Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Carlsbad Field Office
OCD Artesia

FORM 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.

SUBMIT IN TRIPLICATE - Other instructions on page 2

5. Lease Serial No.
NMNM0375257A

6. If Indian, Allottee or Tribe Name

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

1. Type of Well
☒ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.
ROSCOE 6 B3AD FED COM 1H

2. Name of Operator
MEWBOURNE OIL COMPANY
Contact: JACKIE LATHAN
E-Mail: jlathan@mewbourne.com

9. API Well No.
30-015-43168-00-X1

3a. Address
P O BOX 5270
HOBBS, NM 88241

3b. Phone No. (include area code)
Ph: 575-393-5905

10. Field and Pool or Exploratory Area
AVALON-~~DELAWARE~~ LWR BSPG. 3914

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 6 T21S R27E Lot 8 1270FNL 265FEL

11. County or Parish, State
EDDY COUNTY, NM

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

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other Change to Original APD
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ 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 recomplete 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 recompletion 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.

MOC requests approval to move the BHL to 330' FNL & 330' FWL, Section 6.

MOC also requests approval to change the 5 1/2" production casing to 7" production casing with a 4 1/2" liner.

Please see attachments for C-102, directional plan, casing specs and cementing details.

RECEIVED
FEB 08 2017
ARTESIA

Accepted for record - NMOCD
RP 2-8-17

SEE ATTACHED FOR CONDITIONS OF APPROVAL

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

Electronic Submission #364889 verified by the BLM Well Information System
For MEWBOURNE OIL COMPANY, sent to the Carlsbad
Committed to AFMSS for processing by TEUNGKU KRUENG on 01/26/2017 (17TMK0014SE)

Name *(Printed/Typed)* ANDY TAYLOR — Title ENGINEER

Signature (Electronic Submission) — Date 01/25/2017

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

APPROVED
JAN 26 2017
PETROLEUM ENGINEER
BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

Approved By **Teungku Muchlis Krueng** — Title — Date

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

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 ****

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

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number	2 Pool Code	3 Pool Name
		3714 Avalon, Lwr Bone Spring (30 SAND)

4 Property Code	5 Property Name	6 Well Number
314887	ROSCOE 6 B3AD FED COM	1H

7 OGRID NO.	8 Operator Name	9 Elevation
14744	MEWBOURNE OIL COMPANY	3228'

10 Surface Location

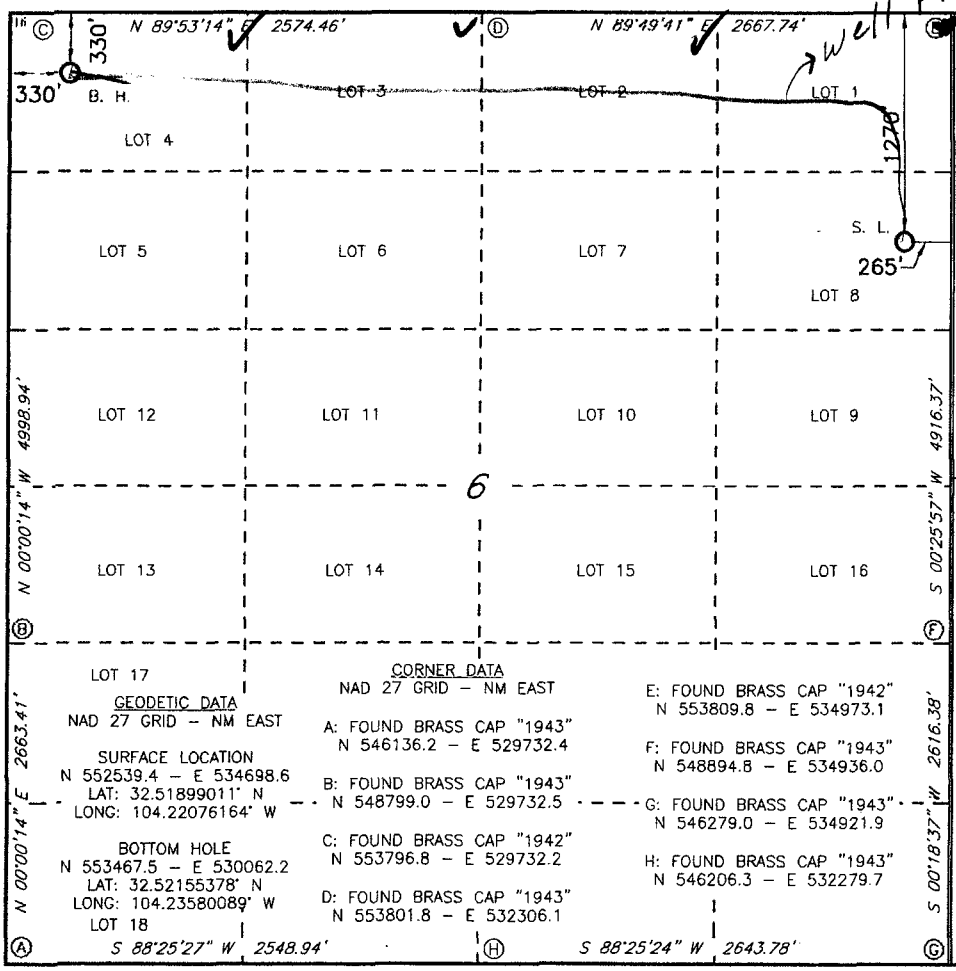
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet From the	East/West line	County
8	6	21S	27E		1270	NORTH	265	EAST	EDDY

11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
4	6	21S	27E		330	NORTH	330	WEST	EDDY

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

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 1/26/17 Date

Andrew Taylor
Printed Name

southpaw@leeusa.com
E-mail Address

18 SURVEYOR CERTIFICATION

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

10-10-2014
Date of Survey

Signature and Seal of Professional Surveyor

ROBERT M. HOWETT
NEW MEXICO
19680
PROFESSIONAL SURVEYOR

19680
Certificate Number

1-23-2017 B.H. CHANGE

RRC – Firm No.: TX 10193838 NM 4655451 – Job No.: LS140457A

Mewbourne Oil Company, Roscoe 6 B3AD Fed Com #1H
Sec 6, T21S, R27E
SL: 1270' FNL & 265' FEL
BHL: 330' FNL & 330' FWL

1. Geologic Formations

TVD of target	8577'	Pilot hole depth	NA
MD at TD:	13530'	Deepest expected fresh water:	50'

Reef

Formation	Depth (TVD) from KB)	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Alluvium	Surface	Water	
Rustler	400	Water	
Top of Salt	NP		
Tansill	NP		
Yates	660	Oil	
Seven Rivers	NP		
Capitan Reef	760	Water	
Delaware Group	2600	Oil/Gas	
Bone Spring	4900	Oil/Gas	
3rd Bone Spring	8400	Target Zone	
Wolfcamp		Will Not Penetrate	
Cisco			
Canyon			
Strawn			
Atoka			
Morrow			
Barnett Shale			
Woodford Shale			
Devonian			
Fusselman			
Ellenburger			
Granite Wash			

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

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2. Casing Program

See COA

Hole Size	Casing Interval From	Casing Interval To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
26"	0'	~~425~~ 450	20"	94	J55	BTC	2.35	9.55	35.09
17.5"	0'	~~710~~ 800	13.375"	48	H40	STC	2.09	4.69	9.45
12.25"	0'	2500'	9.625"	36	J55	LTC	1.55	2.71	5.03
8.75"	0'	9105'	7"	26	P110	LTC	1.85	2.36	2.64
6 1/8 ~~8.75"~~	8100'	13530'	4.5"	13.5	P110	LTC	2.39	2.78	4.61
			BLM Minimum Safety Factor				1.125	1	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
Does casing meet API specifications? 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 intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	Y
If yes, does production casing cement tie back a minimum of 50' above the Reef?	Y
Is well within the designated 4 string boundary.	Y
Is well located in SOPA but not in R-111-P?	Y
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	Y
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	Y
If yes, are there two strings cemented to surface?	Y
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	Y
Is well located in critical Cave/Karst?	
If yes, are there three strings cemented to surface?	

Mewbourne Oil Company, Roscoe 6 B3AD Fed Com #1H
Sec 6, T21S, R27E
SL: 1270' FNL & 265' FEL
BHL: 330' FNL & 330' FWL

3. Cementing Program

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H_20 gal/ sk	500# Comp. Strength (hours)	Slurry Description
Surf.	475	12.5	2.12	11	10	Lead: Class C + 4.0% Bentonite + 0.6% CD-32 + 5% Sodium Chloride +0.25lb/sk Cello-Flake
	200	14.8	1.34	6.3	5	Tail: Class C + 0.005pps Static Free + 1% CaCl2 + 0.25 pps CelloFlake + 0.005 gps FP-6L
Inter.	175	12.5	2.12	11	10	Lead: Class C + 4.0% Bentonite + 0.6% CD-32 + 5% Sodium Chloride +0.25lb/sk Cello-Flake
	200	14.8	1.34	6.3	5	Tail: Class C + 0.005pps Static Free + 1% CaCl2 + 0.25 pps CelloFlake + 0.005 gps FP-6L
2nd Inter.	200	12.5	2.12	11	10	1st Lead: Class C + 4.0% Bentonite + 0.6% CD-32 + 5% Sodium Chloride +0.25lb/sk Cello-Flake
	200	14.8	1.34	6.3	5	1st Tail: Class C + 0.005pps Static Free + 1% CaCl2 + 0.25 pps CelloFlake + 0.005 gps FP-6L
	ECP/DV Tool ~~800'~~ 850' (50' below Prev Casing)					
	240	14.8	1.34	6.3	5	2nd Stage: Class C + 0.005pps Static Free + 1% CaCl2 + 0.25 pps CelloFlake + 0.005 gps FP-6L
Prod.	535	12.5	2.12	11	9	Lead: Class C + Gel + Retarder + Defoamer + Extender
	400	15.6	1.18	5.2	10	Tail: Class H + Retarder + Fluid Loss + Defoamer
Liner	225	11.2	2.97	17	16	Class C + Salt + Gel + Fluid Loss + Retarder + Dispersant + Defoamer + Anti-Settling Agent

DV tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
Surface	0'	100%
Intermediate	0'	25%
2nd Intermediate	0'	25%
Production	710'	25%
Liner	8100'	25%

Mewbourne Oil Company, Roscoe 6 B3AD Fed Com #1H
Sec 6, T21S, R27E
SL: 1270' FNL & 265' FEL
BHL: 330' FNL & 330' FWL

4. Pressure Control Equipment

Y	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12-1/4"	13-5/8"	2M	Annular	x	1250#
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other*		
8-3/4"	13-5/8"	3M	Annular	x	1500#
			Blind Ram	x	3000#
			Pipe Ram	x	
			Double Ram		
			Other *		
6-1/8"	13-5/8"	3M	Annular	x	1500#
			Blind Ram	x	3000#
			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.

Mewbourne Oil Company, Roscoe 6 B3AD Fed Com #1H
Sec 6, T21S, R27E
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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?
N	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. • Provide description here See attached schematic.

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	**To**				
0	~~425'~~ 450'	FW Gel	8.6-8.8	28-34	N/C
425'	~~710'~~ 800'	FW	8.6-8.8	29-34	N/C
710'	2500'	FW*	8.5-9.3	28-34	N/C
2500'	13530'	FW w/polymer	8.5-9.3	28-34	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.
*Aerated fluid w/fresh water will be used to drill 12 ¼" hole if circulation is lost. Water samples will be taken every 100' through the Capitan Reef formation.

What will be used to monitor the loss or gain of fluid?	Visual Monitoring

Mewbourne Oil Company, Roscoe 6 B3AD Fed Com #1H
Sec 6, T21S, R27E
SL: 1270' FNL & 265' FEL
BHL: 330' FNL & 330' FWL

6. Logging and Testing Procedures

Logging, Coring and Testing.	
X	Will run GR/CNL from KOP to surface. 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	GR	From KOP (8100') to TD
	Density	
	CBL	
	Mud log	
	PEX	

7. Drilling Conditions

Condition	**Specify what type and where?**
BH Pressure at deepest TVD	4148 psi
Abnormal Temperature	No

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

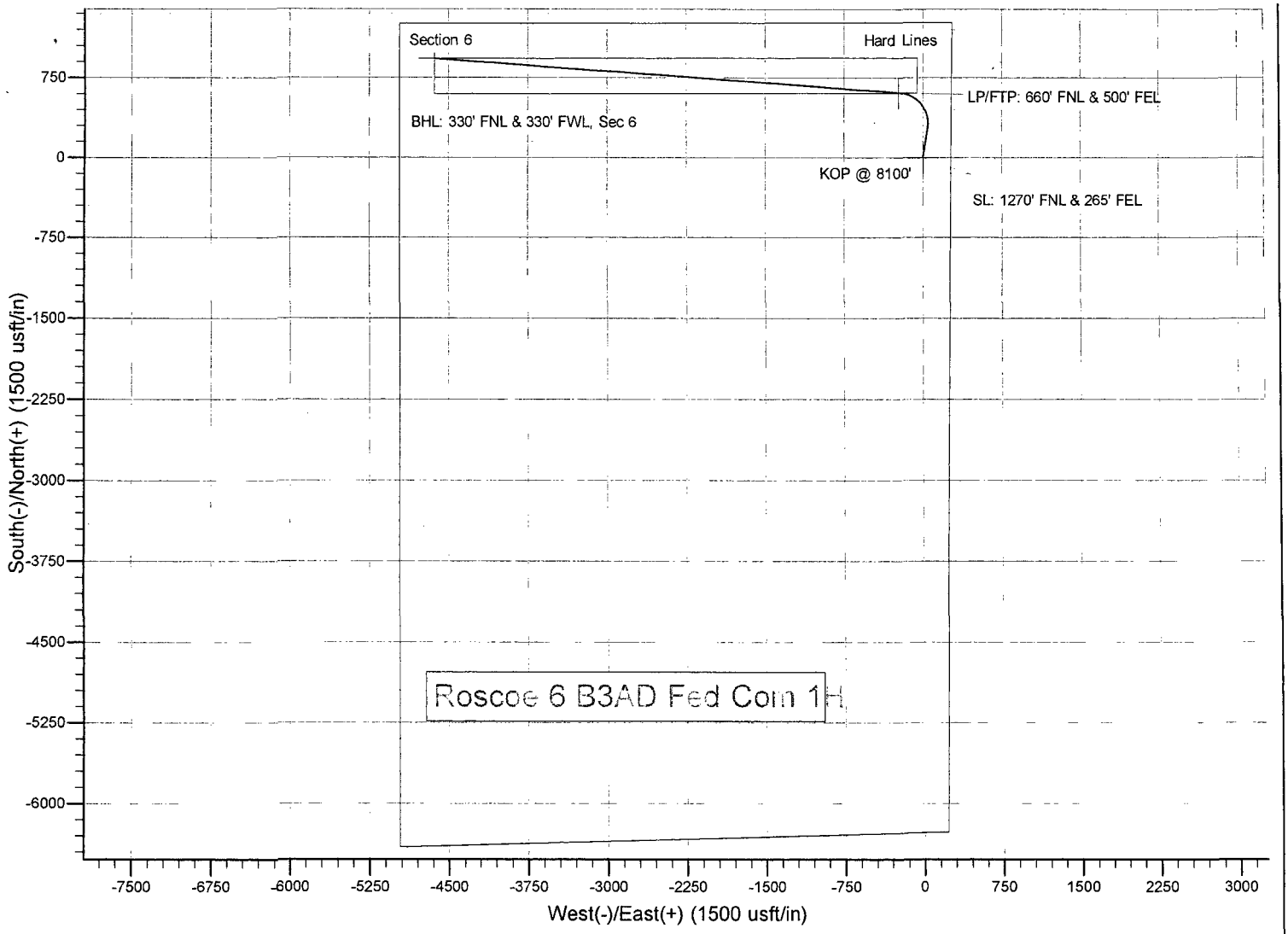
Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be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

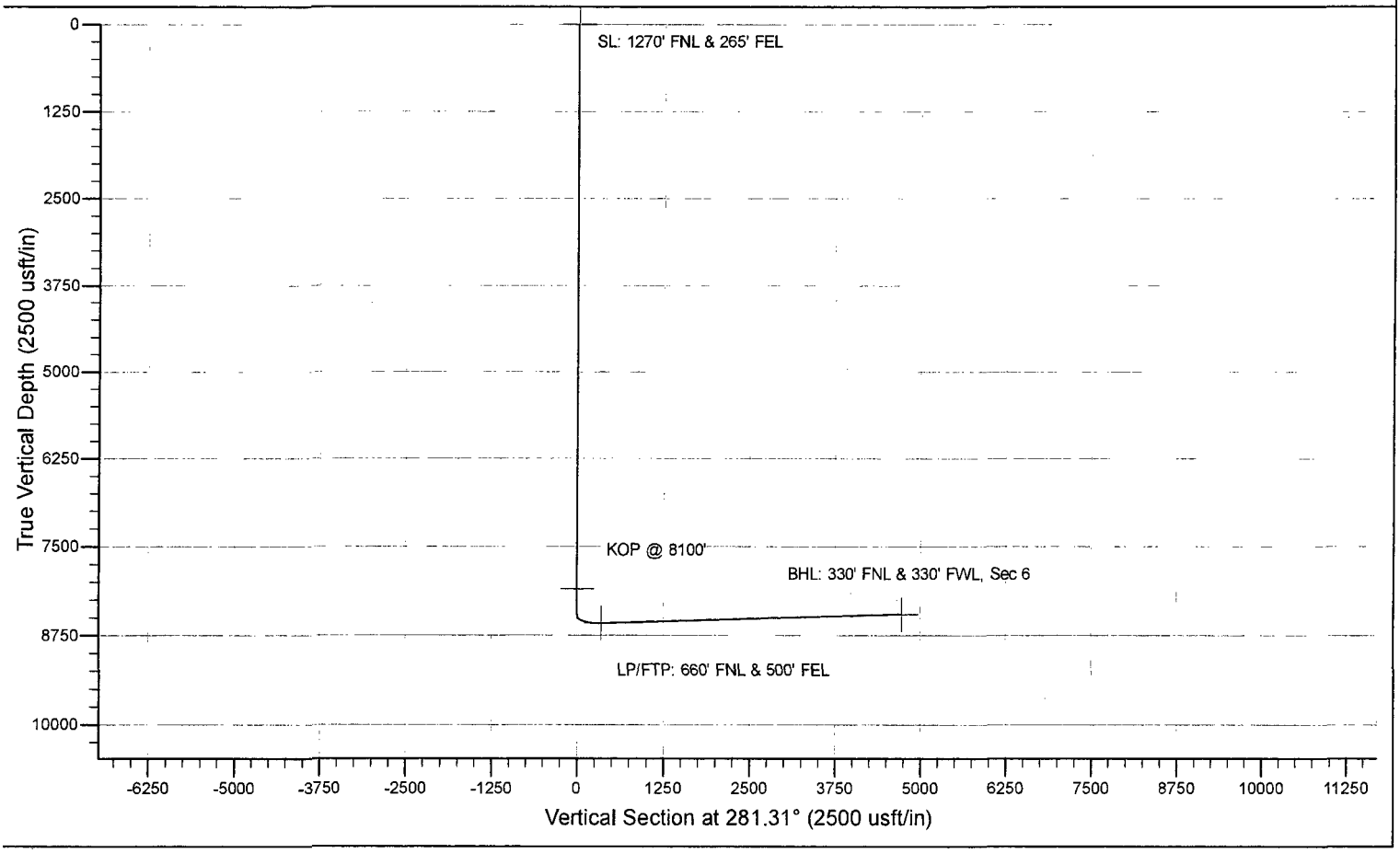
8. Other facets of operation

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

Attachments
___ Directional Plan
___ Other, describe

Mewbourne Oil Company, Roscoe 6 B3AD Fed Com #1H
Sec 6, T21S, R27E
SL: 1270' FNL & 265' FEL
BHL: 330' FNL & 330' FWL


Section 6
Hard Lines
LP/FTP: 660' FNL & 500' FEL
BHL: 330' FNL & 330' FWL, Sec 6
KOP @ 8100'
SL: 1270' FNL & 265' FEL
Roscoe 6 B3AD Fed Com 1H
South(-)/North(+) (1500 usft/in)
West(-)/East(+) (1500 usft/in)


SL: 1270' FNL & 265' FEL
KOP @ 8100'
BHL: 330' FNL & 330' FWL, Sec 6
LP/FTP: 660' FNL & 500' FEL
True Vertical Depth (2500 usft/in)
Vertical Section at 281.31° (2500 usft/in)

Mewbourne Oil Company

Eddy County, New Mexico
Roscoe 6 B3AD Fed Com 1H
Sec 6, T21S, R27E
SL: 1270' FNL & 265' FEL
BHL: 330' FNL & 330' FWL

Plan: Design #1

Standard Planning Report

23 January, 2017

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Roscoe 6 B3AD Fed Com 1H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3255.0usft (Original Well Elev)
Project:	Eddy County, New Mexico	**MD Reference:**	WELL @ 3255.0usft (Original Well Elev)
Site:	Roscoe 6 B3AD Fed Com 1H	**North Reference:**	Grid
Well:	Sec 6, T21S, R27E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 330' FNL & 330' FWL		
Design:	Design #1		

Project	Eddy County, New Mexico		
Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Roscoe 6 B3AD Fed Com 1H				
Site Position:		**Northing:**	552,539.40 usft	**Latitude:**	32° 31' 8.364 N
From:	Map	**Easting:**	534,698.60 usft	**Longitude:**	104° 13' 14.742 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.06 °

Well	Sec 6, T21S, R27E					
Well Position	**+N/-S**	0.0 usft	**Northing:**	552,539.40 usft	**Latitude:**	32° 31' 8.364 N
	+E/-W	0.0 usft	**Easting:**	534,698.60 usft	**Longitude:**	104° 13' 14.742 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	3,255.0 usft	**Ground Level:**	3,228.0 usft

Wellbore	BHL: 330' FNL & 330' FWL				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF200510	12/31/2009	8.07	60.40	48,899

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	281.31	

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	
8,099.5	0.00	0.00	8,099.5	0.0	0.0	0.00	0.00	0.00	0.00	KOP @ 8100'
8,617.8	72.56	8.73	8,490.0	283.3	43.5	14.00	14.00	0.00	8.73	
9,105.2	91.62	274.14	8,577.0	608.6	-229.6	19.46	3.91	-19.41	-89.83	LP/FTP: 660' FNL & 5
13,525.5	91.62	274.14	8,452.0	927.6	-4,636.6	0.00	0.00	0.00	0.00	BHL: 330' FNL & 330'

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Roscoe 6 B3AD Fed Com 1H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3255.0usft (Original Well Elev)
Project:	Eddy County, New Mexico	**MD Reference:**	WELL @ 3255.0usft (Original Well Elev)
Site:	Roscoe 6 B3AD Fed Com 1H	**North Reference:**	Grid
Well:	Sec 6, T21S, R27E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 330' FNL & 330' FWL		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
SL: 1270' FNL & 265' FEL									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Roscoe 6 B3AD Fed Com 1H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3255.0usft (Original Well Elev)
Project:	Eddy County, New Mexico	**MD Reference:**	WELL @ 3255.0usft (Original Well Elev)
Site:	Roscoe 6 B3AD Fed Com 1H	**North Reference:**	Grid
Well:	Sec 6, T21S, R27E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 330' FNL & 330' FWL		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00
7,700.0	0.00	0.00	7,700.0	0.0	0.0	0.0	0.00	0.00	0.00
7,800.0	0.00	0.00	7,800.0	0.0	0.0	0.0	0.00	0.00	0.00
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.0	0.00	0.00	0.00
8,000.0	0.00	0.00	8,000.0	0.0	0.0	0.0	0.00	0.00	0.00
8,099.5	0.00	0.00	8,099.5	0.0	0.0	0.0	0.00	0.00	0.00
KOP @ 8100'									
8,100.0	0.06	8.73	8,100.0	0.0	0.0	0.0	14.00	14.00	0.00
8,200.0	14.06	8.73	8,199.0	12.1	1.9	0.6	14.00	14.00	0.00
8,300.0	28.06	8.73	8,292.1	47.6	7.3	2.2	14.00	14.00	0.00
8,400.0	42.06	8.73	8,373.7	104.2	16.0	4.7	14.00	14.00	0.00
8,500.0	56.06	8.73	8,439.1	178.7	27.4	8.1	14.00	14.00	0.00
8,600.0	70.06	8.73	8,484.3	266.6	41.0	12.1	14.00	14.00	0.00
8,617.8	72.56	8.73	8,490.0	283.3	43.5	12.9	14.00	14.00	0.00
8,700.0	73.30	352.01	8,514.3	361.5	44.0	27.8	19.46	0.90	-20.35
8,800.0	75.96	332.01	8,541.0	452.6	14.3	74.8	19.46	2.67	-20.00
8,900.0	80.22	312.59	8,561.8	529.5	-45.3	148.3	19.46	4.25	-19.42
9,000.0	85.53	293.71	8,574.4	583.4	-128.1	240.0	19.46	5.31	-18.88
9,100.0	91.32	275.11	8,577.1	608.2	-224.4	339.4	19.46	5.79	-18.60
9,105.2	91.62	274.14	8,577.0	608.6	-229.6	344.5	19.46	5.82	-18.58
LP/FTP: 660' FNL & 500' FEL									
9,200.0	91.62	274.14	8,574.3	615.4	-324.1	438.5	0.00	0.00	0.00
9,300.0	91.62	274.14	8,571.5	622.7	-423.8	537.7	0.00	0.00	0.00
9,400.0	91.62	274.14	8,568.7	629.9	-523.5	636.9	0.00	0.00	0.00
9,500.0	91.62	274.14	8,565.8	637.1	-623.2	736.1	0.00	0.00	0.00
9,600.0	91.62	274.14	8,563.0	644.3	-722.9	835.3	0.00	0.00	0.00
9,700.0	91.62	274.14	8,560.2	651.5	-822.6	934.4	0.00	0.00	0.00
9,800.0	91.62	274.14	8,557.4	658.7	-922.3	1,033.6	0.00	0.00	0.00
9,900.0	91.62	274.14	8,554.5	666.0	-1,022.0	1,132.8	0.00	0.00	0.00
10,000.0	91.62	274.14	8,551.7	673.2	-1,121.7	1,232.0	0.00	0.00	0.00
10,100.0	91.62	274.14	8,548.9	680.4	-1,221.4	1,331.1	0.00	0.00	0.00

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Roscoe 6 B3AD Fed Com 1H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3255.0usft (Original Well Elev)
Project:	Eddy County, New Mexico	**MD Reference:**	WELL @ 3255.0usft (Original Well Elev)
Site:	Roscoe 6 B3AD Fed Com 1H	**North Reference:**	Grid
Well:	Sec 6, T21S, R27E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 330' FNL & 330' FWL		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,200.0	91.62	274.14	8,546.0	687.6	-1,321.1	1,430.3	0.00	0.00	0.00
10,300.0	91.62	274.14	8,543.2	694.8	-1,420.8	1,529.5	0.00	0.00	0.00
10,400.0	91.62	274.14	8,540.4	702.0	-1,520.5	1,628.7	0.00	0.00	0.00
10,500.0	91.62	274.14	8,537.6	709.3	-1,620.2	1,727.8	0.00	0.00	0.00
10,600.0	91.62	274.14	8,534.7	716.5	-1,719.9	1,827.0	0.00	0.00	0.00
10,700.0	91.62	274.14	8,531.9	723.7	-1,819.6	1,926.2	0.00	0.00	0.00
10,800.0	91.62	274.14	8,529.1	730.9	-1,919.3	2,025.4	0.00	0.00	0.00
10,900.0	91.62	274.14	8,526.2	738.1	-2,019.0	2,124.6	0.00	0.00	0.00
11,000.0	91.62	274.14	8,523.4	745.3	-2,118.7	2,223.7	0.00	0.00	0.00
11,100.0	91.62	274.14	8,520.6	752.6	-2,218.4	2,322.9	0.00	0.00	0.00
11,200.0	91.62	274.14	8,517.8	759.8	-2,318.1	2,422.1	0.00	0.00	0.00
11,300.0	91.62	274.14	8,514.9	767.0	-2,417.8	2,521.3	0.00	0.00	0.00
11,400.0	91.62	274.14	8,512.1	774.2	-2,517.5	2,620.4	0.00	0.00	0.00
11,500.0	91.62	274.14	8,509.3	781.4	-2,617.2	2,719.6	0.00	0.00	0.00
11,600.0	91.62	274.14	8,506.5	788.6	-2,716.9	2,818.8	0.00	0.00	0.00
11,700.0	91.62	274.14	8,503.6	795.9	-2,816.6	2,918.0	0.00	0.00	0.00
11,800.0	91.62	274.14	8,500.8	803.1	-2,916.3	3,017.2	0.00	0.00	0.00
11,900.0	91.62	274.14	8,498.0	810.3	-3,016.0	3,116.3	0.00	0.00	0.00
12,000.0	91.62	274.14	8,495.1	817.5	-3,115.7	3,215.5	0.00	0.00	0.00
12,100.0	91.62	274.14	8,492.3	824.7	-3,215.4	3,314.7	0.00	0.00	0.00
12,200.0	91.62	274.14	8,489.5	831.9	-3,315.1	3,413.9	0.00	0.00	0.00
12,300.0	91.62	274.14	8,486.7	839.2	-3,414.8	3,513.0	0.00	0.00	0.00
12,400.0	91.62	274.14	8,483.8	846.4	-3,514.5	3,612.2	0.00	0.00	0.00
12,500.0	91.62	274.14	8,481.0	853.6	-3,614.2	3,711.4	0.00	0.00	0.00
12,600.0	91.62	274.14	8,478.2	860.8	-3,713.9	3,810.6	0.00	0.00	0.00
12,700.0	91.62	274.14	8,475.3	868.0	-3,813.6	3,909.8	0.00	0.00	0.00
12,800.0	91.62	274.14	8,472.5	875.2	-3,913.3	4,008.9	0.00	0.00	0.00
12,900.0	91.62	274.14	8,469.7	882.5	-4,013.0	4,108.1	0.00	0.00	0.00
13,000.0	91.62	274.14	8,466.9	889.7	-4,112.7	4,207.3	0.00	0.00	0.00
13,100.0	91.62	274.14	8,464.0	896.9	-4,212.4	4,306.5	0.00	0.00	0.00
13,200.0	91.62	274.14	8,461.2	904.1	-4,312.1	4,405.6	0.00	0.00	0.00
13,300.0	91.62	274.14	8,458.4	911.3	-4,411.8	4,504.8	0.00	0.00	0.00
13,400.0	91.62	274.14	8,455.5	918.5	-4,511.5	4,604.0	0.00	0.00	0.00
13,500.0	91.62	274.14	8,452.7	925.8	-4,611.2	4,703.2	0.00	0.00	0.00
13,525.5	91.62	274.14	8,452.0	927.6	-4,636.6	4,728.5	0.00	0.00	0.00
BHL: 330' FNL & 330' FWL, Sec 6									

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Roscoe 6 B3AD Fed Com 1H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3255.0usft (Original Well Elev)
Project:	Eddy County, New Mexico	**MD Reference:**	WELL @ 3255.0usft (Original Well Elev)
Site:	Roscoe 6 B3AD Fed Com 1H	**North Reference:**	Grid
Well:	Sec 6, T21S, R27E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 330' FNL & 330' FWL		
Design:	Design #1		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SL: 1270' FNL & 265' FE - plan hits target center - Point	0.00	0.00	0.0	0.0	0.0	552,539.40	534,698.60	32° 31' 8.364 N	104° 13' 14.742 W
KOP @ 8100' - plan hits target center - Point	0.00	0.00	8,099.5	0.0	0.0	552,539.40	534,698.60	32° 31' 8.364 N	104° 13' 14.742 W
BHL: 330' FNL & 330' FV - plan hits target center - Point	0.00	0.00	8,452.0	927.6	-4,636.6	553,467.00	530,062.00	32° 31' 17.589 N	104° 14' 8.885 W
LP/FTP: 660' FNL & 500 - plan hits target center - Point	0.00	0.00	8,577.0	608.6	-229.6	553,148.00	534,469.00	32° 31' 14.389 N	104° 13' 17.417 W

High Cave Karst: two casing strings, both to circulate cement to surface.

20	surface csg in a		26	inch hole.	Design Factors			SURFACE	
Segment	**#/ft**	**Grade**		**Coupling**	**Joint**	**Collapse**	**Burst**	**Length**	**Weight**
"A"	94.00	J	55	BUTT	33.14	2.53	5.77	450	42,300
"B"								**0**	**0**
	w/8.4#/g mud, 30min Sfc Csg Test psig:	1,281		Tail Cmt	does not	circ to sfc.	Totals:	450	42,300

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**
26	1.5053	**675**	1275	**811**	57	**8.80**	190	**2M**	2.50

13 3/8	casing inside the		20			Design Factors		INTERMEDIATE	
Segment	**#/ft**	**Grade**		**Coupling**	**Joint**	**Collapse**	**Burst**	**Length**	**Weight**
"A"	48.00	H	40	ST&C	8.39	2.11	1.43	800	38,400
"B"								**0**	**0**
	w/8.4#/g mud, 30min Sfc Csg Test psig:	862					Totals:	800	38,400
	The cement volume(s) are intended to achieve a top of				0	ft from surface or a		450	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**
17 1/2	0.6946	**375**	639	**740**	**-14**	**8.80**	658	**2M**	1.56

9 5/8	casing inside the		13 3/8			Design Factors		INTERMEDIATE	
Segment	**#/ft**	**Grade**		**Coupling**	**Joint**	**Collapse**	**Burst**	**Length**	**Weight**
"A"	36.00	J	55	LT&C	5.03	1.67	0.85	2,500	90,000
"B"								**0**	**0**
	w/8.4#/g mud, 30min Sfc Csg Test psig:	1,373					Totals:	2,500	90,000
	The cement volume(s) are intended to achieve a top of				0	ft from surface or a		800	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	**look ↘**	0	**853**		**9.30**	2257	**3M**	0.81
	Setting Depths for D V Tool(s):		850				sum of sx	Σ CuFt	Σ%excess
	% excess cmt by stage.	29	1				640	1014	19

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 1.41, b, c, d All > 0.70, OK.

Tail cmt

7	casing inside the		9 5/8			Design Factors		PRODUCTION	
Segment	**#/ft**	**Grade**		**Coupling**	**Joint**	**Collapse**	**Burst**	**Length**	**Weight**
"A"	26.00	P	110	LT&C	3.11	1.59	2.4	8,099	210,574
"B"	**26.00**	**P**	**110**	**LT&C**	4.01	**1.30**	**2.4**	**1,006**	**26,156**
	w/8.4#/g mud, 30min Sfc Csg Test psig:	1,782					Totals:	9,105	236,730
B	Segment Design Factors would be:				55.76	1.5	if it were a vertical wellbore.		
#REF!			MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
			9105	8577	8577	8099	73	14	8618
	The cement volume(s) are intended to achieve a top of				710	ft from surface or a		1790	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	**400**	1196	**1301**	**-8**	**9.30**	2257	**3M**	0.55

Class 'H' tail cmt vld > Capitan Reef est top XXXX.

4 1/2	Liner w/top @		8100			Design Factors		LINER	
Segment	**#/ft**	**Grade**		**Coupling**	**Joint**	**Collapse**	**Burst**	**Length**	**Weight**
"A"	13.50	P	110	LT&C	2.92	2.17	2.99	518	6,993
"B"	**13.50**	**P**	**110**	**LT&C**	5.10	**2.58**	**2.99**	**4,912**	**66,312**
	w/8.4#/g mud, 30min Sfc Csg Test psig:	1,782					Totals:	5,430	73,305
A	Factors would be:				2.68	2.58	if it were a vertical wellbore.		
#REF!			MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
			13530	8577	8577	8099	73	14	8,618
	The cement volume(s) are intended to achieve a top of				0	ft from surface or a		9105	overlap.

Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling			Min Dist
Size	**Volume**	**Cmt Sx**	**CuFt Cmt**	**Cu Ft**	**% Excess**	**Mud Wt**			**Hole-Cplg**
8 3/4	0.3071	**225**	668	**1468**	**-54**	**9.30**			1.88

Class 'H' tail

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Mewbourne Oil Company**
LEASE NO.:	**NMNM-0375257A**
WELL NAME & NO.:	**Roscoe 6 B3AD Fed Com 1H**
SURFACE HOLE FOOTAGE:	**1270' FNL & 0265' FEL**
BOTTOM HOLE FOOTAGE	**0500' FNL & 0330' FWL**
LOCATION:	**Section 06, T. 21 S., R 27 E., NMPM**
COUNTY:	**Eddy County, New Mexico**

I. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ **Eddy County**
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

1. **Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe and the H2S drilling plan shall be implemented 500' prior to drilling into the Delaware formation. If H2S is detected in concentrations greater than 100 ppm prior to implementing the H2S drilling plan, 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.**

2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a "Major" violation.**

3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.

4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

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

Wait on cement (WOC) for Water Basin:
After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements.

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.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Medium Cave/Karst
Capitan Reef
Possibility of water flows in the Yates
Possibility of lost circulation in the Capitan Reef and Delaware
Abnormal pressure may be encountered when penetrating the 3rd Bone Spring Sandstone and all subsequent formations.

1. The **20** inch surface casing shall be set at approximately **450** feet and cemented to the surface. **If salt is encountered, set casing at least 25 feet 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 is to include the lead cement slurry.

c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **13-3/8** inch 1st intermediate casing, which shall be set at approximately **800** feet (**base of the Yates**), is:

☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst. Excess calculates to negative 14% - Additional cement will be required**

3. The minimum required fill of cement behind the **9-5/8** inch 2nd intermediate casing is:

DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.

a. First stage to DV tool:

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.

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. Excess calculates to 1% - Additional cement may be required.**

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.

4. The minimum required fill of cement behind the 7 inch production casing is:

   ☒ Cement should tie-back at least **50 feet above the Capitan Reef**. Operator shall provide method of verification. **Excess calculates to -8% - Additional cement may be required.**

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

   ☒ Cement should tie-back to the top of the liner. Operator shall provide method of verification.

6. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API 53.

2. **A variance is granted for the use of a diverter on the 20" surface casing.**

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **13-3/8** 1st intermediate casing shoe shall be **2000 (2M)** psi (**2M annular will be utlitized**).

4. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8** 2nd intermediate casing shoe shall be **3000 (3M)** psi.

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. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.

c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

d. The results of the test shall be reported to the appropriate BLM office.

e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**

f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

D. DRILL STEM TEST

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

E. 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.