	2.64	3.16
6.125"	9214'	20087'	4.5"	13.5	P110	LTC	1.90	2.21	2.30	2.87
BLM Minimum Safety Factor				1.125	1	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet			

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Must have table for contingency casing

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Is casing API approved? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	Y
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 <sup>rd</sup> string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 <sup>nd</sup> string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	

**Mewbourne Oil Company, Buffalo Trace 1/36 H3OB Fed Com #1H**

**Sec 1 & 36, T26S, R29E**

**SL: 600' FSL & 1600' FEL (Sec 1)**

**BHL: 100' FNL & 1667' FEL (Sec 36)**

(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

### 3. Cementing Program

Casing	# Sks	Wt. lb/ gal	Yld ft <sup>3</sup> / sack	H <sub>2</sub> O gal/ sk	500# Comp. Strength (hours)	Slurry Description
Surf.	490	12.5	2.12	11	10	Lead: Class C + Salt + Gel + Extender + LCM
	200	14.8	1.34	6.3	8	Tail: Class C + Retarder
Inter.	460	12.5	2.12	11	10	Lead: Class C + Salt + Gel + Extender + LCM
	200	14.8	1.34	6.3	8	Tail: Class C + Retarder
Prod. Stg 1	290	12.5	2.12	11	9	Lead: Class C + Gel + Retarder + Defoamer + Extender
	400	15.6	1.18	5.2	10	Tail: Class H + Retarder + Fluid Loss + Defoamer
ECP/DV Tool @ 4376'						
Prod. Stg 2	60	12.5	2.12	11	10	Lead: Class C + Salt + Gel + Extender + LCM
	100	14.8	1.34	6.3	8	Tail: Class C + Retarder
Liner	430	11.2	2.97	18	16	Class C + Salt + Gel + Fluid Loss + Retarder + Dispersant + Defoamer + Anti-Settling Agent

A copy of cement test will be available on location at time of cement job providing pump times & compressive strengths.

Casing String	TOC	% Excess
Surface	0'	100%
Intermediate	0'	25%
Production	3000'	25%
Liner	9214'	25%

**Mewbourne Oil Company, Buffalo Trace 1/36 H3OB Fed Com #1H**

**Sec 1 & 36, T26S, R29E**

**SL: 600' FSL & 1600' FEL (Sec 1)**

**BHL: 100' FNL & 1667' FEL (Sec 36)**

**4. Pressure Control Equipment**

BOP installed and tested before drilling which hole?	Size?	System Rated WP	Type	✓	Tested to:
12-1/4"	13-5/8"	5M	Annular	X	2,500#
			Blind Ram	X	5,000#
			Pipe Ram	X	
			Double Ram		
			Other*		

\*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

X	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
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**Mewbourne Oil Company, Buffalo Trace 1/36 H3OB Fed Com #1H**

**Sec 1 & 36, T26S, R29E**

**SL: 600' FSL & 1600' FEL (Sec 1)**

**BHL: 100' FNL & 1667' FEL (Sec 36)**

Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.	
	N	Are anchors required by manufacturer?
Y	<p>A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.</p> <ul style="list-style-type: none"> <li>Provide description here: See attached schematic.</li> </ul>	

## 5. Mud Program

TVD		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	930	FW Gel	8.6-8.8	28-34	N/C
930	3200	Saturated Brine	10.0	28-34	N/C
3200	9765	Cut Brine	8.6-9.5	28-34	N/C
9765	9816	OBM	10.0-11.0	30-40	<10cc

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	Pason/PVT/Visual Monitoring
---	-----------------------------

## 6. Logging and Testing Procedures

Logging, Coring and Testing.	
X	Will run GR/CNL from KOP (9,214') to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain
	Coring? If yes, explain



**Mewbourne Oil Company, Buffalo Trace 1/36 H3OB Fed Com #1H**

**Sec 1 & 36, T26S, R29E**

**SL: 600' FSL & 1600' FEL (Sec 1)**

**BHL: 100' FNL & 1667' FEL (Sec 36)**

Additional logs planned		Interval
X	Gamma Ray	9,214' (KOP) to TD
	Density	
	CBL	
	Mud log	
	PEX	

**7. Drilling Conditions**

Condition	Specify what type and where?
BH Pressure at deepest TVD	5615 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers in surface hole. Weighted mud for possible over-pressure in Wolfcamp formation.

Hydrogen Sulfide (H<sub>2</sub>S) monitors will be installed prior to drilling out the surface shoe. If H<sub>2</sub>S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.

	H <sub>2</sub> S is present
X	H <sub>2</sub> S Plan attached

**8. Other facets of operation**

Is this a walking operation? If yes, describe.

**Mewbourne Oil Company, Buffalo Trace 1/36 H3OB Fed Com #1H**

**Sec 1 & 36, T26S, R29E**

**SL: 600' FSL & 1600' FEL (Sec 1)**

**BHL: 100' FNL & 1667' FEL (Sec 36)**

Will be pre-setting casing? If yes, describe.

**Attachments**

☐ Directional Plan

☐ Other, describe

# PECOS DISTRICT

## DRILLING CONDITIONS OF APPROVAL

<b>OPERATOR'S NAME:</b>	Mewbourne Oil Company
<b>LEASE NO.:</b>	NMNM023765
<b>WELL NAME &amp; NO.:</b>	BUFFALO TRACE 1-36 H3OB Fed Com #1H
<b>SURFACE HOLE FOOTAGE:</b>	600'/S & 1600'/E
<b>BOTTOM HOLE FOOTAGE:</b>	100'/N & 1667'/E
<b>LOCATION:</b>	Section 1, T.26 S., R.29 E., NMPM
<b>COUNTY:</b>	Eddy County, New Mexico

COA

H2S	<input type="radio"/> Yes	<input checked="" type="radio"/> No	
Potash	<input checked="" type="radio"/> None	<input type="radio"/> Secretary	<input type="radio"/> R-111-P
Cave/Karst Potential	<input type="radio"/> Low	<input checked="" type="radio"/> Medium	<input type="radio"/> High
Cave/Karst Potential	<input type="radio"/> Critical		
Variance	<input type="radio"/> None	<input checked="" type="radio"/> Flex Hose	<input type="radio"/> Other
Wellhead	<input type="radio"/> Conventional	<input checked="" type="radio"/> Multibowl	<input type="radio"/> Both
Other	<input type="checkbox"/> 4 String Area	<input type="checkbox"/> Capitan Reef	<input type="checkbox"/> WIPP
Other	<input type="checkbox"/> Fluid Filled	<input type="checkbox"/> Cement Squeeze	<input type="checkbox"/> Pilot Hole
Special Requirements	<input type="checkbox"/> Water Disposal	<input checked="" type="checkbox"/> COM	<input type="checkbox"/> Unit

### A. HYDROGEN SULFIDE

Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

### B. CASING

#### Casing Design:

1. The 13-3/8 inch surface casing shall be set at approximately **700 feet** (a minimum of **70 feet (Eddy County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with 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 will be a minimum of **8 hours** 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 cementing will be done prior to drilling out that string.
2. The **9-5/8** inch intermediate casing shall be set at approximately **3200** feet. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:
- Cement to surface. If cement does not circulate see B.1.a, c-d above.  
**Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**  
**Excess cement calculates to 19%, additional cement might be required.**
  - ❖ In Medium Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.
3. The minimum required fill of cement behind the **7** inch production casing is:

**Option 1 (Single Stage):**

- Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.  
**Excess cement calculates to 1%, additional cement might be required.**

**Option 2:**

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

- b. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.

c. Second stage above DV tool:

- Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

d. The minimum required fill of cement behind the **4-1/2** inch production liner is:

- Cement should tie-back **100 feet** into the previous casing. Operator shall provide method of verification.

### **C. PRESSURE CONTROL**

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'
2. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.
  - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
  - c. Manufacturer representative shall install the test plug for the initial BOP test.
  - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
  - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

### **D. SPECIAL REQUIREMENT (S)**

#### **Communitization Agreement**

- The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all

such owners and will make those signatures available to the BLM immediately upon request.

- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

## GENERAL 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

☒ Lea County

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

1. 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.
  - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
  - b. When the operator proposes to set surface casing with Spudder Rig
    - Notify the BLM when moving in and removing the Spudder Rig.
    - Notify the BLM when moving in the 2<sup>nd</sup> Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
    - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area

immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. 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 Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. 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.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the

formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. 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.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

**B. 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. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
  - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
  - c. Manufacturer representative shall install the test plug for the initial BOP test.
  - d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
  - e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.



5. 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. In potash areas, 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. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).
  - c. 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 (8 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).
  - d. 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. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
  - e. The results of the test shall be reported to the appropriate BLM office.
  - f. 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.
  - g. 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.

- h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

#### C. DRILLING MUD

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

#### D. 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.

**OTA01292020**

**PECOS DISTRICT  
SURFACE USE  
CONDITIONS OF APPROVAL**

**MEWBOURNE OIL COMPANY**

**Lease Number NMNM023765**

**BUFFALO TRACE 1/36 B2OB FED COM 1H**

**Surface Hole Location: 600' FSL & 1630' FEL, Section 1, T. 26 S., R. 29 E.**

**Bottom Hole Location: 100' FNL & 1980' FEL, Section 36, T. 25 S, R. 29 E.**

**BUFFALO TRACE 1/36 H3OB FED COM 1H**

**Surface Hole Location: 600' FSL & 1600' FEL, Section 1, T. 26 S., R. 29 E.**

**Bottom Hole Location: 100' FNL & 1650' FEL, Section 36, T. 25 S, R. 29 E.**

**BUFFALO TRACE 1/36 H3OB FED COM 2H**

**Surface Hole Location: 600' FSL & 1660' FEL, Section 1, T. 26 S., R. 29 E.**

**Bottom Hole Location: 100' FNL & 2310' FEL, Section 36, T. 25 S, R. 29 E.**

**BUFFALO TRACE 1/36 W1OB FED COM 1H**

**Surface Hole Location: 400' FSL & 1630' FEL, Section 1, T. 26 S., R. 29 E.**

**Bottom Hole Location: 330' FNL & 2310' FEL, Section 36, T. 25 S, R. 29 E.**

**BUFFALO TRACE 1/36 W1OB FED COM 2H**

**Surface Hole Location: 400' FSL & 1600' FEL, Section 1, T. 26 S., R. 29 E.**

**Bottom Hole Location: 330' FNL & 1650' FEL, Section 36, T. 25 S, R. 29 E.**

## **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**
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## **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)**

### **Watershed**

- The entire well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The berm shall be maintained through the life of the well and after interim reclamation has been completed.
- Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion.

### **Desert Heronries**

Surface disturbance will not be allowed within up to 200 meters of active heronries or by delaying activity for up to 120 days, or a combination of both.

Exhaust noise from engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

## **Cave and Karst Conditions of Approval for APDs**

\*\* Depending on location, additional Drilling, Casing, and Cementing procedures may be required by engineering to protect critical karst groundwater recharge areas.

### **Cave/Karst Surface Mitigation**

The following stipulations will be applied to minimize impacts during construction, drilling and production:

#### **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.

#### **Pad Berming:**

- The entire perimeter of the well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad.

- The compacted berm shall be constructed at a minimum of 12 inches high with impermeable mineral material (e.g., caliche).
- No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad.
- The topsoil stockpile shall be located outside the bermed well pad.
- Topsoil, either from the well pad or surrounding area, shall not be used to construct the berm.
- No storm drains, tubing or openings shall be placed in the berm.
- If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.
- The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed.
- Any access road entering the well pad shall be constructed so that the integrity of the berm height surrounding the well pad is not compromised. (Any access road crossing the berm cannot be lower than the berm height.)
- Following a rain event, all fluids will be vacuumed off of the pad and hauled off-site and disposed at a proper disposal facility.

#### **Tank Battery Liners and Berms:**

Tank battery locations and all facilities will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing, or equivalent, to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

#### **Leak Detection System:**

A method of detecting leaks is required. The method could incorporate gauges to measure loss, siting valves and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

#### **Automatic Shut-off Systems:**

Automatic shut off, check valves, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

#### **Cave/Karst Subsurface Mitigation**

The following stipulations will be applied to protect cave/karst and ground water concerns:

#### **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 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.

**Pressure Testing:**

Annual pressure monitoring will be performed by the operator on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

**Watershed**

1. The proposed routes for both the powerline and surface flowlines will not be bladed.
2. Containment berms will be constructed around both tank battery production facilities designed to hold fluids. The containment berms will be constructed with compacted material capable of holding 1½ time the capacity of the largest tank.
3. Topsoil will be stockpiled on the pads to enhance future reclamation.
4. A closed loop drilling system will be used.
5. To prevent any spills from leaving the pads, a two foot berm shall be built inside the fence on each pad.
6. Straw wattles shall be placed completely around the disturbed areas of all pads and along all fences to reduce erosion in this sensitive karst area.
7. Drainage turnouts shall have straw wattles installed.



8. Drainage turnouts along the access road shall not lead to sinkholes.

## **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 strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

Temporary storage of topsoil. Piled topsoil height must not exceed three feet in order to maintain the viability of topsoil biota crucial for rapid establishment of seeding at 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.

Sedimentation control structures shall be installed on the west side of the well pad. Such structures can include straw wattles, silt fencing, or an equivalent product that prevents off-site migration of caliche or disturbed soils.

Accumulated caliche or disturbed soils at the erosion control structures shall be removed and properly disposed of once unstabilized soils have reached a height of  $\frac{3}{4}$  of the structure height or at the time of the structure after interim reclamation seeding has been established. Where applicable, sedimentation control structures must be installed on the outside of the topsoil pile. When straw wattles are utilized near topsoil piles, only the 12-inch diameter size must be installed.

#### **F. EXCLOSURE FENCING (CELLARS & PITS)**

##### **Exclosure Fencing**

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

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

##### **Road Width**

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

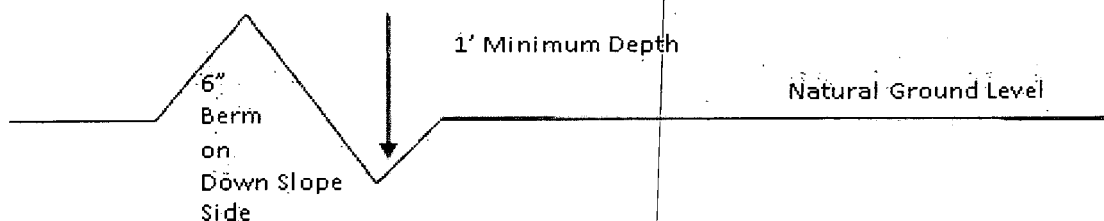
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

### **Drainage**

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill out-sloping and in-sloping, 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:

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

### **Cattleguards**

An appropriately sized cattleguard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattleguards on the access road route 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 cattleguards that are in place and are utilized during lease operations.

### **Fence Requirement**

Where entry is granted 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 fences.

### **Livestock Watering Requirement**

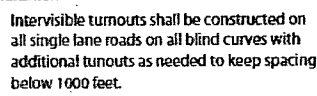
Structures that provide water to livestock, such as windmills, pipelines, drinking troughs, and earthen reservoirs, will be avoided by moving the proposed action.

Any damage to structures that provide water to livestock throughout the life of the well, caused by operations from the well site, must be immediately corrected by the operator. The operator must notify the BLM office (575-234-5972) and the private surface landowner or the grazing allotment holder if any damage occurs to structures that provide water to livestock.

### **Public Access**

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

3. Redistribute topsoil
4. Revegetate slopes



**Approval Date: 02/19/2020**

## **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, report measured amounts and formations to the BLM. It is recommended that the operator have monitoring equipment in place prior to drilling out of the surface shoe.
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 Rustler top and 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 or are Non-API. 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.). The initial wellhead installed on the well will remain on the well with spools used as needed.

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

Wait on cement (WOC) for Water Basin:

After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met:  
1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. 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

Possibility of water flows in the Salado and Castile.

Possibility of lost circulation in the Red Beds, Rustler, and Delaware.

Abnormal pressures may be encountered within the 3<sup>rd</sup> Bone Spring Sandstone and Wolfcamp formation.

1. The **13-3/8** inch surface casing shall be set at approximately **855** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**

Optional:

- 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 set at approximately 3300 feet Lamar Limestone 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. Excess calculates to 17% - Additional cement may be required.

Formation below the 9-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight

necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

Centralizers required through the curve and a minimum of one every other joint.

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. Excess calculates to 16% - Additional cement may be required.

Formation below the 7" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

4. The minimum required fill of cement behind the **4-1/2** inch production Liner is:

- ☒ Cement as proposed by operator. Operator shall provide method of verification.

**Note: Operator may use a higher mud weight to stabilize the lateral hole. As they already have landed the 7" in this formation it is acceptable.**

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 **3000 (3M) psi (Installing 3M annular)**.
  - a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8** intermediate casing shoe shall be **5000 (5M) psi**. 5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.



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. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two 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.
- g. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2

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

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

#### **E. DRILLING MUD**

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

**Proposed mud weight may not be adequate for drilling through Wolfcamp.**

#### **F. 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.

**EGF 072415**

### **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.

##### **Exclosure Netting (Open-top Tanks)**

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

##### **Chemical and Fuel Secondary Containment and Exclosure Screening**

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental

Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock enclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

#### **Open-Vent Exhaust Stack Enclosures**

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended enclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

#### **Containment Structures**

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

#### **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).

### **B. PIPELINES**

#### **BURIED PIPELINE STIPULATIONS**

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

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

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on

facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

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

5. All construction and maintenance activity will be confined to the authorized right-of-way.

6. The pipeline will be buried with a minimum cover of 36 inches between the top of the pipe and ground level.

7. The maximum allowable disturbance for construction in this right-of-way will be 30 feet:

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed 20 feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)
- Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed 30 feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)
- The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

- |  |  |
|--|--|
| <input type="checkbox"/> seed mixture 1            | <input type="checkbox"/> seed mixture 3          |
| <input checked="" type="checkbox"/> seed mixture 2 | <input type="checkbox"/> seed mixture 4          |
| <input type="checkbox"/> seed mixture 2/LPC        | <input type="checkbox"/> Aplomado Falcon Mixture |

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. Any cultural resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

OR

If the entire project is covered under the Permian Basin Programmatic Agreement (cultural resources only):

The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM. See Stipulation 17 for more information.

If the proposed project is split between a Class III inventory and a Permian Basin Programmatic Agreement contribution, the portion of the project covered under Class III inventory should default to the first paragraph stipulations.

17. The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes."

18. Any paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

19. 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 associated roads, 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.

20. Escape Ramps - The operator will construct and maintain pipeline/utility trenches [that are not otherwise fenced, screened, or netted] to prevent livestock, wildlife, and

humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

- a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
- b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

#### 21. Special Stipulations:

##### **Karst:**

- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, passages, or voids are intersected by trenching, and no pipe will be laid in the trench at that point until clearance has been issued by the Authorized Officer.
- If a void is encountered alignments may be rerouted to avoid the karst feature and lessen; the potential of subsidence or collapse of karst features, buildup of toxic or combustible gas, or other possible impacts to cave and karst resources from the buried pipeline.
- Special restoration stipulations or realignment may be required at such intersections, if any.
- A leak detection plan **will be submitted to the BLM Carlsbad Field Office for approval** prior to pipeline installation. The method could incorporate gauges to detect pressure drops, siting valves and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.
- Regular monitoring is required to quickly identify leaks for their immediate and proper treatment.
- All spills or leaks will be reported to the BLM immediately for their immediate and proper treatment.

## **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.

Sedimentation control structures installed at the time of construction may be removed only when seeding has been successfully established on the west side of the well pad. (See Construction section for sedimentation control structure requirements)

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

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

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

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

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

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

### **Seed Mixture 2, for Sandy Sites**

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

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

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

#### **Species**

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

\*Pounds of pure live seed:

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