Form 3160-3
(June 2015)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM025953

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

1b. Type of Well: ☐ Oil Well ☑ Gas Well ☐ Other

1c. Type of Completion: ☐ Hydraulic Fracturing ☑ Single Zone ☐ Multiple Zone

7. If Unit or CA Agreement, Name and No.

8. Lease Name and Well No.
WILLOW LAKE 35 W2DM
2H

2. Name of Operator
MEWBOURNE OIL COMPANY

9. API Well No.
30 015 47333

3a. Address	3b. Phone No. *(include area code)*	10. Field and Pool, or Exploratory
PO Box 5270 Hobbs NM 88240	(575)393-5905	WELCH / WOLFCAMP

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*

At surface NWNW / 205 FNL / 690 FWL / LAT 32.1807189 / LONG -104.0643797

At proposed prod. zone SWSW / 330 FSL / 380 FWL / LAT 32.1674383 / LONG -104.0652597

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 35 / T24S / R28E / NMP

14. Distance in miles and direction from nearest town or post office*	12. County or Parish	13. State
7 miles	EDDY	NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well
330 feet	400	480

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file
60 feet	10704 feet / 15487 feet	FED: NM1693

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
2969 feet	01/30/2019	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	Name *(Printed/Typed)*	Date
(Electronic Submission)	Bradley Bishop / Ph: (575)393-5905	05/29/2019

Title
Regulatory

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Cody Layton / Ph: (575)234-5959	08/12/2020

Title	Office
Assistant Field Manager Lands & Minerals	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

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 08/12/2020

Entered-Kurt Simmons, NMOCD

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

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number	2 Pool Code	3 Pool Name
30 015 47333	98220	PURPLE SAGE; WOLFCAMP GAS

4 Property Code	5 Property Name	6 Well Number
328935	WILLOW LAKE 35 W2DM FEDERAL COM	2H

7 OGRID NO.	8 Operator Name	9 Elevation
14744	MEWBOURNE OIL COMPANY	2969'

10 Surface Location

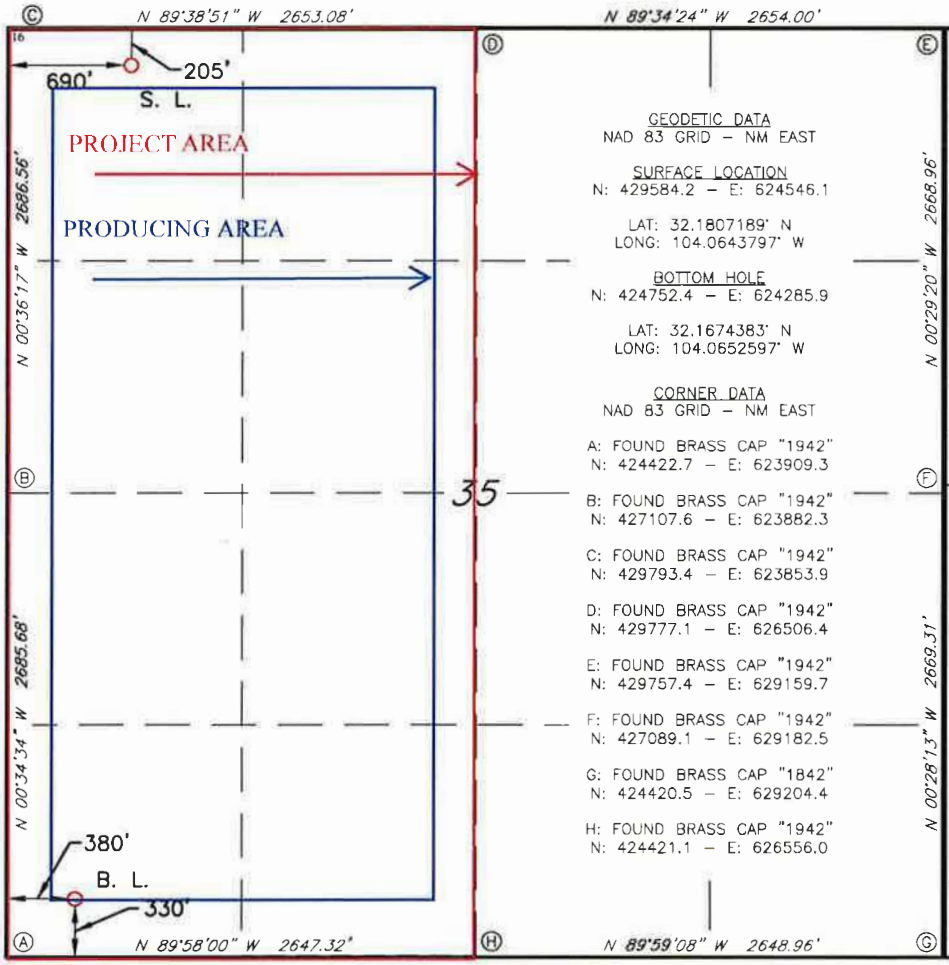
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet From the	East/West line	County
D	35	24S	28E		205	NORTH	690	WEST	EDDY

11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	35	24S	28E		330	SOUTH	380	WEST	EDDY

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.
320			

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



17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature — Date: 11-30-18

BRADLEY BISHOP
Printed Name

BBISHOP@MEWBOURNE.COM
E-mail Address

18 SURVEYOR CERTIFICATION

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

6-7-18
Date of Survey

Signature and Seal of Professional Surveyor

ROBERT M. HOWETT
NEW MEXICO
19680
PROFESSIONAL SURVEYOR

19680
Certificate Number

RRC-Job No.: LS1806752

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit Original
to Appropriate
District Office

GAS CAPTURE PLAN

Date: 11-29-18

☒ Original
☐ Amended - Reason for Amendment:

Operator & OGRID No.: Mewbourne Oil Company - 14744

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomplete to new zone, re-frac) activity.

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
Willow Lake 35 W2DM Fed Com #2H		D - 35 -T24S-28E	205 FNL & 690 FWL	0	NA	ONLINE AFTER FRAC

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to Western and will be connected to Western low/high pressure gathering system located in EDDY County, New Mexico. It will require 3,400 ' of pipeline to connect the facility to low/high pressure gathering system. Mewbourne Oil Company provides (periodically) to Western a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, Mewbourne Oil Company and Western have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at Western Processing Plant located in Sec. 36, Blk. 58 T1S, Culberson County, Texas. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on Western system at that time. Based on current information, it is Operator's belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
  - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
  - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
  - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

Intent [X] As Drilled [ ]

API #

Operator Name:	Property Name:	Well Number
Mewbourne Oil Co.	Willow Lake 35 W2DM Fed Com	2H

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
D	35	24S	28E		10	N	380	W	Eddy

Latitude	Longitude	NAD
32.1812619	-104.0653869	83

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
D	35	24S	28E		330	N	380	W	Eddy

Latitude	Longitude	NAD
32.1803767	-104.0653787	83

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
M	35	24S	28E		330	S	380	W	Eddy

Latitude	Longitude	NAD
32.1674383	-104.0652597	83

Is this well the defining well for the Horizontal Spacing Unit? [Y]

Is this well an infill well? [N]

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #

Operator Name:	Property Name:	Well Number

KZ 06/29/2018

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**BTA OIL PRODUCERS LLC**
LEASE NO.:	**NMNM025953**
WELL NAME & NO.:	WILLOW LAKE 35 W2DM 2H
SURFACE HOLE FOOTAGE:	205'/N & 690'/W
BOTTOM HOLE FOOTAGE	330'/S & 380'/W
LOCATION:	Section 35, T.24 S., R.28 E., NMP
COUNTY:	Eddy County, New Mexico

COA

H2S	○ Yes	◉ No	
Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	○ Low	○ Medium	◉ High
Cave/Karst Potential	○ Critical		
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	○ Conventional	◉ Multibowl	○ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP
Other	☐ Fluid Filled	☐ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☐ COM	☐ 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 **500** 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 minimum required fill of cement behind the **9-5/8** inch intermediate casing which shall be set at approximately **2530** feet 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.**

❖ In High 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 7%, 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.

a. 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.

b. Second stage above DV tool:

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

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

- Cement 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.

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 2nd 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 intergrity 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 intergrity 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.

OTA06252020

APD ID: 10400036816 **Submission Date:** 05/29/2019

Operator Name: MEWBOURNE OIL COMPANY

Well Name: WILLOW LAKE 35 W2DM **Well Number:** 2H

Well Type: CONVENTIONAL GAS WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - General

APD ID: 10400036816 **Tie to previous NOS?** Y **Submission Date:** 05/29/2019

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: NMNM025953 **Lease Acres:** 400

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: WILLOW LAKE 35 W2DM **Well Number:** 2H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** WELCH **Pool Name:** WOLFCAMP

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

Operator Name: MEWBOURNE OIL COMPANY

Well Name: WILLOW LAKE 35 W2DM **Well Number:** 2H

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

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:** WILLOW LAKE 35 DM FED COM **Number:** 2

Well Class: HORIZONTAL **Number of Legs:**

Well Work Type: Drill

Well Type: CONVENTIONAL GAS WELL

Describe Well Type:

Well sub-Type: APPRAISAL

Describe sub-type:

Distance to town: 7 Miles **Distance to nearest well:** 60 FT **Distance to lease line:** 330 FT

Reservoir well spacing assigned acres Measurement: 480 Acres

Well plat: WillowLake35_W2DMFedCom2H__wellplat_20181130104558.pdf

Well work start Date: 01/30/2019 **Duration:** 60 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: **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	205	FNL	690	FWL	24S	28E	35	Aliquot NWNW	32.1807189	-104.0643797	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 025953	2969	27	27	
KOP Leg #1	10	FNL	380	FWL	24S	28E	35	Aliquot NWNW	32.1812619	-104.0653869	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 025953	-7152	10130	10121	
PPP Leg #1-1	1343	FSL	380	FWL	24S	28E	35	Aliquot SWSW	32.1702248	-104.0652851	EDDY	NEW MEXICO	NEW MEXICO	F	FEE	-7733	14473	10702	

Operator Name: MEWBOURNE OIL COMPANY

Well Name: WILLOW LAKE 35 W2DM **Well Number:** 2H

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 #1-2	1343	FNL	380	FWL	24S	28E	35	Aliquot SWNW	32.1775975	-104.0653531	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 093197	-7727	11790	10696	
PPP Leg #1-3	330	FNL	380	FWL	24S	28E	35	Aliquot NWNW	32.1803767	-104.0653787	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 025953	-7667	10771	10636	
EXIT Leg #1	330	FSL	380	FWL	24S	28E	35	Aliquot SWSW	32.1674383	-104.0652597	EDDY	NEW MEXICO	NEW MEXICO	F	FEE	-7735	15487	10704	
BHL Leg #1	330	FSL	380	FWL	24S	28E	35	Aliquot SWSW	32.1674383	-104.0652597	EDDY	NEW MEXICO	NEW MEXICO	F	FEE	-7735	15487	10704	

APD ID: 10400036816 **Submission Date:** 05/29/2019

Operator Name: MEWBOURNE OIL COMPANY

Well Name: WILLOW LAKE 35 W2DM **Well Number:** 2H

Well Type: CONVENTIONAL GAS WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
350109	UNKNOWN	2969	27	27		NONE	N
350121	TOP SALT	2371	598	598	SALT	NONE	N
350113	CASTILE	1844	1125	1125	SALT	NONE	N
350110	BOTTOM SALT	559	2410	2410	SALT	NONE	N
350114	LAMAR	364	2605	2605	LIMESTONE	NATURAL GAS, OIL	N
350115	BELL CANYON	334	2635	2635	SANDSTONE	NATURAL GAS, OIL	N
350116	CHERRY CANYON	-539	3508	3508	SANDSTONE	NATURAL GAS, OIL	N
350117	MANZANITA	-656	3625	3625	LIMESTONE	NATURAL GAS, OIL	N
350118	BRUSHY CANYON	-1761	4730	4730	SANDSTONE	NATURAL GAS, OIL	N
350108	BONE SPRING LIME	-3331	6300	6300	LIMESTONE, SHALE	NATURAL GAS, OIL	N
350111	BONE SPRING 1ST	-4241	7210	7210	SANDSTONE	NATURAL GAS, OIL	N
350112	BONE SPRING 2ND	-5079	8048	8048	SANDSTONE	NATURAL GAS, OIL	N
350119	BONE SPRING 3RD	-6191	9160	9160	SANDSTONE	NATURAL GAS, OIL	N
350120	WOLFCAMP	-6551	9520	9520	LIMESTONE, SANDSTONE, SHALE	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Operator Name: MEWBOURNE OIL COMPANY

Well Name: WILLOW LAKE 35 W2DM **Well Number:** 2H

Pressure Rating (PSI): 5M **Rating Depth:** 15487

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. 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.

Choke Diagram Attachment:

Willow_Lake_35_W2DM_Fed_Com_2H_5M_BOPE_Choke_Diagram_20190528142314.pdf

Willow_Lake_35_W2DM_Fed_Com_2H_Flex_Line_Specs_20190528142315.pdf

Willow_Lake_35_W2DM_Fed_Com_2H_Flex_Line_Specs_API_16C_20200622135615.pdf

BOP Diagram Attachment:

Willow_Lake_35_W2DM_Fed_Com_2H_5M_BOPE_Schematic_20190528144736.pdf

Willow_Lake_35_W2DM_Fed_Com_2H_Multi_Bowl_WH_20190528144737.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	500	0	500	2996	2496	500	H-40	48	ST&C	3.29	7.39	DRY	13.42	DRY	22.54
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	2530	0	2530	2996		2530	J-55	36	LT&C	1.54	2.68	DRY	4.97	DRY	6.19
3	PRODUCTION	8.75	7.0	NEW	API	N	0	11029	0	10694	2996		11029	HCP-110	26	LT&C	1.48	1.89	DRY	2.23	DRY	2.89
4	LINER	6.125	4.5	NEW	API	N	10130	14475	10121	10704			4345	P-110	13.5	LT&C	1.47	1.72	DRY	4.67	DRY	5.84

Casing Attachments

Operator Name: MEWBOURNE OIL COMPANY

Well Name: WILLOW LAKE 35 W2DM **Well Number:** 2H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Willow_Lake_35_W2DM_Fed_Com_2H_Csg_Assumptions_20190528151807.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Willow_Lake_35_W2DM_Fed_Com_2H_Csg_Assumptions_20190528151814.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Willow_Lake_35_W2DM_Fed_Com_2H_Csg_Assumptions_20190528151821.pdf

Operator Name: MEWBOURNE OIL COMPANY

Well Name: WILLOW LAKE 35 W2DM **Well Number:** 2H

Casing Attachments

Casing ID: 4 **String Type:** LINER

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Willow_Lake_35_W2DM_Fed_Com_2H_Csg_Assumptions_20190528151826.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	300	205	2.12	12.5	434.6	100	Class C	Salt, Gel, Extender, LCM
SURFACE	Tail		300	500	200	1.34	14.8	268	100	Class C	Retarder
INTERMEDIATE	Lead		0	1880	365	2.12	12.5	774	25	Class C	Salt, Gel, Extender, LCM
INTERMEDIATE	Tail		1880	2530	200	1.34	14.8	268	25	Class C	Retarder
PRODUCTION	Lead	3625	2330	2960	60	2.12	12.5	127.2	25	Class C	Gel, Extender, Salt, LCM
PRODUCTION	Tail		2960	3625	100	1.34	14.8	134	25	Class C	Retarder
PRODUCTION	Lead	3625	3625	8610	440	2.12	12.5	972	25	Class C	Gel, Retarder, Defoamer, Extender
PRODUCTION	Tail		8610	11029	400	1.18	15.6	472	25	Class H	Retarder, Fluid Loss, Defoamer
LINER	Lead		10130	15487	220	2.97	11.2	653	25	Class C	Salt, Gel, Fluid Loss, Retarder, Dispersant, Defoamer, Anti-Settling Agent

Operator Name: MEWBOURNE OIL COMPANY

Well Name: WILLOW LAKE 35 W2DM **Well Number:** 2H

Section 5 - Circulating Medium

Mud 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 scavengers 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	500	SPUD MUD	8.6	8.8							
500	2530	SALT SATURATED	10	10							
2530	10121	WATER-BASED MUD	8.6	9.5							
10121	10704	OIL-BASED MUD	10	12							

Section 6 - Test, Logging, Coring

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

Will run GR/CNL from KOP (10,130') 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: WILLOW LAKE 35 W2DM **Well Number:** 2H

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 6680 **Anticipated Surface Pressure:** 4555.46

Anticipated Bottom Hole Temperature(F): 165

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

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

Willow_Lake_35_W2DM_Fed_Com_2H_H2S_Plan_20190528153045.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Willow_Lake_35_W2DM_Fed_Com_2H_Dir_Plan_20190528153132.pdf
Willow_Lake_35_W2DM_Fed_Com_2H_Dir_Plot_20190528153132.pdf

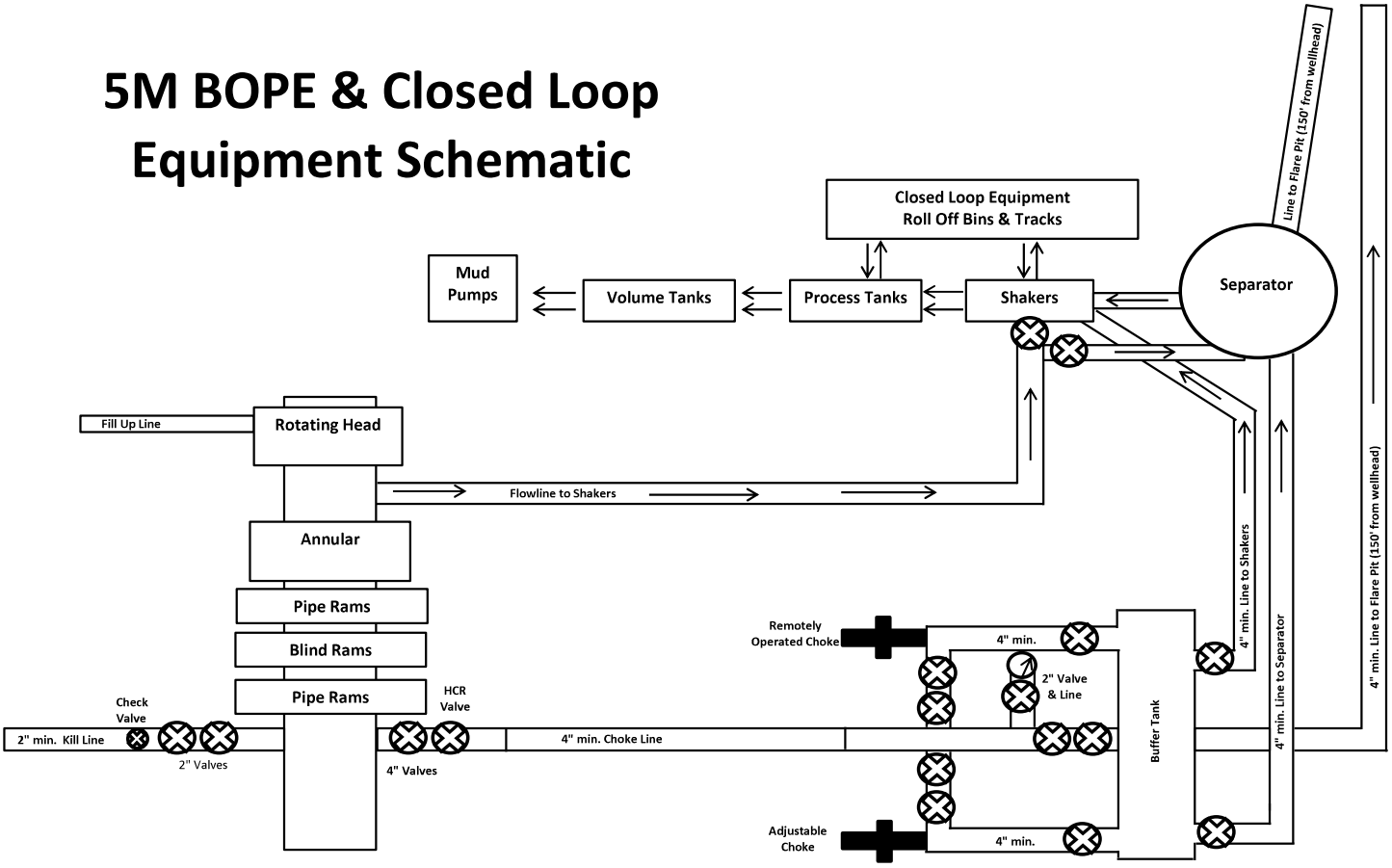
Other proposed operations facets description:

Other proposed operations facets attachment:

Willow_Lake_35_W2DM_Fed_Com_2H_Drlg_Program_20190528153144.doc
Willow_Lake_35_W2DM_Fed_Com_2H_Add_Info_20190528161508.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.

Mewbourne Oil Company, Willow Lake 35 W2DM Fed Com #2H
Sec 35, T24S, R28E
SL: 205' FNL & 690' FWL
BHL: 330' FSL & 380' FWL

Casing Program

Hole Size	Casing Interval From	Casing Interval To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
17.5"	0'	500'	13.375"	48	H40	STC	3.29	7.39	13.42	22.54
12.25"	0'	2530'	9.625"	36	J55	LTC	1.54	2.68	4.97	6.19
8.75"	0'	11,029'	7"	26	HCP110	LTC	1.48	1.89	2.23	2.89
6.125"	10,130'	15,487'	4.5"	13.5	P110	LTC	1.47	1.72	4.67	5.84
			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 3rd 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 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	Y
If yes, are there two strings cemented to surface?	Y
(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, Willow Lake 35 W2DM Fed Com #2H
Sec 35, T24S, R28E
SL: 205' FNL & 690' FWL
BHL: 330' FSL & 380' FWL

Casing Program

Hole Size	Casing Interval From	Casing Interval To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
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12.25"	0'	2530'	9.625"	36	J55	LTC	1.54	2.68	4.97	6.19
8.75"	0'	11,029'	7"	26	HCP110	LTC	1.48	1.89	2.23	2.89
6.125"	10,130'	15,487'	4.5"	13.5	P110	LTC	1.47	1.72	4.67	5.84
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Mewbourne Oil Company, Willow Lake 35 W2DM Fed Com #2H
Sec 35, T24S, R28E
SL: 205' FNL & 690' FWL
BHL: 330' FSL & 380' FWL

Casing Program

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6.125"	10,130'	15,487'	4.5"	13.5	P110	LTC	1.47	1.72	4.67	5.84
			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
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If yes, are there three strings cemented to surface?	

Mewbourne Oil Company, Willow Lake 35 W2DM Fed Com #2H
Sec 35, T24S, R28E
SL: 205' FNL & 690' FWL
BHL: 330' FSL & 380' FWL

Casing Program

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6.125"	10,130'	15,487'	4.5"	13.5	P110	LTC	1.47	1.72	4.67	5.84
			BLM Minimum Safety Factor				1.125	1	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet

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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?	
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If yes, are there two strings cemented to surface?	Y
(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 H2S were found. MOC will have on location and working all H2S 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 know 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 H2S 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 H2S 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**
	2nd 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
Willow Lake 35 W2DM Fed Com #2H
Sec 35, T24S, R28E
SL: 205' FNL & 690' FWL
BHL: 330' FSL & 380' FWL

Plan: Design #1

Standard Planning Report

25 June, 2018

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Willow Lake 35 W2DM Fed Com #2H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 2996.0usft (Original Well Elev)
Project:	Eddy County, New Mexico NAD 83	**MD Reference:**	WELL @ 2996.0usft (Original Well Elev)
Site:	Willow Lake 35 W2DM Fed Com #2H	**North Reference:**	Grid
Well:	Sec 35, T24S, R28E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 330' FSL & 380' FWL		
Design:	Design #1		

Project Eddy County, New Mexico NAD 83

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site Willow Lake 35 W2DM Fed Com #2H

Site Position:		**Northing:**	429,584.00 usft	**Latitude:**	32.1807182
From:	Map	**Easting:**	624,546.00 usft	**Longitude:**	-104.0643800
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.14 °

Well Sec 35, T24S, R28E

Well Position	**+N/-S**	0.0 usft	**Northing:**	429,584.00 usft	**Latitude:**	32.1807182
	+E/-W	0.0 usft	**Easting:**	624,546.00 usft	**Longitude:**	-104.0643800
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	2,996.0 usft	**Ground Level:**	2,969.0 usft

Wellbore BHL: 330' FSL & 380' FWL

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/25/2018	6.94	59.89	47,841

Design Design #1

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	183.08

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,792.2	2.88	302.27	2,792.1	2.6	-4.1	1.50	1.50	0.00	302.27	
9,938.1	2.88	302.27	9,929.0	194.4	-307.9	0.00	0.00	0.00	0.00	
10,130.2	0.00	0.00	10,121.0	197.0	-312.0	1.50	-1.50	0.00	180.00	KOP @ 10,121'
11,029.0	89.87	179.41	10,694.0	-374.6	-306.1	10.00	10.00	0.00	179.41	
15,486.6	89.87	179.41	10,704.0	-4,832.0	-260.0	0.00	0.00	0.00	0.00	BHL: 330' FSL & 380'

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Willow Lake 35 W2DM Fed Com #2H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 2996.0usft (Original Well Elev)
Project:	Eddy County, New Mexico NAD 83	**MD Reference:**	WELL @ 2996.0usft (Original Well Elev)
Site:	Willow Lake 35 W2DM Fed Com #2H	**North Reference:**	Grid
Well:	Sec 35, T24S, R28E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 330' FSL & 380' FWL		
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: 205' FNL & 690' FWL									
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
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	1.50	302.27	2,700.0	0.7	-1.1	-0.6	1.50	1.50	0.00
2,792.2	2.88	302.27	2,792.1	2.6	-4.1	-2.4	1.50	1.50	0.00
2,800.0	2.88	302.27	2,799.9	2.8	-4.4	-2.5	0.00	0.00	0.00
2,900.0	2.88	302.27	2,899.8	5.5	-8.7	-5.0	0.00	0.00	0.00
3,000.0	2.88	302.27	2,999.7	8.2	-12.9	-7.5	0.00	0.00	0.00
3,100.0	2.88	302.27	3,099.5	10.8	-17.2	-9.9	0.00	0.00	0.00
3,200.0	2.88	302.27	3,199.4	13.5	-21.4	-12.4	0.00	0.00	0.00
3,300.0	2.88	302.27	3,299.3	16.2	-25.7	-14.8	0.00	0.00	0.00
3,400.0	2.88	302.27	3,399.1	18.9	-29.9	-17.3	0.00	0.00	0.00
3,500.0	2.88	302.27	3,499.0	21.6	-34.2	-19.7	0.00	0.00	0.00
3,600.0	2.88	302.27	3,598.9	24.3	-38.4	-22.2	0.00	0.00	0.00
3,700.0	2.88	302.27	3,698.8	27.0	-42.7	-24.6	0.00	0.00	0.00
3,800.0	2.88	302.27	3,798.6	29.6	-46.9	-27.1	0.00	0.00	0.00
3,900.0	2.88	302.27	3,898.5	32.3	-51.2	-29.5	0.00	0.00	0.00
4,000.0	2.88	302.27	3,998.4	35.0	-55.4	-32.0	0.00	0.00	0.00
4,100.0	2.88	302.27	4,098.3	37.7	-59.7	-34.4	0.00	0.00	0.00
4,200.0	2.88	302.27	4,198.1	40.4	-63.9	-36.9	0.00	0.00	0.00
4,300.0	2.88	302.27	4,298.0	43.1	-68.2	-39.3	0.00	0.00	0.00
4,400.0	2.88	302.27	4,397.9	45.7	-72.4	-41.8	0.00	0.00	0.00
4,500.0	2.88	302.27	4,497.8	48.4	-76.7	-44.2	0.00	0.00	0.00
4,600.0	2.88	302.27	4,597.6	51.1	-81.0	-46.7	0.00	0.00	0.00
4,700.0	2.88	302.27	4,697.5	53.8	-85.2	-49.1	0.00	0.00	0.00
4,800.0	2.88	302.27	4,797.4	56.5	-89.5	-51.6	0.00	0.00	0.00
4,900.0	2.88	302.27	4,897.3	59.2	-93.7	-54.0	0.00	0.00	0.00
5,000.0	2.88	302.27	4,997.1	61.9	-98.0	-56.5	0.00	0.00	0.00
5,100.0	2.88	302.27	5,097.0	64.5	-102.2	-59.0	0.00	0.00	0.00

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Willow Lake 35 W2DM Fed Com #2H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 2996.0usft (Original Well Elev)
Project:	Eddy County, New Mexico NAD 83	**MD Reference:**	WELL @ 2996.0usft (Original Well Elev)
Site:	Willow Lake 35 W2DM Fed Com #2H	**North Reference:**	Grid
Well:	Sec 35, T24S, R28E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 330' FSL & 380' FWL		
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)
5,200.0	2.88	302.27	5,196.9	67.2	-106.5	-61.4	0.00	0.00	0.00
5,300.0	2.88	302.27	5,296.7	69.9	-110.7	-63.9	0.00	0.00	0.00
5,400.0	2.88	302.27	5,396.6	72.6	-115.0	-66.3	0.00	0.00	0.00
5,500.0	2.88	302.27	5,496.5	75.3	-119.2	-68.8	0.00	0.00	0.00
5,600.0	2.88	302.27	5,596.4	78.0	-123.5	-71.2	0.00	0.00	0.00
5,700.0	2.88	302.27	5,696.2	80.6	-127.7	-73.7	0.00	0.00	0.00
5,800.0	2.88	302.27	5,796.1	83.3	-132.0	-76.1	0.00	0.00	0.00
5,900.0	2.88	302.27	5,896.0	86.0	-136.2	-78.6	0.00	0.00	0.00
6,000.0	2.88	302.27	5,995.9	88.7	-140.5	-81.0	0.00	0.00	0.00
6,100.0	2.88	302.27	6,095.7	91.4	-144.7	-83.5	0.00	0.00	0.00
6,200.0	2.88	302.27	6,195.6	94.1	-149.0	-85.9	0.00	0.00	0.00
6,300.0	2.88	302.27	6,295.5	96.8	-153.2	-88.4	0.00	0.00	0.00
6,400.0	2.88	302.27	6,395.4	99.4	-157.5	-90.8	0.00	0.00	0.00
6,500.0	2.88	302.27	6,495.2	102.1	-161.7	-93.3	0.00	0.00	0.00
6,600.0	2.88	302.27	6,595.1	104.8	-166.0	-95.7	0.00	0.00	0.00
6,700.0	2.88	302.27	6,695.0	107.5	-170.2	-98.2	0.00	0.00	0.00
6,800.0	2.88	302.27	6,794.8	110.2	-174.5	-100.6	0.00	0.00	0.00
6,900.0	2.88	302.27	6,894.7	112.9	-178.7	-103.1	0.00	0.00	0.00
7,000.0	2.88	302.27	6,994.6	115.5	-183.0	-105.5	0.00	0.00	0.00
7,100.0	2.88	302.27	7,094.5	118.2	-187.2	-108.0	0.00	0.00	0.00
7,200.0	2.88	302.27	7,194.3	120.9	-191.5	-110.4	0.00	0.00	0.00
7,300.0	2.88	302.27	7,294.2	123.6	-195.7	-112.9	0.00	0.00	0.00
7,400.0	2.88	302.27	7,394.1	126.3	-200.0	-115.4	0.00	0.00	0.00
7,500.0	2.88	302.27	7,494.0	129.0	-204.3	-117.8	0.00	0.00	0.00
7,600.0	2.88	302.27	7,593.8	131.7	-208.5	-120.3	0.00	0.00	0.00
7,700.0	2.88	302.27	7,693.7	134.3	-212.8	-122.7	0.00	0.00	0.00
7,800.0	2.88	302.27	7,793.6	137.0	-217.0	-125.2	0.00	0.00	0.00
7,900.0	2.88	302.27	7,893.5	139.7	-221.3	-127.6	0.00	0.00	0.00
8,000.0	2.88	302.27	7,993.3	142.4	-225.5	-130.1	0.00	0.00	0.00
8,100.0	2.88	302.27	8,093.2	145.1	-229.8	-132.5	0.00	0.00	0.00
8,200.0	2.88	302.27	8,193.1	147.8	-234.0	-135.0	0.00	0.00	0.00
8,300.0	2.88	302.27	8,293.0	150.4	-238.3	-137.4	0.00	0.00	0.00
8,400.0	2.88	302.27	8,392.8	153.1	-242.5	-139.9	0.00	0.00	0.00
8,500.0	2.88	302.27	8,492.7	155.8	-246.8	-142.3	0.00	0.00	0.00
8,600.0	2.88	302.27	8,592.6	158.5	-251.0	-144.8	0.00	0.00	0.00
8,700.0	2.88	302.27	8,692.4	161.2	-255.3	-147.2	0.00	0.00	0.00
8,800.0	2.88	302.27	8,792.3	163.9	-259.5	-149.7	0.00	0.00	0.00
8,900.0	2.88	302.27	8,892.2	166.6	-263.8	-152.1	0.00	0.00	0.00
9,000.0	2.88	302.27	8,992.1	169.2	-268.0	-154.6	0.00	0.00	0.00
9,100.0	2.88	302.27	9,091.9	171.9	-272.3	-157.0	0.00	0.00	0.00
9,200.0	2.88	302.27	9,191.8	174.6	-276.5	-159.5	0.00	0.00	0.00
9,300.0	2.88	302.27	9,291.7	177.3	-280.8	-161.9	0.00	0.00	0.00
9,400.0	2.88	302.27	9,391.6	180.0	-285.0	-164.4	0.00	0.00	0.00
9,500.0	2.88	302.27	9,491.4	182.7	-289.3	-166.9	0.00	0.00	0.00
9,600.0	2.88	302.27	9,591.3	185.3	-293.5	-169.3	0.00	0.00	0.00
9,700.0	2.88	302.27	9,691.2	188.0	-297.8	-171.8	0.00	0.00	0.00
9,800.0	2.88	302.27	9,791.1	190.7	-302.0	-174.2	0.00	0.00	0.00
9,900.0	2.88	302.27	9,890.9	193.4	-306.3	-176.7	0.00	0.00	0.00
9,938.1	2.88	302.27	9,929.0	194.4	-307.9	-177.6	0.00	0.00	0.00
10,000.0	1.95	302.27	9,990.8	195.8	-310.1	-178.9	1.50	-1.50	0.00
10,100.0	0.45	302.27	10,090.8	196.9	-311.9	-179.9	1.50	-1.50	0.00
10,130.2	0.00	0.00	10,121.0	197.0	-312.0	-180.0	1.50	-1.50	0.00
KOP @ 10,121'									

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Willow Lake 35 W2DM Fed Com #2H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 2996.0usft (Original Well Elev)
Project:	Eddy County, New Mexico NAD 83	**MD Reference:**	WELL @ 2996.0usft (Original Well Elev)
Site:	Willow Lake 35 W2DM Fed Com #2H	**North Reference:**	Grid
Well:	Sec 35, T24S, R28E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 330' FSL & 380' FWL		
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)
10,200.0	6.98	179.41	10,190.6	192.8	-312.0	-175.7	10.00	10.00	0.00
10,300.0	16.98	179.41	10,288.3	172.0	-311.7	-155.0	10.00	10.00	0.00
10,400.0	26.98	179.41	10,380.9	134.7	-311.4	-117.7	10.00	10.00	0.00
10,500.0	36.98	179.41	10,465.7	81.8	-310.8	-65.0	10.00	10.00	0.00
10,600.0	46.98	179.41	10,539.9	15.0	-310.1	1.7	10.00	10.00	0.00
10,700.0	56.98	179.41	10,601.4	-63.7	-309.3	80.2	10.00	10.00	0.00
10,770.5	64.03	179.41	10,636.1	-125.0	-308.7	141.4	10.00	10.00	0.00
FTP: 330' FNL & 380' FWL									
10,800.0	66.98	179.41	10,648.4	-151.8	-308.4	168.2	10.00	10.00	0.00
10,900.0	76.98	179.41	10,679.3	-246.8	-307.4	263.0	10.00	10.00	0.00
11,000.0	86.98	179.41	10,693.2	-345.7	-306.4	361.7	10.00	10.00	0.00
11,028.9	89.87	179.41	10,694.0	-374.6	-306.1	390.5	10.00	10.00	0.00
LP: 580' FNL & 380' FWL									
11,100.0	89.87	179.41	10,694.2	-445.7	-305.4	461.4	0.01	0.01	0.00
11,200.0	89.87	179.41	10,694.4	-545.7	-304.3	561.2	0.00	0.00	0.00
11,300.0	89.87	179.41	10,694.6	-645.7	-303.3	661.0	0.00	0.00	0.00
11,400.0	89.87	179.41	10,694.8	-745.7	-302.3	760.8	0.00	0.00	0.00
11,500.0	89.87	179.41	10,695.1	-845.7	-301.2	860.6	0.00	0.00	0.00
11,600.0	89.87	179.41	10,695.3	-945.7	-300.2	960.4	0.00	0.00	0.00
11,700.0	89.87	179.41	10,695.5	-1,045.6	-299.2	1,060.2	0.00	0.00	0.00
11,790.4	89.87	179.41	10,695.7	-1,136.0	-298.2	1,150.4	0.00	0.00	0.00
PPP2: 1343' FNL & 380' FWL									
11,800.0	89.87	179.41	10,695.7	-1,145.6	-298.1	1,160.0	0.00	0.00	0.00
11,900.0	89.87	179.41	10,696.0	-1,245.6	-297.1	1,259.8	0.00	0.00	0.00
12,000.0	89.87	179.41	10,696.2	-1,345.6	-296.0	1,359.6	0.00	0.00	0.00
12,100.0	89.87	179.41	10,696.4	-1,445.6	-295.0	1,459.4	0.00	0.00	0.00
12,200.0	89.87	179.41	10,696.6	-1,545.6	-294.0	1,559.2	0.00	0.00	0.00
12,300.0	89.87	179.41	10,696.9	-1,645.6	-292.9	1,659.0	0.00	0.00	0.00
12,400.0	89.87	179.41	10,697.1	-1,745.6	-291.9	1,758.8	0.00	0.00	0.00
12,500.0	89.87	179.41	10,697.3	-1,845.6	-290.9	1,858.6	0.00	0.00	0.00
12,600.0	89.87	179.41	10,697.5	-1,945.6	-289.8	1,958.4	0.00	0.00	0.00
12,700.0	89.87	179.41	10,697.7	-2,045.6	-288.8	2,058.2	0.00	0.00	0.00
12,800.0	89.87	179.41	10,698.0	-2,145.6	-287.8	2,157.9	0.00	0.00	0.00
12,900.0	89.87	179.41	10,698.2	-2,245.6	-286.7	2,257.7	0.00	0.00	0.00
13,000.0	89.87	179.41	10,698.4	-2,345.6	-285.7	2,357.5	0.00	0.00	0.00
13,100.0	89.87	179.41	10,698.6	-2,445.6	-284.7	2,457.3	0.00	0.00	0.00
13,200.0	89.87	179.41	10,698.9	-2,545.6	-283.6	2,557.1	0.00	0.00	0.00
13,300.0	89.87	179.41	10,699.1	-2,645.6	-282.6	2,656.9	0.00	0.00	0.00
13,400.0	89.87	179.41	10,699.3	-2,745.6	-281.6	2,756.7	0.00	0.00	0.00
13,500.0	89.87	179.41	10,699.5	-2,845.5	-280.5	2,856.5	0.00	0.00	0.00
13,600.0	89.87	179.41	10,699.8	-2,945.5	-279.5	2,956.3	0.00	0.00	0.00
13,700.0	89.87	179.41	10,700.0	-3,045.5	-278.5	3,056.1	0.00	0.00	0.00
13,800.0	89.87	179.41	10,700.2	-3,145.5	-277.4	3,155.9	0.00	0.00	0.00
13,900.0	89.87	179.41	10,700.4	-3,245.5	-276.4	3,255.7	0.00	0.00	0.00
14,000.0	89.87	179.41	10,700.7	-3,345.5	-275.4	3,355.5	0.00	0.00	0.00
14,100.0	89.87	179.41	10,700.9	-3,445.5	-274.3	3,455.3	0.00	0.00	0.00
14,200.0	89.87	179.41	10,701.1	-3,545.5	-273.3	3,555.1	0.00	0.00	0.00
14,300.0	89.87	179.41	10,701.3	-3,645.5	-272.3	3,654.9	0.00	0.00	0.00
14,400.0	89.87	179.41	10,701.6	-3,745.5	-271.2	3,754.7	0.00	0.00	0.00
14,472.5	89.87	179.41	10,701.7	-3,818.0	-270.5	3,827.0	0.00	0.00	0.00
PPP3: 1343' FSL & 380' FWL									
14,500.0	89.87	179.41	10,701.8	-3,845.5	-270.2	3,854.5	0.00	0.00	0.00
14,600.0	89.87	179.41	10,702.0	-3,945.5	-269.2	3,954.2	0.00	0.00	0.00
14,700.0	89.87	179.41	10,702.2	-4,045.5	-268.1	4,054.0	0.00	0.00	0.00

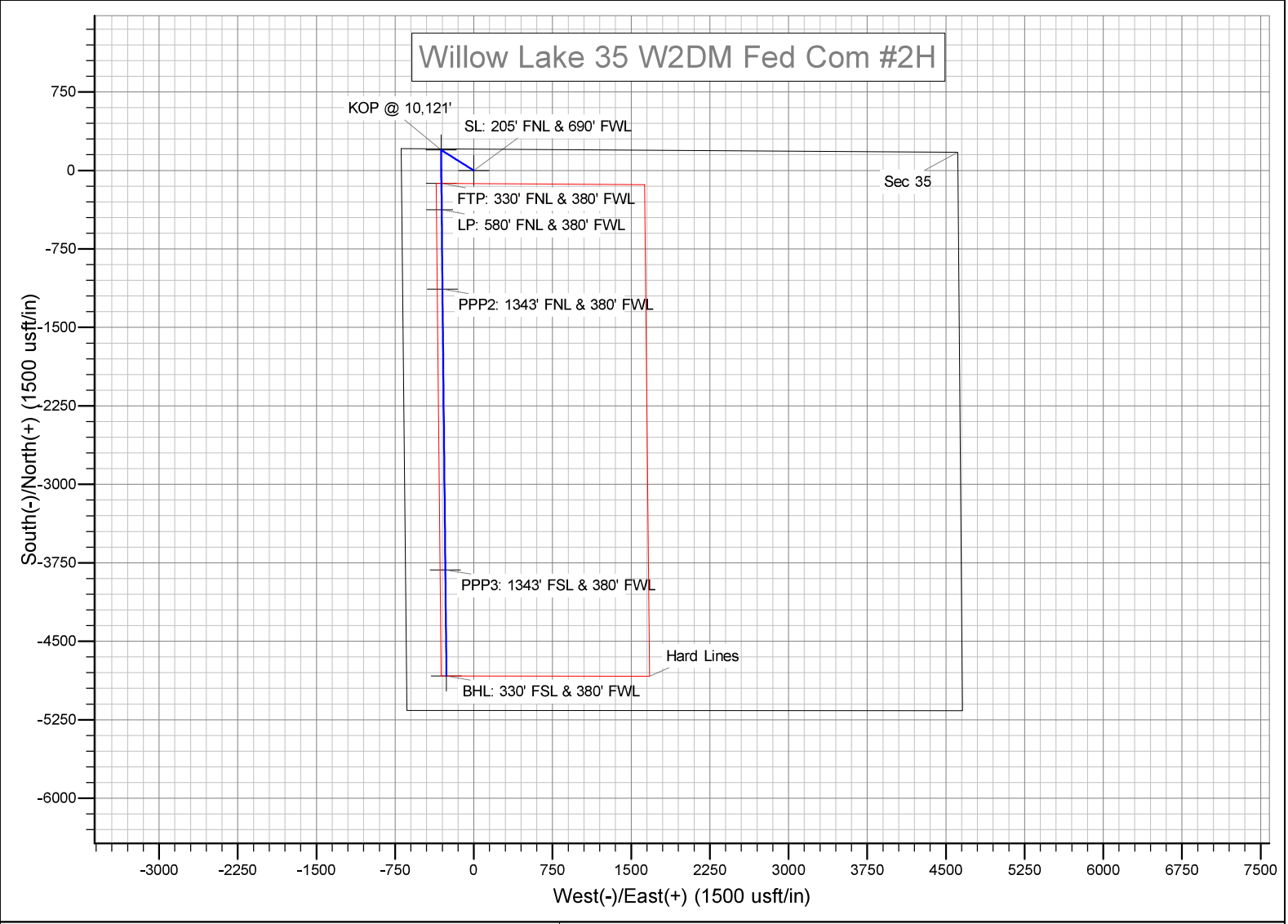
Database:	Hobbs	**Local Co-ordinate Reference:**	Site Willow Lake 35 W2DM Fed Com #2H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 2996.0usft (Original Well Elev)
Project:	Eddy County, New Mexico NAD 83	**MD Reference:**	WELL @ 2996.0usft (Original Well Elev)
Site:	Willow Lake 35 W2DM Fed Com #2H	**North Reference:**	Grid
Well:	Sec 35, T24S, R28E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 330' FSL & 380' FWL		
Design:	Design #1		

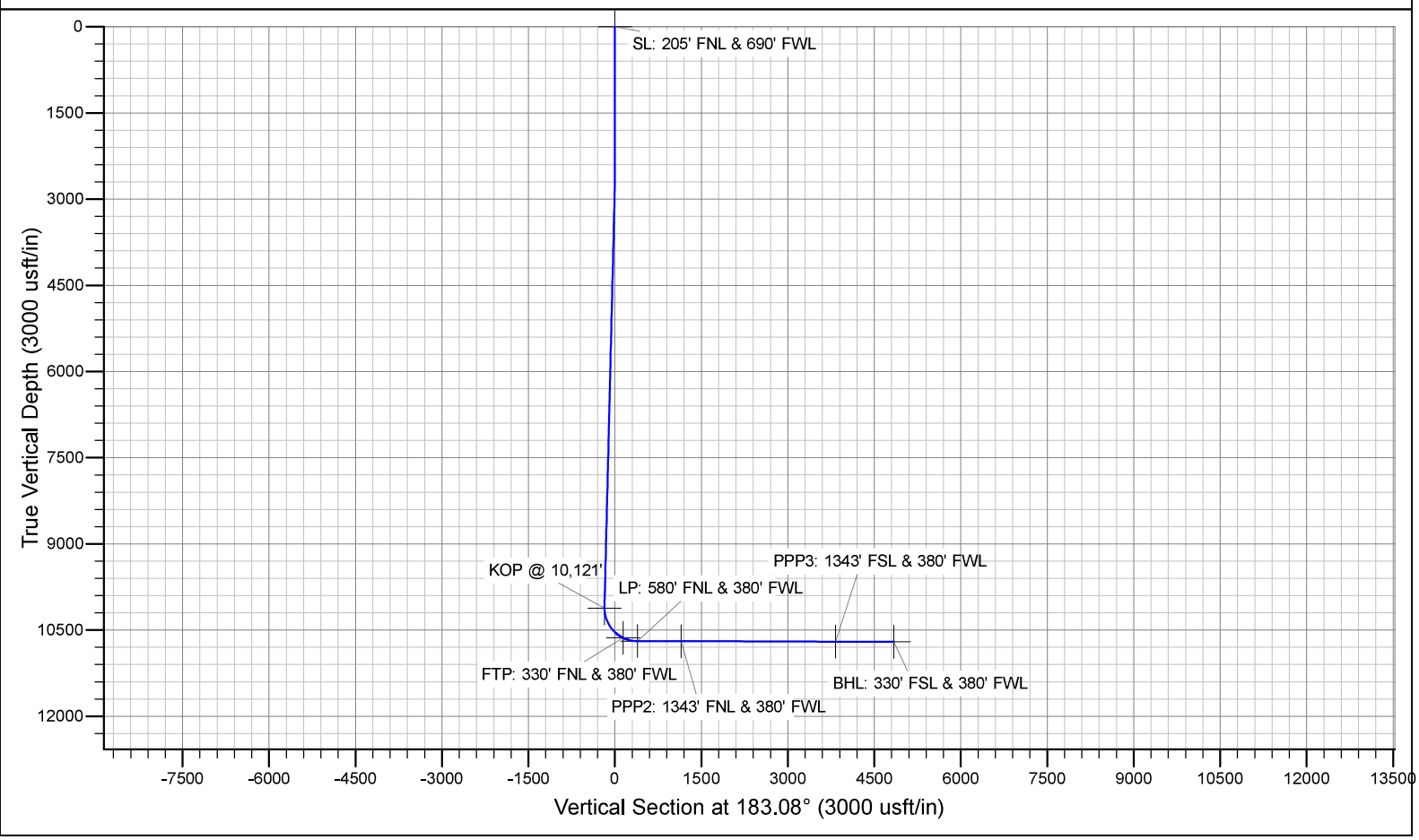
Planned Survey

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)
14,800.0	89.87	179.41	10,702.5	-4,145.5	-267.1	4,153.8	0.00	0.00	0.00
14,900.0	89.87	179.41	10,702.7	-4,245.5	-266.1	4,253.6	0.00	0.00	0.00
15,000.0	89.87	179.41	10,702.9	-4,345.5	-265.0	4,353.4	0.00	0.00	0.00
15,100.0	89.87	179.41	10,703.1	-4,445.5	-264.0	4,453.2	0.00	0.00	0.00
15,200.0	89.87	179.41	10,703.4	-4,545.4	-263.0	4,553.0	0.00	0.00	0.00
15,300.0	89.87	179.41	10,703.6	-4,645.4	-261.9	4,652.8	0.00	0.00	0.00
15,400.0	89.87	179.41	10,703.8	-4,745.4	-260.9	4,752.6	0.00	0.00	0.00
15,486.6	89.87	179.41	10,704.0	-4,832.0	-260.0	4,839.0	0.00	0.00	0.00
BHL: 330' FSL & 380' FWL									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SL: 205' FNL & 690' FWI - plan hits target center - Point	0.00	0.00	0.0	0.0	0.0	429,584.00	624,546.00	32.1807182	-104.0643800
KOP @ 10,121' - plan hits target center - Point	0.00	0.00	10,121.0	197.0	-312.0	429,781.00	624,234.00	32.1812619	-104.0653869
FTP: 330' FNL & 380' FV - plan hits target center - Point	0.00	0.00	10,636.1	-125.0	-308.7	429,459.00	624,237.33	32.1803767	-104.0653787
LP: 580' FNL & 380' FWI - plan hits target center - Point	0.00	0.00	10,694.0	-374.6	-306.1	429,209.40	624,239.90	32.1796906	-104.0653724
PPP2: 1343' FNL & 380' - plan hits target center - Point	0.00	0.00	10,695.7	-1,136.0	-298.2	428,448.00	624,247.79	32.1775975	-104.0653531
PPP3: 1343' FSL & 380' - plan hits target center - Point	0.00	0.00	10,701.7	-3,818.0	-270.5	425,766.00	624,275.52	32.1702248	-104.0652851
BHL: 330' FSL & 380' FV - plan hits target center - Point	0.00	0.00	10,704.0	-4,832.0	-260.0	424,752.00	624,286.00	32.1674373	-104.0652593


Willow Lake 35 W2DM Fed Com #2H
KOP @ 10,121'
SL: 205' FNL & 690' FWL
Sec 35
FTP: 330' FNL & 380' FWL
LP: 580' FNL & 380' FWL
PPP2: 1343' FNL & 380' FWL
PPP3: 1343' FSL & 380' FWL
Hard Lines
BHL: 330' FSL & 380' FWL
South(-)/North(+) (1500 usft/in)
West(-)/East(+) (1500 usft/in)


SL: 205' FNL & 690' FWL
KOP @ 10,121'
LP: 580' FNL & 380' FWL
PPP3: 1343' FSL & 380' FWL
FTP: 330' FNL & 380' FWL
BHL: 330' FSL & 380' FWL
PPP2: 1343' FNL & 380' FWL
True Vertical Depth (3000 usft/in)
Vertical Section at 183.08° (3000 usft/in)

Mewbourne Oil Company, Willow Lake 35 W2DM Fed Com #2H
Sec 35, T24S, R28E
SL: 205' FNL & 690' FWL
BHL: 330' FSL & 380' FWL

1. Geologic Formations

TVD of target	10,704'	Pilot hole depth	NA
MD at TD:	15,487'	Deepest expected fresh water:	50'

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface		
Rustler			
Top of Salt	598		
Castile	1125		
Base of Salt	2410		
Yates			
Capitan			
Lamar	2605	Oil	
Bell Canyon	2635		
Cherry Canyon	3508		
Manzanita Marker	3625		
Brushy Canyon	4730		
Bone Spring	6300	Oil/Gas	
1st Bone Spring Sand	7210		
2nd Bone Spring Sand	8048		
3rd Bone Spring Sand	9160		
Abo			
Wolfcamp	9520	Target Zone	
Devonian			
Ellenburger			
Granite Wash			

*H2S, water flows, loss of circulation, abnormal pressures, etc.

Mewbourne Oil Company, Willow Lake 35 W2DM Fed Com #2H
Sec 35, T24S, R28E
SL: 205' FNL & 690' FWL
BHL: 330' FSL & 380' FWL

2. Casing Program

Hole Size	Casing Interval From	Casing Interval To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
17.5"	0'	500'	13.375"	48	H40	STC	3.29	7.39	13.42	22.54
12.25"	0'	2530'	9.625"	36	J55	LTC	1.54	2.68	4.97	6.19
8.75"	0'	11,029'	7"	26	HCP110	LTC	1.48	1.89	2.23	2.89
6.125"	10,130'	15,487'	4.5"	13.5	P110	LTC	1.47	1.72	4.67	5.84
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 3rd 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 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	Y
If yes, are there two strings cemented to surface?	Y
(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 ft3/ sack	H_20 gal/ sk	500# Comp. Strength (hours)	Slurry Description
Surf.	205	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.	365	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	440	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 @ 3625'						
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	220	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	2330'	25%
Liner	10,130'	25%

4. Pressure Control Equipment

N	Variance: None

BOP installed and tested before drilling which hole?	Size?	System Rated WP	Type	✓	Tested to:
12-1/4"	13-5/8"	5M	Annular	X	2500#
			Blind Ram	X	5000#
			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.

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	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. • Provide description here: See attached schematic.	

5. Mud Program

TVD		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	500'	FW Gel	8.6-8.8	28-34	N/C
500'	2530'	Saturated Brine	10.0	28-34	N/C
2530'	10,121'	Cut Brine	8.6-9.5	28-34	N/C
10,121'	10,704'	OBM	10.0-12.0	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. MW up to 13.0 ppg may be required for shale control. The highest MW needed to balance formation pressure is expected to be 12.0 ppg.

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 (10,130') 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

Additional logs planned	Interval

X	Gamma Ray	10,130' (KOP) to TD
	Density	
	CBL	
	Mud log	
	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	6680 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 (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S 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.	
	H2S is present
X	H2S Plan attached

8. Other facets of operation

Is this a walking operation? If yes, describe.
Will be pre-setting casing? If yes, describe.

Attachments

___ Directional Plan
___ Other, describe