

Form 3160-3
(June 2015)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 20185. Lease Serial No.
NMLC064790

6. If Indian, Allottee or Tribe Name

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

8. Lease Name and Well No.
SPANISH BAY 18/19 FED COM
416H9. API Well No.
30-025-5364110. Field and Pool, or Exploratory
Tonto/Bone Spring11. Sec., T. R. M. or Blk. and Survey or Area
SEC 18/T19S/R33E/NMP1a. Type of work: ☒ DRILL ☐ REENTER
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other
1c. Type of Completion: ☐ Hydraulic Fracturing ☒ Single Zone ☐ Multiple Zone2. Name of Operator
MEWBOURNE OIL COMPANY3a. Address
P O BOX 5270, HOBBS, NM 882413b. Phone No. (include area code)
(575) 393-59054. Location of Well (Report location clearly and in accordance with any State requirements. *)
At surface NWNE / 205 FNL / 1480 FEL / LAT 32.6669995 / LONG -103.6985921
At proposed prod. zone SWSE / 100 FSL / 2200 FEL / LAT 32.6388086 / LONG -103.701020714. Distance in miles and direction from nearest town or post office*
10 miles12. County or Parish
LEA13. State
NM15. Distance from proposed*
location to nearest
property or lease line, ft.
(Also to nearest drig. unit line, if any)
210 feet

16. No of acres in lease

17. Spacing Unit dedicated to this well
320.018. Distance from proposed location*
to nearest well, drilling, completed,
applied for, on this lease, ft.
20 feet19. Proposed Depth
9121 feet / 19224 feet20. BLM/BIA Bond No. in file
FED: NM169321. Elevations (Show whether DF, KDB, RT, GL, etc.)
3648 feet22. Approximate date work will start*
08/20/202423. 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) 393-5905Date
06/26/2024Title
RegulatoryApproved by (Signature)
(Electronic Submission)Name (Printed/Typed)
CODY LAYTON / Ph: (575) 234-5959Date
09/25/2024Title
Assistant Field Manager Lands & MineralsOffice
Carlsbad Field OfficeApplication 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.

(Continued on page 2)

*(Instructions on page 2)



C-102 Submit Electronically Via OCD Permitting	State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION	Revised July 9, 2024	
		Submittal Type:	<input checked="" type="checkbox"/> Initial Submittal
			<input type="checkbox"/> Amended Report
		<input type="checkbox"/> As Drilled	

WELL LOCATION INFORMATION

API Number 30-025-53641	Pool Code 59476	Pool Name TANTO; BONE SPRING , SOUTH
Property Code 334598	Property Name SPANISH BAY 18/19 FED COM	Well Number 416H
OGRID No. 14744	Operator Name MEWBOURN OIL COMPANY	Ground Level Elevation 3648
Surface Owner: <input type="checkbox"/> State <input type="checkbox"/> Fee <input type="checkbox"/> Tribal <input checked="" type="checkbox"/> Federal		Mineral Owner: <input type="checkbox"/> State <input type="checkbox"/> Fee <input type="checkbox"/> Tribal <input checked="" type="checkbox"/> Federal

Surface Location

UL B	Section 18	Township 19S	Range 33E	Lot	Ft. from N/S 205 FNL	Ft. from E/W 1480 FEL	Latitude 32.6669995	Longitude -103.6985921	County LEA
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Bottom Hole Location

UL O	Section 19	Township 19S	Range 33E	Lot	Ft. from N/S 100 FSL	Ft. from E/W 2200 FEL	Latitude 32.6388086	Longitude -103.7010207	County LEA
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Dedicated Acres 320	Infill or Defining Well DEFINGING	Defining Well API	Overlapping Spacing Unit (Y/N) N/A	Consolidation Code N/A
Order Numbers. N/A			Well setbacks are under Common Ownership: <input type="checkbox"/> Yes <input type="checkbox"/> No	

Kick Off Point (KOP)

UL B	Section 18	Township 19	Range 33	Lot	Ft. from N/S 10 FNL	Ft. from E/W 2200 FEL	Latitude 32.6675476	Longitude -103.7009280	County LEA
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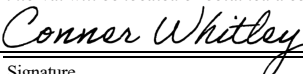
First Take Point (FTP)

UL B	Section 18	Township 19	Range 33	Lot	Ft. from N/S 100 FNL	Ft. from E/W 2200 FEL	Latitude 32.6673003	Longitude -103.7009295	County LEA
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Last Take Point (LTP)

UL O	Section 19	Township 19	Range 33	Lot	Ft. from N/S 100 FSL	Ft. from E/W 2200 FEL	Latitude 32.6388086	Longitude -103.7010207	County LEA
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Unitized Area or Area of Uniform Interest	Spacing Unit Type <input checked="" type="checkbox"/> Horizontal <input type="checkbox"/> Vertical	Ground Floor Elevation: 3648
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OPERATOR CERTIFICATIONS <i>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and, if the well is a vertical or directional well, 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 a working interest or unleased mineral interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</i> <i>If this well is a horizontal well, I further certify that this organization has received the consent of at least one lessee or owner of a working interest or unleased mineral interest in each tract (in the target pool or formation) in which any part of the well's completed interval will be located or obtained a compulsory pooling order from the division.</i>  10/3/24		SURVEYOR CERTIFICATIONS <i>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.</i>	
Signature CONNER WHITLEY		Signature and Seal of Professional Surveyor	
Printed Name CWHITLEY@MEWBOURNE.COM		Certificate Number	
Email Address		Date of Survey	

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

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) 334-6105

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 59476	³ Pool Name TANTO; BONE SPRING
⁴ Property Code	⁵ Property Name SPANISH BAY 18/19 FED COM		⁶ Well Number 416H
⁷ OGRID NO. 14744	⁸ Operator Name MEWBOURNE OIL COMPANY		⁹ Elevation 3648'

¹⁰ Surface Location

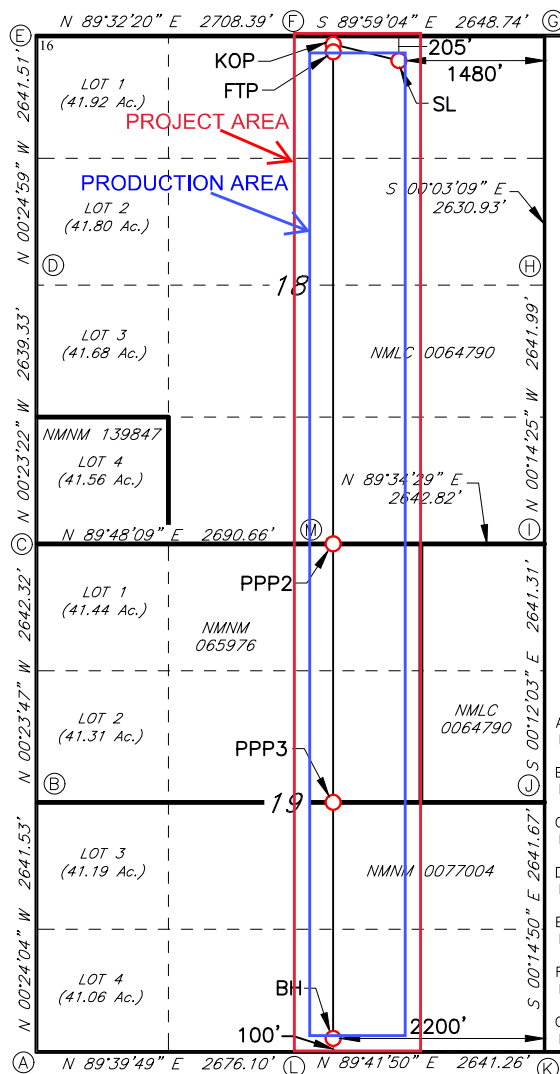
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet From the	East/West line	County
B	18	19S	33E		205	NORTH	1480	EAST	LEA

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
0	19	19S	33E		100	SOUTH	2200	EAST	LEA

12 Dedicated Acres 320	13 Joint or Infill	14 Consolidation Code	15 Order No.
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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 Andrew W Taylor Date 6/19/24

Signature ANDREW TAYLOR Date _____
Printed Name _____

ATAYLOR@MEWBOURNE.COM

10. *Journal of the American Medical Association*, 2000; 284: 2689-2694.

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.

02/10/2023

Date of Survey

Signature and Seal of Professional Surveyor

19680

Certificate Number
REV: NAME & WELL CALLS 4/25/24
REV: WELL CALLS 5/31/24

Job No.: LS23080720R

State of New Mexico
Energy, Minerals and Natural Resources DepartmentSubmit Electronically
Via E-permittingOil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505**NATURAL GAS MANAGEMENT PLAN**

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

Section 1 – Plan Description**Effective May 25, 2021****I. Operator:** Mewbourne Oil Co. **OGRID:** 14744 **Date:** 9/6/24**II. Type:** ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: _____

III. Well(s): Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
Spanish Bay 18 19 Fed Com 416H		18 19S 33E	205 FNL x 1480 FELL	1500	5000	1000
				Y1: 300; Y2: 170; Y3: 135	Y1: 660; Y2: 500; Y3: 400	Y1: 300; Y2: 200; Y3: 150

IV. Central Delivery Point Name: Bonanza Master Meter [See 19.15.27.9(D)(1) NMAC]**V. Anticipated Schedule:** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
Spanish Bay 18 19 Fed Com		11/24/2024	12/24/204	1/24/2025	02/08/2024	02/13/2024

VI. Separation Equipment: ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.**VII. Operational Practices:** ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.**VIII. Best Management Practices:** ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

Section 2 – Enhanced Plan
EFFECTIVE APRIL 1, 2022

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

☒ Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

IX. Anticipated Natural Gas Production:

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF

X. Natural Gas Gathering System (NGGS):

Operator	System	ULSTR of Tie-in	Anticipated Gathering Start Date	Available Maximum Daily Capacity of System Segment Tie-in

XI. Map. ☐ Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

XII. Line Capacity. The natural gas gathering system ☐ will ☐ will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

XIII. Line Pressure. Operator ☐ does ☐ does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

☐ Attach Operator's plan to manage production in response to the increased line pressure.

XIV. Confidentiality: ☐ Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

Section 3 - Certifications

Effective May 25, 2021

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

☒ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system.

If Operator checks this box, Operator will select one of the following:

Well Shut-In. ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

Venting and Flaring Plan. ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- (a) power generation on lease;
- (b) power generation for grid;
- (c) compression on lease;
- (d) liquids removal on lease;
- (e) reinjection for underground storage;
- (f) reinjection for temporary storage;
- (g) reinjection for enhanced oil recovery;
- (h) fuel cell production; and
- (i) other alternative beneficial uses approved by the division.

Section 4 - Notices

1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

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I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature:	<i>Bradley Bishop</i>
Printed Name:	BRADLEY BISHOP
Title:	REGULATORY MANAGER
E-mail Address:	BBISHOP@MEWBOURNE.COM
Date:	7/24/22
Phone:	575-393-5905
OIL CONSERVATION DIVISION (Only applicable when submitted as a standalone form)	
Approved By:	
Title:	
Approval Date:	
Conditions of Approval:	

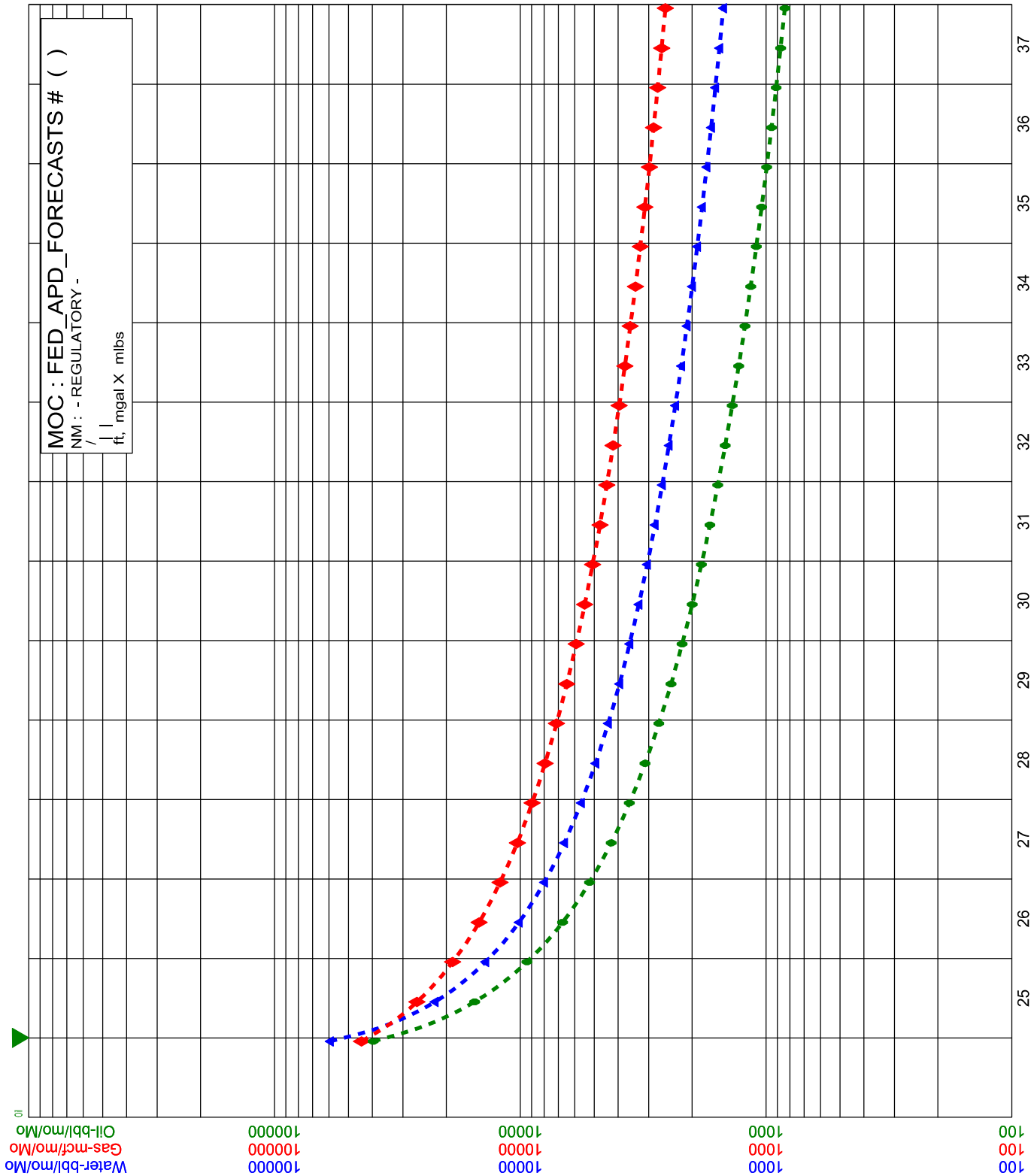
Mewbourne Oil Company

Natural Gas Management Plan – Attachment

- VI. Separation equipment will be sized by construction engineering staff based on stated manufacturer daily throughput capacities and anticipated daily production rates to ensure adequate capacity. Closed vent system piping, compression needs, and VRUs will be sized utilizing ProMax modelling software to ensure adequate capacity for anticipated production volumes and conditions.
- VII. Mewbourne Oil Company (MOC) will take following actions to comply with the regulations listed in 19.15.27.8 :
- A. MOC will maximize the recovery of natural gas by minimizing the waste, as defined by 19.15.2 NMAC, of natural gas through venting and flaring. MOC will ensure that well(s) will be connected to a natural gas gathering system with sufficient capacity to transport natural gas. If there is no adequate takeaway for the gas, well(s) will be shut in until the natural gas gathering system is available.
 - B. All drilling operations will be equipped with a rig flare located at least 100 ft from the nearest surface hole. Rig flare will be utilized to combust any natural gas that is brought to surface during normal drilling operations. In the case of emergency venting or flaring the volumes will be estimated and reported appropriately.
 - C. During completion operations any natural gas brought to surface will be flared. Immediately following the finish of completion operations, all well flow will be directed to permanent separation equipment. Produced natural gas from separation equipment will be sent to sales. It is not anticipated that gas will not meet pipeline standards. However, if natural gas does not meet gathering pipeline quality specifications, MOC will flare the natural gas for 60 days or until the natural gas meets the pipeline quality specifications, whichever is sooner. MOC will ensure that the flare is sized properly and is equipped with automatic igniter or continuous pilot. The gas sample will analyzed twice per week and the gas will be routed into a gathering system as soon as pipeline specifications are met.
 - D. Natural gas will not be flared with the exceptions and provisions listed in the 19.15.27.8 D.(1) through (4). If there is no adequate takeaway for the separator gas, well(s) will be shut in until the natural gas gathering system is available with exception of emergency or malfunction situations. Venting and/or flaring volumes will be estimated and reported appropriately.
 - E. MOC will comply with the performance standards requirements and provisions listed in 19.15.27.8 E.(1) through (8). All equipment will be designed and sized to handle maximum anticipated pressures and throughputs in order to minimize the waste. Production storage tanks constructed after May 25, 2021 will be equipped with automatic gauging system. Flares constructed after May 25, 2021 will be equipped with automatic igniter or continuous pilot. Flares will be located at least 100' from the well and storage tanks unless otherwise approved by the division. MOC will conduct AVO inspections as described in 19.15.27.8 E (5) (a) with frequencies specified in 19.15.27.8 E (5) (b) and (c). All emergencies will be resolved as quickly and safely as feasible to minimize waste.
 - F. The volume of natural gas that is vented or flared as the result of malfunction or emergency during drilling and completions operations will be estimated. The volume of natural gas that is vented, flared or beneficially used during production operations, will be measured or estimated. MOC will install equipment to measure

the volume of natural gas flared from existing process piping or a flowline piped from equipment such as high pressure separators, heater treaters, or vapor recovery units associated with a well or facility associated with a well authorized by an APD issued after May 25, 2021 that has an average daily production greater than 60 Mcf/day. If metering is not practicable due to circumstances such as low flow rate or low pressure venting and flaring, MOC will estimate the volume of vented or flared natural gas. Measuring equipment will conform to industry standards and will not be designed or equipped with a manifold that allows the diversion of natural gas around the metering element except for the sole purpose of inspecting and servicing the measurement equipment.

- VIII. For maintenance activities involving production equipment and compression, venting will be limited to the depressurization of the subject equipment to ensure safe working conditions. For maintenance of production and compression equipment the associated producing wells will be shut in to eliminate venting. For maintenance of VRUs all gas normally routed to the VRU will be routed to flare to eliminate venting.



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

Drilling Plan Data Report

10/03/2024

APD ID: 10400099177

Submission Date: 06/26/2024

Highlighted data
reflects the most
recent changes

Operator Name: MEWBOURNE OIL COMPANY

Well Name: SPANISH BAY 18/19 FED COM

Well Number: 416H

Well Type: OIL WELL

Well Work Type: Drill

[Show Final Text](#)

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical	Measured Depth	Lithologies	Mineral Resources	Producing Formatio
14214210	UNKNOWN	3645	28	28	OTHER : Topsoil	NONE	N
14214223	RUSTLER	2258	1387	1387	ANHYDRITE, DOLOMITE	USEABLE WATER	N
14214224	TOP SALT	1963	1682	1682	SALT	NONE	N
14214211	TANSILL	579	3066	3066	ANHYDRITE, DOLOMITE	NONE	N
14214225	YATES	479	3166	3166	SANDSTONE	NATURAL GAS, OIL	N
14214208	SEVEN RIVERS	126	3519	3519	DOLOMITE, LIMESTONE	USEABLE WATER	N
14214222	QUEEN	-488	4133	4133	DOLOMITE, SANDSTONE	NATURAL GAS, OIL	N
14214215	SAN ANDRES	-905	4550	4550	DOLOMITE, LIMESTONE	NATURAL GAS, OIL	N
14214209	CHERRY CANYON	-1777	5422	5422	LIMESTONE	NATURAL GAS, OIL	N
14214212	BONE SPRING	-4007	7652	7652	LIMESTONE	NATURAL GAS, OIL	N
14214226	BONE SPRING 1ST	-5188	8833	8833	SANDSTONE	NATURAL GAS, OIL	Y
14214227	BONE SPRING 2ND	-5737	9382	9382	SANDSTONE	NATURAL GAS, OIL	N

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M

Rating Depth: 19224

Equipment: Annular, Pipe Rams, Blind Rams, 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.

Requesting Variance? YES

Variance request: A variance is requested for the use of a variable choke line from the BOP to the choke manifold. See attached for hydrostatic test chart. Anchors are not required by manufacturer. Variance is requested to use a multi bowl wellhead. Variance is requested to perform break testing according to attached procedure. If a breaktesting variance is approved & incorporated, API Standard 53 will be incorporated and

Operator Name: MEWBOURNE OIL COMPANY**Well Name:** SPANISH BAY 18/19 FED COM**Well Number:** 416H

testing annular BOP to 70% of RWP or 100% of MASP, whichever is greater, will be performed.

Testing Procedure: BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per 43 CFR Part 3172 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.

Choke Diagram Attachment:

5M_BOPE_Choke_Diagram_20240620085337.pdf

Spanish_Bay_18_19_Fed_Com_416H_Flex_Line_Specs_API_16C_20240905151203.pdf

Spanish_Bay_18_19_Fed_Com_416H_5M_Multi_Bowl_WH_20240905151203.pdf

BOP Diagram Attachment:

5M_BOPE_Schematic_20240620085423.pdf

MOC_Break_Testing_Variance_20240620085448.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	1480	0	1480	3648	2168	1480	H-40	48	ST&C	1.16	2.61	DRY	4.53	DRY	7.62
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	3200	0	3200	2968	448	3200	J-55	36	LT&C	1.19	2.07	DRY	2.36	DRY	2.94
3	INTERMEDIATE	12.25	9.625	NEW	API	N	3200	4100	3200	4100	448	-452	900	J-55	40	LT&C	1.18	1.82	DRY	6.81	DRY	8.25
4	INTERMEDIATE	12.25	9.625	NEW	API	N	4100	5110	4100	5110	-452	-1462	1010	L-80	40	LT&C	1.14	2.12	DRY	18.24	DRY	22.67
5	PRODUCTION	8.75	7.0	NEW	API	N	0	8440	0	8389	2968	-4741	8440	P-110	26	LT&C	1.47	2.35	DRY	3.16	DRY	3.78
6	LINER	6.125	4.5	NEW	API	N	8240	19224	8179	9121	-4531	-5473	10984	P-110	13.5	LT&C	1.87	2.18	DRY	2.28	DRY	2.85

Casing Attachments

Operator Name: MEWBOURNE OIL COMPANY

Well Name: SPANISH BAY 18/19 FED COM

Well Number: 416H

Casing Attachments

Casing ID: 1	String	SURFACE
Inspection Document:		
Spec Document:		
Tapered String Spec:		
Casing Design Assumptions and Worksheet(s):		
Spanish_Bay_18_19_Fed_Com_416H_CsgAssumptions_20240906115632.pdf		
Casing ID: 2	String	INTERMEDIATE
Inspection Document:		
Spec Document:		
Tapered String Spec:		
Casing Design Assumptions and Worksheet(s):		
Spanish_Bay_18_19_Fed_Com_416H_CsgAssumptions_20240906115643.pdf		
Casing ID: 3	String	INTERMEDIATE
Inspection Document:		
Spec Document:		
Tapered String Spec:		
Casing Design Assumptions and Worksheet(s):		
Spanish_Bay_18_19_Fed_Com_416H_CsgAssumptions_20240906115713.pdf		

Operator Name: MEWBOURNE OIL COMPANY

Well Name: SPANISH BAY 18/19 FED COMWell Number: 416H

Casing Attachments

Casing ID: 4StringINTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Spanish_Bay_18_19_Fed_Com_416H_CsgAssumptions_20240906115722.pdf

Casing ID: 5StringPRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Spanish_Bay_18_19_Fed_Com_416H_CsgAssumptions_20240906115655.pdf

Casing ID: 6StringLINER

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Spanish_Bay_18_19_Fed_Com_416H_CsgAssumptions_20240906115704.pdf

Section 4 - Cement

Operator Name: MEWBOURNE OIL COMPANY**Well Name:** SPANISH BAY 18/19 FED COM**Well Number:** 416H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	1289	850	2.12	12.5	1810	100	Class C	Salt, Gel, Extender, LCM
SURFACE	Tail		1289	1480	200	1.34	14.8	268	100	Class C	Retarder
INTERMEDIATE	Lead	3100	0	2752	500	2.12	12.5	1060	25	Class C	Salt, Gel, Extender, LCM
INTERMEDIATE	Tail		2752	3100	100	1.34	14.8	134	25	Class C	Retarder
INTERMEDIATE	Lead	3100	3100	4435	250	2.12	12.5	530	25	CLASS C	SALT GEL EXTENDER LCM
INTERMEDIATE	Tail		4435	5110	200	1.34	14.8	268	25	CLASS C	RETARDER
PRODUCTION	Lead		4910	5961	90	2.12	12.5	200	25	Class C	Gel, Retarder, Defoamer, Extender
PRODUCTION	Tail		5961	8440	40	1.18	15.6	472	25	Class H	Retarder, Fluid Loss, Defoamer
LINER	Lead		8240	19223	700	1.85	13.5	1300	25	Class H	Salt, Gel, Fluid Loss, Retarder, Dispersant, Defoamer, Anti-Settling Agent

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

Operator Name: MEWBOURNE OIL COMPANY**Well Name:** SPANISH BAY 18/19 FED COM**Well Number:** 416H

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	1480	SPUD MUD	8.4	8.6							
1480	5110	SALT SATURATED	9.5	10.2							
5110	8444 0	WATER-BASED MUD	8.6	9.7							
8440	1922 3	OIL-BASED MUD	10	12							

Section 6 - Test, Logging, Coring

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

No logs are planned based on well control or offset log information. Offset Well: Spanish Bay 18/19 Fed Com #526H

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

GAMMA RAY LOG, MEASUREMENT WHILE DRILLING, MUD LOG/GEOLOGIC LITHOLOGY LOG, COMPENSATED NEUTRON LOG,

Coring operation description for the well:

None

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 5692

Anticipated Surface Pressure: 3685

Anticipated Bottom Hole Temperature(F): 140

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

Describe:

Contingency Plans geohazards description:

Contingency Plans geohazards

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations

Spanish_Bay_18_19_B1DM_Fed_Com_1H_H2S_Plan_20200720162657.pdf

Operator Name: MEWBOURNE OIL COMPANY

Well Name: SPANISH BAY 18/19 FED COM

Well Number: 416H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

SPANISH_BAY_18_19_FED_COM__416H_dir_plan_20240620092056.pdf

SPANISH_BAY_18_19_FED_COM__416H_dir_plot_20240620092102.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

Spanish_Bay_18_19_Fed_Com_416H_AddInfo_20240620092239.pdf

Spanish_Bay_18_19_Fed_Com_416H_Drlg_Program_20240906115755.pdf

Spanish_Bay_18_19_Fed_Com_416H_NGMP_20240906120602.pdf

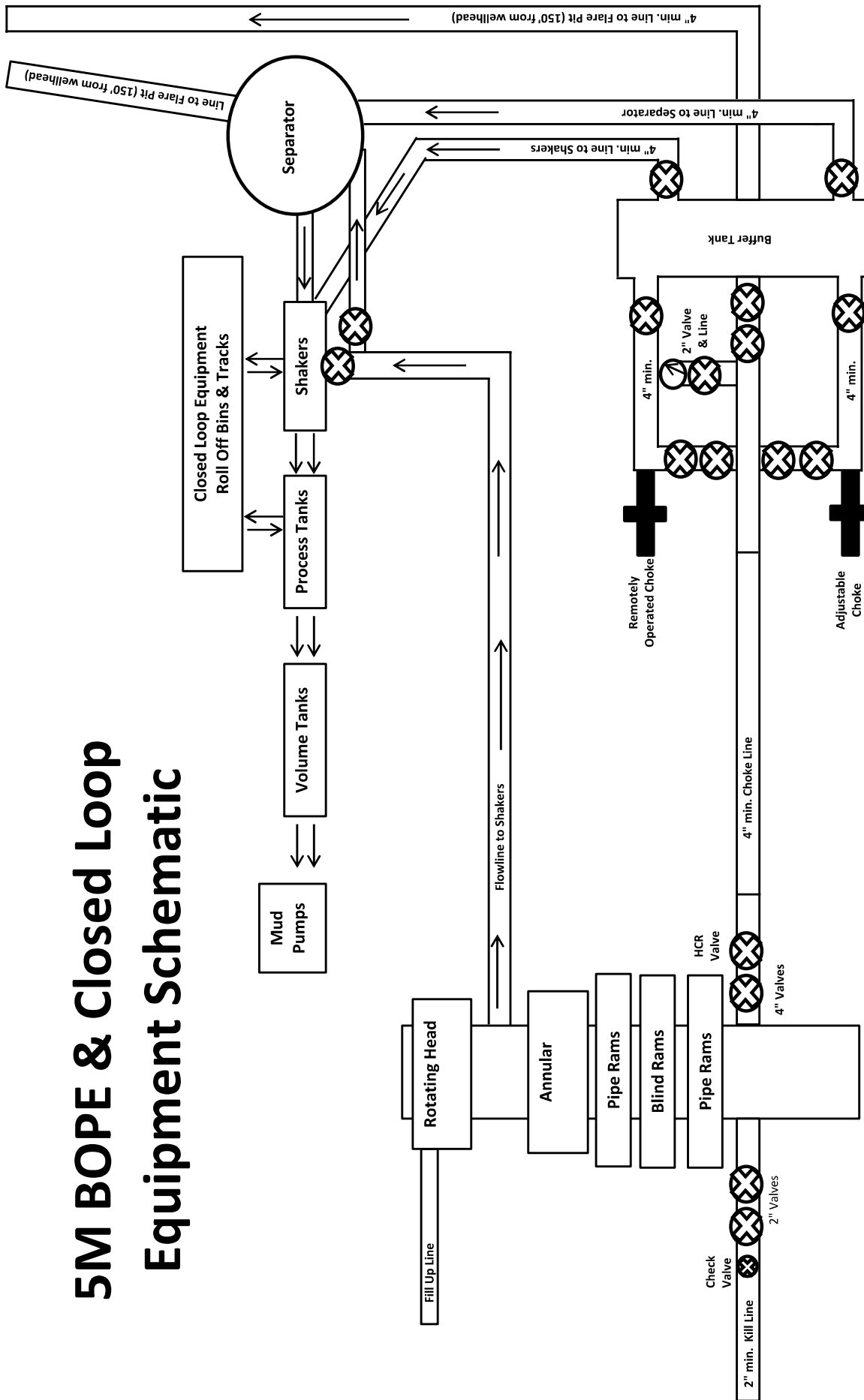
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Other Variance attachment:

MOC_Offline_Cementing_Variance_20240620092307.pdf

MOC_Break_Testing_Variance_20240620092313.pdf

5M BOPE & Closed Loop Equipment Schematic



Drawing not to scale



LUOHE LETONE HYDRAULICS TECHNOLOGY CO.,LTD

HYDROSTATIC TESTING REPORT

LTTY/QR-5.7.1-28

No: 230826015

Product Name	Choke And Kill Hose	Standard	API Spec 16C 3 rd edition		
Product Specification	3"×10000psi×60ft (18.29m)	Serial Number	7660144		
Inspection Equipment	MTU-BS-1600-3200-E	Test medium	Water		
Inspection Department	Q.C. Department	Inspection Date	2023.08.26		
Rate of length change					
Standard requirements	At working pressure ,the rate of length change should not more than ±2%				
Testing result	10000psi (69.0MPa) ,Rate of length change 0.7%				
Hydrostatic testing					
Standard requirements	At 1.5 times working pressure, the initial pressure-holding period of not less than three minutes, the second pressure-holding period of not less than one hour, no leaks.				
Testing result	15000psi (103.5MPa), 3 min for the first time, 60 min for the second time, no leakage				
Graph of pressure testing:					
Conclusion	The inspected items meet standard requirements of API Spec 16C 3 rd edition				
Approver	Jiaolong Chen	Auditor	Huiling Dong	Inspector	Zhansheng Wang



LUOHE LETONE HYDRAULICS TECHNOLOGY CO.,LTD

CERTIFICATE OF QUALITY

LTTY/QR-5.7.1-19B

No: LT2023-126-002

Customer Name	Austin Hose		
Product Name	Choke And Kill Hose		
Product Specification	3"×10000psi×60ft (18.29m)	Quantity	2PCS
Serial Number	7660143~7660144	FSL	FSL3
Temperature Range	-29℃~+121℃	Standard	API Spec 16C 3 rd edition
Inspection Department	Q.C. Department	Inspection date	2023.08.26

Inspection Items		Inspection results			
Appearance Checking		In accordance with API Spec 16C 3 rd edition			
Size and Lengths		In accordance with API Spec 16C 3 rd edition			
Dimensions and Tolerances		In accordance with API Spec 16C 3 rd edition			
End Connections: 4-1/16"×10000psi Integral flange for sour gas service		In accordance with API Spec 6A 21 st edition			
End Connections: 4-1/16"×10000psi Integral flange for sour gas service		In accordance with API Spec 17D 3 rd edition			
Hydrostatic Testing		In accordance with API Spec 16C 3 rd edition			
product Marking		In accordance with API Spec 16C 3 rd edition			
Inspection conclusion		The inspected items meet standard requirements of API Spec 16C 3 rd edition			
Remarks					
Approver	Jiaolong Chen	Auditor	Huiling Dong	Inspector	Zhansheng Wang



LUOHE LETONE HYDRAULICS TECHNOLOGY CO.,LTD

CERTIFICATE OF CONFORMANCE

No:LT230826016

Product Name: Choke And Kill Hose

Product Specification: 3"×10000psi×60ft (18.29m)

Serial Number: 7660143~7660144

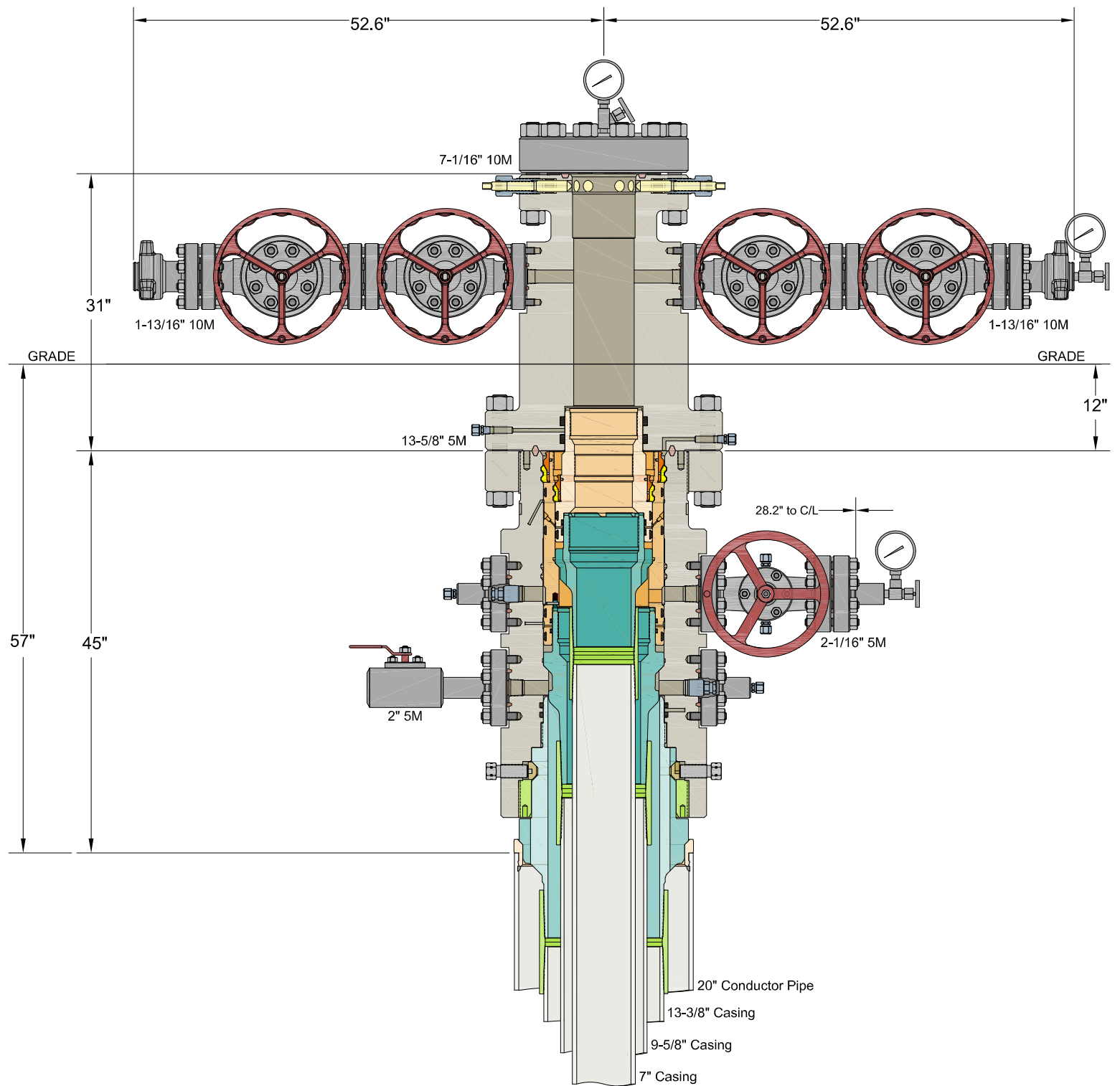
End Connections: 4-1/16"×10000psi Integral flange for sour gas service

The Choke And Kill Hose assembly was produced by LUOHE LETONE HYDRAULICS TECHNOLOGY CO.,LTD . in Aug 2023, and inspected by LUOHE LETONE HYDRAULICS TECHNOLOGY CO.,LTD. according to API Spec 16C 3rd edition on Aug 26, 2023. The overall condition is good. This is to certify that the Choke And Kill Hose complies with all current standards and specifications for API Spec 16C 3rd edition .

QC Manager:

Jiaolong Chen

Date:Aug 26, 2023



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ALL DIMENSIONS APPROXIMATE

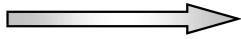
CACTUS WELLHEAD LLC

MEWBOURNE OIL COMPANY
NEW MEXICO

20" x 13-3/8" x 9-5/8" x 7" MBU-3T-CFL-R-DBLO Wellhead System
With 9-5/8" & 7" Fluted Mandrel Casing Hangers
And 13-5/8" 5M x 7-1/16" 10M CTH-DBLHPS Tubing Head

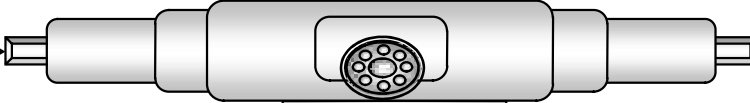
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APPRV		
DRAWING NO.	HBE0000660	

Hydril "GK"
13 5/8" 5M

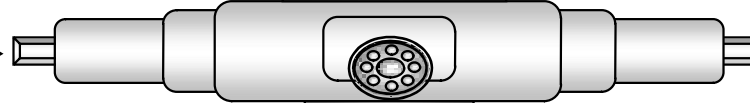


Hydril "GK"

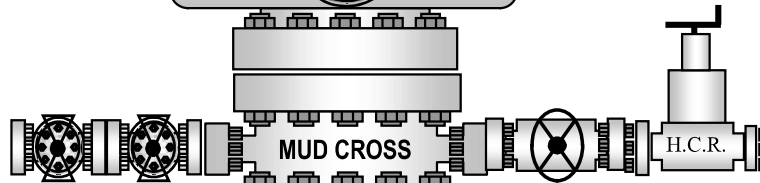
Cameron Type U
13 5/8" 5M



4 1/2" x 5 7/8" VBR

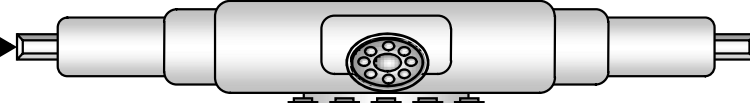


BLIND RAMS



MUD CROSS

H.C.R.



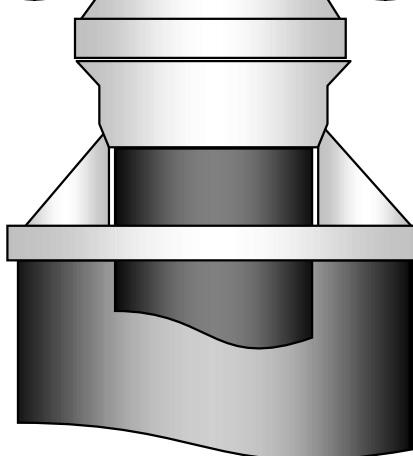
7" RAMS



13 5/8" 5M

13 5/8" 5M

13 5/8" 5M





Mewbourne Oil Co.

BOP Break Testing Variance

Mewbourne Oil Company requests a variance from the minimum standards for well control equipment testing of 43 CFR 3172 to allow a testing schedule of the blow out preventer (BOP) and blow out prevention equipment (BOPE) along with batch drilling & offline cementing operations. Modern rig upgrades which facilitate pad drilling allow the BOP stack to be moved between wells on a multi-well pad without breaking any BOP stack components apart. Widespread use of these technologies has led to break testing BOPE being endorsed as safe and reliable. American Petroleum Institute (API) best practices are frequently used by regulators to develop their regulations. API Standard 53, *Well Control Equipment Systems for Drilling Wells* (5th Ed., Dec. 2018) Section 5.3.7.1 states "A pressure test of the pressure containing component shall be performed following the disconnection or repair, limited to the affected component."

Procedures

1. Full BOPE test at first installation on the pad.
 - Full BOPE test at least every 21 days.
 - Function test BOP elements per 43 CFR 3172.
 - Contact the BLM if a well control event occurs.
2. After the well section is secured and the well is confirmed to be static, the BOP will be disconnected from the wellhead and walked with the rig to another well on the pad. Two breaks on the BOPE will be made (Fig. 1).
 - Connection between the flex line and the HCR valve
 - Connection between the wellhead and the BOP quick connect (Fig. 5 & 6).
3. A capping flange will be installed after cementing per wellhead vendor procedure & casing pressure will be monitored via wellhead valve.
4. The BOP will be removed and carried by a hydraulic carrier (Fig. 3 & 4).
5. The rig will then walk to the next well.
6. Confirm that the well is static and remove the capping flange.
7. The connection between the flex line and HCR valve and the connection between the wellhead and the BOP quick connect will be reconnected.
8. Install a test plug into the wellhead.
9. A test will then be conducted against the upper pipe rams and choke, testing both breaks (Fig. 1 & 2).
10. The test will be held at 250 psi low and to the high value submitted in the APD, not to exceed 5000 psi.
11. The annular, blind rams and lower pipe rams will then be function tested.
12. If a pad consists of three or more wells, steps 4 through 11 will be repeated.



13. A break test will only be conducted if the intermediate section can be drilled and cased within 21 days of the last full BOPE test.

Barriers

Before Nipple Down:

- Floats in casing
- Kill weight fluid in casing
- Kill weight fluid in annulus
- Solid body mandrel and/or packoff

After Nipple Down:

- Floats in casing
- Kill weight fluid in casing
- Kill weight fluid in annulus
- Solid body mandrel and/or packoff
- Offline cementing tool and/or cement head
- Capping flange after cementing

Summary

A variance is requested to only test broken pressure seals on the BOPE when moving between wells on a multi-well pad if the following conditions are met:

- A full BOPE test is conducted on the first well on the pad. API Standard 53 requires testing annular BOP to 70% of RWP or 100% of MASP, whichever is greater.
- If the first well on the pad is not the well with the deepest intermediate section, a full BOPE test will also be performed when moving to a deeper well.
- The hole section being drilled has a MASP under 5000 psi.
- If a well control event occurs, Mewbourne will contact BLM for permission to continue break testing.
- If significant (>50%) losses occur, full BOPE testing will be required going forward.
- Full BOPE test will be required prior to drilling the production hole.

While walking the rig, the BOP stack will be secured via hydraulic winch or hydraulic carrier. A full BOPE test will be performed at least every 21 days.

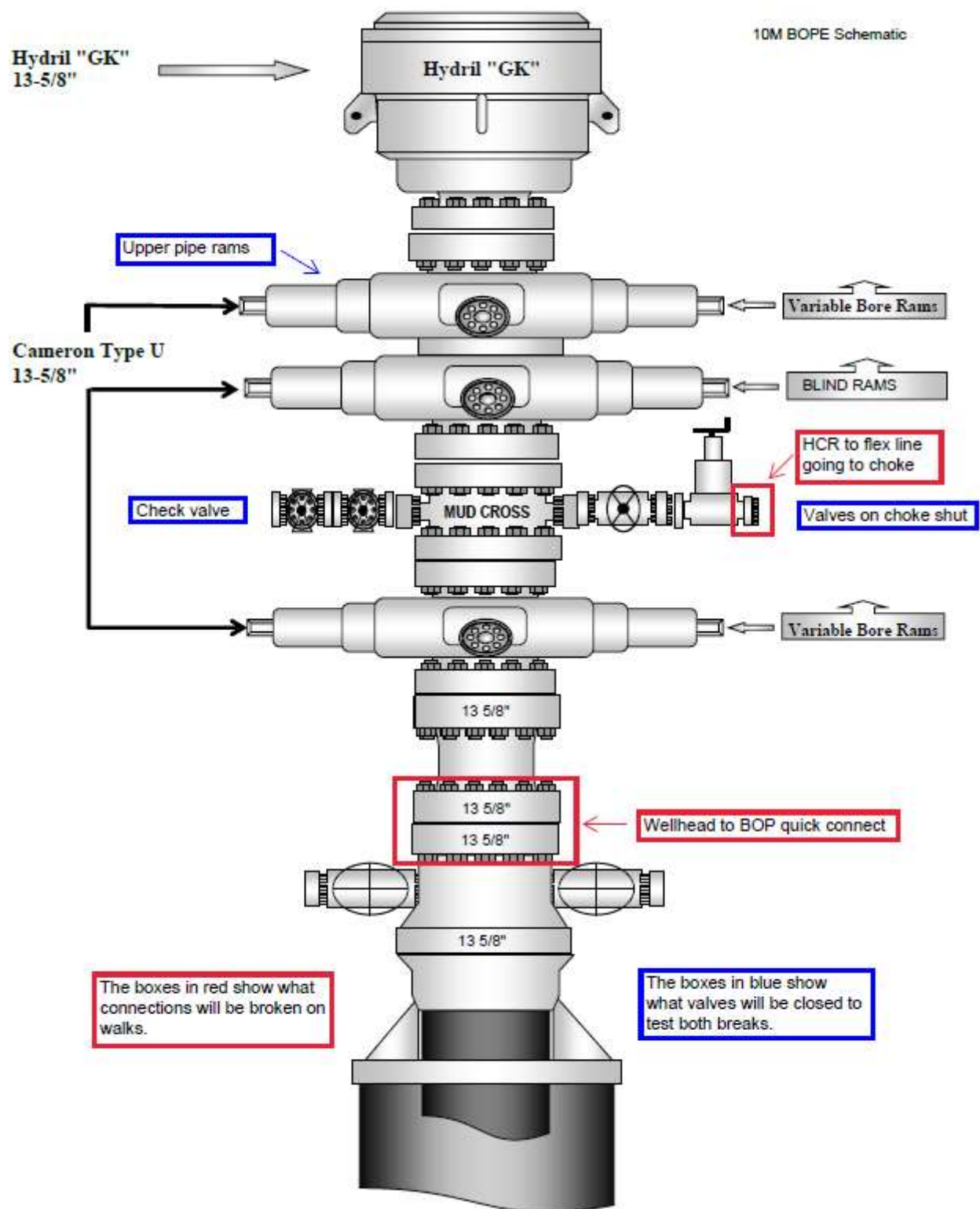


Figure 1. BOP diagram



5M BOPE & Closed Loop Equipment Schematic

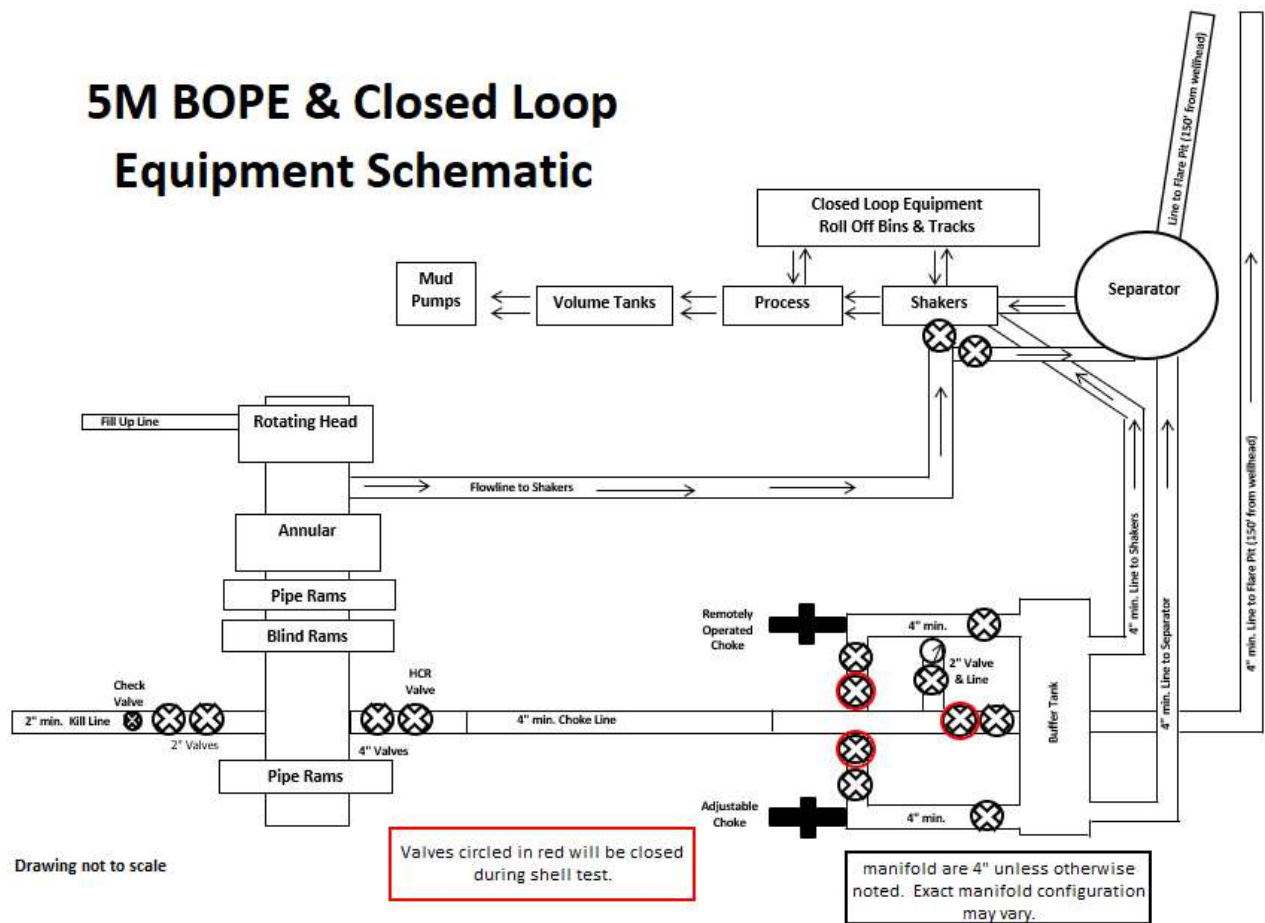


Figure 2. BOPE diagram



Figure 3. BOP handling system



Figure 4. BOP handling system

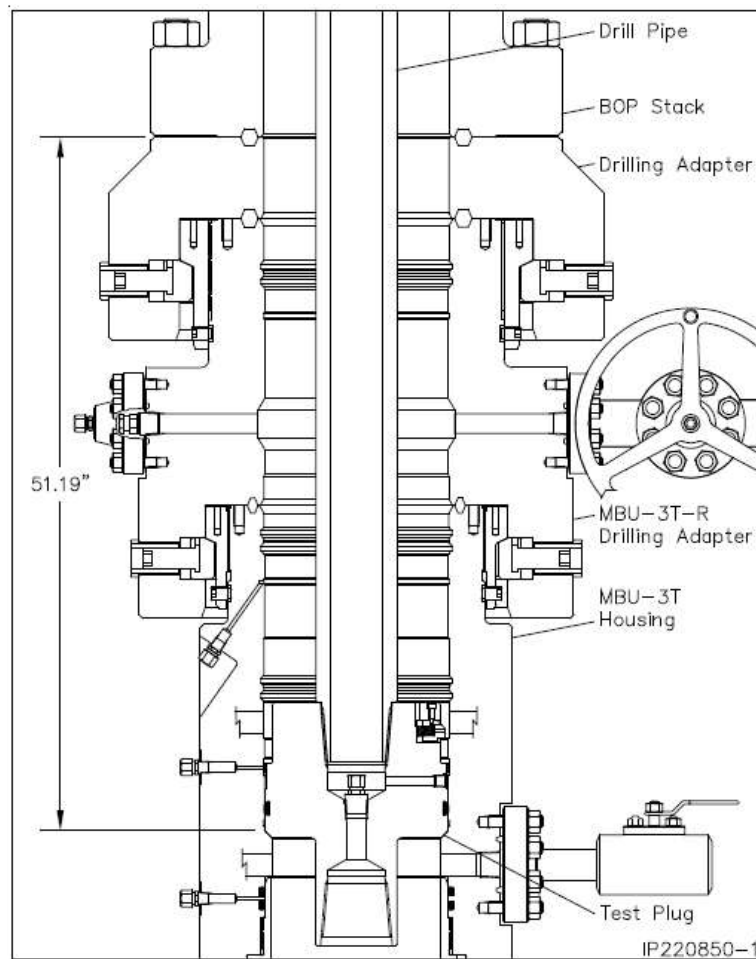


Figure 5. Cactus 5M wellhead with BOP quick connect

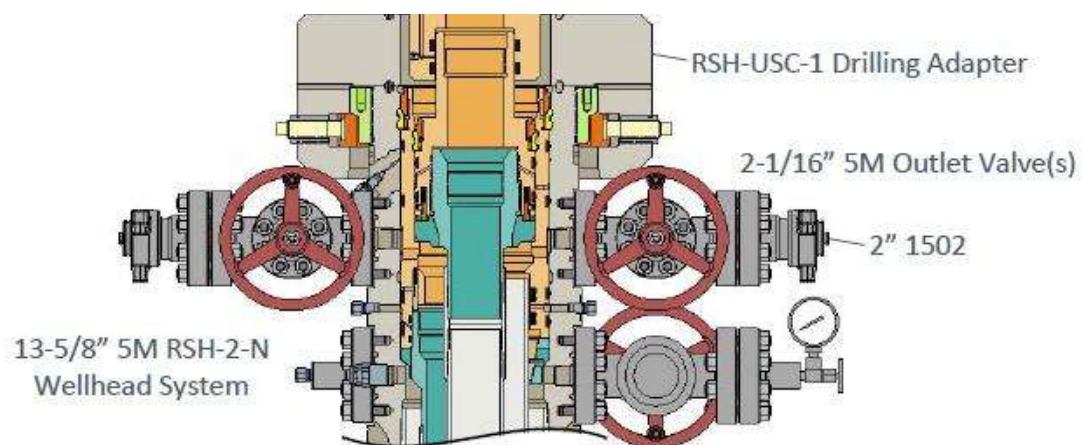


Figure 6. Vault 5M wellhead with BOP quick connect

Mewbourne Oil Company, Spanish Bay 18/19 Fed Com 416H
Sec 18, T19S, R33E
SHL: 205' FNL 1480' FEL (Sec 18)
BHL: 100' FSL 2200' FEL (Sec 19)

Casing Program Design A						BLM Minimum Safety Factors	1.125	1.0	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet
String	Hole Size	Top MD	Top TVD	Bot MD	Bot TVD	Csg. Size	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
Surface	17.5"	0'	0'	1480'	1480'	13.375" 48# H40 STC	1.16	2.61	4.53	7.62
Int	12.25"	0'	0'	3200'	3200'	9.625" 36# J55 LTC	1.19	2.07	2.36	2.94
Int	12.25"	3200'	3200'	4100'	4100'	9.625" 40# J55 LTC	1.18	1.82	6.81	8.25
Int	12.25"	4100'	4100'	5110'	5110'	9.625" 40# L80 LTC	1.14	2.12	18.24	22.67
Production	8.75"	0'	0'	8440'	8389'	7" 26# P110 LTC	1.47	2.35	3.16	3.78
Liner	6.125"	8240'	8179'	19224'	9121'	4.5" 13.5# P110 LTC	1.87	2.18	2.28	2.85

Cement Program

Casing		# Sacks	Wt. lb/gal	Yield ft³/sack	TOC/BOC	Volume ft³	% Excess	Slurry Description
13.375 in	LEAD	850	12.5	2.12	0' - 1289'	1810	100%	Class C: Salt, Gel, Extender, LCM
	TAIL	200	14.8	1.34	1289' - 1480'	268		Class C: Retarder
1st Stg 9.625 in	LEAD	250	12.5	2.12	3100' - 4435'	530	25%	Class C: Salt, Gel, Extender, LCM
	TAIL	200	14.8	1.34	4435' - 5110'	268		Class C: Retarder
9.5/8" DV Tool @ 3100'								
2nd Stg 9.625 in	LEAD	500	12.5	2.12	0' - 2752'	1060	25%	Class C: Salt, Gel, Extender, LCM
	TAIL	100	14.8	1.34	2752' - 3100'	134		Class C: Retarder
7 in	LEAD	90	12.5	2.12	4910' - 5961'	200	25%	Class C: Salt, Gel, Extender, LCM, Defoamer
	TAIL	400	15.6	1.18	5961' - 8440'	472		Class H: Retarder, Fluid Loss, Defoamer
4.5 in	LEAD	700	13.5	1.85	8240' - 19223.7'	1300	25%	Class H: Salt, Gel, Fluid Loss, Retarder, Dispersant, Defoamer, Anti-settling Agent

Design A - Mud Program

Depth	Mud Wt	Mud Type
	8.4 - 8.6	
0' - 1480'	8.4 - 8.6	Fresh Water
1480' - 5110'	9.5 - 10.2	Brine
5110' - 8440'	8.6 - 9.7	Cut-Brine
8440' - 19223.7'	10.0 - 12.	OBM

Geology

Formation	Est. Top (TVD)	Mineral Resources	Formation	Est. Top (TVD)	Mineral Resources
Rustler	1387'	Usable Water	Yeso		
Castile			Delaware (Lamar)		
Salt Top	1682'	None	Bell Canyon		
Tansill	3066'	Oil/Natural Gas	Cherry Canyon	5422'	Oil/Natural Gas
Yates	3166'	Oil/Natural Gas	Manzanita Marker		
Seven Rivers	3519'	Oil/Natural Gas	Basal Brushy Canyon	6252'	Oil/Natural Gas
Queen	4133'	Oil/Natural Gas	Bone Spring	7652'	Oil/Natural Gas
Capitan			1st Bone Spring	8833'	Oil/Natural Gas
Grayburg			2nd Bone Spring	9382'	Oil/Natural Gas
San Andres	4550'	Oil/Natural Gas	3rd Bone Spring		
Glorieta			Wolfcamp		

All casing strings will be tested in accordance with 43 CFR Part 3170 Subpart 3172. 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?	
If yes, does production casing cement tie back a minimum of 50' above the Reef?	N
Is well within the designated 4 string boundary.	N
Is well located in SOPA but not in R-111-Q?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-Q and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
Is an open annulus used to satisfy R-111-Q? If yes, see cement design.	
Is an engineered weak point used to satisfy R-111-Q?	
If yes, at what depth is the weak point planned?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Mewbourne Oil Company, Spanish Bay 18/19 Fed Com 416H
Sec 18, T19S, R33E
SHL: 205' FNL 1480' FEL (Sec 18)
BHL: 100' FSL 2200' FEL (Sec 19)

Casing Program Design B						BLM Minimum Safety Factors	1.125	1.0	1.6 Drv 1.8 Wet	1.6 Drv 1.8 Wet
String	Hole Size	Top MD	Top TVD	Bot MD	Bot TVD	Csg. Size	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
Surface	17.5"	0'	0'	1480'	1480'	13.375" 48# H40 STC	1.16	2.61	4.53	7.62
Int	12.25"	0'	0'	3200'	3200'	9.625" 36# J55 LTC	1.19	2.07	2.36	2.94
Int	12.25"	3200'	3200'	4100'	4100'	9.625" 40# J55 LTC	1.18	1.82	6.81	8.25
Int	12.25"	4100'	4100'	5110'	5110'	9.625" 40# L80 LTC	1.14	2.12	18.24	22.67
Production	8.75"	0'	0'	9340'	8971'	7" 26# P110 LTC	1.38	2.20	2.85	3.42
Liner	6.125"	8440'	8389'	19224'	9121'	4.5" 13.5# P110 LTC	1.87	2.18	2.32	2.90

Design B - Cement Program

Casing		# Sacks	Wt. lb/gal	Yield ft³/sack	TOC/BOC	Volume ft³	% Excess	Slurry Description
13.375 in	LEAD	850	12.5	2.12	0' - 1289'	1810	100%	Class C: Salt, Gel, Extender, LCM
	TAIL	200	14.8	1.34	1289' - 1480'	268		Class C: Retarder
1st Stg 9.625 in	LEAD	250	12.5	2.12	3100' - 4435'	530	25%	Class C: Salt, Gel, Extender, LCM
	TAIL	200	14.8	1.34	4435' - 5110'	268		Class C: Retarder
9.5/8" DV Tool @ 3100'								
2nd Stg 9.625 in	LEAD	500	12.5	2.12	0' - 2752'	1060	25%	Class C: Salt, Gel, Extender, LCM
	TAIL	100	14.8	1.34	2752' - 3100'	134		Class C: Retarder
1st Stg 7 in	LEAD	170	12.5	2.12	4910' - 6857'	370	25%	Class C: Salt, Gel, Extender, LCM, Defoamer
	TAIL	400	15.6	1.18	6857' - 9340'	472		Class H: Retarder, Fluid Loss, Defoamer
4.5 in	LEAD	680	13.5	1.85	8440' - 19223.7'	1260	25%	Class H: Salt, Gel, Fluid Loss, Retarder, Dispersant, Defoamer.

Design B - Mud Program

Depth	Mud Wt	Mud Type
	8.4 - 8.6	
0' - 1480'	8.4 - 8.6	Fresh Water
1480' - 5110'	9.5 - 10.2	Brine
5110' - 9340'	8.6 - 9.7	Cut-Brine
9340' - 19223.7'	10.0 - 12.	OBM

Geology

Formation	Est. Top (TVD)	Mineral Resources	Formation	Est. Top (TVD)	Mineral Resources
Rustler	1387'	Usable Water	Yeso		
Castile			Delaware (Lamar)		
Salt Top	1682'	None	Bell Canyon		
Salt Base	3066'	Oil/Natural Gas	Cherry Canyon	5422'	Oil/Natural Gas
Yates	3166'	Oil/Natural Gas	Manzanita Marker		
Seven Rivers	3519'	Oil/Natural Gas	Basal Brushy Canyon	6252'	Oil/Natural Gas
Queen	4133'	Oil/Natural Gas	Bone Spring	7652'	Oil/Natural Gas
Capitan			1st Bone Spring	8833'	Oil/Natural Gas
Grayburg			2nd Bone Spring	9382'	Oil/Natural Gas
San Andres	4550'	Oil/Natural Gas	3rd Bone Spring		
Glorieta			Wolfcamp		

All casing strings will be tested in accordance with 43 CFR Part 3170 Subpart 3172. 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.	N
Is well located in SOPA but not in R-111-Q?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-Q and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
Is an open annulus used to satisfy R-111-Q? If yes, see cement design.	
Is an engineered weak point used to satisfy R-111-Q?	
If yes, at what depth is the weak point planned?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Mewbourne Oil Company, Spanish Bay 18/19 Fed Com 416H
Sec 18, T19S, R33E
SHL: 205' FNL 1480' FEL (Sec 18)
BHL: 100' FSL 2200' FEL (Sec 19)

Casing Program Design A						BLM Minimum Safety Factors	1.125	1.0	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet
String	Hole Size	Top MD	Top TVD	Bot MD	Bot TVD	Csg. Size	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
Surface	17.5"	0'	0'	1480'	1480'	13.375" 48# H40 STC	1.16	2.61	4.53	7.62
Int	12.25"	0'	0'	3200'	3200'	9.625" 36# J55 LTC	1.19	2.07	2.36	2.94
Int	12.25"	3200'	3200'	4100'	4100'	9.625" 40# J55 LTC	1.18	1.82	6.81	8.25
Int	12.25"	4100'	4100'	5110'	5110'	9.625" 40# L80 LTC	1.14	2.12	18.24	22.67
Production	8.75"	0'	0'	8440'	8389'	7" 26# P110 LTC	1.47	2.35	3.16	3.78
Liner	6.125"	8240'	8179'	19224'	9121'	4.5" 13.5# P110 LTC	1.87	2.18	2.28	2.85

Cement Program

Casing		# Sacks	Wt. lb/gal	Yield ft³/sack	TOC/BOC	Volume ft³	% Excess	Slurry Description
13.375 in	LEAD	850	12.5	2.12	0' - 1289'	1810	100%	Class C: Salt, Gel, Extender, LCM
	TAIL	200	14.8	1.34	1289' - 1480'	268		Class C: Retarder
1st Stg 9.625 in	LEAD	250	12.5	2.12	3100' - 4435'	530	25%	Class C: Salt, Gel, Extender, LCM
	TAIL	200	14.8	1.34	4435' - 5110'	268		Class C: Retarder
9.5/8" DV Tool @ 3100'								
2nd Stg 9.625 in	LEAD	500	12.5	2.12	0' - 2752'	1060	25%	Class C: Salt, Gel, Extender, LCM
	TAIL	100	14.8	1.34	2752' - 3100'	134		Class C: Retarder
7 in	LEAD	90	12.5	2.12	4910' - 5961'	200	25%	Class C: Salt, Gel, Extender, LCM, Defoamer
	TAIL	400	15.6	1.18	5961' - 8440'	472		Class H: Retarder, Fluid Loss, Defoamer
4.5 in	LEAD	700	13.5	1.85	8240' - 19223.7'	1300	25%	Class H: Salt, Gel, Fluid Loss, Retarder, Dispersant, Defoamer, Anti-settling Agent

Design A - Mud Program

Depth	Mud Wt	Mud Type
	8.4 - 8.6	
0' - 1480'	8.4 - 8.6	Fresh Water
1480' - 5110'	9.5 - 10.2	Brine
5110' - 8440'	8.6 - 9.7	Cut-Brine
8440' - 19223.7'	10.0 - 12.	OBM

Geology

Formation	Est. Top (TVD)	Mineral Resources	Formation	Est. Top (TVD)	Mineral Resources
Rustler	1387'	Usable Water	Yeso		
Castile			Delaware (Lamar)		
Salt Top	1682'	None	Bell Canyon		
Tansill	3066'	Oil/Natural Gas	Cherry Canyon	5422'	Oil/Natural Gas
Yates	3166'	Oil/Natural Gas	Manzanita Marker		
Seven Rivers	3519'	Oil/Natural Gas	Basal Brushy Canyon	6252'	Oil/Natural Gas
Queen	4133'	Oil/Natural Gas	Bone Spring	7652'	Oil/Natural Gas
Capitan			1st Bone Spring	8833'	Oil/Natural Gas
Grayburg			2nd Bone Spring	9382'	Oil/Natural Gas
San Andres	4550'	Oil/Natural Gas	3rd Bone Spring		
Glorieta			Wolfcamp		

All casing strings will be tested in accordance with 43 CFR Part 3170 Subpart 3172. 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?	
If yes, does production casing cement tie back a minimum of 50' above the Reef?	N
Is well within the designated 4 string boundary.	N
Is well located in SOPA but not in R-111-Q?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-Q and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
Is an open annulus used to satisfy R-111-Q? If yes, see cement design.	
Is an engineered weak point used to satisfy R-111-Q?	
If yes, at what depth is the weak point planned?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Mewbourne Oil Company, Spanish Bay 18/19 Fed Com 416H

Sec 18, T19S, R33E

SHL: 205' FNL 1480' FEL (Sec 18)

BHL: 100' FSL 2200' FEL (Sec 19)

Casing Program Design B						BLM Minimum Safety Factors	1.125	1.0	1.6 Drv 1.8 Wet	1.6 Drv 1.8 Wet
String	Hole Size	Top MD	Top TVD	Bot MD	Bot TVD	Csg. Size	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
Surface	17.5"	0'	0'	1480'	1480'	13.375" 48# H40 STC	1.16	2.61	4.53	7.62
Int	12.25"	0'	0'	3200'	3200'	9.625" 36# J55 LTC	1.19	2.07	2.36	2.94
Int	12.25"	3200'	3200'	4100'	4100'	9.625" 40# J55 LTC	1.18	1.82	6.81	8.25
Int	12.25"	4100'	4100'	5110'	5110'	9.625" 40# L80 LTC	1.14	2.12	18.24	22.67
Production	8.75"	0'	0'	9340'	8971'	7" 26# P110 LTC	1.38	2.20	2.85	3.42
Liner	6.125"	8440'	8389'	19224'	9121'	4.5" 13.5# P110 LTC	1.87	2.18	2.32	2.90

Design B - Cement Program

Casing		# Sacks	Wt. lb/gal	Yield ft³/sack	TOC/BOC	Volume ft³	% Excess	Slurry Description
13.375 in	LEAD	850	12.5	2.12	0' - 1289'	1810	100%	Class C: Salt, Gel, Extender, LCM
	TAIL	200	14.8	1.34	1289' - 1480'	268		Class C: Retarder
1st Stg 9.625 in	LEAD	250	12.5	2.12	3100' - 4435'	530	25%	Class C: Salt, Gel, Extender, LCM
	TAIL	200	14.8	1.34	4435' - 5110'	268		Class C: Retarder
9.5/8" DV Tool @ 3100'								
2nd Stg 9.625 in	LEAD	500	12.5	2.12	0' - 2752'	1060	25%	Class C: Salt, Gel, Extender, LCM
	TAIL	100	14.8	1.34	2752' - 3100'	134		Class C: Retarder
1st Stg 7 in	LEAD	170	12.5	2.12	4910' - 6857'	370	25%	Class C: Salt, Gel, Extender, LCM, Defoamer
	TAIL	400	15.6	1.18	6857' - 9340'	472		Class H: Retarder, Fluid Loss, Defoamer
4.5 in	LEAD	680	13.5	1.85	8440' - 19223.7'	1260	25%	Class H: Salt, Gel, Fluid Loss, Retarder, Dispersant, Defoamer.

Design B - Mud Program

Depth	Mud Wt	Mud Type
	8.4 - 8.6	
0' - 1480'	8.4 - 8.6	Fresh Water
1480' - 5110'	9.5 - 10.2	Brine
5110' - 9340'	8.6 - 9.7	Cut-Brine
9340' - 19223.7'	10.0 - 12.	OBM

Geology

Formation	Est. Top (TVD)	Mineral Resources	Formation	Est. Top (TVD)	Mineral Resources
Rustler	1387'	Usable Water	Yeso		
Castile			Delaware (Lamar)		
Salt Top	1682'	None	Bell Canyon		
Salt Base	3066'	Oil/Natural Gas	Cherry Canyon	5422'	Oil/Natural Gas
Yates	3166'	Oil/Natural Gas	Manzanita Marker		
Seven Rivers	3519'	Oil/Natural Gas	Basal Brushy Canyon	6252'	Oil/Natural Gas
Queen	4133'	Oil/Natural Gas	Bone Spring	7652'	Oil/Natural Gas
Capitan			1st Bone Spring	8833'	Oil/Natural Gas
Grayburg			2nd Bone Spring	9382'	Oil/Natural Gas
San Andres	4550'	Oil/Natural Gas	3rd Bone Spring		
Glorieta			Wolfcamp		

All casing strings will be tested in accordance with 43 CFR Part 3170 Subpart 3172. 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.	N
Is well located in SOPA but not in R-111-Q?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-Q and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
Is an open annulus used to satisfy R-111-Q? If yes, see cement design.	
Is an engineered weak point used to satisfy R-111-Q?	
If yes, at what depth is the weak point planned?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Mewbourne Oil Company, Spanish Bay 18/19 Fed Com 416H
Sec 18, T19S, R33E
SHL: 205' FNL 1480' FEL (Sec 18)
BHL: 100' FSL 2200' FEL (Sec 19)

Casing Program Design A						BLM Minimum Safety Factors	1.125	1.0	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet
String	Hole Size	Top MD	Top TVD	Bot MD	Bot TVD	Csg. Size	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
Surface	17.5"	0'	0'	1480'	1480'	13.375" 48# H40 STC	1.16	2.61	4.53	7.62
Int	12.25"	0'	0'	3200'	3200'	9.625" 36# J55 LTC	1.19	2.07	2.36	2.94
Int	12.25"	3200'	3200'	4100'	4100'	9.625" 40# J55 LTC	1.18	1.82	6.81	8.25
Int	12.25"	4100'	4100'	5110'	5110'	9.625" 40# L80 LTC	1.14	2.12	18.24	22.67
Production	8.75"	0'	0'	8440'	8389'	7" 26# P110 LTC	1.47	2.35	3.16	3.78
Liner	6.125"	8240'	8179'	19224'	9121'	4.5" 13.5# P110 LTC	1.87	2.18	2.28	2.85

Cement Program

Casing		# Sacks	Wt. lb/gal	Yield ft³/sack	TOC/BOC	Volume ft³	% Excess	Slurry Description
13.375 in	LEAD	850	12.5	2.12	0' - 1289'	1810	100%	Class C: Salt, Gel, Extender, LCM
	TAIL	200	14.8	1.34	1289' - 1480'	268		Class C: Retarder
1st Stg 9.625 in	LEAD	250	12.5	2.12	3100' - 4435'	530	25%	Class C: Salt, Gel, Extender, LCM
	TAIL	200	14.8	1.34	4435' - 5110'	268		Class C: Retarder
9.5/8" DV Tool @ 3100'								
2nd Stg 9.625 in	LEAD	500	12.5	2.12	0' - 2752'	1060	25%	Class C: Salt, Gel, Extender, LCM
	TAIL	100	14.8	1.34	2752' - 3100'	134		Class C: Retarder
7 in	LEAD	90	12.5	2.12	4910' - 5961'	200	25%	Class C: Salt, Gel, Extender, LCM, Defoamer
	TAIL	400	15.6	1.18	5961' - 8440'	472		Class H: Retarder, Fluid Loss, Defoamer
4.5 in	LEAD	700	13.5	1.85	8240' - 19223.7'	1300	25%	Class H: Salt, Gel, Fluid Loss, Retarder, Dispersant, Defoamer, Anti-settling Agent

Design A - Mud Program

Depth	Mud Wt	Mud Type
	8.4 - 8.6	
0' - 1480'	8.4 - 8.6	Fresh Water
1480' - 5110'	9.5 - 10.2	Brine
5110' - 8440'	8.6 - 9.7	Cut-Brine
8440' - 19223.7'	10.0 - 12.	OBM

Geology

Formation	Est. Top (TVD)	Mineral Resources	Formation	Est. Top (TVD)	Mineral Resources
Rustler	1387'	Usable Water	Yeso		
Castile			Delaware (Lamar)		
Salt Top	1682'	None	Bell Canyon		
Tansill	3066'	Oil/Natural Gas	Cherry Canyon	5422'	Oil/Natural Gas
Yates	3166'	Oil/Natural Gas	Manzanita Marker		
Seven Rivers	3519'	Oil/Natural Gas	Basal Brushy Canyon	6252'	Oil/Natural Gas
Queen	4133'	Oil/Natural Gas	Bone Spring	7652'	Oil/Natural Gas
Capitan			1st Bone Spring	8833'	Oil/Natural Gas
Grayburg			2nd Bone Spring	9382'	Oil/Natural Gas
San Andres	4550'	Oil/Natural Gas	3rd Bone Spring		
Glorieta			Wolfcamp		

All casing strings will be tested in accordance with 43 CFR Part 3170 Subpart 3172. 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?	
If yes, does production casing cement tie back a minimum of 50' above the Reef?	N
Is well within the designated 4 string boundary.	N
Is well located in SOPA but not in R-111-Q?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-Q and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
Is an open annulus used to satisfy R-111-Q? If yes, see cement design.	
Is an engineered weak point used to satisfy R-111-Q?	
If yes, at what depth is the weak point planned?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Mewbourne Oil Company, Spanish Bay 18/19 Fed Com 416H
Sec 18, T19S, R33E
SHL: 205' FNL 1480' FEL (Sec 18)
BHL: 100' FSL 2200' FEL (Sec 19)

Casing Program Design B						BLM Minimum Safety Factors	1.125	1.0	1.6 Drv 1.8 Wet	1.6 Drv 1.8 Wet
String	Hole Size	Top MD	Top TVD	Bot MD	Bot TVD	Csg. Size	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
Surface	17.5"	0'	0'	1480'	1480'	13.375" 48# H40 STC	1.16	2.61	4.53	7.62
Int	12.25"	0'	0'	3200'	3200'	9.625" 36# J55 LTC	1.19	2.07	2.36	2.94
Int	12.25"	3200'	3200'	4100'	4100'	9.625" 40# J55 LTC	1.18	1.82	6.81	8.25
Int	12.25"	4100'	4100'	5110'	5110'	9.625" 40# L80 LTC	1.14	2.12	18.24	22.67
Production	8.75"	0'	0'	9340'	8971'	7" 26# P110 LTC	1.38	2.20	2.85	3.42
Liner	6.125"	8440'	8389'	19224'	9121'	4.5" 13.5# P110 LTC	1.87	2.18	2.32	2.90

Design B - Cement Program

Casing		# Sacks	Wt. lb/gal	Yield ft³/sack	TOC/BOC	Volume ft³	% Excess	Slurry Description
13.375 in	LEAD	850	12.5	2.12	0' - 1289'	1810	100%	Class C: Salt, Gel, Extender, LCM
	TAIL	200	14.8	1.34	1289' - 1480'	268		Class C: Retarder
1st Stg 9.625 in	LEAD	250	12.5	2.12	3100' - 4435'	530	25%	Class C: Salt, Gel, Extender, LCM
	TAIL	200	14.8	1.34	4435' - 5110'	268		Class C: Retarder
9.5/8" DV Tool @ 3100'								
2nd Stg 9.625 in	LEAD	500	12.5	2.12	0' - 2752'	1060	25%	Class C: Salt, Gel, Extender, LCM
	TAIL	100	14.8	1.34	2752' - 3100'	134		Class C: Retarder
1st Stg 7 in	LEAD	170	12.5	2.12	4910' - 6857'	370	25%	Class C: Salt, Gel, Extender, LCM, Defoamer
	TAIL	400	15.6	1.18	6857' - 9340'	472		Class H: Retarder, Fluid Loss, Defoamer
4.5 in	LEAD	680	13.5	1.85	8440' - 19223.7'	1260	25%	Class H: Salt, Gel, Fluid Loss, Retarder, Dispersant, Defoamer.

Design B - Mud Program

Depth	Mud Wt	Mud Type
	8.4 - 8.6	
0' - 1480'	8.4 - 8.6	Fresh Water
1480' - 5110'	9.5 - 10.2	Brine
5110' - 9340'	8.6 - 9.7	Cut-Brine
9340' - 19223.7'	10.0 - 12.	OBM

Geology

Formation	Est. Top (TVD)	Mineral Resources	Formation	Est. Top (TVD)	Mineral Resources
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	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
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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, at what depth is the weak point planned?	
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If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
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If yes, are there three strings cemented to surface?	

Mewbourne Oil Company, Spanish Bay 18/19 Fed Com 416H
Sec 18, T19S, R33E
SHL: 205' FNL 1480' FEL (Sec 18)
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Int	12.25"	3200'	3200'	4100'	4100'	9.625" 40# J55 LTC	1.18	1.82	6.81	8.25
Int	12.25"	4100'	4100'	5110'	5110'	9.625" 40# L80 LTC	1.14	2.12	18.24	22.67
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Liner	6.125"	8240'	8179'	19224'	9121'	4.5" 13.5# P110 LTC	1.87	2.18	2.28	2.85

Cement Program

Casing		# Sacks	Wt. lb/gal	Yield ft³/sack	TOC/BOC	Volume ft³	% Excess	Slurry Description
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	TAIL	200	14.8	1.34	1289' - 1480'	268		Class C: Retarder
1st Stg 9.625 in	LEAD	250	12.5	2.12	3100' - 4435'	530	25%	Class C: Salt, Gel, Extender, LCM
	TAIL	200	14.8	1.34	4435' - 5110'	268		Class C: Retarder
9.5/8" DV Tool @ 3100'								
2nd Stg 9.625 in	LEAD	500	12.5	2.12	0' - 2752'	1060	25%	Class C: Salt, Gel, Extender, LCM
	TAIL	100	14.8	1.34	2752' - 3100'	134		Class C: Retarder
7 in	LEAD	90	12.5	2.12	4910' - 5961'	200	25%	Class C: Salt, Gel, Extender, LCM, Defoamer
	TAIL	400	15.6	1.18	5961' - 8440'	472		Class H: Retarder, Fluid Loss, Defoamer
4.5 in	LEAD	700	13.5	1.85	8240' - 19223.7'	1300	25%	Class H: Salt, Gel, Fluid Loss, Retarder, Dispersant, Defoamer, Anti-settling Agent

Design A - Mud Program

Depth	Mud Wt	Mud Type
	8.4 - 8.6	
0' - 1480'	8.4 - 8.6	Fresh Water
1480' - 5110'	9.5 - 10.2	Brine
5110' - 8440'	8.6 - 9.7	Cut-Brine
8440' - 19223.7'	10.0 - 12.	OBM

Geology

Formation	Est. Top (TVD)	Mineral Resources	Formation	Est. Top (TVD)	Mineral Resources
Rustler	1387'	Usable Water	Yeso		
Castile			Delaware (Lamar)		
Salt Top	1682'	None	Bell Canyon		
Tansill	3066'	Oil/Natural Gas	Cherry Canyon	5422'	Oil/Natural Gas
Yates	3166'	Oil/Natural Gas	Manzanita Marker		
Seven Rivers	3519'	Oil/Natural Gas	Basal Brushy Canyon	6252'	Oil/Natural Gas
Queen	4133'	Oil/Natural Gas	Bone Spring	7652'	Oil/Natural Gas
Capitan			1st Bone Spring	8833'	Oil/Natural Gas
Grayburg			2nd Bone Spring	9382'	Oil/Natural Gas
San Andres	4550'	Oil/Natural Gas	3rd Bone Spring		
Glorieta			Wolfcamp		

All casing strings will be tested in accordance with 43 CFR Part 3170 Subpart 3172. 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?	
If yes, does production casing cement tie back a minimum of 50' above the Reef?	N
Is well within the designated 4 string boundary.	N
Is well located in SOPA but not in R-111-Q?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-Q and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
Is an open annulus used to satisfy R-111-Q? If yes, see cement design.	
Is an engineered weak point used to satisfy R-111-Q?	
If yes, at what depth is the weak point planned?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Mewbourne Oil Company, Spanish Bay 18/19 Fed Com 416H

Sec 18, T19S, R33E

SHL: 205' FNL 1480' FEL (Sec 18)

BHL: 100' FSL 2200' FEL (Sec 19)

Casing Program Design B						BLM Minimum Safety Factors	1.125	1.0	1.6 Drv 1.8 Wet	1.6 Drv 1.8 Wet
String	Hole Size	Top MD	Top TVD	Bot MD	Bot TVD	Csg. Size	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
Surface	17.5"	0'	0'	1480'	1480'	13.375" 48# H40 STC	1.16	2.61	4.53	7.62
Int	12.25"	0'	0'	3200'	3200'	9.625" 36# J55 LTC	1.19	2.07	2.36	2.94
Int	12.25"	3200'	3200'	4100'	4100'	9.625" 40# J55 LTC	1.18	1.82	6.81	8.25
Int	12.25"	4100'	4100'	5110'	5110'	9.625" 40# L80 LTC	1.14	2.12	18.24	22.67
Production	8.75"	0'	0'	9340'	8971'	7" 26# P110 LTC	1.38	2.20	2.85	3.42
Liner	6.125"	8440'	8389'	19224'	9121'	4.5" 13.5# P110 LTC	1.87	2.18	2.32	2.90

Design B - Cement Program

Casing		# Sacks	Wt. lb/gal	Yield ft³/sack	TOC/BOC	Volume ft³	% Excess	Slurry Description
13.375 in	LEAD	850	12.5	2.12	0' - 1289'	1810	100%	Class C: Salt, Gel, Extender, LCM
	TAIL	200	14.8	1.34	1289' - 1480'	268		Class C: Retarder
1st Stg 9.625 in	LEAD	250	12.5	2.12	3100' - 4435'	530	25%	Class C: Salt, Gel, Extender, LCM
	TAIL	200	14.8	1.34	4435' - 5110'	268		Class C: Retarder
9 5/8" DV Tool @ 3100'								
2nd Stg 9.625 in	LEAD	500	12.5	2.12	0' - 2752'	1060	25%	Class C: Salt, Gel, Extender, LCM
	TAIL	100	14.8	1.34	2752' - 3100'	134		Class C: Retarder
1st Stg 7 in	LEAD	170	12.5	2.12	4910' - 6857'	370	25%	Class C: Salt, Gel, Extender, LCM, Defoamer
	TAIL	400	15.6	1.18	6857' - 9340'	472		Class H: Retarder, Fluid Loss, Defoamer
4.5 in	LEAD	680	13.5	1.85	8440' - 19223.7'	1260	25%	Class H: Salt, Gel, Fluid Loss, Retarder, Dispersant, Defoamer.

Design B - Mud Program

Depth	Mud Wt	Mud Type
	8.4 - 8.6	
0' - 1480'	8.4 - 8.6	Fresh Water
1480' - 5110'	9.5 - 10.2	Brine
5110' - 9340'	8.6 - 9.7	Cut-Brine
9340' - 19223.7'	10.0 - 12.	OBM

Geology

Formation	Est. Top (TVD)	Mineral Resources	Formation	Est. Top (TVD)	Mineral Resources
Rustler	1387'	Usable Water	Yeso		
Castile			Delaware (Lamar)		
Salt Top	1682'	None	Bell Canyon		
Salt Base	3066'	Oil/Natural Gas	Cherry Canyon	5422'	Oil/Natural Gas
Yates	3166'	Oil/Natural Gas	Manzanita Marker		
Seven Rivers	3519'	Oil/Natural Gas	Basal Brushy Canyon	6252'	Oil/Natural Gas
Queen	4133'	Oil/Natural Gas	Bone Spring	7652'	Oil/Natural Gas
Capitan			1st Bone Spring	8833'	Oil/Natural Gas
Grayburg			2nd Bone Spring	9382'	Oil/Natural Gas
San Andres	4550'	Oil/Natural Gas	3rd Bone Spring		
Glorieta			Wolfcamp		

All casing strings will be tested in accordance with 43 CFR Part 3170 Subpart 3172. 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.	N
Is well located in SOPA but not in R-111-Q?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-Q and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
Is an open annulus used to satisfy R-111-Q? If yes, see cement design.	
Is an engineered weak point used to satisfy R-111-Q?	
If yes, at what depth is the weak point planned?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Mewbourne Oil Company, Spanish Bay 18/19 Fed Com 416H
Sec 18, T19S, R33E
SHL: 205' FNL 1480' FEL (Sec 18)
BHL: 100' FSL 2200' FEL (Sec 19)

Casing Program Design A						BLM Minimum Safety Factors	1.125	1.0	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet
String	Hole Size	Top MD	Top TVD	Bot MD	Bot TVD	Csg. Size	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
Surface	17.5"	0'	0'	1480'	1480'	13.375" 48# H40 STC	1.16	2.61	4.53	7.62
Int	12.25"	0'	0'	3200'	3200'	9.625" 36# J55 LTC	1.19	2.07	2.36	2.94
Int	12.25"	3200'	3200'	4100'	4100'	9.625" 40# J55 LTC	1.18	1.82	6.81	8.25
Int	12.25"	4100'	4100'	5110'	5110'	9.625" 40# L80 LTC	1.14	2.12	18.24	22.67
Production	8.75"	0'	0'	8440'	8389'	7" 26# P110 LTC	1.47	2.35	3.16	3.78
Liner	6.125"	8240'	8179'	19224'	9121'	4.5" 13.5# P110 LTC	1.87	2.18	2.28	2.85

Cement Program

Casing		# Sacks	Wt. lb/gal	Yield ft³/sack	TOC/BOC	Volume ft³	% Excess	Slurry Description
13.375 in	LEAD	850	12.5	2.12	0' - 1289'	1810	100%	Class C: Salt, Gel, Extender, LCM
	TAIL	200	14.8	1.34	1289' - 1480'	268		Class C: Retarder
1st Stg 9.625 in	LEAD	250	12.5	2.12	3100' - 4435'	530	25%	Class C: Salt, Gel, Extender, LCM
	TAIL	200	14.8	1.34	4435' - 5110'	268		Class C: Retarder
9.5/8" DV Tool @ 3100'								
2nd Stg 9.625 in	LEAD	500	12.5	2.12	0' - 2752'	1060	25%	Class C: Salt, Gel, Extender, LCM
	TAIL	100	14.8	1.34	2752' - 3100'	134		Class C: Retarder
7 in	LEAD	90	12.5	2.12	4910' - 5961'	200	25%	Class C: Salt, Gel, Extender, LCM, Defoamer
	TAIL	400	15.6	1.18	5961' - 8440'	472		Class H: Retarder, Fluid Loss, Defoamer
4.5 in	LEAD	700	13.5	1.85	8240' - 19223.7'	1300	25%	Class H: Salt, Gel, Fluid Loss, Retarder, Dispersant, Defoamer, Anti-settling Agent

Design A - Mud Program

Depth	Mud Wt	Mud Type
	8.4 - 8.6	
0' - 1480'	8.4 - 8.6	Fresh Water
1480' - 5110'	9.5 - 10.2	Brine
5110' - 8440'	8.6 - 9.7	Cut-Brine
8440' - 19223.7'	10.0 - 12.	OBM

Geology

Formation	Est. Top (TVD)	Mineral Resources	Formation	Est. Top (TVD)	Mineral Resources
Rustler	1387'	Usable Water	Yeso		
Castile			Delaware (Lamar)		
Salt Top	1682'	None	Bell Canyon		
Tansill	3066'	Oil/Natural Gas	Cherry Canyon	5422'	Oil/Natural Gas
Yates	3166'	Oil/Natural Gas	Manzanita Marker		
Seven Rivers	3519'	Oil/Natural Gas	Basal Brushy Canyon	6252'	Oil/Natural Gas
Queen	4133'	Oil/Natural Gas	Bone Spring	7652'	Oil/Natural Gas
Capitan			1st Bone Spring	8833'	Oil/Natural Gas
Grayburg			2nd Bone Spring	9382'	Oil/Natural Gas
San Andres	4550'	Oil/Natural Gas	3rd Bone Spring		
Glorieta			Wolfcamp		

All casing strings will be tested in accordance with 43 CFR Part 3170 Subpart 3172. 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.	N
Is well located in SOPA but not in R-111-Q?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-Q and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
Is an open annulus used to satisfy R-111-Q? If yes, see cement design.	
Is an engineered weak point used to satisfy R-111-Q?	
If yes, at what depth is the weak point planned?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Mewbourne Oil Company, Spanish Bay 18/19 Fed Com 416H

Sec 18, T19S, R33E

SHL: 205' FNL 1480' FEL (Sec 18)

BHL: 100' FSL 2200' FEL (Sec 19)

Casing Program Design B						BLM Minimum Safety Factors	1.125	1.0	1.6 Drv 1.8 Wet	1.6 Drv 1.8 Wet
String	Hole Size	Top MD	Top TVD	Bot MD	Bot TVD	Csg. Size	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
Surface	17.5"	0'	0'	1480'	1480'	13.375" 48# H40 STC	1.16	2.61	4.53	7.62
Int	12.25"	0'	0'	3200'	3200'	9.625" 36# J55 LTC	1.19	2.07	2.36	2.94
Int	12.25"	3200'	3200'	4100'	4100'	9.625" 40# J55 LTC	1.18	1.82	6.81	8.25
Int	12.25"	4100'	4100'	5110'	5110'	9.625" 40# L80 LTC	1.14	2.12	18.24	22.67
Production	8.75"	0'	0'	9340'	8971'	7" 26# P110 LTC	1.38	2.20	2.85	3.42
Liner	6.125"	8440'	8389'	19224'	9121'	4.5" 13.5# P110 LTC	1.87	2.18	2.32	2.90

Design B - Cement Program

Casing		# Sacks	Wt. lb/gal	Yield ft³/sack	TOC/BOC	Volume ft³	% Excess	Slurry Description
13.375 in	LEAD	850	12.5	2.12	0' - 1289'	1810	100%	Class C: Salt, Gel, Extender, LCM
	TAIL	200	14.8	1.34	1289' - 1480'	268		Class C: Retarder
1st Stg 9.625 in	LEAD	250	12.5	2.12	3100' - 4435'	530	25%	Class C: Salt, Gel, Extender, LCM
	TAIL	200	14.8	1.34	4435' - 5110'	268		Class C: Retarder
9.5/8" DV Tool @ 3100'								
2nd Stg 9.625 in	LEAD	500	12.5	2.12	0' - 2752'	1060	25%	Class C: Salt, Gel, Extender, LCM
	TAIL	100	14.8	1.34	2752' - 3100'	134		Class C: Retarder
1st Stg 7 in	LEAD	170	12.5	2.12	4910' - 6857'	370	25%	Class C: Salt, Gel, Extender, LCM, Defoamer
	TAIL	400	15.6	1.18	6857' - 9340'	472		Class H: Retarder, Fluid Loss, Defoamer
4.5 in	LEAD	680	13.5	1.85	8440' - 19223.7'	1260	25%	Class H: Salt, Gel, Fluid Loss, Retarder, Dispersant, Defoamer.

Design B - Mud Program

Depth	Mud Wt	Mud Type
	8.4 - 8.6	
0' - 1480'	8.4 - 8.6	Fresh Water
1480' - 5110'	9.5 - 10.2	Brine
5110' - 9340'	8.6 - 9.7	Cut-Brine
9340' - 19223.7'	10.0 - 12.	OBM

Geology

Formation	Est. Top (TVD)	Mineral Resources	Formation	Est. Top (TVD)	Mineral Resources
Rustler	1387'	Usable Water	Yeso		
Castile			Delaware (Lamar)		
Salt Top	1682'	None	Bell Canyon		
Salt Base	3066'	Oil/Natural Gas	Cherry Canyon	5422'	Oil/Natural Gas
Yates	3166'	Oil/Natural Gas	Manzanita Marker		
Seven Rivers	3519'	Oil/Natural Gas	Basal Brushy Canyon	6252'	Oil/Natural Gas
Queen	4133'	Oil/Natural Gas	Bone Spring	7652'	Oil/Natural Gas
Capitan			1st Bone Spring	8833'	Oil/Natural Gas
Grayburg			2nd Bone Spring	9382'	Oil/Natural Gas
San Andres	4550'	Oil/Natural Gas	3rd Bone Spring		
Glorieta			Wolfcamp		

All casing strings will be tested in accordance with 43 CFR Part 3170 Subpart 3172. 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.	N
Is well located in SOPA but not in R-111-Q?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-Q and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
Is an open annulus used to satisfy R-111-Q? If yes, see cement design.	
Is an engineered weak point used to satisfy R-111-Q?	
If yes, at what depth is the weak point planned?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Mewbourne Oil Company, Spanish Bay 18/19 Fed Com 416H
Sec 18, T19S, R33E
SHL: 205' FNL 1480' FEL (Sec 18)
BHL: 100' FSL 2200' FEL (Sec 19)

Casing Program Design A						BLM Minimum Safety Factors	1.125	1.0	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet
String	Hole Size	Top MD	Top TVD	Bot MD	Bot TVD	Csg. Size	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
Surface	17.5"	0'	0'	1480'	1480'	13.375" 48# H40 STC	1.16	2.61	4.53	7.62
Int	12.25"	0'	0'	3200'	3200'	9.625" 36# J55 LTC	1.19	2.07	2.36	2.94
Int	12.25"	3200'	3200'	4100'	4100'	9.625" 40# J55 LTC	1.18	1.82	6.81	8.25
Int	12.25"	4100'	4100'	5110'	5110'	9.625" 40# L80 LTC	1.14	2.12	18.24	22.67
Production	8.75"	0'	0'	8440'	8389'	7" 26# P110 LTC	1.47	2.35	3.16	3.78
Liner	6.125"	8240'	8179'	19224'	9121'	4.5" 13.5# P110 LTC	1.87	2.18	2.28	2.85

Cement Program

Casing		# Sacks	Wt. lb/gal	Yield ft³/sack	TOC/BOC	Volume ft³	% Excess	Slurry Description
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	TAIL	200	14.8	1.34	1289' - 1480'	268		Class C: Retarder
1st Stg 9.625 in	LEAD	250	12.5	2.12	3100' - 4435'	530	25%	Class C: Salt, Gel, Extender, LCM
	TAIL	200	14.8	1.34	4435' - 5110'	268		Class C: Retarder
9.5/8" DV Tool @ 3100'								
2nd Stg 9.625 in	LEAD	500	12.5	2.12	0' - 2752'	1060	25%	Class C: Salt, Gel, Extender, LCM
	TAIL	100	14.8	1.34	2752' - 3100'	134		Class C: Retarder
7 in	LEAD	90	12.5	2.12	4910' - 5961'	200	25%	Class C: Salt, Gel, Extender, LCM, Defoamer
	TAIL	400	15.6	1.18	5961' - 8440'	472		Class H: Retarder, Fluid Loss, Defoamer
4.5 in	LEAD	700	13.5	1.85	8240' - 19223.7'	1300	25%	Class H: Salt, Gel, Fluid Loss, Retarder, Dispersant, Defoamer, Anti-settling Agent

Design A - Mud Program

Depth	Mud Wt	Mud Type
	8.4 - 8.6	
0' - 1480'	8.4 - 8.6	Fresh Water
1480' - 5110'	9.5 - 10.2	Brine
5110' - 8440'	8.6 - 9.7	Cut-Brine
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	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
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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?	
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Is well within the designated 4 string boundary.	N
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Is well located in R-111-Q and SOPA?	N
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Is 2 nd string set 100' to 600' below the base of salt?	
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Is an engineered weak point used to satisfy R-111-Q?	
If yes, at what depth is the weak point planned?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
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Mewbourne Oil Company, Spanish Bay 18/19 Fed Com 416H
Sec 18, T19S, R33E
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Int	12.25"	3200'	3200'	4100'	4100'	9.625" 40# J55 LTC	1.18	1.82	6.81	8.25
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Design B - Cement Program

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13.375 in	LEAD	850	12.5	2.12	0' - 1289'	1810	100%	Class C: Salt, Gel, Extender, LCM
	TAIL	200	14.8	1.34	1289' - 1480'	268		Class C: Retarder
1st Stg 9.625 in	LEAD	250	12.5	2.12	3100' - 4435'	530	25%	Class C: Salt, Gel, Extender, LCM
	TAIL	200	14.8	1.34	4435' - 5110'	268		Class C: Retarder
9.5/8" DV Tool @ 3100'								
2nd Stg 9.625 in	LEAD	500	12.5	2.12	0' - 2752'	1060	25%	Class C: Salt, Gel, Extender, LCM
	TAIL	100	14.8	1.34	2752' - 3100'	134		Class C: Retarder
1st Stg 7 in	LEAD	170	12.5	2.12	4910' - 6857'	370	25%	Class C: Salt, Gel, Extender, LCM, Defoamer
	TAIL	400	15.6	1.18	6857' - 9340'	472		Class H: Retarder, Fluid Loss, Defoamer
4.5 in	LEAD	680	13.5	1.85	8440' - 19223.7'	1260	25%	Class H: Salt, Gel, Fluid Loss, Retarder, Dispersant, Defoamer.

Design B - Mud Program

Depth	Mud Wt	Mud Type
	8.4 - 8.6	
0' - 1480'	8.4 - 8.6	Fresh Water
1480' - 5110'	9.5 - 10.2	Brine
5110' - 9340'	8.6 - 9.7	Cut-Brine
9340' - 19223.7'	10.0 - 12.	OBM

Geology

Formation	Est. Top (TVD)	Mineral Resources	Formation	Est. Top (TVD)	Mineral Resources
Rustler	1387'	Usable Water	Yeso		
Castile			Delaware (Lamar)		
Salt Top	1682'	None	Bell Canyon		
Salt Base	3066'	Oil/Natural Gas	Cherry Canyon	5422'	Oil/Natural Gas
Yates	3166'	Oil/Natural Gas	Manzanita Marker		
Seven Rivers	3519'	Oil/Natural Gas	Basal Brushy Canyon	6252'	Oil/Natural Gas
Queen	4133'	Oil/Natural Gas	Bone Spring	7652'	Oil/Natural Gas
Capitan			1st Bone Spring	8833'	Oil/Natural Gas
Grayburg			2nd Bone Spring	9382'	Oil/Natural Gas
San Andres	4550'	Oil/Natural Gas	3rd Bone Spring		
Glorieta			Wolfcamp		

All casing strings will be tested in accordance with 43 CFR Part 3170 Subpart 3172. 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.	N
Is well located in SOPA but not in R-111-Q?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-Q and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
Is an open annulus used to satisfy R-111-Q? If yes, see cement design.	
Is an engineered weak point used to satisfy R-111-Q?	
If yes, at what depth is the weak point planned?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Mewbourne Oil Company

Lea County, New Mexico NAD 83

Spanish Bay 18/19 Fed Com #416H

Sec 18, T19S, R33E

SHL: 205' FNL & 1480' FEL (Sec 18)

BHL: 100' FSL & 2200' FEL (Sec 19)

Plan: Design #1

Standard Planning Report

05 June, 2024

Planning Report

Database:	Hobbs	Local Co-ordinate Reference:	Site Spanish Bay 18/19 Fed Com #416H
Company:	Mewbourne Oil Company	TVD Reference:	Original Well @ 3676.0usft
Project:	Lea County, New Mexico NAD 83	MD Reference:	Original Well @ 3676.0usft
Site:	Spanish Bay 18/19 Fed Com #416H	North Reference:	Grid
Well:	Sec 18, T19S, R33E	Survey Calculation Method:	Minimum Curvature
Wellbore:	BHL: 100' FSL & 2200' FEL (Sec 19)		
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		Spanish Bay 18/19 Fed Com #416H			
Site Position:		Northing:	606,969.50 usft	Latitude:	32.6669996
From:	Map	Easting:	736,663.70 usft	Longitude:	-103.6985920
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "		

Well	Sec 18, T19S, R33E					
Well Position	+N/-S	0.0 usft	Northing:	606,969.50 usft	Latitude:	32.6669996
	+E/-W	0.0 usft	Easting:	736,663.70 usft	Longitude:	-103.6985920
Position Uncertainty		0.0 usft	Wellhead Elevation:	3,676.0 usft	Ground Level:	3,648.0 usft
Grid Convergence:		0.34 °				

Wellbore	BHL: 100' FSL & 2200' FEL (Sec 19)				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/31/2014	7.24	60.48	48,512.60978159

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	183.87	

Plan Survey Tool Program	Date	6/5/2024			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.0	19,223.7	Design #1 (BHL: 100' FSL & 2200		

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	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,823.7	6.47	285.16	1,823.0	4.8	-17.6	2.00	2.00	0.00	285.16	
8,115.8	6.47	285.16	8,075.0	190.3	-702.4	0.00	0.00	0.00	0.00	
8,439.5	0.00	0.00	8,398.0	195.1	-720.0	2.00	-2.00	0.00	180.00	KOP: 10' FNL & 2200'
9,331.0	89.13	179.86	8,971.0	-369.3	-718.6	10.00	10.00	0.00	179.86	
19,223.7	89.13	179.86	9,121.0	-10,260.8	-694.6	0.00	0.00	0.00	0.00	BHL: 100' FSL & 2200'

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Site:	Spanish Bay 18/19 Fed Com #416H	North Reference:	Grid
Well:	Sec 18, T19S, R33E	Survey Calculation Method:	Minimum Curvature
Wellbore:	BHL: 100' FSL & 2200' FEL (Sec 19)		
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: 205' FNL & 1480' FEL (Sec 18)									
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	2.00	285.16	1,600.0	0.5	-1.7	-0.3	2.00	2.00	0.00
1,700.0	4.00	285.16	1,699.8	1.8	-6.7	-1.4	2.00	2.00	0.00
1,800.0	6.00	285.16	1,799.5	4.1	-15.1	-3.1	2.00	2.00	0.00
1,823.7	6.47	285.16	1,823.0	4.8	-17.6	-3.6	2.00	2.00	0.00
1,900.0	6.47	285.16	1,898.8	7.0	-25.9	-5.3	0.00	0.00	0.00
2,000.0	6.47	285.16	1,998.2	10.0	-36.8	-7.5	0.00	0.00	0.00
2,100.0	6.47	285.16	2,097.5	12.9	-47.7	-9.7	0.00	0.00	0.00
2,200.0	6.47	285.16	2,196.9	15.9	-58.6	-11.9	0.00	0.00	0.00
2,300.0	6.47	285.16	2,296.3	18.8	-69.5	-14.1	0.00	0.00	0.00
2,400.0	6.47	285.16	2,395.6	21.8	-80.3	-16.3	0.00	0.00	0.00
2,500.0	6.47	285.16	2,495.0	24.7	-91.2	-18.5	0.00	0.00	0.00
2,600.0	6.47	285.16	2,594.4	27.7	-102.1	-20.7	0.00	0.00	0.00
2,700.0	6.47	285.16	2,693.7	30.6	-113.0	-22.9	0.00	0.00	0.00
2,800.0	6.47	285.16	2,793.1	33.6	-123.9	-25.1	0.00	0.00	0.00
2,900.0	6.47	285.16	2,892.4	36.5	-134.8	-27.3	0.00	0.00	0.00
3,000.0	6.47	285.16	2,991.8	39.5	-145.6	-29.5	0.00	0.00	0.00
3,100.0	6.47	285.16	3,091.2	42.4	-156.5	-31.7	0.00	0.00	0.00
3,200.0	6.47	285.16	3,190.5	45.4	-167.4	-34.0	0.00	0.00	0.00
3,300.0	6.47	285.16	3,289.9	48.3	-178.3	-36.2	0.00	0.00	0.00
3,400.0	6.47	285.16	3,389.3	51.3	-189.2	-38.4	0.00	0.00	0.00
3,500.0	6.47	285.16	3,488.6	54.2	-200.1	-40.6	0.00	0.00	0.00
3,600.0	6.47	285.16	3,588.0	57.2	-210.9	-42.8	0.00	0.00	0.00
3,700.0	6.47	285.16	3,687.3	60.1	-221.8	-45.0	0.00	0.00	0.00
3,800.0	6.47	285.16	3,786.7	63.1	-232.7	-47.2	0.00	0.00	0.00
3,900.0	6.47	285.16	3,886.1	66.0	-243.6	-49.4	0.00	0.00	0.00
4,000.0	6.47	285.16	3,985.4	69.0	-254.5	-51.6	0.00	0.00	0.00
4,100.0	6.47	285.16	4,084.8	71.9	-265.3	-53.8	0.00	0.00	0.00
4,200.0	6.47	285.16	4,184.2	74.9	-276.2	-56.0	0.00	0.00	0.00
4,300.0	6.47	285.16	4,283.5	77.8	-287.1	-58.2	0.00	0.00	0.00
4,400.0	6.47	285.16	4,382.9	80.7	-298.0	-60.4	0.00	0.00	0.00
4,500.0	6.47	285.16	4,482.2	83.7	-308.9	-62.6	0.00	0.00	0.00
4,600.0	6.47	285.16	4,581.6	86.6	-319.8	-64.9	0.00	0.00	0.00
4,700.0	6.47	285.16	4,681.0	89.6	-330.6	-67.1	0.00	0.00	0.00
4,800.0	6.47	285.16	4,780.3	92.5	-341.5	-69.3	0.00	0.00	0.00
4,900.0	6.47	285.16	4,879.7	95.5	-352.4	-71.5	0.00	0.00	0.00
5,000.0	6.47	285.16	4,979.1	98.4	-363.3	-73.7	0.00	0.00	0.00
5,100.0	6.47	285.16	5,078.4	101.4	-374.2	-75.9	0.00	0.00	0.00

Planning Report

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Project:	Lea County, New Mexico NAD 83	MD Reference:	Original Well @ 3676.0usft
Site:	Spanish Bay 18/19 Fed Com #416H	North Reference:	Grid
Well:	Sec 18, T19S, R33E	Survey Calculation Method:	Minimum Curvature
Wellbore:	BHL: 100' FSL & 2200' FEL (Sec 19)		
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	6.47	285.16	5,177.8	104.3	-385.1	-78.1	0.00	0.00	0.00
5,300.0	6.47	285.16	5,277.1	107.3	-395.9	-80.3	0.00	0.00	0.00
5,400.0	6.47	285.16	5,376.5	110.2	-406.8	-82.5	0.00	0.00	0.00
5,500.0	6.47	285.16	5,475.9	113.2	-417.7	-84.7	0.00	0.00	0.00
5,600.0	6.47	285.16	5,575.2	116.1	-428.6	-86.9	0.00	0.00	0.00
5,700.0	6.47	285.16	5,674.6	119.1	-439.5	-89.1	0.00	0.00	0.00
5,800.0	6.47	285.16	5,774.0	122.0	-450.4	-91.3	0.00	0.00	0.00
5,900.0	6.47	285.16	5,873.3	125.0	-461.2	-93.5	0.00	0.00	0.00
6,000.0	6.47	285.16	5,972.7	127.9	-472.1	-95.8	0.00	0.00	0.00
6,100.0	6.47	285.16	6,072.0	130.9	-483.0	-98.0	0.00	0.00	0.00
6,200.0	6.47	285.16	6,171.4	133.8	-493.9	-100.2	0.00	0.00	0.00
6,300.0	6.47	285.16	6,270.8	136.8	-504.8	-102.4	0.00	0.00	0.00
6,400.0	6.47	285.16	6,370.1	139.7	-515.6	-104.6	0.00	0.00	0.00
6,500.0	6.47	285.16	6,469.5	142.7	-526.5	-106.8	0.00	0.00	0.00
6,600.0	6.47	285.16	6,568.9	145.6	-537.4	-109.0	0.00	0.00	0.00
6,700.0	6.47	285.16	6,668.2	148.6	-548.3	-111.2	0.00	0.00	0.00
6,800.0	6.47	285.16	6,767.6	151.5	-559.2	-113.4	0.00	0.00	0.00
6,900.0	6.47	285.16	6,866.9	154.5	-570.1	-115.6	0.00	0.00	0.00
7,000.0	6.47	285.16	6,966.3	157.4	-580.9	-117.8	0.00	0.00	0.00
7,100.0	6.47	285.16	7,065.7	160.4	-591.8	-120.0	0.00	0.00	0.00
7,200.0	6.47	285.16	7,165.0	163.3	-602.7	-122.2	0.00	0.00	0.00
7,300.0	6.47	285.16	7,264.4	166.3	-613.6	-124.4	0.00	0.00	0.00
7,400.0	6.47	285.16	7,363.8	169.2	-624.5	-126.7	0.00	0.00	0.00
7,500.0	6.47	285.16	7,463.1	172.2	-635.4	-128.9	0.00	0.00	0.00
7,600.0	6.47	285.16	7,562.5	175.1	-646.2	-131.1	0.00	0.00	0.00
7,700.0	6.47	285.16	7,661.8	178.1	-657.1	-133.3	0.00	0.00	0.00
7,800.0	6.47	285.16	7,761.2	181.0	-668.0	-135.5	0.00	0.00	0.00
7,900.0	6.47	285.16	7,860.6	184.0	-678.9	-137.7	0.00	0.00	0.00
8,000.0	6.47	285.16	7,959.9	186.9	-689.8	-139.9	0.00	0.00	0.00
8,100.0	6.47	285.16	8,059.3	189.9	-700.6	-142.1	0.00	0.00	0.00
8,115.8	6.47	285.16	8,075.0	190.3	-702.4	-142.4	0.00	0.00	0.00
8,200.0	4.79	285.16	8,158.8	192.5	-710.3	-144.1	2.00	-2.00	0.00
8,300.0	2.79	285.16	8,258.6	194.2	-716.7	-145.4	2.00	-2.00	0.00
8,400.0	0.79	285.16	8,358.5	195.0	-719.7	-146.0	2.00	-2.00	0.00
8,439.5	0.00	0.00	8,398.0	195.1	-720.0	-146.0	2.00	-2.00	0.00
KOP: 10' FNL & 2200' FEL (Sec 18)									
8,450.0	1.05	179.86	8,408.5	195.0	-720.0	-145.9	10.00	10.00	0.00
8,500.0	6.05	179.86	8,458.4	191.9	-720.0	-142.8	10.00	10.00	0.00
8,550.0	11.05	179.86	8,507.8	184.5	-720.0	-135.4	10.00	10.00	0.00
8,600.0	16.05	179.86	8,556.4	172.8	-719.9	-123.8	10.00	10.00	0.00
8,650.0	21.05	179.86	8,603.8	156.9	-719.9	-107.9	10.00	10.00	0.00
8,700.0	26.05	179.86	8,649.6	136.9	-719.9	-88.0	10.00	10.00	0.00
8,750.0	31.04	179.86	8,693.5	113.0	-719.8	-64.1	10.00	10.00	0.00
8,765.0	32.55	179.86	8,706.3	105.1	-719.8	-56.2	10.00	10.00	0.00
FTP: 100' FNL & 2200' FEL (Sec 18)									
8,800.0	36.04	179.86	8,735.2	85.4	-719.7	-36.6	10.00	10.00	0.00
8,850.0	41.04	179.86	8,774.3	54.3	-719.7	-5.5	10.00	10.00	0.00
8,900.0	46.04	179.86	8,810.5	19.8	-719.6	28.8	10.00	10.00	0.00
8,950.0	51.04	179.86	8,843.6	-17.6	-719.5	66.2	10.00	10.00	0.00
9,000.0	56.04	179.86	8,873.3	-57.8	-719.4	106.3	10.00	10.00	0.00
9,050.0	61.04	179.86	8,899.4	-100.5	-719.3	148.8	10.00	10.00	0.00
9,100.0	66.04	179.86	8,921.7	-145.2	-719.2	193.5	10.00	10.00	0.00
9,150.0	71.04	179.86	8,940.0	-191.7	-719.1	239.9	10.00	10.00	0.00
9,200.0	76.04	179.86	8,954.1	-239.7	-718.9	287.7	10.00	10.00	0.00

Planning Report

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Well:	Sec 18, T19S, R33E	Survey Calculation Method:	Minimum Curvature
Wellbore:	BHL: 100' FSL & 2200' FEL (Sec 19)		
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)
9,250.0	81.03	179.86	8,964.1	-288.7	-718.8	336.6	10.00	10.00	0.00
9,300.0	86.03	179.86	8,969.7	-338.3	-718.7	386.1	10.00	10.00	0.00
9,331.0	89.13	179.86	8,971.0	-369.3	-718.6	417.0	10.00	10.00	0.00
9,339.7	89.13	179.86	8,971.1	-378.0	-718.6	425.7	0.00	0.00	0.00
LP: 583' FNL & 2200' FEL (Sec 18)									
9,400.0	89.13	179.86	8,972.0	-438.3	-718.5	485.8	0.00	0.00	0.00
9,500.0	89.13	179.86	8,973.6	-538.3	-718.2	585.6	0.00	0.00	0.00
9,600.0	89.13	179.86	8,975.1	-638.3	-718.0	685.3	0.00	0.00	0.00
9,700.0	89.13	179.86	8,976.6	-738.3	-717.7	785.0	0.00	0.00	0.00
9,800.0	89.13	179.86	8,978.1	-838.2	-717.5	884.8	0.00	0.00	0.00
9,900.0	89.13	179.86	8,979.6	-938.2	-717.2	984.5	0.00	0.00	0.00
10,000.0	89.13	179.86	8,981.1	-1,038.2	-717.0	1,084.3	0.00	0.00	0.00
10,100.0	89.13	179.86	8,982.7	-1,138.2	-716.8	1,184.0	0.00	0.00	0.00
10,200.0	89.13	179.86	8,984.2	-1,238.2	-716.5	1,283.8	0.00	0.00	0.00
10,300.0	89.13	179.86	8,985.7	-1,338.2	-716.3	1,383.5	0.00	0.00	0.00
10,400.0	89.13	179.86	8,987.2	-1,438.2	-716.0	1,483.2	0.00	0.00	0.00
10,500.0	89.13	179.86	8,988.7	-1,538.2	-715.8	1,583.0	0.00	0.00	0.00
10,600.0	89.13	179.86	8,990.2	-1,638.1	-715.5	1,682.7	0.00	0.00	0.00
10,700.0	89.13	179.86	8,991.8	-1,738.1	-715.3	1,782.5	0.00	0.00	0.00
10,800.0	89.13	179.86	8,993.3	-1,838.1	-715.1	1,882.2	0.00	0.00	0.00
10,900.0	89.13	179.86	8,994.8	-1,938.1	-714.8	1,982.0	0.00	0.00	0.00
11,000.0	89.13	179.86	8,996.3	-2,038.1	-714.6	2,081.7	0.00	0.00	0.00
11,100.0	89.13	179.86	8,997.8	-2,138.1	-714.3	2,181.5	0.00	0.00	0.00
11,200.0	89.13	179.86	8,999.3	-2,238.1	-714.1	2,281.2	0.00	0.00	0.00
11,300.0	89.13	179.86	9,000.9	-2,338.1	-713.8	2,380.9	0.00	0.00	0.00
11,400.0	89.13	179.86	9,002.4	-2,438.1	-713.6	2,480.7	0.00	0.00	0.00
11,500.0	89.13	179.86	9,003.9	-2,538.0	-713.4	2,580.4	0.00	0.00	0.00
11,600.0	89.13	179.86	9,005.4	-2,638.0	-713.1	2,680.2	0.00	0.00	0.00
11,700.0	89.13	179.86	9,006.9	-2,738.0	-712.9	2,779.9	0.00	0.00	0.00
11,800.0	89.13	179.86	9,008.4	-2,838.0	-712.6	2,879.7	0.00	0.00	0.00
11,900.0	89.13	179.86	9,010.0	-2,938.0	-712.4	2,979.4	0.00	0.00	0.00
12,000.0	89.13	179.86	9,011.5	-3,038.0	-712.1	3,079.1	0.00	0.00	0.00
12,100.0	89.13	179.86	9,013.0	-3,138.0	-711.9	3,178.9	0.00	0.00	0.00
12,200.0	89.13	179.86	9,014.5	-3,238.0	-711.7	3,278.6	0.00	0.00	0.00
12,300.0	89.13	179.86	9,016.0	-3,337.9	-711.4	3,378.4	0.00	0.00	0.00
12,400.0	89.13	179.86	9,017.5	-3,437.9	-711.2	3,478.1	0.00	0.00	0.00
12,500.0	89.13	179.86	9,019.1	-3,537.9	-710.9	3,577.9	0.00	0.00	0.00
12,600.0	89.13	179.86	9,020.6	-3,637.9	-710.7	3,677.6	0.00	0.00	0.00
12,700.0	89.13	179.86	9,022.1	-3,737.9	-710.4	3,777.3	0.00	0.00	0.00
12,800.0	89.13	179.86	9,023.6	-3,837.9	-710.2	3,877.1	0.00	0.00	0.00
12,900.0	89.13	179.86	9,025.1	-3,937.9	-710.0	3,976.8	0.00	0.00	0.00
13,000.0	89.13	179.86	9,026.6	-4,037.9	-709.7	4,076.6	0.00	0.00	0.00
13,100.0	89.13	179.86	9,028.1	-4,137.9	-709.5	4,176.3	0.00	0.00	0.00
13,200.0	89.13	179.86	9,029.7	-4,237.8	-709.2	4,276.1	0.00	0.00	0.00
13,300.0	89.13	179.86	9,031.2	-4,337.8	-709.0	4,375.8	0.00	0.00	0.00
13,400.0	89.13	179.86	9,032.7	-4,437.8	-708.7	4,475.6	0.00	0.00	0.00
13,500.0	89.13	179.86	9,034.2	-4,537.8	-708.5	4,575.3	0.00	0.00	0.00
13,600.0	89.13	179.86	9,035.7	-4,637.8	-708.3	4,675.0	0.00	0.00	0.00
13,700.0	89.13	179.86	9,037.2	-4,737.8	-708.0	4,774.8	0.00	0.00	0.00
13,800.0	89.13	179.86	9,038.8	-4,837.8	-707.8	4,874.5	0.00	0.00	0.00
13,900.0	89.13	179.86	9,040.3	-4,937.8	-707.5	4,974.3	0.00	0.00	0.00
14,000.0	89.13	179.86	9,041.8	-5,037.7	-707.3	5,074.0	0.00	0.00	0.00
14,045.9	89.13	179.86	9,042.5	-5,083.6	-707.2	5,119.8	0.00	0.00	0.00

Planning Report

Database:	Hobbs	Local Co-ordinate Reference:	Site Spanish Bay 18/19 Fed Com #416H
Company:	Mewbourne Oil Company	TVD Reference:	Original Well @ 3676.0usft
Project:	Lea County, New Mexico NAD 83	MD Reference:	Original Well @ 3676.0usft
Site:	Spanish Bay 18/19 Fed Com #416H	North Reference:	Grid
Well:	Sec 18, T19S, R33E	Survey Calculation Method:	Minimum Curvature
Wellbore:	BHL: 100' FSL & 2200' FEL (Sec 19)		
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)
PPP2: 0' FNL & 2197' FEL (Sec 19)									
14,100.0	89.13	179.86	9,043.3	-5,137.7	-707.0	5,173.8	0.00	0.00	0.00
14,200.0	89.13	179.86	9,044.8	-5,237.7	-706.8	5,273.5	0.00	0.00	0.00
14,300.0	89.13	179.86	9,046.3	-5,337.7	-706.6	5,373.2	0.00	0.00	0.00
14,400.0	89.13	179.86	9,047.9	-5,437.7	-706.3	5,473.0	0.00	0.00	0.00
14,500.0	89.13	179.86	9,049.4	-5,537.7	-706.1	5,572.7	0.00	0.00	0.00
14,600.0	89.13	179.86	9,050.9	-5,637.7	-705.8	5,672.5	0.00	0.00	0.00
14,700.0	89.13	179.86	9,052.4	-5,737.7	-705.6	5,772.2	0.00	0.00	0.00
14,800.0	89.13	179.86	9,053.9	-5,837.7	-705.3	5,872.0	0.00	0.00	0.00
14,900.0	89.13	179.86	9,055.4	-5,937.6	-705.1	5,971.7	0.00	0.00	0.00
15,000.0	89.13	179.86	9,057.0	-6,037.6	-704.9	6,071.4	0.00	0.00	0.00
15,100.0	89.13	179.86	9,058.5	-6,137.6	-704.6	6,171.2	0.00	0.00	0.00
15,200.0	89.13	179.86	9,060.0	-6,237.6	-704.4	6,270.9	0.00	0.00	0.00
15,300.0	89.13	179.86	9,061.5	-6,337.6	-704.1	6,370.7	0.00	0.00	0.00
15,400.0	89.13	179.86	9,063.0	-6,437.6	-703.9	6,470.4	0.00	0.00	0.00
15,500.0	89.13	179.86	9,064.5	-6,537.6	-703.6	6,570.2	0.00	0.00	0.00
15,600.0	89.13	179.86	9,066.1	-6,637.6	-703.4	6,669.9	0.00	0.00	0.00
15,700.0	89.13	179.86	9,067.6	-6,737.5	-703.2	6,769.7	0.00	0.00	0.00
15,800.0	89.13	179.86	9,069.1	-6,837.5	-702.9	6,869.4	0.00	0.00	0.00
15,900.0	89.13	179.86	9,070.6	-6,937.5	-702.7	6,969.1	0.00	0.00	0.00
16,000.0	89.13	179.86	9,072.1	-7,037.5	-702.4	7,068.9	0.00	0.00	0.00
16,100.0	89.13	179.86	9,073.6	-7,137.5	-702.2	7,168.6	0.00	0.00	0.00
16,200.0	89.13	179.86	9,075.2	-7,237.5	-701.9	7,268.4	0.00	0.00	0.00
16,300.0	89.13	179.86	9,076.7	-7,337.5	-701.7	7,368.1	0.00	0.00	0.00
16,400.0	89.13	179.86	9,078.2	-7,437.5	-701.5	7,467.9	0.00	0.00	0.00
16,500.0	89.13	179.86	9,079.7	-7,537.5	-701.2	7,567.6	0.00	0.00	0.00
16,600.0	89.13	179.86	9,081.2	-7,637.4	-701.0	7,667.3	0.00	0.00	0.00
16,682.9	89.13	179.86	9,082.5	-7,720.3	-700.8	7,750.0	0.00	0.00	0.00
PPP3: 2641' FSL & 2197' FEL (Sec 19)									
16,700.0	89.13	179.86	9,082.7	-7,737.4	-700.7	7,767.1	0.00	0.00	0.00
16,800.0	89.13	179.86	9,084.3	-7,837.4	-700.5	7,866.8	0.00	0.00	0.00
16,900.0	89.13	179.86	9,085.8	-7,937.4	-700.2	7,966.6	0.00	0.00	0.00
17,000.0	89.13	179.86	9,087.3	-8,037.4	-700.0	8,066.3	0.00	0.00	0.00
17,100.0	89.13	179.86	9,088.8	-8,137.4	-699.8	8,166.1	0.00	0.00	0.00
17,200.0	89.13	179.86	9,090.3	-8,237.4	-699.5	8,265.8	0.00	0.00	0.00
17,300.0	89.13	179.86	9,091.8	-8,337.4	-699.3	8,365.5	0.00	0.00	0.00
17,400.0	89.13	179.86	9,093.3	-8,437.3	-699.0	8,465.3	0.00	0.00	0.00
17,500.0	89.13	179.86	9,094.9	-8,537.3	-698.8	8,565.0	0.00	0.00	0.00
17,600.0	89.13	179.86	9,096.4	-8,637.3	-698.5	8,664.8	0.00	0.00	0.00
17,700.0	89.13	179.86	9,097.9	-8,737.3	-698.3	8,764.5	0.00	0.00	0.00
17,800.0	89.13	179.86	9,099.4	-8,837.3	-698.1	8,864.3	0.00	0.00	0.00
17,900.0	89.13	179.86	9,100.9	-8,937.3	-697.8	8,964.0	0.00	0.00	0.00
18,000.0	89.13	179.86	9,102.4	-9,037.3	-697.6	9,063.8	0.00	0.00	0.00
18,100.0	89.13	179.86	9,104.0	-9,137.3	-697.3	9,163.5	0.00	0.00	0.00
18,200.0	89.13	179.86	9,105.5	-9,237.3	-697.1	9,263.2	0.00	0.00	0.00
18,300.0	89.13	179.86	9,107.0	-9,337.2	-696.8	9,363.0	0.00	0.00	0.00
18,400.0	89.13	179.86	9,108.5	-9,437.2	-696.6	9,462.7	0.00	0.00	0.00
18,500.0	89.13	179.86	9,110.0	-9,537.2	-696.4	9,562.5	0.00	0.00	0.00
18,600.0	89.13	179.86	9,111.5	-9,637.2	-696.1	9,662.2	0.00	0.00	0.00
18,700.0	89.13	179.86	9,113.1	-9,737.2	-695.9	9,762.0	0.00	0.00	0.00
18,800.0	89.13	179.86	9,114.6	-9,837.2	-695.6	9,861.7	0.00	0.00	0.00
18,900.0	89.13	179.86	9,116.1	-9,937.2	-695.4	9,961.4	0.00	0.00	0.00
19,000.0	89.13	179.86	9,117.6	-10,037.2	-695.1	10,061.2	0.00	0.00	0.00
19,100.0	89.13	179.86	9,119.1	-10,137.1	-694.9	10,160.9	0.00	0.00	0.00

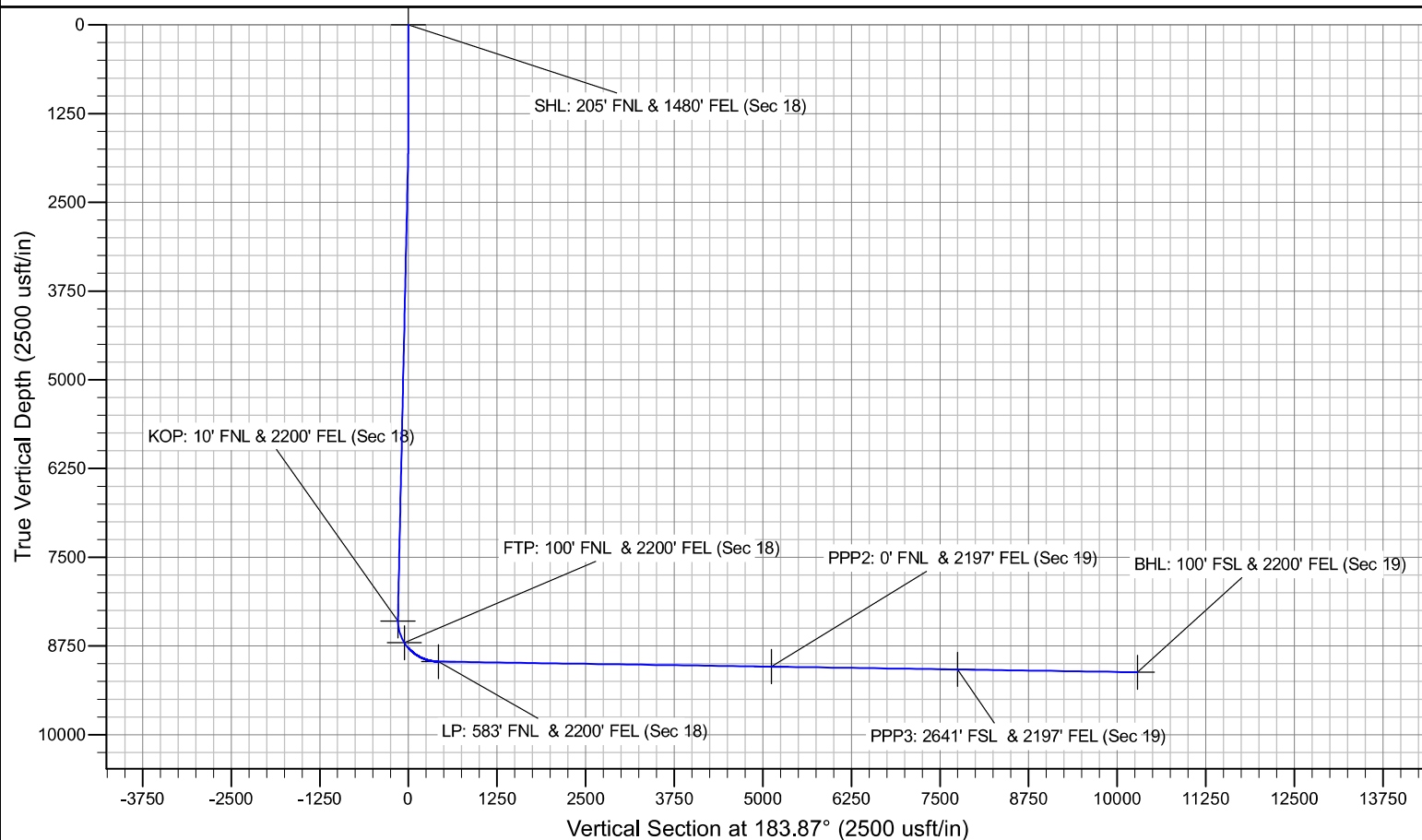
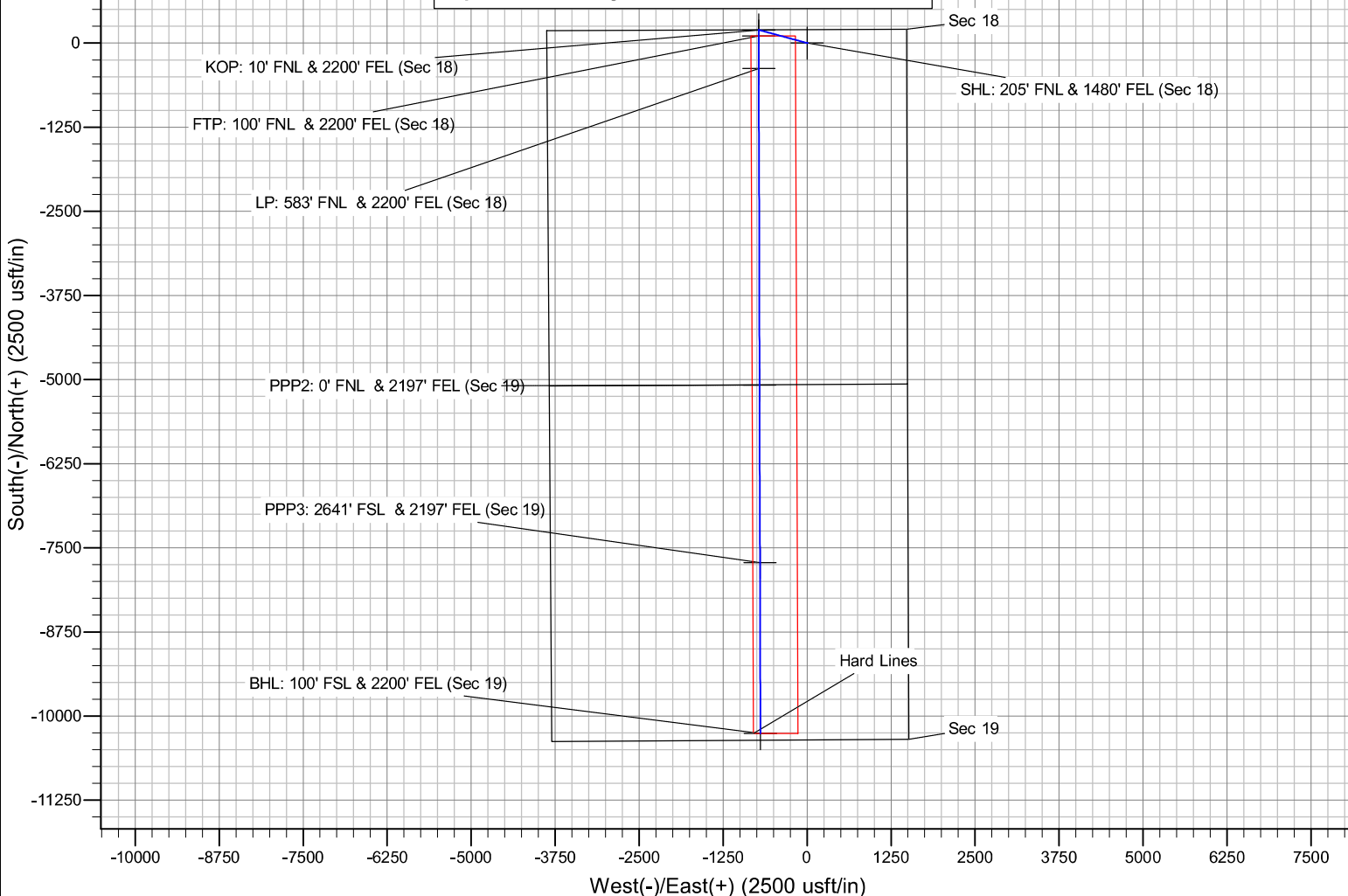
Planning Report

Database:	Hobbs	Local Co-ordinate Reference:	Site Spanish Bay 18/19 Fed Com #416H
Company:	Mewbourne Oil Company	TVD Reference:	Original Well @ 3676.0usft
Project:	Lea County, New Mexico NAD 83	MD Reference:	Original Well @ 3676.0usft
Site:	Spanish Bay 18/19 Fed Com #416H	North Reference:	Grid
Well:	Sec 18, T19S, R33E	Survey Calculation Method:	Minimum Curvature
Wellbore:	BHL: 100' FSL & 2200' FEL (Sec 19)		
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)
19,200.0	89.13	179.86	9,120.6	-10,237.1	-694.7	10,260.7	0.00	0.00	0.00
19,223.7	89.13	179.86	9,121.0	-10,260.8	-694.6	10,284.3	0.00	0.00	0.00
BHL: 100' FSL & 2200' FEL (Sec 19)									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
SHL: 205' FNL & 1480' F	0.00	0.00	0.0	0.0	0.0	606,969.50	736,663.70	32.6669996	-103.6985920
- plan hits target center									
- Point									
KOP: 10' FNL & 2200' FI	0.00	0.00	8,398.0	195.1	-720.0	607,164.60	735,943.70	32.6675477	-103.7009278
- plan hits target center									
- Point									
FTP: 100' FNL & 2200' I	0.00	0.00	8,706.3	105.1	-719.8	607,074.60	735,943.90	32.6673003	-103.7009289
- plan hits target center									
- Point									
LP: 583' FNL & 2200' FI	0.00	0.00	8,971.1	-378.0	-718.6	606,591.50	735,945.09	32.6659724	-103.7009344
- plan hits target center									
- Point									
PPP2: 0' FNL & 2197' F	0.00	0.00	9,042.5	-5,083.6	-707.2	601,885.90	735,956.52	32.6530387	-103.7009883
- plan hits target center									
- Point									
PPP3: 2641' FSL & 219	0.00	0.00	9,082.5	-7,720.3	-700.8	599,249.20	735,962.92	32.6457915	-103.7010185
- plan hits target center									
- Point									
BHL: 100' FSL & 2200' F	0.00	0.00	9,121.0	-10,260.8	-694.6	596,708.70	735,969.10	32.6388087	-103.7010476
- plan hits target center									
- Point									

Spanish Bay 18/19 Fed Com #416H



Mewbourne Oil Company, Spanish Bay 18/19 Fed Com 416H

Sec 18, T19S, R33E

SHL: 205' FNL 1480' FEL (Sec 18)

BHL: 100' FSL 2200' FEL (Sec 19)

Operator Name:	Property Name:	Well Number
Mewbourne Oil Company	Spanish Bay 18/19 Fed Com	416H

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
B	18	19	33	-	10'	FNL	2200'	FEL	Lea
Latitude					Longitude			NAD	
32.6675476					-103.7009280			83	

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
B	18	19	33	-	100'	FNL	2200'	FEL	Lea
Latitude					Longitude			NAD	
32.6673003					-103.7009295			83	

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
O	19	19	33	-	100'	FSL	2200'	FEL	Lea
Latitude					Longitude			NAD	
32.6388086					-103.7010207			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

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	MEWBOURNE OIL COMPANY
WELL NAME & NO.:	SPANISH BAY 18/19 FED COM 416H
APD ID:	10400099177
LOCATION:	Section 18, T.19 S., R.33 E. NMP
COUNTY:	Lea County, New Mexico ▼

COA

H ₂ S	<input type="radio"/> No <input checked="" type="radio"/> Yes			
Potash / WIPP	<input checked="" type="radio"/> None	<input type="radio"/> Secretary	<input type="radio"/> R-111-Q	<input type="checkbox"/> Open Annulus <input type="checkbox"/> WIPP
Cave / Karst	<input checked="" type="radio"/> Low	<input type="radio"/> Medium	<input type="radio"/> High	<input type="radio"/> Critical
Wellhead	<input type="radio"/> Conventional	<input checked="" type="radio"/> Multibowl	<input type="radio"/> Both	<input type="radio"/> Diverter
Cementing	<input type="checkbox"/> Primary Squeeze	<input type="checkbox"/> Cont. Squeeze	<input type="checkbox"/> EchoMeter	<input checked="" type="checkbox"/> DV Tool
Special Req	<input checked="" type="checkbox"/> Capitan Reef	<input type="checkbox"/> Water Disposal	<input type="checkbox"/> COM	<input type="checkbox"/> Unit
Waste Prev.	<input type="radio"/> Self-Certification	<input checked="" type="radio"/> Waste Min. Plan	<input type="radio"/> APD Submitted prior to 06/10/2024	
Additional Language	<input checked="" type="checkbox"/> Flex Hose <input type="checkbox"/> Four-String	<input type="checkbox"/> Casing Clearance <input checked="" type="checkbox"/> Offline Cementing	<input type="checkbox"/> Pilot Hole <input type="checkbox"/> Fluid-Filled	<input checked="" type="checkbox"/> Break Testing

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H₂S) Drilling Plan shall be activated **AT SPUD**. As a result, the Hydrogen Sulfide area must meet **title 43 CFR 3176** 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

Primary Casing Program

1. The **13-3/8** inch surface casing shall be set at approximately **1,480 ft.** (a minimum of 25 feet (Lea County) into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 ft. above the salt.**
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic-type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8**

- hours or **500 psi compressive strength**, whichever is greater. (This is to include the lead cement)
- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The **9-5/8** inch intermediate casing shall be set in a competent bed at approximately **5,110 ft.** 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, and Capitan Reef.**

Option 1 (Single Stage): 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 Capitan Reef.

If Capitan Reef is the loss zone, a DV tool shall be set a maximum of 200 ft. above the top of Capitan Reef.

Option 2 (Two-Stage): The operator has proposed utilize a DV tool. Operator may adjust depth of DV tool if needed, adjust cement volumes accordingly. 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 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 Capitan Reef.

Note: Excess cement is below the BLM's recommendation of 25%. More cement might be needed.

- ❖ In Capitan Reef 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.
- ❖ **Special Capitan Reef requirements.** If lost circulation (50% or greater) occurs below the Base of the Salt, the operator shall do the following: **(Use this for 3 string wells in the Capitan Reef, if 4 string well ensure FW based mud used across the Capitan interval)**

- Switch to freshwater mud to protect the Capitan Reef and use freshwater mud until setting the intermediate casing. The appropriate BLM office is to be notified for a PET to witness the switch to fresh water.
 - Daily drilling reports from the Base of the Salt to the setting of the intermediate casing are to be submitted to the BLM CFO engineering staff via e-mail by 0800 hours each morning. Any lost circulation encountered is to be recorded on these drilling reports. The daily drilling report should show mud volume per shift/tour. Failure to submit these reports will result in an Incidence of Non-Compliance being issued for failure to comply with the Conditions of Approval. If not already planned, the operator shall run a caliper survey for the intermediate well bore and submit to the appropriate BLM office.
3. Operator has proposed to set 7" (26# P-110) production casing at approximately **8,440 ft.** (8,389 ft. TVD). The minimum required fill of cement behind the 7 inch production casing is:
- Cement should tie-back at least **50 feet** above Capitan Reef top or **200 feet** into the previous casing, whichever is greater. 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 Capitan Reef.

Note: Excess cement is below the BLM's recommendation of 25%. More cement might be needed.

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.

Alternate Casing Program

1. The **13-3/8** inch surface casing shall be set at approximately **1,480 ft.** (a minimum of 25 feet (Lea County) into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 ft. above the salt.**
- a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic-type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or **500 psi compressive strength**, whichever is greater. (This is to include the lead cement)
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

- d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The 9-5/8 inch intermediate casing shall be set in a competent bed at approximately 5,110 ft. 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, and Capitan Reef.**

Option 1 (Single Stage): 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 Capitan Reef.

If Capitan Reef is the loss zone, a DV tool shall be set a maximum of 200 ft. above the top of Capitan Reef.

Option 2 (Two-Stage): The operator has proposed utilize a DV tool. Operator may adjust depth of DV tool if needed, adjust cement volumes accordingly. 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 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 Capitan Reef.

Note: excess cement is below the BLM's recommendation of 25%. More cement might be needed.

- ❖ In Capitan Reef 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.
- ❖ **Special Capitan Reef requirements.** If lost circulation (50% or greater) occurs below the Base of the Salt, the operator shall do the following: **(Use this for 3 string wells in the Capitan Reef, if 4 string well ensure FW based mud used across the Capitan interval)**
 - Switch to freshwater mud to protect the Capitan Reef and use freshwater mud until setting the intermediate casing. The appropriate BLM office is to be notified for a PET to witness the switch to fresh water.
 - Daily drilling reports from the Base of the Salt to the setting of the intermediate casing are to be submitted to the BLM CFO engineering staff via e-mail by 0800 hours each morning. Any lost circulation encountered

is to be recorded on these drilling reports. The daily drilling report should show mud volume per shift/tour. Failure to submit these reports will result in an Incidence of Non-Compliance being issued for failure to comply with the Conditions of Approval. If not already planned, the operator shall run a caliper survey for the intermediate well bore and submit to the appropriate BLM office.

3. Operator has proposed to set 7" (26# P-110) production casing at approximately **9,340 ft.** (8,971 ft. TVD). The minimum required fill of cement behind the 7 inch production casing is:

- Cement should tie-back at least **50 feet** above Capitan Reef top or **200 feet** into the previous casing, whichever is greater. 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 Capitan Reef.

Note: Excess cement is below the BLM's recommendation of 25%. More cement might be needed.

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.

Offline Cementing

Operator has been (**Approved**) to pump the proposed cement program offline in the **Surface and intermediate(s) intervals**. Offline cementing should commence within 24 hours of landing the casing for the interval. Notify the BLM 4hrs prior to the commencement of any offline cementing procedure at **Lea County: 575-689-5981**.

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. 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**. Before drilling the surface casing shoe out, the BOP/BOPE and annular preventer shall be pressure-tested in accordance with **title 43 CFR 3172 and API Standard 53**.
 - 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 43 CFR 3172 must be followed.

BOPE Break Testing Variance

- BOPE Break Testing is ONLY permitted for intervals utilizing a 5M BOPE or less. **(Annular preventer must be tested to a minimum of 70% of BOPE working pressure and shall be higher than the MASP.)**
- BOPE Break Testing is NOT permitted to drilling the production hole section.
- Variance only pertains to the intermediate hole-sections and no deeper than the Bone Springs formation.
- While in transfer between wells, the BOPE shall be secured by the hydraulic carrier or cradle.
- Any well control event while drilling require notification to the BLM Petroleum Engineer **(575-706-2779)** prior to the commencement of any BOPE Break Testing operations.
- A full BOPE test is required prior to drilling the first deep intermediate hole section. If any subsequent hole interval is deeper than the first, a full BOPE test will be required. (200' TVD tolerance between intermediate shoes is allowable).
- The BLM is to be contacted **(575-689-5981 Lea County)** 4 hours prior to BOPE tests.
- As a minimum, a full BOPE test shall be performed at 21-day intervals.
- In the event any repairs or replacement of the BOPE is required, the BOPE shall test as per **43 CFR 3172**.
- If in the event break testing is not utilized, then a full BOPE test would be conducted.

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)

Contact Lea County Petroleum Engineering Inspection Staff:

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 689-5981.

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
 - i. Notify the BLM when moving in and removing the Spudder Rig.
 - ii. 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.
 - iii. BOP/BOPE test to be conducted per **43 CFR 3172** 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 doghouse or stairway area.
3. For intervals in which cement to surface is required, cement to surface should be verified with a visual check and density or pH check to differentiate cement from spacer and drilling mud. The results should be documented in the driller's log and daily reports.

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 of both lead and tail cement, 2) until cement has been in place at least 8 hours. WOC time will be

- recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
 4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
 5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
 6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
 7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
 8. Whenever a casing string is cemented in the R-111-Q 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 **43 CFR 3172**.
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:
 - i. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - ii. 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.
 - iii. Manufacturer representative shall install the test plug for the initial BOP test.
 - iv. Whenever any seal subject to test pressure is broken, all the tests in 43 CFR 3172.6(b)(9) must be followed.
 - v. 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.
 - i. 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 cement), 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).
 - ii. 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 cement plug. The BOPE test can be initiated after bumping the cement plug with the casing valve open. (Only applies to single stage cement jobs, prior to the cement setting up.)
 - iii. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer and can be initiated immediately with the casing valve open. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to **43 CFR 3172** 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 8 hours or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

- iv. 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.
- v. The results of the test shall be reported to the appropriate BLM office.
- vi. 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.
- vii. 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.
- viii. 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 **43 CFR 3172**.

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.

SA 09/25/2024

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 known hydrogen sulfide source. The initial training session shall include a review of the site specific Hydrogen Sulfide Drilling Operations Plan.

3. Hydrogen Sulfide Safety Equipment and Systems

All hydrogen sulfide safety equipment and systems will be installed, tested, and operational prior to drilling below the 9 5/8" intermediate casing.

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

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

Additionally: If 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

Operator Name: MEWBOURNE OIL COMPANY**Well Name:** SPANISH BAY 18/19 FED COM**Well Number:** 416H**Section 7 - Methods for Handling****Waste type:** DRILLING**Waste content description:** Drill cuttings**Amount of waste:** 940 barrels**Waste disposal frequency :** One Time Only**Safe containment description:** Drill cuttings will be properly contained in steel tanks (20 yard roll off bins.)**Safe containmant attachment:****Waste disposal type:** HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE**Disposal type description:****Disposal location description:** NMOCD approved waste disposal locations are CRI or Lea Land, both facilities are located on HWY 62/180, Sec. 27 T20S R32E.**Waste type:** SEWAGE**Waste content description:** Human waste & grey water**Amount of waste:** 1500 gallons**Waste disposal frequency :** Weekly**Safe containment description:** 2,000 gallon plastic container**Safe containmant attachment:****Waste disposal type:** HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE**Disposal type description:****Disposal location description:** City of Carlsbad Water Treatment facility**Waste type:** GARBAGE**Waste content description:** Garbage & trash**Amount of waste:** 1500 pounds**Waste disposal frequency :** One Time Only**Safe containment description:** Enclosed trash trailer**Safe containmant attachment:****Waste disposal type:** HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE**Disposal type description:****Disposal location description:** Waste Management facility in Carlsbad.**Reserve Pit****Reserve Pit being used?** NO

Operator Name: MEWBOURNE OIL COMPANY**Well Name:** SPANISH BAY 18/19 FED COM**Well Number:** 416H**Temporary disposal of produced water into reserve pit?** NO**Reserve pit length (ft.)****Reserve pit width (ft.)****Reserve pit depth (ft.)****Reserve pit volume (cu. yd.)****Is at least 50% of the reserve pit in cut?****Reserve pit liner****Reserve pit liner specifications and installation description**

Cuttings Area

Cuttings Area being used? NO**Are you storing cuttings on location?** N**Description of cuttings location****Cuttings area length (ft.)****Cuttings area width (ft.)****Cuttings area depth (ft.)****Cuttings area volume (cu. yd.)****Is at least 50% of the cuttings area in cut?****WCuttings area liner****Cuttings area liner specifications and installation description**

Section 8 - Ancillary

Are you requesting any Ancillary Facilities?: N**Ancillary Facilities****Comments:**

Section 9 - Well Site

Well Site Layout Diagram:

SPANISH_BAY_18_19_FED_COM__416H_WellSiteLayout_20240620092533.pdf

Comments: NONE

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 Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 389642

CONDITIONS

Operator: MEWBOURNE OIL CO P.O. Box 5270 Hobbs, NM 88241	OGRID:
	14744
	Action Number: 389642
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

CONDITIONS

Created By	Condition	Condition Date
pkautz	Will require a File As Drilled C-102 and a Directional Survey with the C-104	10/3/2024
pkautz	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string	10/3/2024
pkautz	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system	10/3/2024
pkautz	Cement is required to circulate on both surface and intermediate1 strings of casing	10/3/2024
pkautz	If cement does not circulate on any string, a CBL is required for that string of casing	10/3/2024