Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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.
NMNM18626

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. 320803
LINDALE 24/25 H3AH FEDERAL 1H

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

9. API Well No.
30-015-44714-00-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
WILDCAT

Carlsbad Field Office
OCD Artesia

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 24 T26S R30E NENE 185FNL 295FEL
32.034824 N Lat, 103.827103 W Lon

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.

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

1) Change well name to Lindale 24/25 W1AH Fed #2H. – properly 320802
2) Change pool to 98220.
3) Change target zone to Wolfcamp & TVD to 11,169'.
4) Change BHL to 2310' FNL & 990' FEL, Sec 25.
5) Change csg depth and cement to suit new plan.
6) Change well type to gas.
7) Change spacing to 480 acres.

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

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

OIL CONSERVATION
ARTESIA DISTRICT
MAR 19 2018
RECEIVED

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

Electronic Submission #404922 verified by the BLM Well Information System
For MEWBOURNE OIL COMPANY, sent to the Carlsbad
Committed to AFMSS for processing by ZOTA STEVENS on 02/20/2018 (18ZS0030SE)

Name *(Printed/Typed)* ROBERT TALLEY — Title ENGINEER

Signature (Electronic Submission) — Date 02/19/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By ZOTA STEVENS — Title PETROLEUM ENGINEER — Date 03/12/2018

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 Carlsbad

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 ****

RM 3-20-2018

Additional data for EC transaction #404922 that would not fit on the form

32. Additional remarks, continued

Please contact Robert Talley with any questions.

Mewbourne Oil Company, Lindale 24/25 W1AH Fed #2H
Sec 24, T26S, R30E
SL: 185' FNL & 295' FEL
BHL: 2310' FNL & 990' FEL

1. Geologic Formations

TVD of target	11169'	Pilot hole depth	NA
MD at TD:	18583'	Deepest expected fresh water:	225'

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface		
Rustler	975		
Top of Salt	1450		
Castile			
Base of Salt	3750		
Lamar	3850	Oil/Gas	
Bell Canyon		Oil/Gas	
Cherry Canyon		Oil/Gas	
Manzanita Marker			
Brushy Canyon		Oil/Gas	
Bone Spring	7625	Oil/Gas	
1st Bone Spring Sand	8600	Oil/Gas	
2nd Bone Spring Sand	9250	Oil/Gas	
3rd Bone Spring Sand	10500	Oil/Gas	
Abo			
Wolfcamp	10900	Target Zone	
Devonian			
Fusselman			
Ellenburger			
Granite Wash			

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

Mewbourne Oil Company, Lindale 24/25 W1AH Fed #2H
Sec 24, T26S, R30E
SL: 185' FNL & 295' FEL
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2. Casing Program

Hole Size	Casing Interval From	To	Csg. Size	Weight (lbs)	Grade	Conn	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
17.5"	0'	~~1080~~ 1000	13.375"	48	H40	STC	1.57	3.52	6.39	10.73
12.25"	0'	3453'	9.625"	36	J55	LTC	1.13	1.96	3.30	4.54
12.25"	3453'	3775'	9.625"	40	J55	LTC	1.31	2.01	40.37	48.91
8.75"	0'	11525'	7"	26	HCP110	LTC	1.41	1.80	2.12	2.77
6.125"	10626'	18583'	4.5"	13.5	P110	LTC	1.41	1.64	3.15	3.93
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet

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

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

Mewbourne Oil Company, Lindale 24/25 W1AH Fed #2H
Sec 24, T26S, R30E
SL: 185' FNL & 295' FEL
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3. Cementing Program

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H2O gal/ sk	500# Comp. Strength (hours)	Slurry Description
Surf.	570	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.	620	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	360	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 @ 5050'						
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	330	11.2	2.97	18	16	Class C + Salt + Gel + Fluid Loss + Retarder + Dispersant + Defoamer + Anti-Settling Agent

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

Casing String	TOC	% Excess
Surface	0'	100%
Intermediate	0'	25%
Production	3575'	25%
Liner	10626'	25%

Mewbourne Oil Company, Lindale 24/25 W1AH Fed #2H
Sec 24, T26S, R30E
SL: 185' FNL & 295' FEL
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4. Pressure Control Equipment

	Variance: None

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

*Specify if additional ram is utilized.

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

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

X	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
N	Are anchors required by manufacturer?
Y	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. • Provide description here: See attached schematic.

Mewbourne Oil Company, Lindale 24/25 W1AH Fed #2H
Sec 24, T26S, R30E
SL: 185' FNL & 295' FEL
BHL: 2310' FNL & 990' FEL

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	1050	FW Gel	8.6-8.8	28-34	N/C
1050	3775	Saturated Brine	10.0	28-34	N/C
3775	10626	Cut Brine	8.6-9.7	28-34	N/C
10626	18583	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. Mud wieght up to 13.0 ppg may be required for shale control. The highest mud weight needed to balance formation is expected to be 12.0 ppg.

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

6. Logging and Testing Procedures

Logging, Coring and Testing.	
X	Will run GR/CNL from KOP (10626') 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	10626' (KOP) to TD
	Density	
	CBL	
	Mud log	
	PEX	

Mewbourne Oil Company, Lindale 24/25 W1AH Fed #2H
Sec 24, T26S, R30E
SL: 185' FNL & 295' FEL
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7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	6969 psi
Abnormal Temperature	No

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

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

8. Other facets of operation

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

Attachments
___ Directional Plan
___ Other, describe

Mewbourne Oil Company

Eddy County, New Mexico NAD 83
Lindale 24/25 W1AH Fed #2H
Sec 24, T26S, R30E
SL: 185' FNL & 295' FEL (24)
BHL: 2310' FNL & 990' FEL (25)

Plan: Design #1

Standard Planning Report

19 February, 2018

	Hobbs		Site Lindale 24/25 W1AH Fed #2H
	Mewbourne Oil Company		WELL @ 3209.0usft (Original Well Elev)
	Eddy County, New Mexico NAD 83		WELL @ 3209.0usft (Original Well Elev)
	Lindale 24/25 W1AH Fed #2H		Grid
	Sec 24, T26S, R30E		Minimum Curvature
	BHL: 2310' FNL & 990' FEL (25)		
	Design #1		

Eddy County, New Mexico NAD 83

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

Lindale 24/25 W1AH Fed #2H

Site Position:		**Northing:**	376,776.00 usft	**Latitude:**	32.0348267
From:	Map	**Easting:**	698,204.00 usft	**Longitude:**	-103.8271043
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.27 °

Sec 24, T26S, R30E

Well Position	**+N/-S**	0.0 usft	**Northing:**	376,776.00 usft	**Latitude:**	32.0348267
	+E/-W	0.0 usft	**Easting:**	698,204.00 usft	**Longitude:**	-103.8271043
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	3,209.0 usft	**Ground Level:**	3,182.0 usft

BHL: 2310' FNL & 990' FEL (25)

	IGRF2010	2/19/2018	6.87	59.80	47,811

Design #1

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0
	0.0	0.0	0.0	185.01	

Plan Sections

Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Dogleg Rate	Build Rate	Turn Rate	TFO	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,875.0	0.00	0.00	3,875.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,195.1	6.40	283.96	4,194.4	4.3	-17.3	2.00	2.00	0.00	283.96	
10,306.3	6.40	283.96	10,267.6	168.7	-678.7	0.00	0.00	0.00	0.00	
10,626.4	0.00	0.00	10,587.0	173.0	-696.0	2.00	-2.00	0.00	180.00	KOP @ 10587'
11,525.8	89.93	179.68	11,160.0	-399.3	-692.8	10.00	10.00	0.00	179.68	
18,583.6	89.93	179.68	11,169.0	-7,457.0	-654.0	0.00	0.00	0.00	0.00	BHL: 2310' FNL & 99(

	Hobbs		Site Lindale 24/25 W1AH Fed #2H
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	Eddy County, New Mexico NAD 83		WELL @ 3209.0usft (Original Well Elev)
	Lindale 24/25 W1AH Fed #2H		Grid
	Sec 24, T26S, R30E		Minimum Curvature
	BHL: 2310' FNL & 990' FEL (25)		
	Design #1		

0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
SL: 185' FNL & 295' FEL (24)									
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
3,875.0	0.00	0.00	3,875.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.50	283.96	3,900.0	0.0	-0.1	0.0	2.00	2.00	0.00
4,000.0	2.50	283.96	4,000.0	0.7	-2.6	-0.4	2.00	2.00	0.00
4,100.0	4.50	283.96	4,099.8	2.1	-8.6	-1.4	2.00	2.00	0.00
4,195.1	6.40	283.96	4,194.4	4.3	-17.3	-2.8	2.00	2.00	0.00
4,200.0	6.40	283.96	4,199.3	4.4	-17.9	-2.9	0.00	0.00	0.00
4,300.0	6.40	283.96	4,298.7	7.1	-28.7	-4.6	0.00	0.00	0.00
4,400.0	6.40	283.96	4,398.1	9.8	-39.5	-6.3	0.00	0.00	0.00
4,500.0	6.40	283.96	4,497.4	12.5	-50.3	-8.1	0.00	0.00	0.00
4,600.0	6.40	283.96	4,596.8	15.2	-61.2	-9.8	0.00	0.00	0.00
4,700.0	6.40	283.96	4,696.2	17.9	-72.0	-11.5	0.00	0.00	0.00
4,800.0	6.40	283.96	4,795.6	20.6	-82.8	-13.3	0.00	0.00	0.00
4,900.0	6.40	283.96	4,894.9	23.3	-93.6	-15.0	0.00	0.00	0.00
5,000.0	6.40	283.96	4,994.3	26.0	-104.4	-16.7	0.00	0.00	0.00

	Hobbs		Site Lindale 24/25 W1AH Fed #2H
	Mewbourne Oil Company		WELL @ 3209.0usft (Original Well Elev)
	Eddy County, New Mexico NAD 83		WELL @ 3209.0usft (Original Well Elev)
	Lindale 24/25 W1AH Fed #2H		Grid
	Sec 24, T26S, R30E		Minimum Curvature
	BHL: 2310' FNL & 990' FEL (25)		
	Design #1		

5,100.0	6.40	283.96	5,093.7	28.6	-115.3	-18.5	0.00	0.00	0.00
5,200.0	6.40	283.96	5,193.1	31.3	-126.1	-20.2	0.00	0.00	0.00
5,300.0	6.40	283.96	5,292.4	34.0	-136.9	-21.9	0.00	0.00	0.00
5,400.0	6.40	283.96	5,391.8	36.7	-147.7	-23.7	0.00	0.00	0.00
5,500.0	6.40	283.96	5,491.2	39.4	-158.5	-25.4	0.00	0.00	0.00
5,600.0	6.40	283.96	5,590.6	42.1	-169.4	-27.1	0.00	0.00	0.00
5,700.0	6.40	283.96	5,689.9	44.8	-180.2	-28.9	0.00	0.00	0.00
5,800.0	6.40	283.96	5,789.3	47.5	-191.0	-30.6	0.00	0.00	0.00
5,900.0	6.40	283.96	5,888.7	50.2	-201.8	-32.3	0.00	0.00	0.00
6,000.0	6.40	283.96	5,988.1	52.9	-212.7	-34.1	0.00	0.00	0.00
6,100.0	6.40	283.96	6,087.5	55.5	-223.5	-35.8	0.00	0.00	0.00
6,200.0	6.40	283.96	6,186.8	58.2	-234.3	-37.5	0.00	0.00	0.00
6,300.0	6.40	283.96	6,286.2	60.9	-245.1	-39.3	0.00	0.00	0.00
6,400.0	6.40	283.96	6,385.6	63.6	-255.9	-41.0	0.00	0.00	0.00
6,500.0	6.40	283.96	6,485.0	66.3	-266.8	-42.7	0.00	0.00	0.00
6,600.0	6.40	283.96	6,584.3	69.0	-277.6	-44.5	0.00	0.00	0.00
6,700.0	6.40	283.96	6,683.7	71.7	-288.4	-46.2	0.00	0.00	0.00
6,800.0	6.40	283.96	6,783.1	74.4	-299.2	-47.9	0.00	0.00	0.00
6,900.0	6.40	283.96	6,882.5	77.1	-310.0	-49.7	0.00	0.00	0.00
7,000.0	6.40	283.96	6,981.8	79.8	-320.9	-51.4	0.00	0.00	0.00
7,100.0	6.40	283.96	7,081.2	82.4	-331.7	-53.2	0.00	0.00	0.00
7,200.0	6.40	283.96	7,180.6	85.1	-342.5	-54.9	0.00	0.00	0.00
7,300.0	6.40	283.96	7,280.0	87.8	-353.3	-56.6	0.00	0.00	0.00
7,400.0	6.40	283.96	7,379.3	90.5	-364.2	-58.4	0.00	0.00	0.00
7,500.0	6.40	283.96	7,478.7	93.2	-375.0	-60.1	0.00	0.00	0.00
7,600.0	6.40	283.96	7,578.1	95.9	-385.8	-61.8	0.00	0.00	0.00
7,700.0	6.40	283.96	7,677.5	98.6	-396.6	-63.6	0.00	0.00	0.00
7,800.0	6.40	283.96	7,776.9	101.3	-407.4	-65.3	0.00	0.00	0.00
7,900.0	6.40	283.96	7,876.2	104.0	-418.3	-67.0	0.00	0.00	0.00
8,000.0	6.40	283.96	7,975.6	106.7	-429.1	-68.8	0.00	0.00	0.00
8,100.0	6.40	283.96	8,075.0	109.3	-439.9	-70.5	0.00	0.00	0.00
8,200.0	6.40	283.96	8,174.4	112.0	-450.7	-72.2	0.00	0.00	0.00
8,300.0	6.40	283.96	8,273.7	114.7	-461.5	-74.0	0.00	0.00	0.00
8,400.0	6.40	283.96	8,373.1	117.4	-472.4	-75.7	0.00	0.00	0.00
8,500.0	6.40	283.96	8,472.5	120.1	-483.2	-77.4	0.00	0.00	0.00
8,600.0	6.40	283.96	8,571.9	122.8	-494.0	-79.2	0.00	0.00	0.00
8,700.0	6.40	283.96	8,671.2	125.5	-504.8	-80.9	0.00	0.00	0.00
8,800.0	6.40	283.96	8,770.6	128.2	-515.7	-82.6	0.00	0.00	0.00
8,900.0	6.40	283.96	8,870.0	130.9	-526.5	-84.4	0.00	0.00	0.00
9,000.0	6.40	283.96	8,969.4	133.6	-537.3	-86.1	0.00	0.00	0.00
9,100.0	6.40	283.96	9,068.7	136.2	-548.1	-87.8	0.00	0.00	0.00
9,200.0	6.40	283.96	9,168.1	138.9	-558.9	-89.6	0.00	0.00	0.00
9,300.0	6.40	283.96	9,267.5	141.6	-569.8	-91.3	0.00	0.00	0.00
9,400.0	6.40	283.96	9,366.9	144.3	-580.6	-93.0	0.00	0.00	0.00
9,500.0	6.40	283.96	9,466.3	147.0	-591.4	-94.8	0.00	0.00	0.00
9,600.0	6.40	283.96	9,565.6	149.7	-602.2	-96.5	0.00	0.00	0.00
9,700.0	6.40	283.96	9,665.0	152.4	-613.0	-98.2	0.00	0.00	0.00
9,800.0	6.40	283.96	9,764.4	155.1	-623.9	-100.0	0.00	0.00	0.00
9,900.0	6.40	283.96	9,863.8	157.8	-634.7	-101.7	0.00	0.00	0.00
10,000.0	6.40	283.96	9,963.1	160.5	-645.5	-103.4	0.00	0.00	0.00
10,100.0	6.40	283.96	10,062.5	163.1	-656.3	-105.2	0.00	0.00	0.00
10,200.0	6.40	283.96	10,161.9	165.8	-667.2	-106.9	0.00	0.00	0.00
10,300.0	6.40	283.96	10,261.3	168.5	-678.0	-108.6	0.00	0.00	0.00
10,306.3	6.40	283.96	10,267.6	168.7	-678.7	-108.8	0.00	0.00	0.00

	Hobbs		Site Lindale 24/25 W1AH Fed #2H
	Mewbourne Oil Company		WELL @ 3209.0usft (Original Well Elev)
	Eddy County, New Mexico NAD 83		WELL @ 3209.0usft (Original Well Elev)
	Lindale 24/25 W1AH Fed #2H		Grid
	Sec 24, T26S, R30E		Minimum Curvature
	BHL: 2310' FNL & 990' FEL (25)		
	Design #1		

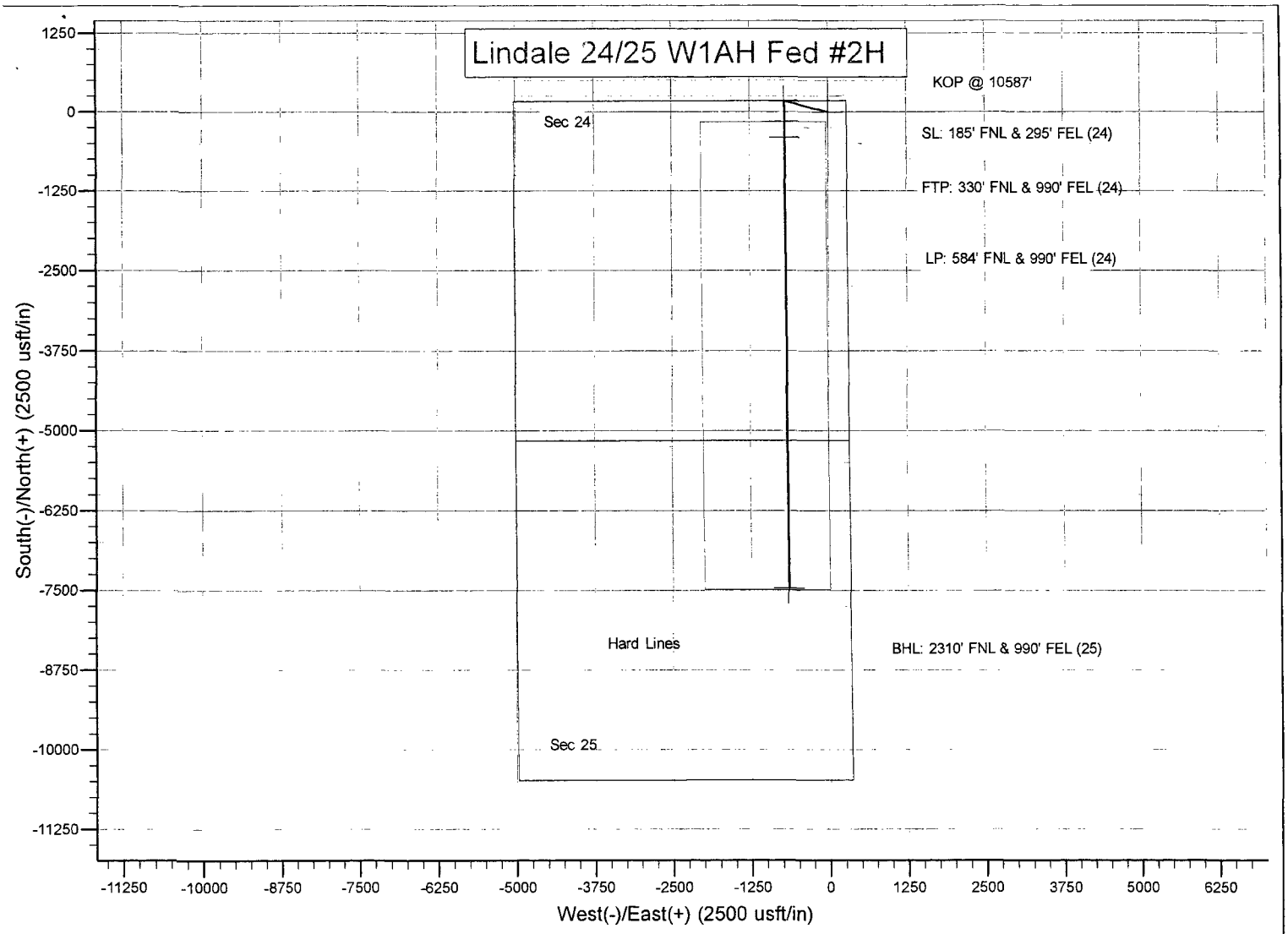
10,400.0	4.53	283.96	10,360.8	170.8	-687.3	-110.1	2.00	-2.00	0.00
10,500.0	2.53	283.96	10,460.6	172.3	-693.3	-111.1	2.00	-2.00	0.00
10,600.0	0.53	283.96	10,560.6	173.0	-695.9	-111.5	2.00	-2.00	0.00
10,626.4	0.00	0.00	10,587.0	173.0	-696.0	-111.5	2.00	-2.00	0.00
KOP @ 10587'									
10,700.0	7.36	179.68	10,660.4	168.3	-696.0	-106.8	10.00	10.00	0.00
10,800.0	17.35	179.68	10,757.9	146.9	-695.9	-85.6	10.00	10.00	0.00
10,900.0	27.35	179.68	10,850.3	108.9	-695.6	-47.7	10.00	10.00	0.00
11,000.0	37.35	179.68	10,934.7	55.5	-695.4	5.5	10.00	10.00	0.00
11,100.0	47.35	179.68	11,008.5	-11.8	-695.0	72.5	10.00	10.00	0.00
11,200.0	57.35	179.68	11,069.5	-90.9	-694.5	151.2	10.00	10.00	0.00
11,262.3	63.58	179.68	11,100.1	-145.0	-694.2	205.1	10.00	10.00	0.00
FTP: 330' FNL & 990' FEL (24)									
11,300.0	67.35	179.68	11,115.8	-179.3	-694.1	239.3	10.00	10.00	0.00
11,400.0	77.35	179.68	11,146.1	-274.5	-693.5	334.1	10.00	10.00	0.00
11,500.0	87.35	179.68	11,159.4	-373.5	-693.0	432.6	10.00	10.00	0.00
11,525.8	89.93	179.68	11,160.0	-399.3	-692.8	458.3	10.00	10.00	0.00
LP: 584' FNL & 990' FEL (24)									
11,600.0	89.93	179.68	11,160.1	-473.5	-692.4	532.2	0.00	0.00	0.00
11,700.0	89.93	179.68	11,160.2	-573.5	-691.9	631.7	0.00	0.00	0.00
11,800.0	89.93	179.68	11,160.3	-673.5	-691.3	731.3	0.00	0.00	0.00
11,900.0	89.93	179.68	11,160.5	-773.5	-690.8	830.9	0.00	0.00	0.00
12,000.0	89.93	179.68	11,160.6	-873.5	-690.2	930.4	0.00	0.00	0.00
12,100.0	89.93	179.68	11,160.7	-973.5	-689.7	1,030.0	0.00	0.00	0.00
12,200.0	89.93	179.68	11,160.9	-1,073.5	-689.1	1,129.6	0.00	0.00	0.00
12,300.0	89.93	179.68	11,161.0	-1,173.5	-688.6	1,229.1	0.00	0.00	0.00
12,400.0	89.93	179.68	11,161.1	-1,273.5	-688.0	1,328.7	0.00	0.00	0.00
12,500.0	89.93	179.68	11,161.2	-1,373.5	-687.5	1,428.3	0.00	0.00	0.00
12,600.0	89.93	179.68	11,161.4	-1,473.5	-686.9	1,527.8	0.00	0.00	0.00
12,700.0	89.93	179.68	11,161.5	-1,573.5	-686.4	1,627.4	0.00	0.00	0.00
12,800.0	89.93	179.68	11,161.6	-1,673.5	-685.8	1,727.0	0.00	0.00	0.00
12,900.0	89.93	179.68	11,161.8	-1,773.5	-685.3	1,826.5	0.00	0.00	0.00
13,000.0	89.93	179.68	11,161.9	-1,873.5	-684.7	1,926.1	0.00	0.00	0.00
13,100.0	89.93	179.68	11,162.0	-1,973.5	-684.2	2,025.7	0.00	0.00	0.00
13,200.0	89.93	179.68	11,162.1	-2,073.5	-683.6	2,125.3	0.00	0.00	0.00
13,300.0	89.93	179.68	11,162.3	-2,173.5	-683.1	2,224.8	0.00	0.00	0.00
13,400.0	89.93	179.68	11,162.4	-2,273.5	-682.5	2,324.4	0.00	0.00	0.00
13,500.0	89.93	179.68	11,162.5	-2,373.4	-682.0	2,424.0	0.00	0.00	0.00
13,600.0	89.93	179.68	11,162.6	-2,473.4	-681.4	2,523.5	0.00	0.00	0.00
13,700.0	89.93	179.68	11,162.8	-2,573.4	-680.9	2,623.1	0.00	0.00	0.00
13,800.0	89.93	179.68	11,162.9	-2,673.4	-680.3	2,722.7	0.00	0.00	0.00
13,900.0	89.93	179.68	11,163.0	-2,773.4	-679.8	2,822.2	0.00	0.00	0.00
14,000.0	89.93	179.68	11,163.2	-2,873.4	-679.2	2,921.8	0.00	0.00	0.00
14,100.0	89.93	179.68	11,163.3	-2,973.4	-678.7	3,021.4	0.00	0.00	0.00
14,200.0	89.93	179.68	11,163.4	-3,073.4	-678.1	3,120.9	0.00	0.00	0.00
14,300.0	89.93	179.68	11,163.5	-3,173.4	-677.6	3,220.5	0.00	0.00	0.00
14,400.0	89.93	179.68	11,163.7	-3,273.4	-677.0	3,320.1	0.00	0.00	0.00
14,500.0	89.93	179.68	11,163.8	-3,373.4	-676.5	3,419.6	0.00	0.00	0.00
14,600.0	89.93	179.68	11,163.9	-3,473.4	-675.9	3,519.2	0.00	0.00	0.00
14,700.0	89.93	179.68	11,164.0	-3,573.4	-675.4	3,618.8	0.00	0.00	0.00
14,800.0	89.93	179.68	11,164.2	-3,673.4	-674.8	3,718.3	0.00	0.00	0.00
14,900.0	89.93	179.68	11,164.3	-3,773.4	-674.3	3,817.9	0.00	0.00	0.00
15,000.0	89.93	179.68	11,164.4	-3,873.4	-673.7	3,917.5	0.00	0.00	0.00

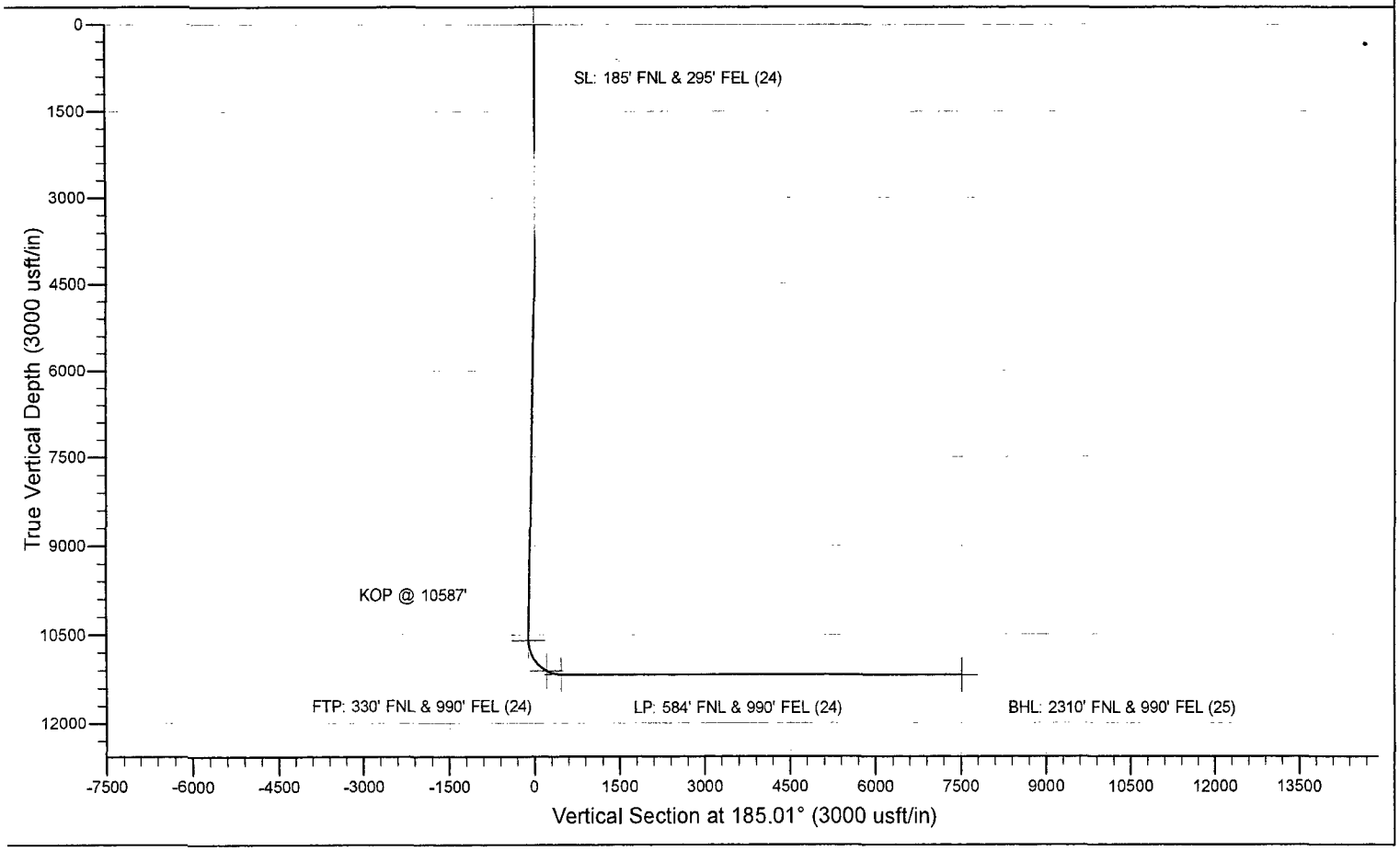
	Hobbs		Site Lindale 24/25 W1AH Fed #2H
	Mewbourne Oil Company		WELL @ 3209.0usft (Original Well Elev)
	Eddy County, New Mexico NAD 83		WELL @ 3209.0usft (Original Well Elev)
	Lindale 24/25 W1AH Fed #2H		Grid
	Sec 24, T26S, R30E		Minimum Curvature
	BHL: 2310' FNL & 990' FEL (25)		
	Design #1		

15,100.0	89.93	179.68	11,164.6	-3,973.4	-673.2	4,017.0	0.00	0.00	0.00
15,200.0	89.93	179.68	11,164.7	-4,073.4	-672.6	4,116.6	0.00	0.00	0.00
15,300.0	89.93	179.68	11,164.8	-4,173.4	-672.1	4,216.2	0.00	0.00	0.00
15,400.0	89.93	179.68	11,164.9	-4,273.4	-671.5	4,315.7	0.00	0.00	0.00
15,500.0	89.93	179.68	11,165.1	-4,373.4	-671.0	4,415.3	0.00	0.00	0.00
15,600.0	89.93	179.68	11,165.2	-4,473.4	-670.4	4,514.9	0.00	0.00	0.00
15,700.0	89.93	179.68	11,165.3	-4,573.4	-669.9	4,614.5	0.00	0.00	0.00
15,800.0	89.93	179.68	11,165.5	-4,673.4	-669.3	4,714.0	0.00	0.00	0.00
15,900.0	89.93	179.68	11,165.6	-4,773.4	-668.8	4,813.6	0.00	0.00	0.00
16,000.0	89.93	179.68	11,165.7	-4,873.4	-668.2	4,913.2	0.00	0.00	0.00
16,100.0	89.93	179.68	11,165.8	-4,973.4	-667.7	5,012.7	0.00	0.00	0.00
16,200.0	89.93	179.68	11,166.0	-5,073.4	-667.1	5,112.3	0.00	0.00	0.00
16,300.0	89.93	179.68	11,166.1	-5,173.4	-666.6	5,211.9	0.00	0.00	0.00
16,400.0	89.93	179.68	11,166.2	-5,273.4	-666.0	5,311.4	0.00	0.00	0.00
16,500.0	89.93	179.68	11,166.3	-5,373.4	-665.5	5,411.0	0.00	0.00	0.00
16,600.0	89.93	179.68	11,166.5	-5,473.4	-664.9	5,510.6	0.00	0.00	0.00
16,700.0	89.93	179.68	11,166.6	-5,573.4	-664.4	5,610.1	0.00	0.00	0.00
16,800.0	89.93	179.68	11,166.7	-5,673.4	-663.8	5,709.7	0.00	0.00	0.00
16,900.0	89.93	179.68	11,166.9	-5,773.4	-663.3	5,809.3	0.00	0.00	0.00
17,000.0	89.93	179.68	11,167.0	-5,873.4	-662.7	5,908.8	0.00	0.00	0.00
17,100.0	89.93	179.68	11,167.1	-5,973.4	-662.2	6,008.4	0.00	0.00	0.00
17,200.0	89.93	179.68	11,167.2	-6,073.4	-661.6	6,108.0	0.00	0.00	0.00
17,300.0	89.93	179.68	11,167.4	-6,173.4	-661.1	6,207.5	0.00	0.00	0.00
17,400.0	89.93	179.68	11,167.5	-6,273.4	-660.5	6,307.1	0.00	0.00	0.00
17,500.0	89.93	179.68	11,167.6	-6,373.4	-660.0	6,406.7	0.00	0.00	0.00
17,600.0	89.93	179.68	11,167.7	-6,473.4	-659.4	6,506.2	0.00	0.00	0.00
17,700.0	89.93	179.68	11,167.9	-6,573.4	-658.9	6,605.8	0.00	0.00	0.00
17,800.0	89.93	179.68	11,168.0	-6,673.4	-658.3	6,705.4	0.00	0.00	0.00
17,900.0	89.93	179.68	11,168.1	-6,773.4	-657.8	6,804.9	0.00	0.00	0.00
18,000.0	89.93	179.68	11,168.3	-6,873.4	-657.2	6,904.5	0.00	0.00	0.00
18,100.0	89.93	179.68	11,168.4	-6,973.4	-656.7	7,004.1	0.00	0.00	0.00
18,200.0	89.93	179.68	11,168.5	-7,073.4	-656.1	7,103.6	0.00	0.00	0.00
18,300.0	89.93	179.68	11,168.6	-7,173.4	-655.6	7,203.2	0.00	0.00	0.00
18,400.0	89.93	179.68	11,168.8	-7,273.4	-655.0	7,302.8	0.00	0.00	0.00
18,500.0	89.93	179.68	11,168.9	-7,373.4	-654.5	7,402.4	0.00	0.00	0.00
18,583.6	89.93	179.68	11,169.0	-7,457.0	-654.0	7,485.6	0.00	0.00	0.00
BHL: 2310' FNL & 990' FEL (25)									

	Hobbs		Site Lindale 24/25 W1AH Fed #2H
	Mewbourne Oil Company		WELL @ 3209.0usft (Original Well Elev)
	Eddy County, New Mexico NAD 83		WELL @ 3209.0usft (Original Well Elev)
	Lindale 24/25 W1AH Fed #2H		Grid
	Sec 24, T26S, R30E		Minimum Curvature
	BHL: 2310' FNL & 990' FEL (25)		
	Design #1		

SL: 185' FNL & 295' FEL - plan hits target center - Point	0.00	0.00	0.0	0.0	0.0	376,776.00	698,204.00	32.0348267	-103.8271043
KOP @ 10587' - plan hits target center - Point	0.00	0.00	10,587.0	173.0	-696.0	376,949.00	697,508.00	32.0353112	-103.8293477
FTP: 330' FNL & 990' FE - plan hits target center - Point	0.00	0.00	11,100.1	-145.0	-694.2	376,631.00	697,509.75	32.0344371	-103.8293469
LP: 584' FNL & 990' FEL - plan hits target center - Point	0.00	0.00	11,160.0	-399.3	-692.8	376,376.74	697,511.15	32.0337381	-103.8293462
BHL: 2310' FNL & 990' F - plan hits target center - Point	0.00	0.00	11,169.0	-7,457.0	-654.0	369,319.00	697,550.00	32.0143367	-103.8293271


Lindale 24/25 W1AH Fed #2H
KOP @ 10587'
Sec 24
SL: 185' FNL & 295' FEL (24)
FTP: 330' FNL & 990' FEL (24)
LP: 584' FNL & 990' FEL (24)
Hard Lines
BHL: 2310' FNL & 990' FEL (25)
Sec 25
South(-)/North(+) (2500 usft/in)
West(-)/East(+) (2500 usft/in)
1250
0
-1250
-2500
-3750
-5000
-6250
-7500
-8750
-10000
-11250
-11250 -10000 -8750 -7500 -6250 -5000 -3750 -2500 -1250 0 1250 2500 3750 5000 6250


SL: 185' FNL & 295' FEL (24)
KOP @ 10587'
FTP: 330' FNL & 990' FEL (24)
LP: 584' FNL & 990' FEL (24)
BHL: 2310' FNL & 990' FEL (25)
True Vertical Depth (3000 usft/in)
Vertical Section at 185.01° (3000 usft/in)
0
1500
3000
4500
6000
7500
9000
10500
12000
-7500 -6000 -4500 -3000 -1500 0 1500 3000 4500 6000 7500 9000 10500 12000 13500

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Mewbourne Oil Company**
LEASE NO.:	**NMNM 018626**
WELL NAME & NO.:	**~~1H~~ Lindale 24-25 W1AH FED 2H**
SURFACE HOLE FOOTAGE:	**185'/N & 295'/E**
BOTTOM HOLE FOOTAGE	**2310'/N & 990'/E; Sec. 25**
LOCATION:	**Section 24, R30E, T.26S,NMPM**
COUNTY:	**EDDY County, New Mexico.**

COA

All pervious COAs still apply

H2S	○ Yes	◉ No	
Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	○ Low	○ Medium	◉ High
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	○ Conventional	◉ Multibowl	○ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ 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 **1000** 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.

Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

- ❖ In High Cave/Karst Areas if cement does not circulate to surface on the first two casing strings , the cement on the 3rd casing string must come to surface.

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

   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 **5000 (5M)** psi.

If Operator use a max MW of 13 ppg, before drilling out the 7 inch production casing, the 5M annular must be tested to full working pressure (5000 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)

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

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

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

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

A. CASING

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

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

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

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

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

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

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

8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    c. Manufacturer representative shall install the test plug for the initial BOP test.
    d. 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 031218

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Medium

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	6.71	1.68	0.88	1,000	48,000
"B"							**0**	**0**
w/8.4#/g mud, 30min Sfc Csg Test psig: 775			**Tail Cmt**	**does not**	**circ to sfc.**	Totals:	1,000	48,000

Comparison of Proposed to Minimum Required Cement Volumes

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
17 1/2	0.6946	**770**	1476	**749**	97	**8.80**	1131	**2M**	1.56

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

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	3.30	1.13	0.63	3,453	124,308
"B"	**40.00**	**J 55**	**LT&C**	40.37	**1.31**	**0.7**	**322**	**12,880**
w/8.4#/g mud, 30min Sfc Csg Test psig:						Totals:	3,775	137,188

The cement volume(s) are intended to achieve a top of 0 ft from surface or a 1000 overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
12 1/4	0.3132	**820**	1582	**1264**	25	**10.00**	3168	**5M**	0.81

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 1.02, 1.05, c, d
All > 0.70, OK. **ALT. BURST IS GOOD.**

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	2.39	1.46	1.43	10,626	276,276
"B"	**26.00**	**HCP 110**	**LT&C**	5.39	**1.28**	**1.43**	**899**	**23,374**
w/8.4#/g mud, 30min Sfc Csg Test psig: 2,338						Totals:	11,525	299,650

B would be: 49.91 1.39 if it were a vertical wellbore.

No Pilot Hole Planned

MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
11525	11160	11160	10626	90	10	11525

The cement volume(s) are intended to achieve a top of 3575 ft from surface or a 200 overlap.

Hole Size	Annular Volume				Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
8 3/4	0.1503	look ↘	U	**1208**	**9.70**	4505	**5M**	0.55
Setting Depths for D V Tool(s):		**5050**				sum of sx	Σ CuFt	Σ%excess
% excess cmt by stage:	26	30				935	1528	27

MASP is within 10% of 5000psig, need exrta equip?

Tail cmt

4 1/2 Liner w/top @ 10626 **Design Factors** LINER

Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight
"A"	13.50	P 110	LT&C	2.40	1.42	1.78	899	12,137
"B"	**13.50**	**P 110**	**LT&C**	2.44	**1.53**	**1.78**	**7,058**	**95,283**
w/8.4#/g mud, 30min Sfc Csg Test psig: 2,457						Totals:	7,957	107,420

A Segment Design Factors would be: 3.15 1.53 if it were a vertical wellbore.

No Pilot Hole Planned

MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
18583	11169	11169	10626	90	10	11525

The cement volume(s) are intended to achieve a top of 10626 ft from surface or a 899 overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
6 1/8	0.0942	**330**	980	**679**	44	**12.00**			0.56

Class 'H' tail cmt yld > 1.20 Capitan Reef est top XXXX. MASP is within 10% of 5000psig, need exrta equip?

Medium

13 3/8 surface csg in a 17 1/2 inch hole.

Segment	#/ft	Grade	Coupling	Joint	Design Factors Collapse	Burst	SURFACE Length	Weight
"A"	48.00	H 40	ST&C	6.71	1.68	0.88	1,000	48,000
"B"							**0**	**0**
w/8.4#/g mud, 30min Sfc Csg Test psig: 775			Tail Cmt	does not	circ to sfc.	Totals:	1,000	48,000

Comparison of Proposed to Minimum Required Cement Volumes

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
17 1/2	0.6946	**770**	1476	**749**	97	**8.80**	1131	**2M**	1.56

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

9 5/8 casing inside the 13 3/8

Segment	#/ft	Grade	Coupling	Joint	Design Factors Collapse	Burst	INTERMEDIATE Length	Weight
"A"	36.00	J 55	LT&C	3.30	1.13	0.63	3,453	124,308
"B"	**40.00**	**J 55**	**LT&C**	40.37	**1.31**	**0.7**	**322**	**12,880**
w/8.4#/g mud, 30min Sfc Csg Test psig:						Totals:	3,775	137,188

The cement volume(s) are intended to achieve a top of **0** ft from surface or a **1000** overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
12 1/4	0.3132	**820**	1582	**1264**	25	**10.00**	3168	**5M**	0.81

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 1.02, 1.05, c, d
All > 0.70, OK. ALT. BURST IS GOOD.

7 casing inside the 9 5/8

Segment	#/ft	Grade	Coupling	Joint	Design Factors Collapse	Burst	PRODUCTION Length	Weight
"A"	26.00	HCP 110	LT&C	2.39	1.46	1.32	10,626	276,276
"B"	**26.00**	**HCP 110**	**LT&C**	5.39	**1.28**	**1.32**	**899**	**23,374**
w/8.4#/g mud, 30min Sfc Csg Test psig: 2,338						Totals:	11,525	299,650
B would be:				49.91	1.39	if it were a vertical wellbore.		

No Pilot Hole Planned

MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
11525	11160	11160	10626	90	10	11525

The cement volume(s) are intended to achieve a top of **3575** ft from surface or a **200** overlap.

Hole Size	Annular Volume	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
8 3/4	0.1503	**9.70**	5086	**10M**	0.58

Setting Depths for D V Tool(s): 5050

% excess cmt by stage:	26	30	sum of sx	Σ CuFt	Σ%excess
			935	1528	27

MASP is within 10% of 5000psig, need exrta equip?

Tail cmt

4 1/2 Liner w/top @ 10626

Segment	#/ft	Grade	Coupling	Joint	Design Factors Collapse	Burst	LINER Length	Weight
"A"	13.50	P 110	LT&C	2.40	1.32	1.65	899	12,137
"B"	**13.50**	**P 110**	**LT&C**	2.44	**1.42**	**1.65**	**7,058**	**95,283**
w/8.4#/g mud, 30min Sfc Csg Test psig: 2,457						Totals:	7,957	107,420
A Segment Design Factors would be:				3.15	1.42	if it were a vertical wellbore.		

No Pilot Hole Planned

MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
18583	11169	11169	10626	90	10	11525

The cement volume(s) are intended to achieve a top of **10626** ft from surface or a **899** overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
6 1/8	0.0942	**330**	980	**679**	44	**13.00**			0.56

Class 'H' tail cmt yld > 1.20 Capitan Reef est top XXXX. MASP is within 10% of 5000psig, need exrta equip?