Form 3160-3
(June 2015)

HOBBS OCD
FEB 26 2020
RECEIVED

HOBBS OCD
RECEIVED

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

1a. Type of work: ☑ DRILL ☐ REENTER	5. Lease Serial No. NMNM128927
1b. Type of Well: ☐ Oil Well ☑ Gas Well ☐ Other	6. If Indian, Allotee or Tribe Name
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. RED HILLS WEST UNIT 10H (39542)
2. Name of Operator MEWBOURNE OIL COMPANY (14744)	9. API Well No. 30-025-46909
3a. Address PO Box 5270 Hobbs NM 88240	3b. Phone No. (include area code) (575)393-5905
	10. Field and Pool, or Exploratory WILDCAT UPPER WOLFCAMP / WOLF(98065
4. Location of Well (Report location clearly and in accordance with any State requirements.*) At surface SWSW / 150 FSL / 1220 FWL / LAT 32.0506936 / LONG -103.6674071 At proposed prod. zone NWNE / 100 FNL / 1650 FWL / LAT 32.0794025 / LONG -103.6661628	11. Sec., T. R. M. or Blk. and Survey or Area SEC 10 / T26S / R32E / NMP
14. Distance in miles and direction from nearest town or post office* 30 miles	12. County or Parish LEA / 13. State NM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 320 feet	16. No of acres in lease 200 / 17. Spacing Unit dedicated to this well 160
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 50 feet	19. Proposed Depth 11997 feet / 22371 feet / 20. BLM/BIA Bond No. in file FED: NM1693
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3220 feet	22. Approximate date work will start* 08/12/2019 / 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 06/28/2019
Title Regulatory		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Cody Layton / Ph: (575)234-5959	Date 02/26/2020
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.

~~CAT~~ GCP Rec 02/26/2020

KZ 02/29/2020

APPROVED WITH CONDITIONS

Approval Date: 02/26/2020

SL

(Continued on page 2)

*(Instructions on page 2)

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**MEWBOURNE OIL COMPANY**
LEASE NO.:	**NMNM128927**
WELL NAME & NO.:	10H – RED HILLS WEST UNIT
SURFACE HOLE FOOTAGE:	150'/S & 1220'/W
BOTTOM HOLE FOOTAGE	100'/N & 1650'/W
LOCATION:	SECTION 10, T26S, R32E, NMPM
COUNTY:	Lea 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

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the Delaware formation. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please 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 **826** feet (a minimum of **25 feet (Lea 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.

Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.

2. The **9-5/8** inch intermediate casing shall be set at approximately **4514** 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 24%, 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:

   - 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 **10,000 (10M)** psi. **Variance is approved to use a 5000 (5M) Annular which shall be tested to 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)

☒ Chaves and Roosevelt Counties
Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.
During office hours call (575) 627-0272.
After office hours call (575)

☒ 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)

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.

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.

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: 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.

    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.

OTA02032020

AFMSS

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

Operator Certification Data Report

02/27/2020

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:** 06/28/2019

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:

AFMSS

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

Application Data Report

02/27/2020

APD ID: 10400042697 **Submission Date:** 06/28/2019

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST UNIT **Well Number:** 10H

Show Final Text

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

Section 1 - General

APD ID: 10400042697 **Tie to previous NOS?** **Submission Date:** 06/28/2019

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: NMNM128927 **Lease Acres:** 200

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: RED HILLS WEST UNIT **Well Number:** 10H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** WILDCAT UPPER WOLFCAMP **Pool Name:** WOLFCAMP

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

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST UNIT **Well Number:** 10H

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:** RED HILLS WEST UNIT #10H & #17H **Number:** 2

Well Class: HORIZONTAL **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: 30 Miles **Distance to nearest well:** 50 FT **Distance to lease line:** 320 FT

Reservoir well spacing assigned acres Measurement: 160 Acres

Well plat: RedHillsWestUnit10H_wellplat_20190612142525.pdf

Well work start Date: 08/12/2019 **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	150	FSL	1220	FWL	26S	32E	10	Aliquot SWSW	32.0506936	-103.6674071	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 128927	3220	0	0	
KOP Leg #1	10	FSL	1650	FEL	26S	32E	10	Aliquot SWSE	32.0503106	-103.665977	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 105561	-8279	11515	11499	
PPP Leg	1	FSL	1650	FWL	26S	32E	3	Aliquot NWNE	32.0649754	-103.6660	LEA	NEW MEXI	NEW MEXI	F	NMNM 105559	-876	17122	11986	

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST UNIT **Well Number:** 10H

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	100	FSL	1650	FWL	26S	32E	10	Aliquot SWSE	32.0505487	-103.6659786	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 105561	-8553	11807	11773	
EXIT Leg #1	100	FNL	1650	FWL	26S	32E	3	Aliquot NWNE	32.0794025	-103.6661628	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 105559	-8777	22371	11997	
BHL Leg #1	100	FNL	1650	FWL	26S	32E	3	Aliquot NWNE	32.0794025	-103.6661628	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 105559	-8777	22371	11997	

AFMSS

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

Drilling Plan Data Report

02/27/2020

APD ID: 10400042697 **Submission Date:** 06/28/2019

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST UNIT **Well Number:** 10H

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

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
475180	UNKNOWN	3220	27	27		NONE	N
475191	RUSTLER	2470	750	750	ANHYDRITE, DOLOMITE	USEABLE WATER	N
475192	TOP SALT	2100	1120	1120	SALT	NONE	N
475181	BOTTOM SALT	-1070	4290	4290	SALT	NONE	N
475188	LAMAR	-1310	4530	4530	LIMESTONE	NATURAL GAS, OIL	N
475184	BELL CANYON	-1360	4580	4580	SANDSTONE	NATURAL GAS, OIL	N
475185	CHERRY CANYON	-2360	5580	5580	SANDSTONE	NATURAL GAS, OIL	N
475186	MANZANITA	-2487	5707	5707	LIMESTONE	NATURAL GAS, OIL	N
478037	BASAL ANHYDRITE	-5190	8410	8410	ANHYDRITE	NATURAL GAS, OIL	N
475179	BONE SPRING	-5387	8607	8607	LIMESTONE, SHALE	NATURAL GAS, OIL	N
475182	BONE SPRING 1ST	-6330	9550	9550	SANDSTONE	NATURAL GAS, OIL	N
475183	BONE SPRING 2ND	-7040	10260	10260	SANDSTONE	NATURAL GAS, OIL	N
475190	BONE SPRING 3RD	-8150	11370	11370	SANDSTONE	NATURAL GAS, OIL	N
475187	WOLFCAMP	-8570	11790	11790	LIMESTONE, SANDSTONE, SHALE	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST UNIT **Well Number:** 10H

'ressure Rating (PSI): 10M **Rating Depth:** 17869

.quipment: Annular, Pipe Rams, Blind Rams

:equesting Variance? YES

'ariance request: Request variance for the use of a flexible choke line from the BOP to Choke Manifold. Anchors not :quired by manufacturer. A multi-bowl wellhead will be used. See attached schematic.
esting Procedure: BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure ıdicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the 'orking pressure listed in the table above. If the system is upgraded all the components installed will be functional and :sted. Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out f the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly ock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.
:hoke Diagram Attachment:

Flex_Line_Specs_20190617090141.pdf

10M_BOPE_Choke_Diagram_20190617090154.pdf

Red_Hills_West_Unit__010H_Flex_Line_Specs_API_16C_20191213145846.pdf

:OP Diagram Attachment:

10M_BOPE_Schematic_w_5M_Annular_20190617090644.pdf

10M_Annular_BOP_Variance_20190617090719.doc

Multi_Bowl_Surface_Running_Procedure_20190617090745.pdf

Red_Hills_West_Unit_10H_Multi_Bowl_WH_20191227111200.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	825	0	825	3220	2395	825	H-40	48	ST&C	1.99	4.48	DRY	8.13	DRY	13.6
2	INTERMEDIATE	12.25	9.625	NEW	API	Y	0	4455	0	4455	3220	-1235	4455	J-55	36	LT&C	1.13	1.96	DRY	2.76	DRY	4.54
3	PRODUCTION	8.75	7.0	NEW	API	N	0	12100	0	11948	3220	8728	12100	HCP-110	26	LT&C	1.26	1.67	DRY	2.1	DRY	2.64
4	LINER	6.125	4.5	NEW	API	N	11499	22371	11499	11997	-8279	-8777	10872	P-110	13.5	LT&C	1.71	1.99	DRY	2.3	DRY	2.88

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST UNIT **Well Number:** 10H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Red_Hills_West_Unit_10_CA_20190617100621.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Red_Hills_West_Unit_10H_TaperedInter_20200117120958.pdf

Casing Design Assumptions and Worksheet(s):

Red_Hills_West_Unit_10_CA_20190617101024.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Red_Hills_West_Unit_10_CA_20190617101202.pdf

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST UNIT **Well Number:** 10H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Red_Hills_West_Unit_10_CA_20190617101429.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					2.12					
SURFACE	Tail										
INTERMEDIATE	Lead					2.12					
INTERMEDIATE	Tail										
PRODUCTION	Lead					2.12					
PRODUCTION	Tail										
LINER	Lead					2.97					

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST UNIT **Well Number:** 10H

Section 5 - Circulating Medium

lud System Type: Closed

/ill an air or gas system be Used? NO

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

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

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

escribe 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	825	SPUD MUD	8.6	8.8							
825	4455	SALT SATURATED	10	10							
4455	11948	WATER-BASED MUD	8.6	9.5							
11948	11997	OIL-BASED MUD	10	13							

Section 6 - Test, Logging, Coring

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

/ill run GR/CNL from KOP (11499') to surface.
/ill run MWD GR from KOP (11449') to TD.

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

:NL,DS,GR,MWD,MUDLOG

:oring operation description for the well:

lone

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST UNIT **Well Number:** 10H

Section 7 - Pressure

nticipated Bottom Hole Pressure: 8109 [redacted]

nticipated Bottom Hole Temperature(F): 165

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

escribe:

ontingency Plans geoharzards description:

ontingency Plans geohazards attachment:

ydrogen Sulfide drilling operations plan required? YES

ydrogen sulfide drilling operations plan:

Red_Hills_West_Unit__010_H2S_Plan_20190617102351.pdf

Section 8 - Other Information

roposed horizontal/directional/multi-lateral plan submission:

Red_Hills_West_Unit_010H_Dir_plot_20190617102426.pdf
Red_Hills_West_Unit_10H_Dir_plan_20190617102426.pdf

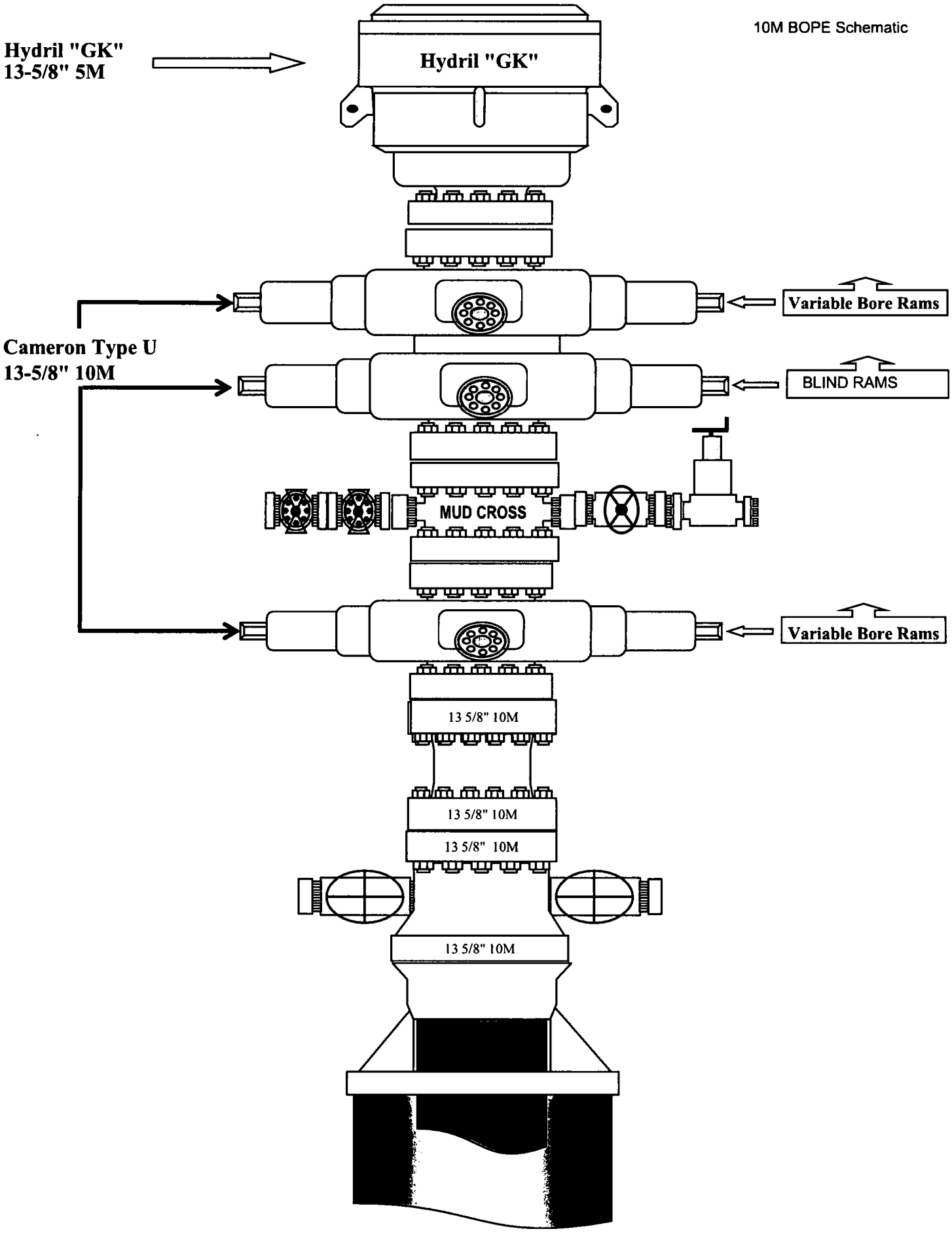
ther proposed operations facets description:

ther proposed operations facets attachment:

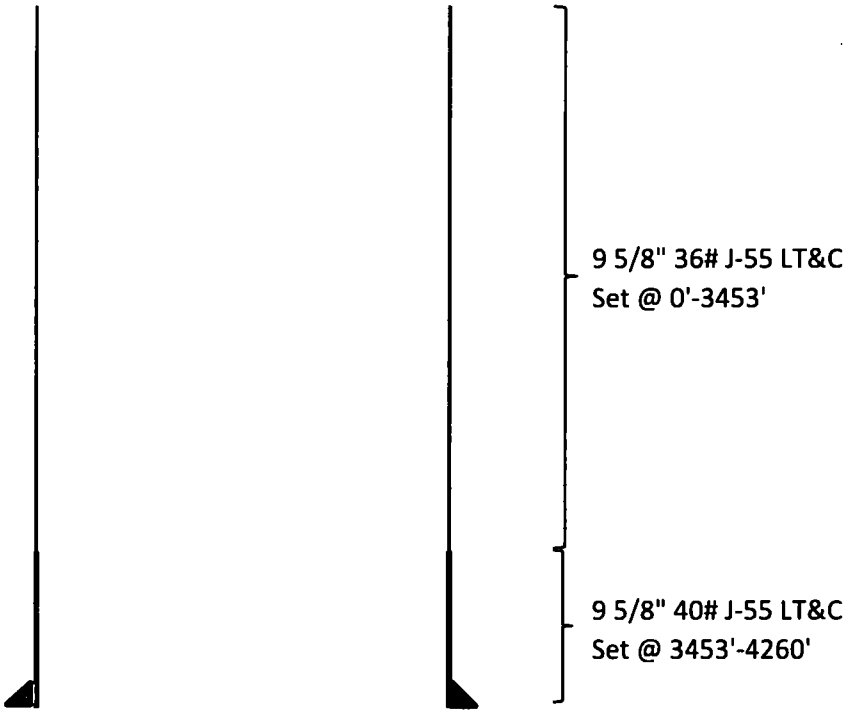
Red_Hills_West_Unit_010H_Drlg_Program_20190617102444.doc
Red_Hills_West_Unit__10H_20190617102516.pdf

ther Variance attachment:

10M BOPE Schematic

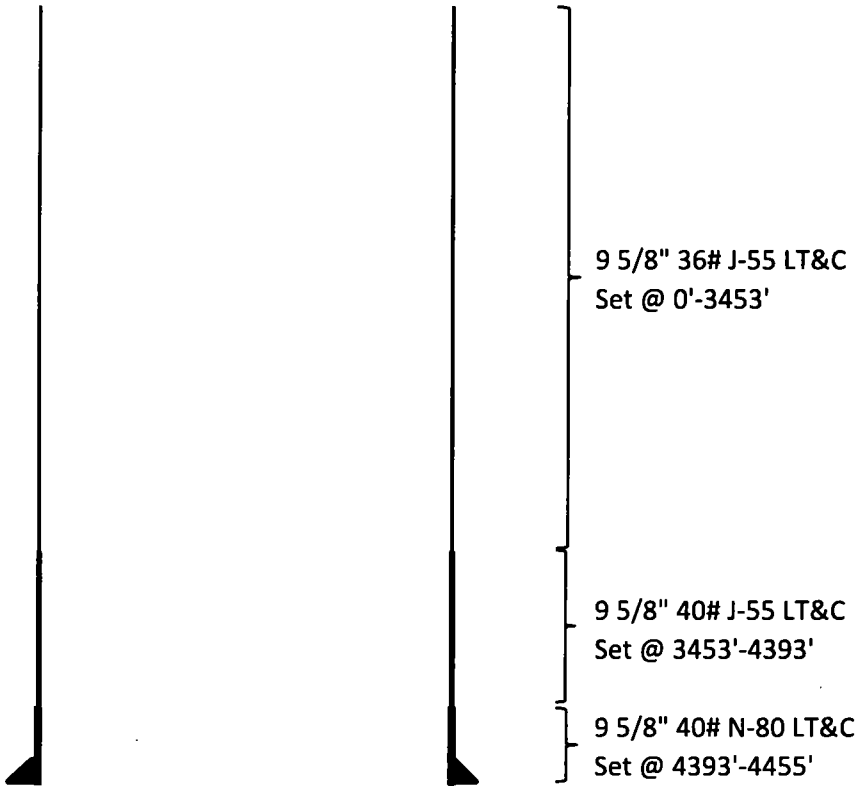


Red Hills West Unit #018H
Intermediate Casing



Casing	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
36# J-55	1.13	1.96	2.89	4.54
40# J-55	1.16	1.78	16.11	19.52

Red Hills West Unit #10H
Intermediate Casing



Casing	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
36# J-55	1.13	1.96	2.76	4.54
40# J-55	1.13	1.73	12.97	16.75
40# N-80	1.33	2.48	297.96	370.32

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'	825'	13.375"	48	H40	STC	1.99	4.48	8.13	13.66
12.25"	0'	3453'	9.625"	36	J55	LTC	1.13	1.96	2.76	4.54
12.25"	3453'	4393'	9.625"	40	J55	LTC	1.13	1.73	12.97	16.75
12.25"	4393'	4455'	9.625"	40	N80	LTC	1.33	2.48	297.96	370.32
8.75"	0'	12100'	7"	26	HCP110	LTC	1.26	1.67	2.1	2.64
6.125"	11499'	22371'	4.5"	13.5	P110	LTC	1.71	1.99	2.3	2.88
				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?	

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'	825'	13.375"	48	H40	STC	1.99	4.48	8.13	13.66
12.25"	0'	3453'	9.625"	36	J55	LTC	1.13	1.96	2.76	4.54
12.25"	3453'	4393'	9.625"	40	J55	LTC	1.13	1.73	12.97	16.75
12.25"	4393'	4455'	9.625"	40	N80	LTC	1.33	2.48	297.96	370.32
8.75"	0'	12100'	7"	26	HCP110	LTC	1.26	1.67	2.1	2.64
6.125"	11499'	22371'	4.5"	13.5	P110	LTC	1.71	1.99	2.3	2.88
				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?	

2. Casing Program

Hole Size	Casing Interval From	To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
17.5"	0'	825'	13.375"	48	H40	STC	1.99	4.48	8.13	13.66
12.25"	0'	3453'	9.625"	36	J55	LTC	1.13	1.96	2.76	4.54
12.25"	3453'	4393'	9.625"	40	J55	LTC	1.13	1.73	12.97	16.75
12.25"	4393'	4455'	9.625"	40	N80	LTC	1.33	2.48	297.96	370.32
8.75"	0'	12100'	7"	26	HCP110	LTC	1.26	1.67	2.1	2.64
6.125"	11499'	22371'	4.5"	13.5	P110	LTC	1.71	1.99	2.3	2.88
				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?	

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'	825'	13.375"	48	H40	STC	1.99	4.48	8.13	13.66
12.25"	0'	3453'	9.625"	36	J55	LTC	1.13	1.96	2.76	4.54
12.25"	3453'	4393'	9.625"	40	J55	LTC	1.13	1.73	12.97	16.75
12.25"	4393'	4455'	9.625"	40	N80	LTC	1.33	2.48	297.96	370.32
8.75"	0'	12100'	7"	26	HCP110	LTC	1.26	1.67	2.1	2.64
6.125"	11499'	22371'	4.5"	13.5	P110	LTC	1.71	1.99	2.3	2.88
				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?	

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.

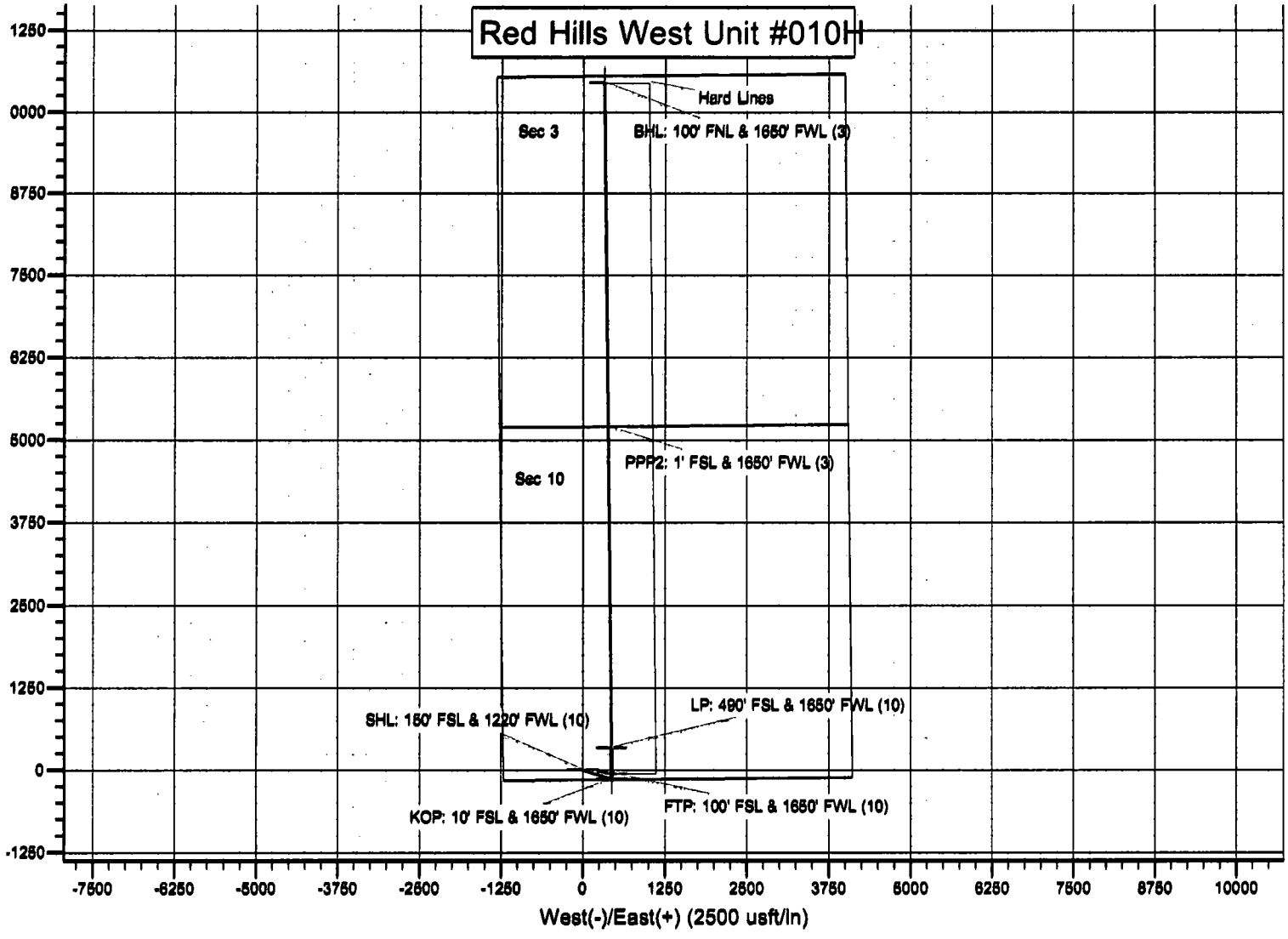
7. Well Testing

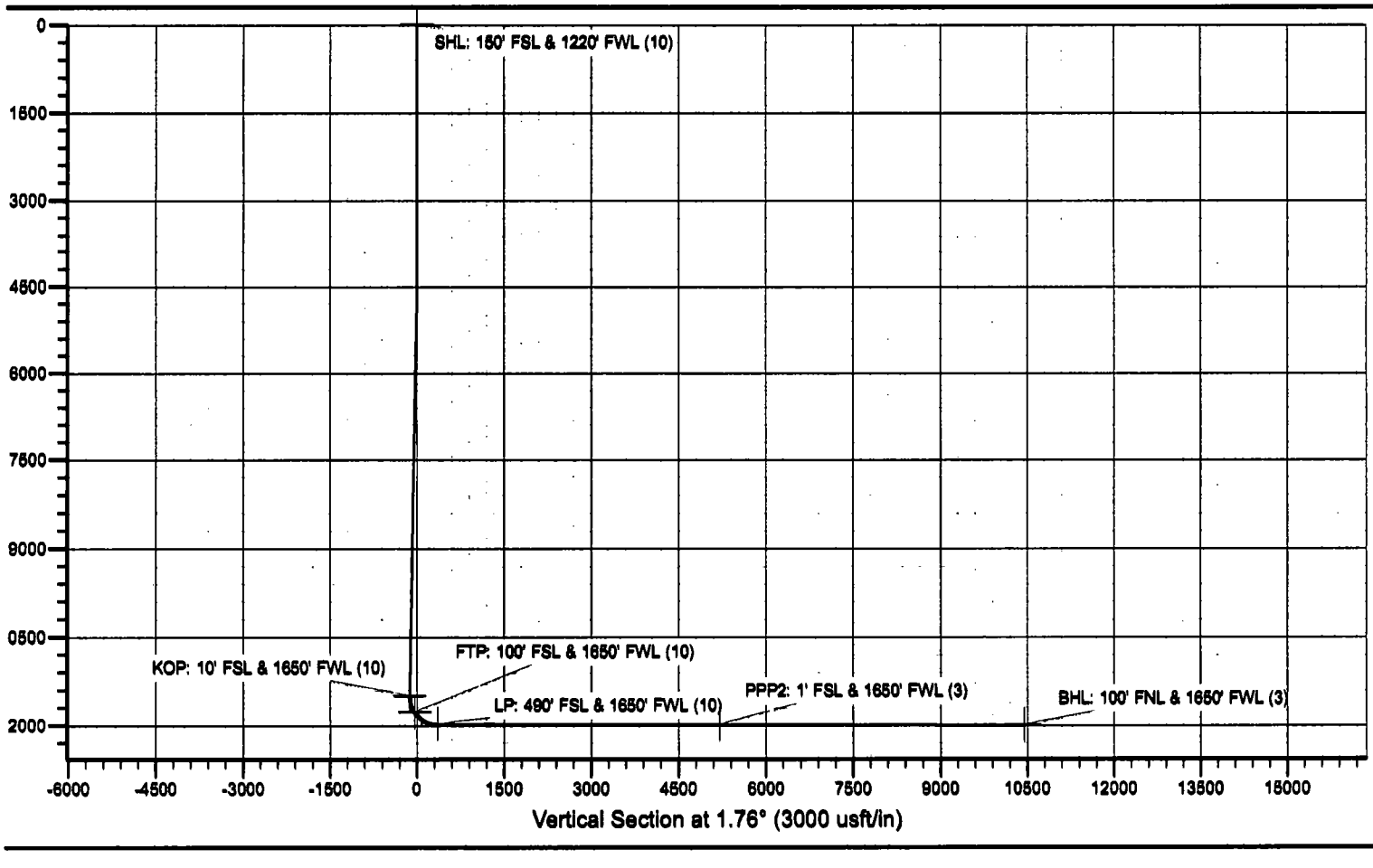
Drill stem testing is not an anticipated requirement for evaluation of this well. If a drill stem test is required, it will be conducted with a minimum number of personnel in the immediate vicinity. The test will be conducted during daylight hours only.

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**


Red Hills West Unit #010H
Hard Lines
BHL: 100' FNL & 1650' FWL (3)
Sec 3
PPP2: 1' FSL & 1650' FWL (3)
Sec 10
SHL: 150' FSL & 1220' FWL (10)
LP: 490' FSL & 1650' FWL (10)
KOP: 10' FSL & 1650' FWL (10)
FTP: 100' FSL & 1650' FWL (10)
1250
0000
8750
7500
6250
5000
3750
2500
1250
0
-1250
-7500
-6250
-5000
-3750
-2500
-1250
0
1250
2500
3750
5000
6250
7500
8750
10000
West(-)/East(+) (2500 usft/in)


SHL: 150' FSL & 1220' FWL (10)
KOP: 10' FSL & 1650' FWL (10)
FTP: 100' FSL & 1650' FWL (10)
LP: 490' FSL & 1650' FWL (10)
PPP2: 1' FSL & 1650' FWL (3)
BHL: 100' FNL & 1650' FWL (3)
0
1500
3000
4500
6000
7500
9000
0500
2000
-6000
-4500
-3000
-1500
0
1500
3000
4500
6000
7500
9000
10500
12000
13500
15000
Vertical Section at 1.76° (3000 usft/in)

Mewbourne Oil Company

Lea County, New Mexico NAD 83
Red Hills West Unit #010H
Sec 10, T26S, R32E
SHL: 150' FSL & 1220' FWL, Sec 10
BHL: 100' FNL & 1650' FWL, Sec 3

Plan: Design #1

Standard Planning Report

13 June, 2019

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Red Hills West Unit #010H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3247.0usft (Original Well Elev)
Project:	Lea County, New Mexico NAD 83	**MD Reference:**	WELL @ 3247.0usft (Original Well Elev)
Site:	Red Hills West Unit #010H	**North Reference:**	Grid
Well:	Sec 10, T26S, R32E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 100' FNL & 1650' FWL, Sec 3		
Design:	Design #1		

Project	Lea 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	Red Hills West Unit #010H				
Site Position:		**Northing:**	382,816.60 usft	**Latitude:**	32.0506936
From:	Map	**Easting:**	747,655.10 usft	**Longitude:**	-103.6674070
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.35 °

Well	Sec 10, T26S, R32E					
Well Position	**+N/-S**	0.0 usft	**Northing:**	382,816.60 usft	**Latitude:**	32.0506936
	+E/-W	0.0 usft	**Easting:**	747,655.10 usft	**Longitude:**	-103.6674070
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	3,247.0 usft	**Ground Level:**	3,220.0 usft

Wellbore	BHL: 100' FNL & 1650' FWL, Sec 3				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	6/13/2019	6.63	59.81	47,706

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	1.76	

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	

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Red Hills West Unit #010H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3247.0usft (Original Well Elev)
Project:	Lea County, New Mexico NAD 83	**MD Reference:**	WELL @ 3247.0usft (Original Well Elev)
Site:	Red Hills West Unit #010H	**North Reference:**	Grid
Well:	Sec 10, T26S, R32E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 100' FNL & 1650' FWL, Sec 3		
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
SHL: 160' FSL & 1220' FWL (10)									
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	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,530.0	0.00	0.00	4,530.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	1.05	107.10	4,600.0	-0.2	0.6	-0.2	1.50	1.50	0.00
4,700.0	2.55	107.10	4,699.9	-1.1	3.6	-1.0	1.50	1.50	0.00
4,794.2	3.96	107.10	4,794.0	-2.7	8.7	-2.4	1.50	1.50	0.00
4,800.0	3.96	107.10	4,799.8	-2.8	9.1	-2.5	0.00	0.00	0.00
4,900.0	3.96	107.10	4,899.5	-4.8	15.7	-4.4	0.00	0.00	0.00
5,000.0	3.96	107.10	4,999.3	-6.9	22.3	-6.2	0.00	0.00	0.00

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Red Hills West Unit #010H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3247.0usft (Original Well Elev)
Project:	Lea County, New Mexico NAD 83	**MD Reference:**	WELL @ 3247.0usft (Original Well Elev)
Site:	Red Hills West Unit #010H	**North Reference:**	Grid
Well:	Sec 10, T26S, R32E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 100' FNL & 1650' FWL, Sec 3		
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	3.96	107.10	5,099.1	-8.9	28.9	-8.0	0.00	0.00	0.00
5,200.0	3.96	107.10	5,198.8	-10.9	35.5	-9.8	0.00	0.00	0.00
5,300.0	3.96	107.10	5,298.6	-13.0	42.1	-11.7	0.00	0.00	0.00
5,400.0	3.96	107.10	5,398.3	-15.0	48.7	-13.5	0.00	0.00	0.00
5,500.0	3.96	107.10	5,498.1	-17.0	55.3	-15.3	0.00	0.00	0.00
5,600.0	3.96	107.10	5,597.9	-19.1	62.0	-17.2	0.00	0.00	0.00
5,700.0	3.96	107.10	5,697.6	-21.1	68.6	-19.0	0.00	0.00	0.00
5,800.0	3.96	107.10	5,797.4	-23.1	75.2	-20.8	0.00	0.00	0.00
5,900.0	3.96	107.10	5,897.1	-25.2	81.8	-22.6	0.00	0.00	0.00
6,000.0	3.96	107.10	5,996.9	-27.2	88.4	-24.5	0.00	0.00	0.00
6,100.0	3.96	107.10	6,096.7	-29.2	95.0	-26.3	0.00	0.00	0.00
6,200.0	3.96	107.10	6,196.4	-31.3	101.6	-28.1	0.00	0.00	0.00
6,300.0	3.96	107.10	6,296.2	-33.3	108.2	-30.0	0.00	0.00	0.00
6,400.0	3.96	107.10	6,396.0	-35.3	114.8	-31.8	0.00	0.00	0.00
6,500.0	3.96	107.10	6,495.7	-37.4	121.4	-33.6	0.00	0.00	0.00
6,600.0	3.96	107.10	6,595.5	-39.4	128.0	-35.4	0.00	0.00	0.00
6,700.0	3.96	107.10	6,695.2	-41.4	134.6	-37.3	0.00	0.00	0.00
6,800.0	3.96	107.10	6,795.0	-43.5	141.2	-39.1	0.00	0.00	0.00
6,900.0	3.96	107.10	6,894.8	-45.5	147.8	-40.9	0.00	0.00	0.00
7,000.0	3.96	107.10	6,994.5	-47.5	154.4	-42.8	0.00	0.00	0.00
7,100.0	3.96	107.10	7,094.3	-49.6	161.0	-44.6	0.00	0.00	0.00
7,200.0	3.96	107.10	7,194.0	-51.6	167.6	-46.4	0.00	0.00	0.00
7,300.0	3.96	107.10	7,293.8	-53.6	174.2	-48.2	0.00	0.00	0.00
7,400.0	3.96	107.10	7,393.6	-55.6	180.8	-50.1	0.00	0.00	0.00
7,500.0	3.96	107.10	7,493.3	-57.7	187.4	-51.9	0.00	0.00	0.00
7,600.0	3.96	107.10	7,593.1	-59.7	194.0	-53.7	0.00	0.00	0.00
7,700.0	3.96	107.10	7,692.8	-61.7	200.7	-55.6	0.00	0.00	0.00
7,800.0	3.96	107.10	7,792.6	-63.8	207.3	-57.4	0.00	0.00	0.00
7,900.0	3.96	107.10	7,892.4	-65.8	213.9	-59.2	0.00	0.00	0.00
8,000.0	3.96	107.10	7,992.1	-67.8	220.5	-61.0	0.00	0.00	0.00
8,100.0	3.96	107.10	8,091.9	-69.9	227.1	-62.9	0.00	0.00	0.00
8,200.0	3.96	107.10	8,191.6	-71.9	233.7	-64.7	0.00	0.00	0.00
8,300.0	3.96	107.10	8,291.4	-73.9	240.3	-66.5	0.00	0.00	0.00
8,400.0	3.96	107.10	8,391.2	-76.0	246.9	-68.4	0.00	0.00	0.00
8,500.0	3.96	107.10	8,490.9	-78.0	253.5	-70.2	0.00	0.00	0.00
8,600.0	3.96	107.10	8,590.7	-80.0	260.1	-72.0	0.00	0.00	0.00
8,700.0	3.96	107.10	8,690.5	-82.1	266.7	-73.8	0.00	0.00	0.00
8,800.0	3.96	107.10	8,790.2	-84.1	273.3	-75.7	0.00	0.00	0.00
8,900.0	3.96	107.10	8,890.0	-86.1	279.9	-77.5	0.00	0.00	0.00
9,000.0	3.96	107.10	8,989.7	-88.2	286.5	-79.3	0.00	0.00	0.00
9,100.0	3.96	107.10	9,089.5	-90.2	293.1	-81.2	0.00	0.00	0.00
9,200.0	3.96	107.10	9,189.3	-92.2	299.7	-83.0	0.00	0.00	0.00
9,300.0	3.96	107.10	9,289.0	-94.3	306.3	-84.8	0.00	0.00	0.00
9,400.0	3.96	107.10	9,388.8	-96.3	312.9	-86.6	0.00	0.00	0.00
9,500.0	3.96	107.10	9,488.5	-98.3	319.5	-88.5	0.00	0.00	0.00
9,600.0	3.96	107.10	9,588.3	-100.4	326.1	-90.3	0.00	0.00	0.00
9,700.0	3.96	107.10	9,688.1	-102.4	332.8	-92.1	0.00	0.00	0.00
9,800.0	3.96	107.10	9,787.8	-104.4	339.4	-94.0	0.00	0.00	0.00
9,900.0	3.96	107.10	9,887.6	-106.5	346.0	-95.8	0.00	0.00	0.00
10,000.0	3.96	107.10	9,987.3	-108.5	352.6	-97.6	0.00	0.00	0.00
10,100.0	3.96	107.10	10,087.1	-110.5	359.2	-99.4	0.00	0.00	0.00
10,200.0	3.96	107.10	10,186.9	-112.6	365.8	-101.3	0.00	0.00	0.00
10,300.0	3.96	107.10	10,286.6	-114.6	372.4	-103.1	0.00	0.00	0.00
10,400.0	3.96	107.10	10,386.4	-116.6	379.0	-104.9	0.00	0.00	0.00

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Red Hills West Unit #010H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3247.0usft (Original Well Elev)
Project:	Lea County, New Mexico NAD 83	**MD Reference:**	WELL @ 3247.0usft (Original Well Elev)
Site:	Red Hills West Unit #010H	**North Reference:**	Grid
Well:	Sec 10, T26S, R32E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 100' FNL & 1650' FWL, Sec 3		
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)
10,500.0	3.96	107.10	10,486.1	-118.7	385.6	-106.8	0.00	0.00	0.00
10,600.0	3.96	107.10	10,585.9	-120.7	392.2	-108.6	0.00	0.00	0.00
10,700.0	3.96	107.10	10,685.7	-122.7	398.8	-110.4	0.00	0.00	0.00
10,800.0	3.96	107.10	10,785.4	-124.8	405.4	-112.2	0.00	0.00	0.00
10,900.0	3.96	107.10	10,885.2	-126.8	412.0	-114.1	0.00	0.00	0.00
11,000.0	3.96	107.10	10,985.0	-128.8	418.6	-115.9	0.00	0.00	0.00
11,100.0	3.96	107.10	11,084.7	-130.9	425.2	-117.7	0.00	0.00	0.00
11,200.0	3.96	107.10	11,184.5	-132.9	431.8	-119.6	0.00	0.00	0.00
11,250.7	3.96	107.10	11,235.0	-133.9	435.2	-120.5	0.00	0.00	0.00
11,300.0	3.22	107.10	11,284.3	-134.8	438.1	-121.3	1.50	-1.50	0.00
11,400.0	1.72	107.10	11,384.2	-136.1	442.2	-122.4	1.50	-1.50	0.00
11,500.0	0.22	107.10	11,484.1	-136.6	443.9	-122.9	1.50	-1.50	0.00
11,514.9	0.00	0.00	11,499.0	-136.6	443.9	-122.9	1.50	-1.50	0.00
KOP: 10' FSL & 1650' FWL (10)									
11,525.0	1.22	359.33	11,509.1	-136.5	443.9	-122.8	11.99	11.99	0.00
11,550.0	4.21	359.33	11,534.1	-135.3	443.9	-121.6	11.99	11.99	0.00
11,575.0	7.21	359.33	11,559.0	-132.8	443.9	-119.1	11.99	11.99	0.00
11,600.0	10.21	359.33	11,583.7	-129.0	443.8	-115.3	11.99	11.99	0.00
11,625.0	13.20	359.33	11,608.2	-124.0	443.8	-110.3	11.99	11.99	0.00
11,650.0	16.20	359.33	11,632.4	-117.8	443.7	-103.9	11.99	11.99	0.00
11,675.0	19.20	359.33	11,656.2	-110.0	443.6	-96.4	11.99	11.99	0.00
11,700.0	22.19	359.33	11,679.5	-101.2	443.5	-87.5	11.99	11.99	0.00
11,725.0	25.19	359.33	11,702.4	-91.1	443.4	-77.5	11.99	11.99	0.00
11,750.0	28.19	359.33	11,724.8	-79.9	443.2	-66.3	11.99	11.99	0.00
11,775.0	31.18	359.33	11,746.5	-67.5	443.1	-53.9	11.99	11.99	0.00
11,800.0	34.18	359.33	11,767.5	-54.0	442.9	-40.4	11.99	11.99	0.00
11,807.1	35.03	359.33	11,773.4	-50.0	442.9	-36.4	11.99	11.99	0.00
FTP: 100' FSL & 1650' FWL (10)									
11,825.0	37.18	359.33	11,787.8	-39.5	442.8	-25.9	11.99	11.99	0.00
11,850.0	40.17	359.33	11,807.4	-23.9	442.6	-10.3	11.99	11.99	0.00
11,875.0	43.17	359.33	11,826.0	-7.2	442.4	6.4	11.99	11.99	0.00
11,900.0	46.17	359.33	11,843.8	10.3	442.2	23.9	11.99	11.99	0.00
11,925.0	49.16	359.33	11,860.6	28.8	442.0	42.4	11.99	11.99	0.00
11,950.0	52.16	359.33	11,876.5	48.1	441.8	61.7	11.99	11.99	0.00
11,975.0	55.16	359.33	11,891.3	68.3	441.5	81.8	11.99	11.99	0.00
12,000.0	58.15	359.33	11,905.0	89.2	441.3	102.7	11.99	11.99	0.00
12,025.0	61.15	359.33	11,917.7	110.7	441.0	124.2	11.99	11.99	0.00
12,050.0	64.15	359.33	11,929.2	132.9	440.8	146.4	11.99	11.99	0.00
12,075.0	67.14	359.33	11,939.5	155.7	440.5	169.2	11.99	11.99	0.00
12,100.0	70.14	359.33	11,948.6	179.0	440.2	192.4	11.99	11.99	0.00
12,125.0	73.14	359.33	11,956.4	202.7	440.0	216.1	11.99	11.99	0.00
12,150.0	76.13	359.33	11,963.1	226.8	439.7	240.2	11.99	11.99	0.00
12,175.0	79.13	359.33	11,968.4	251.2	439.4	264.6	11.99	11.99	0.00
12,200.0	82.13	359.33	11,972.5	275.9	439.1	289.2	11.99	11.99	0.00
12,225.0	85.12	359.33	11,975.3	300.7	438.8	314.1	11.99	11.99	0.00
12,250.0	88.12	359.33	11,976.7	325.7	438.5	339.0	11.99	11.99	0.00
12,264.3	89.84	359.33	11,977.0	340.0	438.4	353.3	11.99	11.99	0.00
LP: 490' FSL & 1650' FWL (10)									
12,264.8	89.89	359.33	11,977.0	340.4	438.4	353.7	11.99	11.99	0.00
12,300.0	89.89	359.33	11,977.1	375.7	437.9	388.9	0.00	0.00	0.00
12,400.0	89.89	359.33	11,977.3	475.7	436.8	488.8	0.00	0.00	0.00
12,500.0	89.89	359.33	11,977.5	575.7	435.6	588.8	0.00	0.00	0.00
12,600.0	89.89	359.33	11,977.7	675.6	434.5	688.7	0.00	0.00	0.00

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Red Hills West Unit #010H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3247.0usft (Original Well Elev)
Project:	Lea County, New Mexico NAD 83	**MD Reference:**	WELL @ 3247.0usft (Original Well Elev)
Site:	Red Hills West Unit #010H	**North Reference:**	Grid
Well:	Sec 10, T26S, R32E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 100' FNL & 1650' FWL, Sec 3		
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)
12,700.0	89.89	359.33	11,977.9	775.6	433.3	788.6	0.00	0.00	0.00
12,800.0	89.89	359.33	11,978.1	875.6	432.1	888.5	0.00	0.00	0.00
12,900.0	89.89	359.33	11,978.3	975.6	431.0	988.4	0.00	0.00	0.00
13,000.0	89.89	359.33	11,978.5	1,075.6	429.8	1,088.3	0.00	0.00	0.00
13,100.0	89.89	359.33	11,978.7	1,175.6	428.6	1,188.2	0.00	0.00	0.00
13,200.0	89.89	359.33	11,978.9	1,275.6	427.5	1,288.1	0.00	0.00	0.00
13,300.0	89.89	359.33	11,979.0	1,375.6	426.3	1,388.0	0.00	0.00	0.00
13,400.0	89.89	359.33	11,979.2	1,475.6	425.2	1,488.0	0.00	0.00	0.00
13,500.0	89.89	359.33	11,979.4	1,575.6	424.0	1,587.9	0.00	0.00	0.00
13,600.0	89.89	359.33	11,979.6	1,675.6	422.8	1,687.8	0.00	0.00	0.00
13,700.0	89.89	359.33	11,979.8	1,775.6	421.7	1,787.7	0.00	0.00	0.00
13,800.0	89.89	359.33	11,980.0	1,875.6	420.5	1,887.6	0.00	0.00	0.00
13,900.0	89.89	359.33	11,980.2	1,975.6	419.4	1,987.5	0.00	0.00	0.00
14,000.0	89.89	359.33	11,980.4	2,075.5	418.2	2,087.4	0.00	0.00	0.00
14,100.0	89.89	359.33	11,980.6	2,175.5	417.0	2,187.3	0.00	0.00	0.00
14,200.0	89.89	359.33	11,980.8	2,275.5	415.9	2,287.2	0.00	0.00	0.00
14,300.0	89.89	359.33	11,981.0	2,375.5	414.7	2,387.1	0.00	0.00	0.00
14,400.0	89.89	359.33	11,981.2	2,475.5	413.5	2,487.1	0.00	0.00	0.00
14,500.0	89.89	359.33	11,981.4	2,575.5	412.4	2,587.0	0.00	0.00	0.00
14,600.0	89.89	359.33	11,981.6	2,675.5	411.2	2,686.9	0.00	0.00	0.00
14,700.0	89.89	359.33	11,981.8	2,775.5	410.1	2,786.8	0.00	0.00	0.00
14,800.0	89.89	359.33	11,982.0	2,875.5	408.9	2,886.7	0.00	0.00	0.00
14,900.0	89.89	359.33	11,982.2	2,975.5	407.7	2,986.6	0.00	0.00	0.00
15,000.0	89.89	359.33	11,982.4	3,075.5	406.6	3,086.5	0.00	0.00	0.00
15,100.0	89.89	359.33	11,982.6	3,175.5	405.4	3,186.4	0.00	0.00	0.00
15,200.0	89.89	359.33	11,982.8	3,275.5	404.2	3,286.3	0.00	0.00	0.00
15,300.0	89.89	359.33	11,983.0	3,375.5	403.1	3,386.2	0.00	0.00	0.00
15,400.0	89.89	359.33	11,983.2	3,475.5	401.9	3,486.2	0.00	0.00	0.00
15,500.0	89.89	359.33	11,983.4	3,575.4	400.8	3,586.1	0.00	0.00	0.00
15,600.0	89.89	359.33	11,983.6	3,675.4	399.6	3,686.0	0.00	0.00	0.00
15,700.0	89.89	359.33	11,983.8	3,775.4	398.4	3,785.9	0.00	0.00	0.00
15,800.0	89.89	359.33	11,984.0	3,875.4	397.3	3,885.8	0.00	0.00	0.00
15,900.0	89.89	359.33	11,984.2	3,975.4	396.1	3,985.7	0.00	0.00	0.00
16,000.0	89.89	359.33	11,984.4	4,075.4	394.9	4,085.6	0.00	0.00	0.00
16,100.0	89.89	359.33	11,984.6	4,175.4	393.8	4,185.5	0.00	0.00	0.00
16,200.0	89.89	359.33	11,984.8	4,275.4	392.6	4,285.4	0.00	0.00	0.00
16,300.0	89.89	359.33	11,985.0	4,375.4	391.5	4,385.3	0.00	0.00	0.00
16,400.0	89.89	359.33	11,985.2	4,475.4	390.3	4,485.3	0.00	0.00	0.00
16,500.0	89.89	359.33	11,985.4	4,575.4	389.1	4,585.2	0.00	0.00	0.00
16,600.0	89.89	359.33	11,985.6	4,675.4	388.0	4,685.1	0.00	0.00	0.00
16,700.0	89.89	359.33	11,985.8	4,775.4	386.8	4,785.0	0.00	0.00	0.00
16,800.0	89.89	359.33	11,986.0	4,875.4	385.6	4,884.9	0.00	0.00	0.00
16,900.0	89.89	359.33	11,986.2	4,975.3	384.5	4,984.8	0.00	0.00	0.00
17,000.0	89.89	359.33	11,986.4	5,075.3	383.3	5,084.7	0.00	0.00	0.00
17,100.0	89.89	359.33	11,986.6	5,175.3	382.2	5,184.6	0.00	0.00	0.00
17,122.7	89.89	359.33	11,986.6	5,198.0	381.9	5,207.3	0.00	0.00	0.00
PPP2: 1' FSL & 1650' FWL (3)									
17,200.0	89.89	359.33	11,986.8	5,275.3	381.0	5,284.5	0.00	0.00	0.00
17,300.0	89.89	359.33	11,987.0	5,375.3	379.8	5,384.4	0.00	0.00	0.00
17,400.0	89.89	359.33	11,987.2	5,475.3	378.7	5,484.4	0.00	0.00	0.00
17,500.0	89.89	359.33	11,987.4	5,575.3	377.5	5,584.3	0.00	0.00	0.00
17,600.0	89.89	359.33	11,987.6	5,675.3	376.4	5,684.2	0.00	0.00	0.00
17,700.0	89.89	359.33	11,987.8	5,775.3	375.2	5,784.1	0.00	0.00	0.00
17,800.0	89.89	359.33	11,988.0	5,875.3	374.0	5,884.0	0.00	0.00	0.00

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Red Hills West Unit #010H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3247.0usft (Original Well Elev)
Project:	Lea County, New Mexico NAD 83	**MD Reference:**	WELL @ 3247.0usft (Original Well Elev)
Site:	Red Hills West Unit #010H	**North Reference:**	Grid
Well:	Sec 10, T26S, R32E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 100' FNL & 1650' FWL, Sec 3		
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)
17,900.0	89.89	359.33	11,988.2	5,975.3	372.9	5,983.9	0.00	0.00	0.00
18,000.0	89.89	359.33	11,988.3	6,075.3	371.7	6,083.8	0.00	0.00	0.00
18,100.0	89.89	359.33	11,988.5	6,175.3	370.5	6,183.7	0.00	0.00	0.00
18,200.0	89.89	359.33	11,988.7	6,275.3	369.4	6,283.6	0.00	0.00	0.00
18,300.0	89.89	359.33	11,988.9	6,375.3	368.2	6,383.6	0.00	0.00	0.00
18,400.0	89.89	359.33	11,989.1	6,475.2	367.1	6,483.5	0.00	0.00	0.00
18,500.0	89.89	359.33	11,989.3	6,575.2	365.9	6,583.4	0.00	0.00	0.00
18,600.0	89.89	359.33	11,989.5	6,675.2	364.7	6,683.3	0.00	0.00	0.00
18,700.0	89.89	359.33	11,989.7	6,775.2	363.6	6,783.2	0.00	0.00	0.00
18,800.0	89.89	359.33	11,989.9	6,875.2	362.4	6,883.1	0.00	0.00	0.00
18,900.0	89.89	359.33	11,990.1	6,975.2	361.2	6,983.0	0.00	0.00	0.00
19,000.0	89.89	359.33	11,990.3	7,075.2	360.1	7,082.9	0.00	0.00	0.00
19,100.0	89.89	359.33	11,990.5	7,175.2	358.9	7,182.8	0.00	0.00	0.00
19,200.0	89.89	359.33	11,990.7	7,275.2	357.8	7,282.7	0.00	0.00	0.00
19,300.0	89.89	359.33	11,990.9	7,375.2	356.6	7,382.7	0.00	0.00	0.00
19,400.0	89.89	359.33	11,991.1	7,475.2	355.4	7,482.6	0.00	0.00	0.00
19,500.0	89.89	359.33	11,991.3	7,575.2	354.3	7,582.5	0.00	0.00	0.00
19,600.0	89.89	359.33	11,991.5	7,675.2	353.1	7,682.4	0.00	0.00	0.00
19,700.0	89.89	359.33	11,991.7	7,775.2	351.9	7,782.3	0.00	0.00	0.00
19,800.0	89.89	359.33	11,991.9	7,875.1	350.8	7,882.2	0.00	0.00	0.00
19,900.0	89.89	359.33	11,992.1	7,975.1	349.6	7,982.1	0.00	0.00	0.00
20,000.0	89.89	359.33	11,992.3	8,075.1	348.5	8,082.0	0.00	0.00	0.00
20,100.0	89.89	359.33	11,992.5	8,175.1	347.3	8,181.9	0.00	0.00	0.00
20,200.0	89.89	359.33	11,992.7	8,275.1	346.1	8,281.8	0.00	0.00	0.00
20,300.0	89.89	359.33	11,992.9	8,375.1	345.0	8,381.8	0.00	0.00	0.00
20,400.0	89.89	359.33	11,993.1	8,475.1	343.8	8,481.7	0.00	0.00	0.00
20,500.0	89.89	359.33	11,993.3	8,575.1	342.6	8,581.6	0.00	0.00	0.00
20,600.0	89.89	359.33	11,993.5	8,675.1	341.5	8,681.5	0.00	0.00	0.00
20,700.0	89.89	359.33	11,993.7	8,775.1	340.3	8,781.4	0.00	0.00	0.00
20,800.0	89.89	359.33	11,993.9	8,875.1	339.2	8,881.3	0.00	0.00	0.00
20,900.0	89.89	359.33	11,994.1	8,975.1	338.0	8,981.2	0.00	0.00	0.00
21,000.0	89.89	359.33	11,994.3	9,075.1	336.8	9,081.1	0.00	0.00	0.00
21,100.0	89.89	359.33	11,994.5	9,175.1	335.7	9,181.0	0.00	0.00	0.00
21,200.0	89.89	359.33	11,994.7	9,275.0	334.5	9,280.9	0.00	0.00	0.00
21,300.0	89.89	359.33	11,994.9	9,375.0	333.3	9,380.9	0.00	0.00	0.00
21,400.0	89.89	359.33	11,995.1	9,475.0	332.2	9,480.8	0.00	0.00	0.00
21,500.0	89.89	359.33	11,995.3	9,575.0	331.0	9,580.7	0.00	0.00	0.00
21,600.0	89.89	359.33	11,995.5	9,675.0	329.9	9,680.6	0.00	0.00	0.00
21,700.0	89.89	359.33	11,995.7	9,775.0	328.7	9,780.5	0.00	0.00	0.00
21,800.0	89.89	359.33	11,995.9	9,875.0	327.5	9,880.4	0.00	0.00	0.00
21,900.0	89.89	359.33	11,996.1	9,975.0	326.4	9,980.3	0.00	0.00	0.00
22,000.0	89.89	359.33	11,996.3	10,075.0	325.2	10,080.2	0.00	0.00	0.00
22,100.0	89.89	359.33	11,996.5	10,175.0	324.1	10,180.1	0.00	0.00	0.00
22,200.0	89.89	359.33	11,996.7	10,275.0	322.9	10,280.0	0.00	0.00	0.00
22,300.0	89.89	359.33	11,996.9	10,375.0	321.7	10,380.0	0.00	0.00	0.00
22,371.2	89.89	359.33	11,997.0	10,446.2	320.9	10,451.1	0.00	0.00	0.00
BHL: 100' FNL & 1650' FWL (3)									

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Red Hills West Unit #010H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3247.0usft (Original Well Elev)
Project:	Lea County, New Mexico NAD 83	**MD Reference:**	WELL @ 3247.0usft (Original Well Elev)
Site:	Red Hills West Unit #010H	**North Reference:**	Grid
Well:	Sec 10, T26S, R32E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 100' FNL & 1650' FWL, Sec 3		
Design:	Design #1		

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
SHL: 150' FSL & 1220' F - plan hits target center - Point	0.00	0.00	0.0	0.0	0.0	382,816.60	747,655.10	32.0506936	-103.6674070
KOP: 10' FSL & 1650' F\ - plan hits target center - Point	0.00	0.00	11,499.0	-136.6	443.9	382,680.00	748,099.00	32.0503106	-103.6659770
FTP: 100' FSL & 1650' F - plan hits target center - Point	0.00	0.00	11,773.4	-50.0	442.9	382,766.60	748,097.99	32.0505487	-103.6659786
LP: 490' FSL & 1650' FV - plan hits target center - Point	0.00	0.00	11,977.0	340.0	438.4	383,156.60	748,093.46	32.0516208	-103.6659854
PPP2: 1' FSL & 1650' F\ - plan hits target center - Point	0.00	0.00	11,986.6	5,198.0	381.9	388,014.60	748,036.99	32.0649754	-103.6660707
BHL: 100' FNL & 1650' F - plan hits target center - Point	0.00	0.00	11,997.0	10,446.2	320.9	393,262.80	747,976.00	32.0794026	-103.6661629

Mewbourne Oil Company, Red Hills West Unit #010H
Sec 10/3, T26S, R32E
SL: 150' FSL & 1220' FWL, Sec 10
BHL: 100' FNL & 1650' FWL, Sec 3

1. Geologic Formations

TVD of target	11997'	Pilot hole depth	NA
MD at TD:	22371'	Deepest expected fresh water:	250'

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface		
Rustler	750		
Top Salt	1120		
Base Salt	4290		
Yates		Oil/Gas	
Seven Rivers		Oil/Gas	
Queen		Oil/Gas	
Grayburg			
Lamar	4530	Oil/Gas	
Bell Canyon	4580	Oil/Gas	
Cherry Canyon	5580	Oil/Gas	
Manzanita Marker	5707		
Brushy Canyon	8410	Oil/Gas	
Bone Spring	8607	Oil/Gas	
1st Bone Spring Sand	9530	Oil/Gas	
2nd Bone Spring Sand	10260	Oil/Gas	
3rd Bone Spring Sand	11370	Oil/Gas	
Abo			
Wolfcamp	11777	Target Zone	
Devonian			
Fusselman			
Ellenburger			
Granite Wash			

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

Mewbourne Oil Company, Red Hills West Unit #010H
Sec 10/3, T26S, R32E
SL: 150' FSL & 1220' FWL, Sec 10
BHL: 100' FNL & 1650' FWL, Sec 3

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'	825'	13.375"	48	H40	STC	1.99	4.48	8.13	13.66
12.25"	0'	3453'	9.625"	36	J55	LTC	1.13	1.96	2.76	4.54
12.25"	3453'	4393'	9.625"	40	J55	LTC	1.13	1.73	12.97	16.75
12.25"	4393'	4455'	9.625"	40	N80	LTC	1.33	2.48	297.96	370.32
8.75"	0'	12100'	7"	26	HCP110	LTC	1.26	1.67	2.1	2.64
6.125"	11499'	22371'	4.5"	13.5	P110	LTC	1.71	1.99	2.3	2.88
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?	

Mewbourne Oil Company, Red Hills West Unit #010H
Sec 10/3, T26S, R32E
SL: 150' FSL & 1220' FWL, Sec 10
BHL: 100' FNL & 1650' FWL, Sec 3

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.	420	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.	730	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.	480	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
Liner	440	11.2	2.97	17	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, etc.

Casing String	TOC	% Excess
Surface	0'	100%
Intermediate	0'	25%
Production	4255'	25%
Liner	11499'	25%

Mewbourne Oil Company, Red Hills West Unit #010H
Sec 10/3, T26S, R32E
SL: 150' FSL & 1220' FWL, Sec 10
BHL: 100' FNL & 1650' FWL, Sec 3

4. Pressure Control Equipment

	Variance: None

BOP installed and tested before drilling which hole?	Size?	System Rated WP	Type	✓	Tested to:
12 1/4"	13 5/8"	10M	Annular	X	5000#
			Blind Ram	X	10000#
			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

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0'	825'	FW Gel	8.6-8.8	28-34	N/C
825'	4455'	Saturated Brine	10.0	28-34	N/C
4455'	11948'	Cut Brine	8.6-9.5	28-34	N/C
11948'	11997'	OBM	10.0-13.0	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 (11499') 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	11499' (KOP) to TD
	Density	

	CBL	
	Mud log	
	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	8109 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers in surface hole.

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

Mewbourne Oil Company, Red Hills West Unit #010H
Sec 10/3, T26S, R32E
SL: 150' FSL & 1220' FWL, Sec 10
BHL: 100' FNL & 1650' FWL, Sec 3

AFMSS

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

PWD Data Report

02/27/2020

APD ID: 10400042697 **Submission Date:** 06/28/2019

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST UNIT **Well Number:** 10H

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

Section 1 - General

Would you like to address long-term produced water disposal? NO

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST UNIT **Well Number:** 10H

Lined pit Monitor description:

Lined pit Monitor attachment:

Lined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD disturbance (acres): **PWD surface owner:**

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

Do you propose to put the produced water to beneficial use?

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

Unlined pit: do you have a reclamation bond for the pit?

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST UNIT **Well Number:** 10H

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number: **Injection well name:**

Assigned injection well API number? **Injection well API number:**

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST UNIT **Well Number:** 10H

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

AFMSS

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

Bond Info Data Report

02/27/2020

APD ID: 10400042697

Submission Date: 06/28/2019

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST UNIT

Well Number: 10H

Show Final Text

Well Type: CONVENTIONAL GAS WELL

Well Work Type: Drill

Bond Information

Federal/Indian APD: FED

BLM Bond number: NM1693

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment: