

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS ON WELLS**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.*5. Lease Serial No.
NMNM27507

6. If Indian, Allottee or Tribe Name

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

8. Well Name and No.
RED HILLS WEST 22 W1DM FED COM 3H9. API Well No.
30-025-42911-00-X110. Field and Pool or Exploratory Area
WC025G08S263205N-UP WOLFCAMP11. County or Parish, State
LEA COUNTY, NM**SUBMIT IN TRIPLICATE - Other instructions on page 2**

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator

MEWBOURNE OIL COMPANY

Contact: JACKIE LATHAN

E-Mail: jlathan@mewbourne.com

3a. Address

P O BOX 5270
HOBBS, NM 88241

3b. Phone No. (include area code)

Ph: 575-393-5905

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 22 T26S R32E NWNW 185FNL 820FWL

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION

- ☒
- Notice of Intent
-
- ☐
- Subsequent Report
-
- ☐
- Final Abandonment Notice

TYPE OF ACTION

- | | | | |
|---|---|--|---|
| <input type="checkbox"/> Acidize | <input type="checkbox"/> Deepen | <input type="checkbox"/> Production (Start/Resume) | <input type="checkbox"/> Water Shut-Off |
| <input type="checkbox"/> Alter Casing | <input type="checkbox"/> Hydraulic Fracturing | <input type="checkbox"/> Reclamation | <input type="checkbox"/> Well Integrity |
| <input type="checkbox"/> Casing Repair | <input type="checkbox"/> New Construction | <input type="checkbox"/> Recomplete | <input checked="" type="checkbox"/> Other |
| <input type="checkbox"/> Change Plans | <input type="checkbox"/> Plug and Abandon | <input type="checkbox"/> Temporarily Abandon | Change to Original APD |
| <input type="checkbox"/> Convert to Injection | <input type="checkbox"/> Plug Back | <input type="checkbox"/> Water Disposal | |

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomple horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recomple in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

Mewbourne Oil Company has an approved APD for the above well. Mewbourne requests approval to make the following changes:

- 1) Change well name to Red Hills West 22 W1DM Fed Com #3H. (315629)
- 2) Change pool to 98065.
- 3) Change target zone to Wolfcamp & TVD to 12,162'.
- 4) Change BHL to 330' FSL & 990' FWL, Sec 22, T26S, R32E.
- 5) Change csg depth and cement to suit new plan.
- 6) Change wellhead to multi-bowl type wellhead.

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

Please see attachments for C-102, wellhead schematic, new drilling plan, casing & cement information.

OCD Hobbs

14. I hereby certify that the foregoing is true and correct.

**Electronic Submission #382111 verified by the BLM Well Information System
For MEWBOURNE OIL COMPANY, sent to the Hobbs****Committed to AFMSS for processing by PRISCILLA PEREZ on 08/12/2017 (17PP0576SE)**

Name (Printed/Typed) ROBERT TALLEY

Title ENGINEER

Signature (Electronic Submission)

Date 07/21/2017

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By ZOTA STEVENS

Title PETROLEUM ENGINEER

Date 12/28/2017

Conditions of approval, if any, are attached. Approval of this notice 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.

Office Hobbs

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.

(Instructions on page 2)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

Additional data for EC transaction #382111 that would not fit on the form

32. Additional remarks, continued

Please contact Robert Talley with any questions.

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 Bruzon Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-025-42911	² Pool Code 98065	³ Pool Name WC-025 G-08 5263205N; UPR WC
⁴ Property Code 315629 ✓	⁵ Property Name RED HILLS WEST 22 W1DM FED COM	
⁷ GRID NO. 14744 ✓	⁸ Operator Name MEWBOURNE OIL COMPANY	
		⁶ Well Number 3H
		⁹ Elevation 3145'

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet From the	East/West line	County
D	22	26S	32E		185	NORTH	820	WEST	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
M	22	26S	32E		330	SOUTH	990	WEST	LEA

¹² Dedicated Acres 160	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.

	<p>¹⁶ (B) SEE DETAIL "A"</p> <p>N 89°26'49" E 2666.73' (C)</p> <p>N 89°33'04" E 2662.68' (D)</p> <p>GEODETIC DATA NAD 27 GRID - NM EAST</p> <p>SURFACE LOCATION N 377072.7 - E 706087.7 LAT: 32.03494329° N LONG: 103.66827721° W</p> <p>BOTTOM HOLE N 372238.2 - E 706296.2</p> <p>CORNER DATA NAD 27 GRID - NM EAST</p> <p>A: FOUND BRASS CAP "1939" N 371899.9 - E 705308.7</p> <p>B: FOUND BRASS CAP "1939" N 377249.8 - E 705266.4</p> <p>C: FOUND BRASS CAP "1939" N 377275.6 - E 707932.5</p> <p>D: FOUND BRASS CAP "1939" N 377296.4 - E 710594.6</p> <p>E: FOUND BRASS CAP "1939" N 374620.4 - E 710611.8</p> <p>F: FOUND BRASS CAP "1939" N 371945.5 - E 710630.5</p> <p>G: FOUND BRASS CAP "1939" N 371921.6 - E 707970.8</p>	<p>¹⁷ OPERATOR CERTIFICATION</p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p>Signature: <i>Robert Talley</i> Date: <i>7/10/17</i></p> <p>Printed Name: Robert Talley</p> <p>E-mail Address: rtalley@mewbourne.com</p>
	<p>DETAIL "A"</p> <p>3144.4' 720' 3144.7'</p> <p>600' S. L.</p> <p>3142.6' 3143.4'</p>	<p>¹⁸ SURVEYOR CERTIFICATION</p> <p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p>6-26-2015 Date of Survey</p> <p>Signature and Seal of Professional Surveyor: <i>Robert M. Howett</i></p> <p>19680 Certificate Number</p>
	<p>22</p> <p>N 00°27'10" W 5351.08'</p> <p>820'</p> <p>185'</p> <p>990'</p> <p>330'</p> <p>S 89°32'01" W 2662.68' (C)</p> <p>S 89°29'04" W 2660.27' (F)</p>	<p>5 00°22'06" E 2676.55' (D)</p> <p>5 00°23'56" E 2675.48' (F)</p>
	<p>SEE DETAIL "A"</p>	<p>19680</p>

RRC - Firm No.: TX 10193838 NM 4655451 - Job No.: LS1506300

Mewbourne Oil Company, Red Hills West 22 W1DM Fed Com #3H
Sec 22, T26S, R32E
SL: 185' FNL & 820' FWL
BHL: 330' FSL & 990' FWL

1. Geologic Formations

TVD of target	12162	Pilot hole depth	NA
MD at TD:	116950'	Deepest expected fresh water:	200'

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface		
Rustler	562	Water	
Top Salt	660		
Castile			
Base Salt	4229		
Lamar	4450	Oil/Gas	
Bell Canyon	4490	Oil/Gas	
Cherry Canyon	5518	Oil/Gas	
Manzanita Marker	5680		
Brushy Canyon	7193	Oil/Gas	
Bone Spring	8565	Oil/Gas	
1 st Bone Spring Sand	9496		
2 nd Bone Spring Sand	10119		
3 rd Bone Spring Sand	11620		
Abo			
Wolfcamp	11710	Target Zone	
Devonian			
Fusselman			
Ellenburger			
Granite Wash			

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

Mewbourne Oil Company, Red Hills West 22 W1DM Fed Com #3H
Sec 22, T26S, R32E
SL: 185' FNL & 820' FWL
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2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
	From	To								
17.5"	0'	587'	13.375"	48	H40	STC	2.8	6.30	11.43	19.20
12.25"	0'	3453'	9.625"	36	J55	LTC	1.13	1.96	2.81	4.54
12.25"	3453'	4375'	9.625"	40	J55	LTC	1.13	1.74	14.10	17.08
8.75"	0'	12300'	7"	26	HCP110	LTC	1.29	1.65	2.05	2.60
6.125"	11593'	16950'	4.5"	13.5	P110	LTC	1.30	1.51	4.69	5.85
BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet				

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

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

Mewbourne Oil Company, Red Hills West 22 W1DM Fed Com #3H

Sec 22, T26S, R32E

SL: 185' FNL & 820' FWL

BHL: 330' FSL & 990' FWL

3. Cementing Program

Casing	# Sk	Wt. lb/ gal	Yld ft ³ / sack	H ₂ O gal/ sk	500# Comp. Strength (hours)	Slurry Description
Surf.	265	12.5	2.12	11	10	Lead: Class C + Salt + Gel + Extender + LCM
	200	14.8	1.34	6.3	8	Tail: Class C + Retarder
Inter.	710	12.5	2.12	11	10	Lead: Class C + Salt + Gel + Extender + LCM
	200	14.8	1.34	6.3	8	Tail: Class C + Retarder
Prod. Stg 1	370	12.5	2.12	11	9	Lead: Class C + Gel + Retarder + Defoamer + Extender
	400	15.6	1.18	5.2	10	Tail: Class H + Retarder + Fluid Loss + Defoamer
ECP/DV Tool @ 5680'						
Prod. Stg 2	75	12.5	2.12	11	9	Lead: Class C + Gel + Retarder + Defoamer + Extender
	100	14.8	1.34	6.3	8	Tail: Class C + Retarder
Liner	220	11.2	2.97	17	16	Class C + Salt + Gel + Fluid Loss + Retarder + Dispersant + Defoamer + Anti-Settling Agent

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

Casing String	TOC	% Excess
Surface	0'	100%
Intermediate	0'	25%
Production	4175'	25%
Liner	11593'	25%

Mewbourne Oil Company, Red Hills West 22 W1DM Fed Com #3H
Sec 22, T26S, R32E
SL: 185' FNL & 820' FWL
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4. Pressure Control Equipment

	Variance: None
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BOP installed and tested before drilling which hole?	Size?	System Rated WP	Type	✓	Tested to:
12-1/4"	13-5/8"	10M	Annular	X	5000#
			Blind Ram	X	10000#
			Pipe Ram	X	
			Double Ram		
			Other*		

*Specify if additional ram is utilized.

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

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

X	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
N	Are anchors required by manufacturer?
Y	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. <ul style="list-style-type: none"> Provide description here: See attached schematic.

Mewbourne Oil Company, Red Hills West 22 W1DM Fed Com #3H
Sec 22, T26S, R32E
SL: 185' FNL & 820' FWL
BHL: 330' FSL & 990' FWL

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0'	587'	Spud Mud	8.6-8.8	28-34	N/C
587'	4375'	Brine	10.0	28-34	N/C
4375'	11593'	Cut Brine	8.6-9.7	28-34	N/C
11593'	16950'	OBM	10.0-13.0	30-40	<10cc

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

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

6. Logging and Testing Procedures

Logging, Coring and Testing.	
X	Will run GR/CNL from KOP (11593') to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain
	Coring? If yes, explain

Additional logs planned	Interval
X Gamma Ray	11593' (KOP) to TD
Density	
CBL	
Mud log	
PEX	

Mewbourne Oil Company, Red Hills West 22 W1DM Fed Com #3H
Sec 22, T26S, R32E
SL: 185' FNL & 820' FWL
BHL: 330' FSL & 990' FWL

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	8222 psi
Abnormal Temperature	No

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

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.

	H2S is present
X	H2S Plan attached

8. Other facets of operation

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

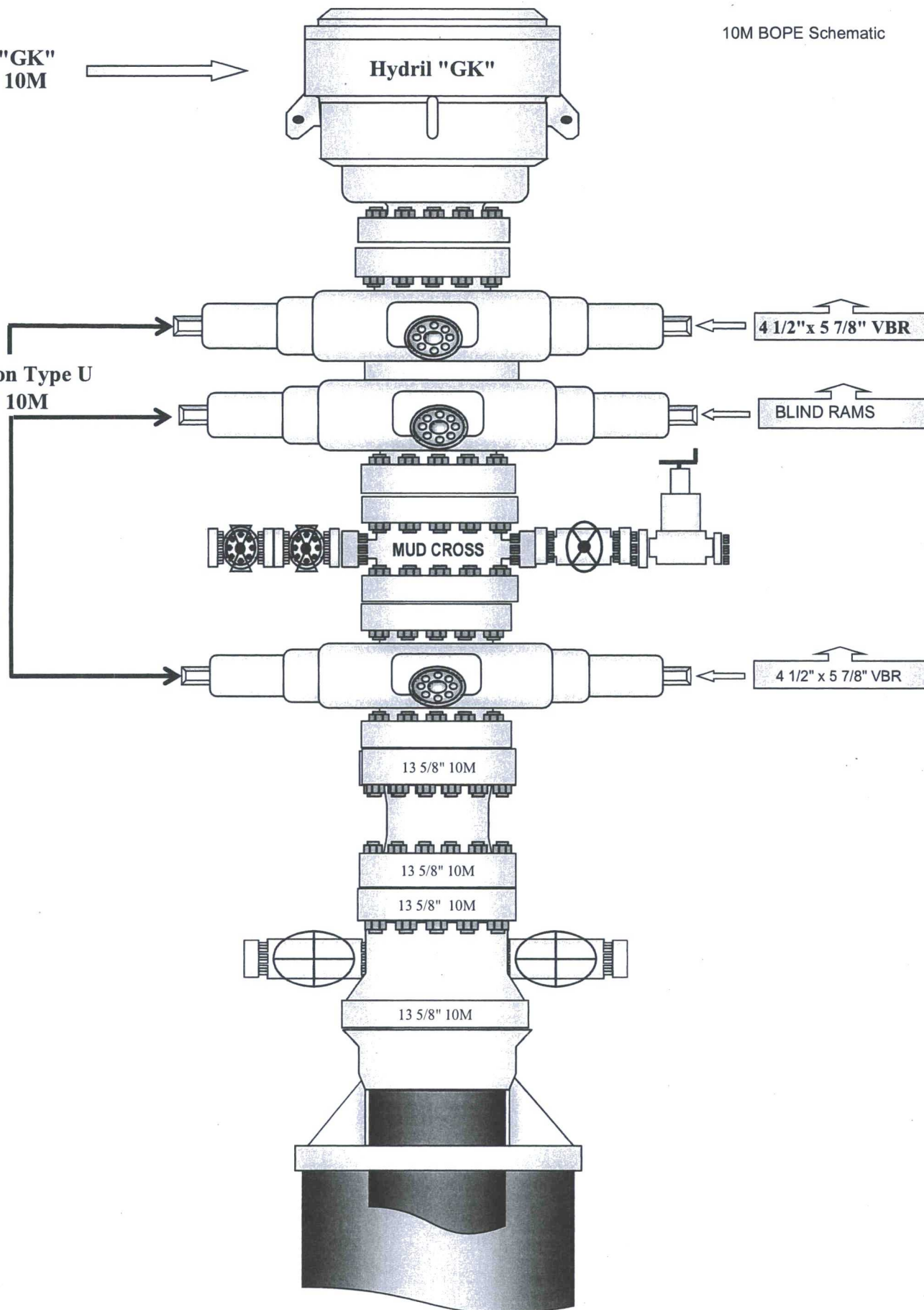
Attachments

___ Directional Plan
 ___ Other, describe

Hydril "GK"
13-5/8" 10M

10M BOPE Schematic

Cameron Type U
13-5/8" 10M



10M BOPE & Closed Loop Equipment Schematic

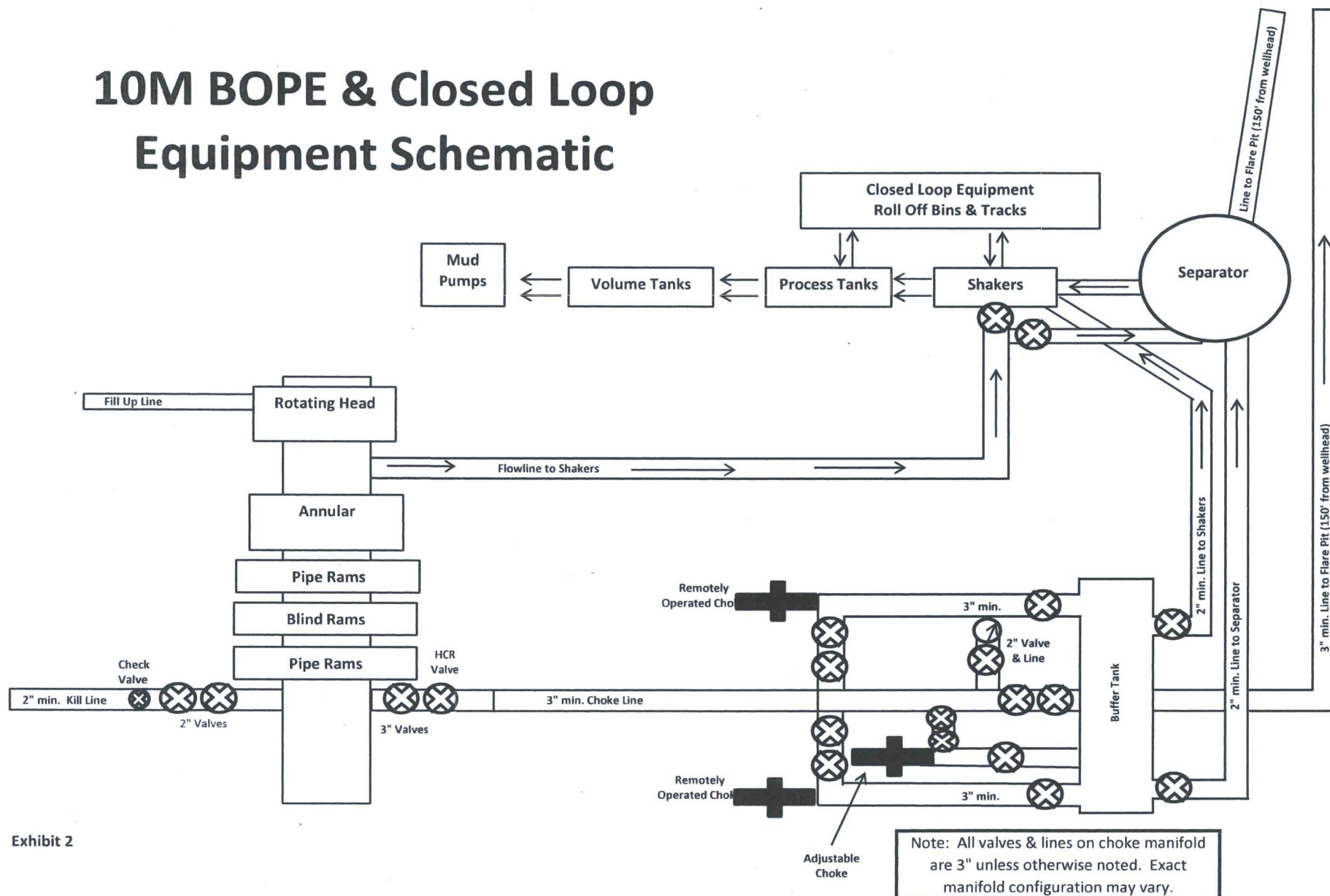
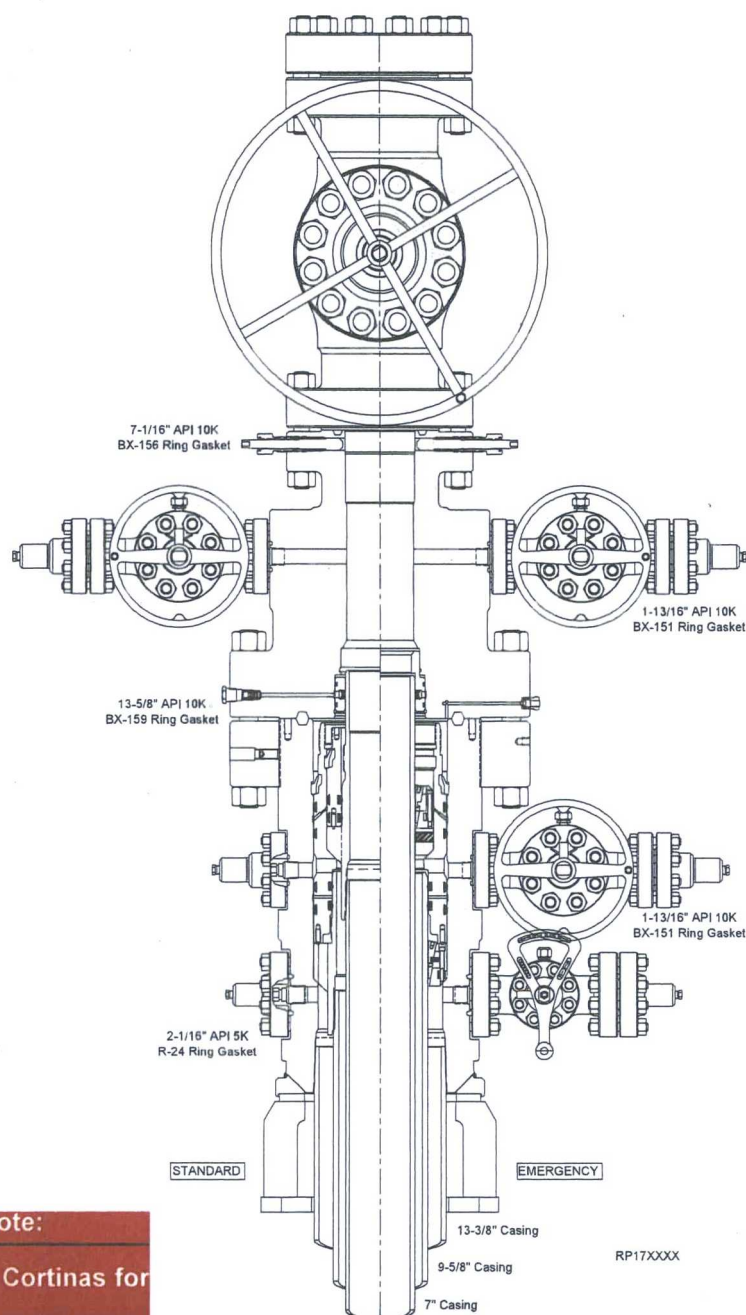


Exhibit 2

NOTE DRAFT Publication is for Review ONLY. NOT approved for System Installation. NOT approved for field usage. NOT approved for distribution. If you obtain a DRAFT copy - it is your responsibility to verify SAP revision level or contact Houston Engineering to ensure document has been approved and released.

RUNNING PROCEDURE

Mewbourne Oil Co



Publication Status Note:

Draft A sent to John Cortinas for
review; RA 04/29/17

Surface Systems Publication



13-5/8" 10K MN-DS System
13-3/8" x 9-5/8" x 7" Casing Program

RP-003815
Rev 01 Draft A

Mewbourne Oil Company

Lea County, New Mexico

Red Hills West 22 W1DM Fed Com #3H

Sec 22, T26S, R32E

SL: 185' FNL & 820' FWL

BHL: 330' FSL & 990' FWL

Plan: Design #1

Standard Planning Report

20 July, 2017

Planning Report

Database: Hobbs
 Company: Mewbourne Oil Company
 Project: Lea County, New Mexico
 Site: Red Hills West 22 W1DM Fed Com #3H
 Well: Sec 22, T26S, R32E
 Wellbore: BHL: 330' FSL & 990' FWL
 Design: Design #1

Local Co-ordinate Reference: Site Red Hills West 22 W1DM Fed Com #3H
 TVD Reference: WELL @ 3172.0usft (Original Well Elev)
 MD Reference: WELL @ 3172.0usft (Original Well Elev)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
10,600.0	1.98	43.51	10,596.3	153.8	145.9	-147.3	0.00	0.00	0.00	
10,700.0	1.98	43.51	10,696.3	156.3	148.3	-149.7	0.00	0.00	0.00	
10,800.0	1.98	43.51	10,796.2	158.8	150.7	-152.1	0.00	0.00	0.00	
10,900.0	1.98	43.51	10,896.2	161.3	153.1	-154.6	0.00	0.00	0.00	
11,000.0	1.98	43.51	10,996.1	163.8	155.5	-157.0	0.00	0.00	0.00	
11,100.0	1.98	43.51	11,096.0	166.3	157.8	-159.4	0.00	0.00	0.00	
11,200.0	1.98	43.51	11,196.0	168.8	160.2	-161.8	0.00	0.00	0.00	
11,300.0	1.98	43.51	11,295.9	171.3	162.6	-164.2	0.00	0.00	0.00	
11,400.0	1.98	43.51	11,395.9	173.8	165.0	-166.6	0.00	0.00	0.00	
11,461.2	1.98	43.51	11,457.0	175.3	166.4	-168.0	0.00	0.00	0.00	
11,500.0	1.40	43.51	11,495.8	176.2	167.2	-168.8	1.50	-1.50	0.00	
11,593.2	0.00	0.00	11,589.0	177.0	168.0	-169.6	1.50	-1.50	0.00	
KOP @ 11589'										
11,600.0	0.68	179.54	11,595.8	177.0	168.0	-169.6	10.00	10.00	0.00	
11,700.0	10.68	179.54	11,695.2	167.1	168.1	-159.7	10.00	10.00	0.00	
11,800.0	20.68	179.54	11,791.3	140.1	168.3	-132.7	10.00	10.00	0.00	
11,900.0	30.68	179.54	11,881.4	96.8	168.6	-89.5	10.00	10.00	0.00	
12,000.0	40.68	179.54	11,962.5	38.6	169.1	-31.3	10.00	10.00	0.00	
12,100.0	50.68	179.54	12,032.3	-32.9	169.7	40.2	10.00	10.00	0.00	
12,200.0	60.68	179.54	12,088.6	-115.4	170.3	122.6	10.00	10.00	0.00	
12,233.4	64.02	179.54	12,104.1	-145.0	170.6	152.2	10.00	10.00	0.00	
FTP: 330' FNL & 990' FWL										
12,300.0	70.68	179.54	12,129.7	-206.4	171.1	213.5	10.00	10.00	0.00	
12,400.0	80.67	179.54	12,154.4	-303.1	171.8	310.2	10.00	10.00	0.00	
12,494.6	90.13	179.54	12,162.0	-397.3	172.6	404.4	10.00	10.00	0.00	
LP: 582' FNL & 990' FWL										
12,500.0	90.13	179.54	12,162.0	-402.7	172.6	409.8	0.00	0.00	0.00	
12,600.0	90.13	179.54	12,161.8	-502.7	173.4	509.7	0.00	0.00	0.00	
12,700.0	90.13	179.54	12,161.5	-602.7	174.2	609.6	0.00	0.00	0.00	
12,800.0	90.13	179.54	12,161.3	-702.7	175.0	709.6	0.00	0.00	0.00	
12,900.0	90.13	179.54	12,161.1	-802.7	175.8	809.5	0.00	0.00	0.00	
13,000.0	90.13	179.54	12,160.9	-902.7	176.6	909.5	0.00	0.00	0.00	
13,100.0	90.13	179.54	12,160.6	-1,002.7	177.4	1,009.4	0.00	0.00	0.00	
13,200.0	90.13	179.54	12,160.4	-1,102.7	178.2	1,109.3	0.00	0.00	0.00	
13,300.0	90.13	179.54	12,160.2	-1,202.7	179.0	1,209.3	0.00	0.00	0.00	
13,400.0	90.13	179.54	12,160.0	-1,302.7	179.8	1,309.2	0.00	0.00	0.00	
13,500.0	90.13	179.54	12,159.7	-1,402.7	180.6	1,409.2	0.00	0.00	0.00	
13,600.0	90.13	179.54	12,159.5	-1,502.7	181.4	1,509.1	0.00	0.00	0.00	
13,700.0	90.13	179.54	12,159.3	-1,602.7	182.2	1,609.0	0.00	0.00	0.00	
13,800.0	90.13	179.54	12,159.1	-1,702.7	183.0	1,709.0	0.00	0.00	0.00	
13,900.0	90.13	179.54	12,158.8	-1,802.7	183.8	1,808.9	0.00	0.00	0.00	
14,000.0	90.13	179.54	12,158.6	-1,902.7	184.6	1,908.8	0.00	0.00	0.00	
14,100.0	90.13	179.54	12,158.4	-2,002.7	185.4	2,008.8	0.00	0.00	0.00	
14,200.0	90.13	179.54	12,158.2	-2,102.7	186.2	2,108.7	0.00	0.00	0.00	
14,300.0	90.13	179.54	12,157.9	-2,202.7	187.0	2,208.7	0.00	0.00	0.00	
14,400.0	90.13	179.54	12,157.7	-2,302.7	187.8	2,308.6	0.00	0.00	0.00	
14,500.0	90.13	179.54	12,157.5	-2,402.7	188.6	2,408.5	0.00	0.00	0.00	
14,600.0	90.13	179.54	12,157.3	-2,502.7	189.4	2,508.5	0.00	0.00	0.00	
14,700.0	90.13	179.54	12,157.0	-2,602.6	190.2	2,608.4	0.00	0.00	0.00	
14,800.0	90.13	179.54	12,156.8	-2,702.6	191.0	2,708.4	0.00	0.00	0.00	
14,900.0	90.13	179.54	12,156.6	-2,802.6	191.8	2,808.3	0.00	0.00	0.00	
15,000.0	90.13	179.54	12,156.4	-2,902.6	192.6	2,908.2	0.00	0.00	0.00	
15,100.0	90.13	179.54	12,156.1	-3,002.6	193.4	3,008.2	0.00	0.00	0.00	

Planning Report

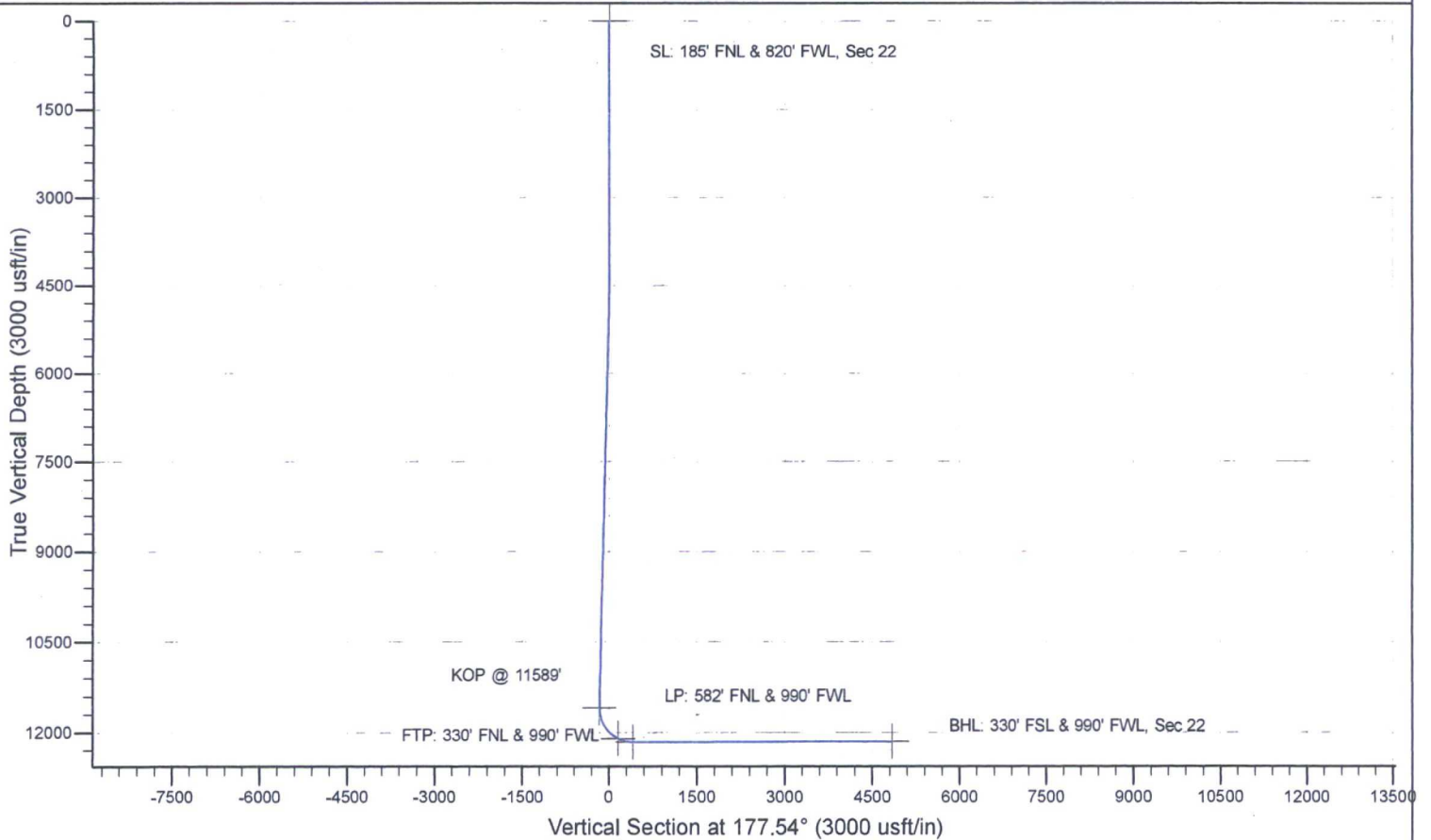
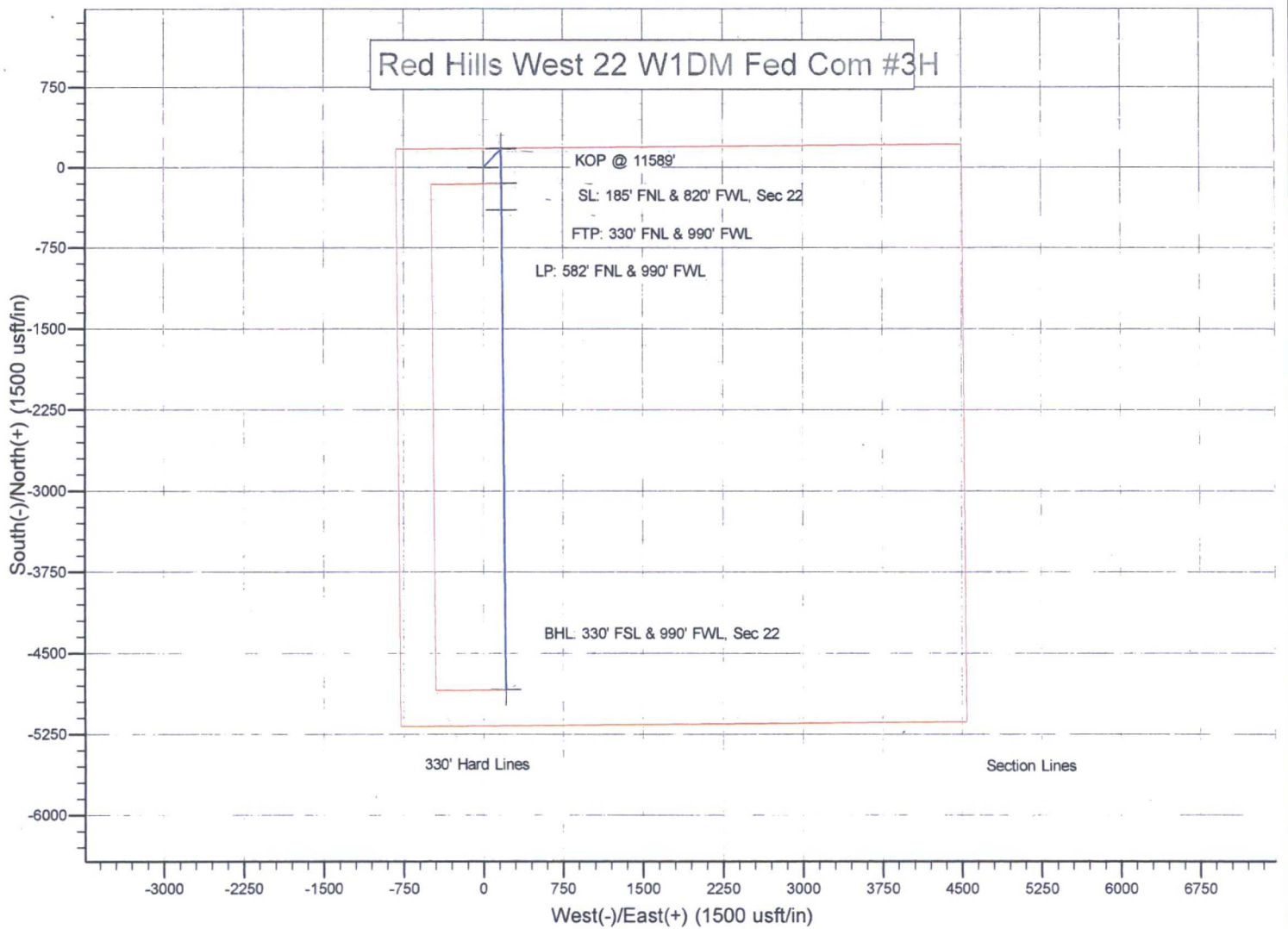
Database: Hobbs
 Company: Mewbourne Oil Company
 Project: Lea County, New Mexico
 Site: Red Hills West 22 W1DM Fed Com #3H
 Well: Sec 22, T26S, R32E
 Wellbore: BHL: 330' FSL & 990' FWL
 Design: Design #1

Local Co-ordinate Reference: Site Red Hills West 22 W1DM Fed Com #3H
 TVD Reference: WELL @ 3172.0usft (Original Well Elev)
 MD Reference: WELL @ 3172.0usft (Original Well Elev)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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	1.98	43.51	5,199.6	18.4	17.5	-17.6	0.00	0.00	0.00
5,300.0	1.98	43.51	5,299.5	20.9	19.8	-20.0	0.00	0.00	0.00
5,400.0	1.98	43.51	5,399.5	23.4	22.2	-22.4	0.00	0.00	0.00
5,500.0	1.98	43.51	5,499.4	25.9	24.6	-24.8	0.00	0.00	0.00
5,600.0	1.98	43.51	5,599.3	28.4	27.0	-27.2	0.00	0.00	0.00
5,700.0	1.98	43.51	5,699.3	30.9	29.4	-29.6	0.00	0.00	0.00
5,800.0	1.98	43.51	5,799.2	33.4	31.7	-32.0	0.00	0.00	0.00
5,900.0	1.98	43.51	5,899.2	35.9	34.1	-34.4	0.00	0.00	0.00
6,000.0	1.98	43.51	5,999.1	38.5	36.5	-36.8	0.00	0.00	0.00
6,100.0	1.98	43.51	6,099.0	41.0	38.9	-39.2	0.00	0.00	0.00
6,200.0	1.98	43.51	6,199.0	43.5	41.3	-41.7	0.00	0.00	0.00
6,300.0	1.98	43.51	6,298.9	46.0	43.6	-44.1	0.00	0.00	0.00
6,400.0	1.98	43.51	6,398.9	48.5	46.0	-46.5	0.00	0.00	0.00
6,500.0	1.98	43.51	6,498.8	51.0	48.4	-48.9	0.00	0.00	0.00
6,600.0	1.98	43.51	6,598.7	53.5	50.8	-51.3	0.00	0.00	0.00
6,700.0	1.98	43.51	6,698.7	56.0	53.2	-53.7	0.00	0.00	0.00
6,800.0	1.98	43.51	6,798.6	58.5	55.5	-56.1	0.00	0.00	0.00
6,900.0	1.98	43.51	6,898.6	61.0	57.9	-58.5	0.00	0.00	0.00
7,000.0	1.98	43.51	6,998.5	63.5	60.3	-60.9	0.00	0.00	0.00
7,100.0	1.98	43.51	7,098.4	66.0	62.7	-63.3	0.00	0.00	0.00
7,200.0	1.98	43.51	7,198.4	68.5	65.0	-65.7	0.00	0.00	0.00
7,300.0	1.98	43.51	7,298.3	71.0	67.4	-68.1	0.00	0.00	0.00
7,400.0	1.98	43.51	7,398.3	73.5	69.8	-70.5	0.00	0.00	0.00
7,500.0	1.98	43.51	7,498.2	76.1	72.2	-72.9	0.00	0.00	0.00
7,600.0	1.98	43.51	7,598.1	78.6	74.6	-75.3	0.00	0.00	0.00
7,700.0	1.98	43.51	7,698.1	81.1	76.9	-77.7	0.00	0.00	0.00
7,800.0	1.98	43.51	7,798.0	83.6	79.3	-80.1	0.00	0.00	0.00
7,900.0	1.98	43.51	7,898.0	86.1	81.7	-82.5	0.00	0.00	0.00
8,000.0	1.98	43.51	7,997.9	88.6	84.1	-84.9	0.00	0.00	0.00
8,100.0	1.98	43.51	8,097.8	91.1	86.5	-87.3	0.00	0.00	0.00
8,200.0	1.98	43.51	8,197.8	93.6	88.8	-89.7	0.00	0.00	0.00
8,300.0	1.98	43.51	8,297.7	96.1	91.2	-92.1	0.00	0.00	0.00
8,400.0	1.98	43.51	8,397.7	98.6	93.6	-94.5	0.00	0.00	0.00
8,500.0	1.98	43.51	8,497.6	101.1	96.0	-96.9	0.00	0.00	0.00
8,600.0	1.98	43.51	8,597.5	103.6	98.4	-99.3	0.00	0.00	0.00
8,700.0	1.98	43.51	8,697.5	106.1	100.7	-101.7	0.00	0.00	0.00
8,800.0	1.98	43.51	8,797.4	108.6	103.1	-104.1	0.00	0.00	0.00
8,900.0	1.98	43.51	8,897.4	111.1	105.5	-106.5	0.00	0.00	0.00
9,000.0	1.98	43.51	8,997.3	113.7	107.9	-108.9	0.00	0.00	0.00
9,100.0	1.98	43.51	9,097.2	116.2	110.3	-111.3	0.00	0.00	0.00
9,200.0	1.98	43.51	9,197.2	118.7	112.6	-113.7	0.00	0.00	0.00
9,300.0	1.98	43.51	9,297.1	121.2	115.0	-116.1	0.00	0.00	0.00
9,400.0	1.98	43.51	9,397.1	123.7	117.4	-118.5	0.00	0.00	0.00
9,500.0	1.98	43.51	9,497.0	126.2	119.8	-120.9	0.00	0.00	0.00
9,600.0	1.98	43.51	9,596.9	128.7	122.1	-123.3	0.00	0.00	0.00
9,700.0	1.98	43.51	9,696.9	131.2	124.5	-125.7	0.00	0.00	0.00
9,800.0	1.98	43.51	9,796.8	133.7	126.9	-128.1	0.00	0.00	0.00
9,900.0	1.98	43.51	9,896.8	136.2	129.3	-130.5	0.00	0.00	0.00
10,000.0	1.98	43.51	9,996.7	138.7	131.7	-132.9	0.00	0.00	0.00
10,100.0	1.98	43.51	10,096.6	141.2	134.0	-135.3	0.00	0.00	0.00
10,200.0	1.98	43.51	10,196.6	143.7	136.4	-137.7	0.00	0.00	0.00
10,300.0	1.98	43.51	10,296.5	146.2	138.8	-140.1	0.00	0.00	0.00
10,400.0	1.98	43.51	10,396.5	148.7	141.2	-142.5	0.00	0.00	0.00
10,500.0	1.98	43.51	10,496.4	151.3	143.6	-144.9	0.00	0.00	0.00

Red Hills West 22 W1DM Fed Com #3H



PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Mewbourne Oil Company
LEASE NO.:	NMNM-27507
WELL NAME & NO.:	Red Hills West 22 W1DM Fed Com 3H
SURFACE HOLE FOOTAGE:	0185' FNL & 0820' FWL
BOTTOM HOLE FOOTAGE:	0330' FSL & 990' FWL
LOCATION:	Section 22, T. 26 S., R 32 E., NMPM
COUNTY:	Lea County, New Mexico

COA

All previous COAs still apply expect the following:

H2S	<input type="radio"/> Yes	<input checked="" type="radio"/> No	
Potash	<input checked="" type="radio"/> None	<input type="radio"/> Secretary	<input type="radio"/> R-111-P
Cave/Karst Potential	<input type="radio"/> Low	<input checked="" type="radio"/> Medium	<input type="radio"/> High
Variance	<input type="radio"/> None	<input checked="" type="radio"/> Flex Hose	<input type="radio"/> Other
Wellhead	<input type="radio"/> Conventional	<input checked="" type="radio"/> Multibowl	<input type="radio"/> Both
Other	<input type="checkbox"/> 4 String Area	<input type="checkbox"/> Capitan Reef	<input type="checkbox"/> WIPP

A. Hydrogen Sulfide

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

B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **625** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:
- Cement to surface. If cement does not circulate see B.1.a, c-d above. **Additional cement maybe required. Excess calculates to 24%.**
 - ❖ In Medium Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.
3. The minimum required fill of cement behind the **7** inch production casing is: Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.
- a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.
 - b. Second stage above DV tool: Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.
4. The minimum required fill of cement behind the **4-1/2** inch production liner is:
- Cement should tie-back 100' into the previous casing. Operator shall provide method of verification.

C. PRESSURE CONTROL

- 1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).
- 2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.
- 3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8** intermediate casing shoe shall be **10,000 (10M)** psi.

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)

☒ Lea County

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

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
 - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
 - b. When the operator proposes to set surface casing with Spudder Rig
 - Notify the BLM when moving in and removing the Spudder Rig.
 - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
 - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. **On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.**
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. **If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:**
 - a. **Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.**
 - b. **If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.**
 - c. **Manufacturer representative shall install the test plug for the initial BOP test.**
 - d. **If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.**
 - e. **Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.**
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including

lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

- b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).
- c. The tests shall be done by an independent service company utilizing a test plug. The results of the test shall be reported to the appropriate BLM office.
- d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- e. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes. This test shall be performed prior to the test at full stack pressure.
- g. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

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.

Waste Minimization Plan (WMP)

In the interest of resource development, submission of additional well gas capture development plan information is deferred but may be required by the BLM Authorized Officer at a later date.

ZS 122817

13 3/8	surface csg in a	17 1/2	inch hole.	Design Factors			SURFACE		
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight	
"A"	48.00	H 40	ST&C	10.73	2.7	0.76	625	30,000	
"B"							0	0	
w/8.4#/g mud, 30min Sfc Csg Test psig: 938			Tail Cmt	does not	circ to sfc.	Totals:	625	30,000	
Comparison of Proposed to Minimum Required Cement Volumes									
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
17 1/2	0.6946	465	830	489	70	8.80	1310	2M	1.56

Burst Frac Gradient(s) for Segment(s) A, B = , b All > 0.70, OK.

Burst Frac Gradient(s) for Segment(s) A, B = . b All > 0.70, OK.

9 5/8	casing inside the		13 3/8	<u>Design Factors</u>			<u>INTERMEDIATE</u>		
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight	
"A"	36.00	J 55	LT&C	2.81	1.13	0.58	3,453	124,308	
"B"	40.00	J 55	LT&C	14.10	1.13	0.65	922	36,880	
"C"							0	0	
"D"							0	0	
w/8.4#/g mud, 30min Sfc Csg Test psig:							Totals:	4,375	161,188
The cement volume(s) are intended to achieve a top of					0	ft from surface or a		625	overlap.
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
12 1/4	0.3132	910	1773	1429	24	10.00	3444	5M	0.81

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 1.02, 0.9, c, d All > 0.70, OK.

7	casing inside the			9 5/8	Design Factors			PRODUCTION	
Segment	#/ft	Grade		Coupling	Joint	Collapse	Burst	Length	Weight
"A"	26.00	HCP 110		LT&C	2.20	1.34	1.21	11,593	301,418
"B"	26.00	HCP 110		BUTT	119.15	1.28	1.21	707	18,382
w/8.4#/g mud, 30min Sfc Csg Test psig: 2,550							Totals:	12,300	319,800
B	would be:				59.48	1.28	if it were a vertical wellbore.		
No Pilot Hole Planned			MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
			12300	12130	12130	11593	71	-1	0
The cement volume(s) are intended to achieve a top of					0	ft from surface or a		4375	overlap.
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
8 3/4	0.1503	look ↘	0	1923		9.70	5538	10M	0.55
Setting Depths for D V Tool(s):			5680				sum of sx	Σ CuFt	Σ %excess
% excess cmt by stage:		25	87				945	2973	55
MASP is within 10% of 5000psig, need exrta equip?									

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