

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HOBBS OCD

FORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018

JUL 03 2019

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.

RECEIVED

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other	8. Well Name and No. SAND CHUTE 4 B2AP FED COM 1H
2. Name of Operator MEWBOURNE OIL COMPANY E-Mail: jathan@mewbourne.com	9. API Well No. <u>46061</u> 30-025-89610-00-X1
3a. Address P O BOX 5270 HOBBS, NM 88241	10. Field and Pool or Exploratory Area PEARL
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 4 T20S R35E 205FNL 660FEL 32.609039 N Lat, 103.455856 W Lon	11. County or Parish, State LEA 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 Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original A
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	PD

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 recompletable 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 recompletable 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 requests approval to make the following changes to the approved APD:

- 1) Change well name to Sand Chute 4/9 B2AP Fed Com #1H
- 2) Change BHL to 100' FSL & 660' FEL, Sec 9, T20S, R35E
- 3) Change casing & cement design as detailed in attached drilling program.
-As a contingency, 12 1/4" hole will be drilled to 6395'. If lost circulation occurs, 9 5/8" intermediate casing will be run per original approved APD.

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**See attachments for C-102, drilling program & directional plan
Please contact Andy Taylor with any questions.

14. I hereby certify that the foregoing is true and correct. Electronic Submission #468421 verified by the BLM Well Information System For MEWBOURNE OIL COMPANY, sent to the Hobbs Committed to AFMSS for processing by PRISCILLA PEREZ on 06/11/2019 (19PP2150SE)	
Name (Printed/Typed) ANDY TAYLOR	Title ENGINEER
Signature (Electronic Submission)	Date 06/10/2019

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By ZOTA STEVENS	Title PETROLEUM ENGINEER	Date 06/10/2019
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.		Office Hobbs

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED *****KZ*

Mewbourne Oil Company, Sand Chute 4/9 B2AP Fed Com #1H

Sec 4, T20S, R35E

SL: 205' FNL & 660' FEL, Sec 4

BHL: 100' FSL & 660' FEL, Sec 9

Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
	From	To								
17.5"	0'	1462'	13.375"	48	H40	STC	1.13	2.53	3.11	7.71
17.5"	1462'	2075'	13.375"	54.5	J55	STC	1.16	2.81	15.40	25.55
12.25"	0'	6235'	7"	26	HCP110	LTC				
8.75"	6235'	10,396'	7"	26	HCP110	LTC	1.48	1.98	2.39	3.07
6.125"	9651'	20,414'	4.5"	13.5	P110	LTC	2.00	2.33	2.33	2.90
BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet				

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

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

Mewbourne Oil Company, Sand Chute 4/9 B2AP Fed Com #1H
Sec 4, T20S, R35E
SL: 205' FNL & 660' FEL, Sec 4
BHL: 100' FSL & 660' FEL, Sec 9

Cementing Program

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H ₂ O gal/ sk	500# Comp. Strength (hours)	Slurry Description
Surf.	1240	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.	990	10.2	4.23	11	9	Lead: PVL Class C + Enhancer + Microsphere + Gel + Retarder + Fluid Loss + Defoamer
	200	11.5	2.82	11	9	2 nd Lead: Class H + Salt + Gel + Enhancer + Defoamer + Extender
	400	15.6	1.18	5.2	10	Tail: Class H + Retarder + Fluid Loss + Defoamer
Liner	435	11.2	2.97	18	16	Class H + 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%
Production	0'	25%
Liner	9651'	25%

Mewbourne Oil Company, Sand Chute 4/9 B2AP Fed Com #1H

Sec 4, T20S, R35E

SL: 205' FNL & 660' FEL, Sec 4

BHL: 100' FSL & 660' FEL, Sec 9

Pressure Control Equipment

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?	
N	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after	

Mewbourne Oil Company, Sand Chute 4/9 B2AP Fed Com #1H
Sec 4, T20S, R35E
SL: 205' FNL & 660' FEL, Sec 4
BHL: 100' FSL & 660' FEL, Sec 9

	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.
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Mud Program

TVD		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0'	2075'	FW Gel	8.6-8.8	28-34	N/C
2075'	10,128'	Brine	10.0	28-34	N/C
10,128'	10,248'	OBM	8.5-10	30-40	<10cc

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

What will be used to monitor the loss or gain of fluid?	Visual monitoring
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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 70-025-4061	² Pool Code 49685	³ Pool Name PEARL SOUTH BONE SPRING, SOUTH
⁴ Property Code 325731	⁵ Property Name SAND CHUTE 4/9 B2AP FED COM	⁶ Well Number 1H
⁷ GRID NO. 14744	⁸ Operator Name MEWBOURNE OIL COMPANY	⁹ Elevation 3686'

¹⁰ Surface Location

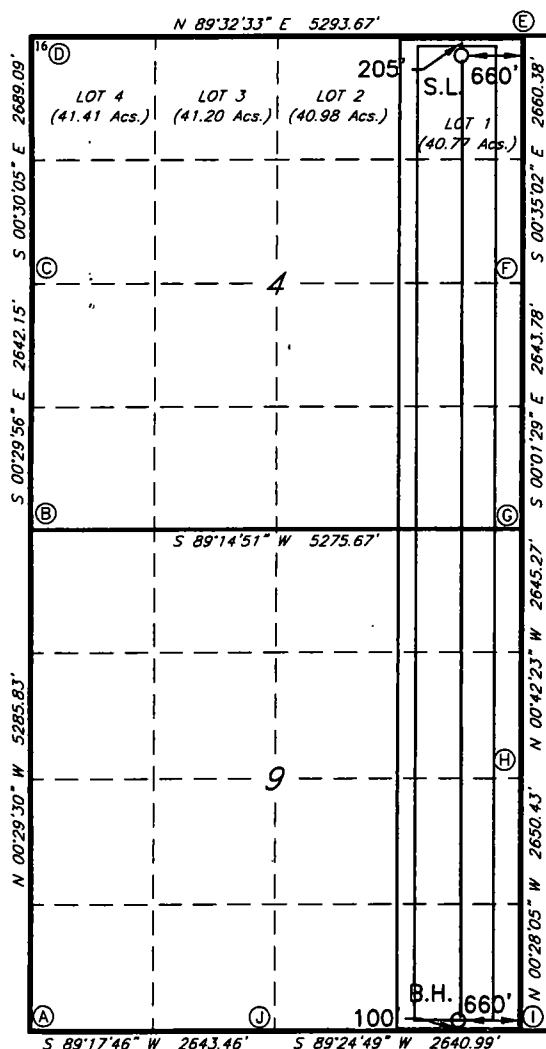
UL or lot no.	Section	Township	Range	Lot ldn	Feet from the	North/South line	Feet From the	East/West line	County
1	4	20S	35E		205	NORTH	660	EAST	LEA

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot ldn	Feet from the	North/South line	Feet from the	East/West line	County
P	9	20S	35E		100	SOUTH	660	EAST	LEA

¹² Dedicated Acres 320	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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No allowable will be assigned to this completion until all interest have been consolidated or a non-standard unit has been approved by the division.



GEODETIC DATA
NAD 83 GRID - NM EAST
SURFACE LOCATION
N 586414.1 - E 811535.4
LAT: 32.6090386° N
LONG: 103.4558582° W
BOTTOM HOLE
N 576120.0 - E 811615.2
LAT: 32.5807445° N
LONG: 103.4558751° W

CORNER DATA
NAD 83 GRID - NM EAST
A: CALCULATED CORNER
N 575967.3 - E 806992.7
B: FOUND BRASS CAP "1912"
N 581252.0 - E 806947.3
C: FOUND BRASS CAP "1912"
N 583893.6 - E 806924.3
D: FOUND BRASS CAP "1912"
N 586582.1 - E 806900.8
E: CALCULATED CORNER
N 586624.3 - E 812193.3
F: FOUND BRASS CAP "1912"
N 583964.6 - E 812220.4
G: FOUND BRASS CAP "1912"
N 581321.3 - E 812221.6
H: FOUND BRASS CAP "1912"
N 578676.7 - E 812254.2
I: FOUND 3" PIPE
N 576026.8 - E 812275.8
J: FOUND BRASS CAP "1912"
N 575999.8 - E 809635.5

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.

6-4-19

Signature
BRADLEY BISHOP
Printed Name
BBISHOP@MEWBOURNE.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.

1-11-19

Date of Survey

Signature and Seal of Professional Surveyor

19680

Certificate Number

REV: 5-22-19 NAME/BH

LS19010045R

Mewbourne Oil Company

Lea County, New Mexico NAD 83

Sand Chute 4/9 B2AP Fed Com #1H

Secs. 4 & 9, T20S, R35E

SL: 205' FNL & 660' FEL (4)

BHL: 100' FSL & 660' FEL (9)

Plan: Design #1

Standard Planning Report

13 December, 2018

Planning Report

Database: Hobbs
Company: Mewbourne Oil Company
Project: Lea County, New Mexico NAD 83
Site: Sand Chute 4/9 B2AP Fed Com #1H
Well: Secs. 4 & 9, T20S, R35E
Wellbore: BHL: 100' FSL & 660' FEL (9)
Design: Design #1

Local Co-ordinate Reference: Site Sand Chute 4/9 B2AP Fed Com #1H
TVD Reference: WELL @ 3713.0usft (Original Well Elev)
MD Reference: WELL @ 3713.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Project	Lea County, New Mexico NAD 83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sand Chute 4/9 B2AP Fed Com #1H			
Site Position:		Northing:	586,414.00 usft	Latitude: 32.6090385
From:	Map	Easting:	811,535.00 usft	Longitude: -103.4558596
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.47 °

Well	Secs. 4 & 9, T20S, R35E			
Well Position	+N/-S	0.0 usft	Northing:	586,414.00 usft
	+E/-W	0.0 usft	Easting:	811,535.00 usft
Position Uncertainty	0.0 usft		Wellhead Elevation:	3,713.0 usft
			Ground Level:	3,686.0 usft

Wellbore	BHL: 100' FSL & 660' FEL (9)				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/11/2018	6.63	60.37	48,106

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	179.55

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	
6,235.0	0.00	0.00	6,235.0	0.0	0.0	0.00	0.00	0.00	0.00	
6,469.2	3.51	359.41	6,469.1	7.2	-0.1	1.50	1.50	0.00	359.41	
9,417.2	3.51	359.41	9,411.5	187.8	-1.9	0.00	0.00	0.00	0.00	
9,651.4	0.00	0.00	9,645.5	195.0	-2.0	1.50	-1.50	0.00	180.00	KOP: 10' FNL & 660' I
10,395.5	89.29	179.55	10,123.0	-276.5	1.7	12.00	12.00	0.00	179.55	
20,414.0	89.29	179.55	10,248.0	-10,294.0	80.0	0.00	0.00	0.00	0.00	BHL: 100' FSL & 660'

Planning Report

Database: Hobbs
 Company: Mewbourne Oil Company
 Project: Lea County, New Mexico NAD 83
 Site: Sand Chute 4/9 B2AP Fed Com #1H
 Well: Secs. 4 & 9, T20S, R35E
 Wellbore: BHL: 100' FSL & 660' FEL (9)
 Design: Design #1

Local Co-ordinate Reference:
 TVD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:

Site Sand Chute 4/9 B2AP Fed Com #1H
 WELL @ 3713.0usft (Original Well Elev)
 WELL @ 3713.0usft (Original Well Elev)
 Grid
 Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
SL: 205' FNL & 660' FEL (4)									
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

Planning Report

Database: Hobbs
 Company: Mewbourne Oil Company
 Project: Lea County, New Mexico NAD 83
 Site: Sand Chute 4/9 B2AP Fed Com #1H
 Well: Secs. 4 & 9, T20S, R35E
 Wellbore: BHL: 100' FSL & 660' FEL (9)
 Design: Design #1

Local Co-ordinate Reference: Site Sand Chute 4/9 B2AP Fed Com #1H
 TVD Reference: WELL @ 3713.0usft (Original Well Elev)
 MD Reference: WELL @ 3713.0usft (Original Well Elev)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,300.0	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
6,235.0	0.00	0.00	6,235.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.98	359.41	6,300.0	0.6	0.0	-0.6	1.50	1.50	0.00
6,400.0	2.48	359.41	6,399.9	3.6	0.0	-3.6	1.50	1.50	0.00
6,469.2	3.51	359.41	6,469.1	7.2	-0.1	-7.2	1.50	1.50	0.00
6,500.0	3.51	359.41	6,499.8	9.1	-0.1	-9.1	0.00	0.00	0.00
6,600.0	3.51	359.41	6,599.6	15.2	-0.2	-15.2	0.00	0.00	0.00
6,700.0	3.51	359.41	6,699.4	21.3	-0.2	-21.3	0.00	0.00	0.00
6,800.0	3.51	359.41	6,799.2	27.4	-0.3	-27.4	0.00	0.00	0.00
6,900.0	3.51	359.41	6,899.0	33.6	-0.3	-33.6	0.00	0.00	0.00
7,000.0	3.51	359.41	6,998.9	39.7	-0.4	-39.7	0.00	0.00	0.00
7,100.0	3.51	359.41	7,098.7	45.8	-0.5	-45.8	0.00	0.00	0.00
7,200.0	3.51	359.41	7,198.5	52.0	-0.5	-52.0	0.00	0.00	0.00
7,300.0	3.51	359.41	7,298.3	58.1	-0.6	-58.1	0.00	0.00	0.00
7,400.0	3.51	359.41	7,398.1	64.2	-0.7	-64.2	0.00	0.00	0.00
7,500.0	3.51	359.41	7,497.9	70.3	-0.7	-70.3	0.00	0.00	0.00
7,600.0	3.51	359.41	7,597.7	76.5	-0.8	-76.5	0.00	0.00	0.00
7,700.0	3.51	359.41	7,697.5	82.6	-0.8	-82.6	0.00	0.00	0.00
7,800.0	3.51	359.41	7,797.4	88.7	-0.9	-88.7	0.00	0.00	0.00
7,900.0	3.51	359.41	7,897.2	94.9	-1.0	-94.9	0.00	0.00	0.00
8,000.0	3.51	359.41	7,997.0	101.0	-1.0	-101.0	0.00	0.00	0.00
8,100.0	3.51	359.41	8,096.8	107.1	-1.1	-107.1	0.00	0.00	0.00
8,200.0	3.51	359.41	8,196.6	113.2	-1.2	-113.2	0.00	0.00	0.00
8,300.0	3.51	359.41	8,296.4	119.4	-1.2	-119.4	0.00	0.00	0.00
8,400.0	3.51	359.41	8,396.2	125.5	-1.3	-125.5	0.00	0.00	0.00
8,500.0	3.51	359.41	8,496.0	131.6	-1.3	-131.6	0.00	0.00	0.00
8,600.0	3.51	359.41	8,595.8	137.7	-1.4	-137.8	0.00	0.00	0.00
8,700.0	3.51	359.41	8,695.7	143.9	-1.5	-143.9	0.00	0.00	0.00
8,800.0	3.51	359.41	8,795.5	150.0	-1.5	-150.0	0.00	0.00	0.00
8,900.0	3.51	359.41	8,895.3	156.1	-1.6	-156.1	0.00	0.00	0.00
9,000.0	3.51	359.41	8,995.1	162.3	-1.7	-162.3	0.00	0.00	0.00
9,100.0	3.51	359.41	9,094.9	168.4	-1.7	-168.4	0.00	0.00	0.00
9,200.0	3.51	359.41	9,194.7	174.5	-1.8	-174.5	0.00	0.00	0.00
9,300.0	3.51	359.41	9,294.5	180.6	-1.9	-180.7	0.00	0.00	0.00
9,400.0	3.51	359.41	9,394.3	186.8	-1.9	-186.8	0.00	0.00	0.00
9,417.2	3.51	359.41	9,411.5	187.8	-1.9	-187.8	0.00	0.00	0.00
9,500.0	2.27	359.41	9,494.2	192.0	-2.0	-192.0	1.50	-1.50	0.00
9,600.0	0.77	359.41	9,594.2	194.7	-2.0	-194.7	1.50	-1.50	0.00
9,651.4	0.00	0.00	9,645.5	195.0	-2.0	-195.0	1.50	-1.50	0.00
KOP: 10' FNL & 660' FEL (4)									
9,700.0	5.83	179.55	9,694.1	192.5	-2.0	-192.5	12.00	12.00	0.00
9,800.0	17.83	179.55	9,791.8	172.1	-1.8	-172.1	12.00	12.00	0.00
9,900.0	29.83	179.55	9,883.1	131.7	-1.5	-131.7	12.00	12.00	0.00
9,949.4	35.76	179.55	9,924.6	105.0	-1.3	-105.0	12.00	12.00	0.00
FTP: 100' FNL & 660' FEL (4)									

Planning Report

Database: Hobbs
 Company: Mewbourne Oil Company
 Project: Lea County, New Mexico NAD 83
 Site: Sand Chute 4/9 B2AP Fed Com #1H
 Well: Secs. 4 & 9, T20S, R35E
 Wellbore: BHL: 100' FSL & 660' FEL (9)
 Design: Design #1

Local Co-ordinate Reference: Site Sand Chute 4/9 B2AP Fed Com #1H
 TVD Reference: WELL @ 3713.0usft (Original Well Elev)
 MD Reference: WELL @ 3713.0usft (Original Well Elev)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,000.0	41.83	179.55	9,964.0	73.3	-1.0	-73.3	12.00	12.00	0.00
10,100.0	53.83	179.55	10,031.0	-0.7	-0.5	0.7	12.00	12.00	0.00
10,200.0	65.83	179.55	10,081.2	-87.0	0.2	87.0	12.00	12.00	0.00
10,300.0	77.83	179.55	10,112.3	-181.8	0.9	181.8	12.00	12.00	0.00
10,395.4	89.28	179.55	10,123.0	-276.5	1.7	276.5	12.00	12.00	0.00
LP: 481' FNL & 660' FEL (4)									
10,400.0	89.29	179.55	10,123.1	-281.1	1.7	281.1	0.07	0.07	0.00
10,500.0	89.29	179.55	10,124.3	-381.0	2.5	381.1	0.00	0.00	0.00
10,600.0	89.29	179.55	10,125.6	-481.0	3.3	481.0	0.00	0.00	0.00
10,700.0	89.29	179.55	10,126.8	-581.0	4.1	581.0	0.00	0.00	0.00
10,800.0	89.29	179.55	10,128.0	-681.0	4.8	681.0	0.00	0.00	0.00
10,900.0	89.29	179.55	10,129.3	-781.0	5.6	781.0	0.00	0.00	0.00
11,000.0	89.29	179.55	10,130.5	-881.0	6.4	881.0	0.00	0.00	0.00
11,100.0	89.29	179.55	10,131.8	-981.0	7.2	981.0	0.00	0.00	0.00
11,200.0	89.29	179.55	10,133.0	-1,081.0	8.0	1,081.0	0.00	0.00	0.00
11,300.0	89.29	179.55	10,134.3	-1,181.0	8.8	1,181.0	0.00	0.00	0.00
11,400.0	89.29	179.55	10,135.5	-1,280.9	9.5	1,281.0	0.00	0.00	0.00
11,500.0	89.29	179.55	10,136.8	-1,380.9	10.3	1,381.0	0.00	0.00	0.00
11,600.0	89.29	179.55	10,138.0	-1,480.9	11.1	1,481.0	0.00	0.00	0.00
11,700.0	89.29	179.55	10,139.3	-1,580.9	11.9	1,581.0	0.00	0.00	0.00
11,800.0	89.29	179.55	10,140.5	-1,680.9	12.7	1,681.0	0.00	0.00	0.00
11,900.0	89.29	179.55	10,141.8	-1,780.9	13.4	1,780.9	0.00	0.00	0.00
12,000.0	89.29	179.55	10,143.0	-1,880.9	14.2	1,880.9	0.00	0.00	0.00
12,100.0	89.29	179.55	10,144.3	-1,980.9	15.0	1,980.9	0.00	0.00	0.00
12,200.0	89.29	179.55	10,145.5	-2,080.9	15.8	2,080.9	0.00	0.00	0.00
12,300.0	89.29	179.55	10,146.8	-2,180.9	16.6	2,180.9	0.00	0.00	0.00
12,400.0	89.29	179.55	10,148.0	-2,280.8	17.4	2,280.9	0.00	0.00	0.00
12,500.0	89.29	179.55	10,149.3	-2,380.8	18.1	2,380.9	0.00	0.00	0.00
12,600.0	89.29	179.55	10,150.5	-2,480.8	18.9	2,480.9	0.00	0.00	0.00
12,700.0	89.29	179.55	10,151.8	-2,580.8	19.7	2,580.9	0.00	0.00	0.00
12,800.0	89.29	179.55	10,153.0	-2,680.8	20.5	2,680.9	0.00	0.00	0.00
12,900.0	89.29	179.55	10,154.2	-2,780.8	21.3	2,780.9	0.00	0.00	0.00
13,000.0	89.29	179.55	10,155.5	-2,880.8	22.0	2,880.9	0.00	0.00	0.00
13,100.0	89.29	179.55	10,156.7	-2,980.8	22.8	2,980.9	0.00	0.00	0.00
13,200.0	89.29	179.55	10,158.0	-3,080.8	23.6	3,080.8	0.00	0.00	0.00
13,300.0	89.29	179.55	10,159.2	-3,180.7	24.4	3,180.8	0.00	0.00	0.00
13,400.0	89.29	179.55	10,160.5	-3,280.7	25.2	3,280.8	0.00	0.00	0.00
13,500.0	89.29	179.55	10,161.7	-3,380.7	26.0	3,380.8	0.00	0.00	0.00
13,600.0	89.29	179.55	10,163.0	-3,480.7	26.7	3,480.8	0.00	0.00	0.00
13,700.0	89.29	179.55	10,164.2	-3,580.7	27.5	3,580.8	0.00	0.00	0.00
13,800.0	89.29	179.55	10,165.5	-3,680.7	28.3	3,680.8	0.00	0.00	0.00
13,900.0	89.29	179.55	10,166.7	-3,780.7	29.1	3,780.8	0.00	0.00	0.00
14,000.0	89.29	179.55	10,168.0	-3,880.7	29.9	3,880.8	0.00	0.00	0.00
14,100.0	89.29	179.55	10,169.2	-3,980.7	30.6	3,980.8	0.00	0.00	0.00
14,200.0	89.29	179.55	10,170.5	-4,080.6	31.4	4,080.8	0.00	0.00	0.00
14,300.0	89.29	179.55	10,171.7	-4,180.6	32.2	4,180.8	0.00	0.00	0.00
14,400.0	89.29	179.55	10,173.0	-4,280.6	33.0	4,280.8	0.00	0.00	0.00
14,500.0	89.29	179.55	10,174.2	-4,380.6	33.8	4,380.7	0.00	0.00	0.00
14,600.0	89.29	179.55	10,175.5	-4,480.6	34.6	4,480.7	0.00	0.00	0.00
14,700.0	89.29	179.55	10,176.7	-4,580.6	35.3	4,580.7	0.00	0.00	0.00
14,800.0	89.29	179.55	10,178.0	-4,680.6	36.1	4,680.7	0.00	0.00	0.00
14,900.0	89.29	179.55	10,179.2	-4,780.6	36.9	4,780.7	0.00	0.00	0.00
15,000.0	89.29	179.55	10,180.4	-4,880.6	37.7	4,880.7	0.00	0.00	0.00

Planning Report

Database: Hobbs
 Company: Mewbourne Oil Company
 Project: Lea County, New Mexico NAD 83
 Site: Sand Chute 4/9 B2AP Fed Com #1H
 Well: Secs. 4 & 9, T20S, R35E
 Wellbore: BHL: 100' FSL & 660' FEL (9)
 Design: Design #1

Local Co-ordinate Reference: Site Sand Chute 4/9 B2AP Fed Com #1H
 TVD Reference: WELL @ 3713.0usft (Original Well Elev)
 MD Reference: WELL @ 3713.0usft (Original Well Elev)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
15,100.0	89.29	179.55	10,181.7	-4,980.5	38.5	4,980.7	0.00	0.00	0.00
15,200.0	89.29	179.55	10,182.9	-5,080.5	39.2	5,080.7	0.00	0.00	0.00
15,300.0	89.29	179.55	10,184.2	-5,180.5	40.0	5,180.7	0.00	0.00	0.00
15,400.0	89.29	179.55	10,185.4	-5,280.5	40.8	5,280.7	0.00	0.00	0.00
15,500.0	89.29	179.55	10,186.7	-5,380.5	41.6	5,380.7	0.00	0.00	0.00
15,600.0	89.29	179.55	10,187.9	-5,480.5	42.4	5,480.7	0.00	0.00	0.00
15,700.0	89.29	179.55	10,189.2	-5,580.5	43.2	5,580.6	0.00	0.00	0.00
15,800.0	89.29	179.55	10,190.4	-5,680.5	43.9	5,680.6	0.00	0.00	0.00
15,900.0	89.29	179.55	10,191.7	-5,780.5	44.7	5,780.6	0.00	0.00	0.00
16,000.0	89.29	179.55	10,192.9	-5,880.5	45.5	5,880.6	0.00	0.00	0.00
16,100.0	89.29	179.55	10,194.2	-5,980.4	46.3	5,980.6	0.00	0.00	0.00
16,200.0	89.29	179.55	10,195.4	-6,080.4	47.1	6,080.6	0.00	0.00	0.00
16,300.0	89.29	179.55	10,196.7	-6,180.4	47.8	6,180.6	0.00	0.00	0.00
16,400.0	89.29	179.55	10,197.9	-6,280.4	48.6	6,280.6	0.00	0.00	0.00
16,500.0	89.29	179.55	10,199.2	-6,380.4	49.4	6,380.6	0.00	0.00	0.00
16,600.0	89.29	179.55	10,200.4	-6,480.4	50.2	6,480.6	0.00	0.00	0.00
16,700.0	89.29	179.55	10,201.7	-6,580.4	51.0	6,580.6	0.00	0.00	0.00
16,800.0	89.29	179.55	10,202.9	-6,680.4	51.7	6,680.6	0.00	0.00	0.00
16,900.0	89.29	179.55	10,204.2	-6,780.4	52.5	6,780.6	0.00	0.00	0.00
17,000.0	89.29	179.55	10,205.4	-6,880.3	53.3	6,880.5	0.00	0.00	0.00
17,100.0	89.29	179.55	10,206.7	-6,980.3	54.1	6,980.5	0.00	0.00	0.00
17,200.0	89.29	179.55	10,207.9	-7,080.3	54.9	7,080.5	0.00	0.00	0.00
17,300.0	89.29	179.55	10,209.1	-7,180.3	55.7	7,180.5	0.00	0.00	0.00
17,400.0	89.29	179.55	10,210.4	-7,280.3	56.4	7,280.5	0.00	0.00	0.00
17,500.0	89.29	179.55	10,211.6	-7,380.3	57.2	7,380.5	0.00	0.00	0.00
17,600.0	89.29	179.55	10,212.9	-7,480.3	58.0	7,480.5	0.00	0.00	0.00
17,700.0	89.29	179.55	10,214.1	-7,580.3	58.8	7,580.5	0.00	0.00	0.00
17,800.0	89.29	179.55	10,215.4	-7,680.3	59.6	7,680.5	0.00	0.00	0.00
17,900.0	89.29	179.55	10,216.6	-7,780.2	60.3	7,780.5	0.00	0.00	0.00
18,000.0	89.29	179.55	10,217.9	-7,880.2	61.1	7,880.5	0.00	0.00	0.00
18,100.0	89.29	179.55	10,219.1	-7,980.2	61.9	7,980.5	0.00	0.00	0.00
18,200.0	89.29	179.55	10,220.4	-8,080.2	62.7	8,080.5	0.00	0.00	0.00
18,300.0	89.29	179.55	10,221.6	-8,180.2	63.5	8,180.4	0.00	0.00	0.00
18,400.0	89.29	179.55	10,222.9	-8,280.2	64.3	8,280.4	0.00	0.00	0.00
18,500.0	89.29	179.55	10,224.1	-8,380.2	65.0	8,380.4	0.00	0.00	0.00
18,600.0	89.29	179.55	10,225.4	-8,480.2	65.8	8,480.4	0.00	0.00	0.00
18,700.0	89.29	179.55	10,226.6	-8,580.2	66.6	8,580.4	0.00	0.00	0.00
18,800.0	89.29	179.55	10,227.9	-8,680.1	67.4	8,680.4	0.00	0.00	0.00
18,900.0	89.29	179.55	10,229.1	-8,780.1	68.2	8,780.4	0.00	0.00	0.00
19,000.0	89.29	179.55	10,230.4	-8,880.1	68.9	8,880.4	0.00	0.00	0.00
19,100.0	89.29	179.55	10,231.6	-8,980.1	69.7	8,980.4	0.00	0.00	0.00
19,200.0	89.29	179.55	10,232.9	-9,080.1	70.5	9,080.4	0.00	0.00	0.00
19,300.0	89.29	179.55	10,234.1	-9,180.1	71.3	9,180.4	0.00	0.00	0.00
19,400.0	89.29	179.55	10,235.3	-9,280.1	72.1	9,280.4	0.00	0.00	0.00
19,500.0	89.29	179.55	10,236.6	-9,380.1	72.9	9,380.4	0.00	0.00	0.00
19,600.0	89.29	179.55	10,237.8	-9,480.1	73.6	9,480.3	0.00	0.00	0.00
19,700.0	89.29	179.55	10,239.1	-9,580.0	74.4	9,580.3	0.00	0.00	0.00
19,800.0	89.29	179.55	10,240.3	-9,680.0	75.2	9,680.3	0.00	0.00	0.00
19,900.0	89.29	179.55	10,241.6	-9,780.0	76.0	9,780.3	0.00	0.00	0.00
20,000.0	89.29	179.55	10,242.8	-9,880.0	76.8	9,880.3	0.00	0.00	0.00
20,100.0	89.29	179.55	10,244.1	-9,980.0	77.5	9,980.3	0.00	0.00	0.00
20,200.0	89.29	179.55	10,245.3	-10,080.0	78.3	10,080.3	0.00	0.00	0.00
20,300.0	89.29	179.55	10,246.6	-10,180.0	79.1	10,180.3	0.00	0.00	0.00
20,400.0	89.29	179.55	10,247.8	-10,280.0	79.9	10,280.3	0.00	0.00	0.00

Planning Report

Database: Hobbs
Company: Mewbourne Oil Company
Project: Lea County, New Mexico NAD 83
Site: Sand Chute 4/9 B2AP Fed Com #1H
Well: Secs. 4 & 9, T20S, R35E
Wellbore: BHL: 100' FSL & 660' FEL (9)
Design: Design #1

Local Co-ordinate Reference: Site Sand Chute 4/9 B2AP Fed Com #1H
TVD Reference: WELL @ 3713.0usft (Original Well Elev)
MD Reference: WELL @ 3713.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

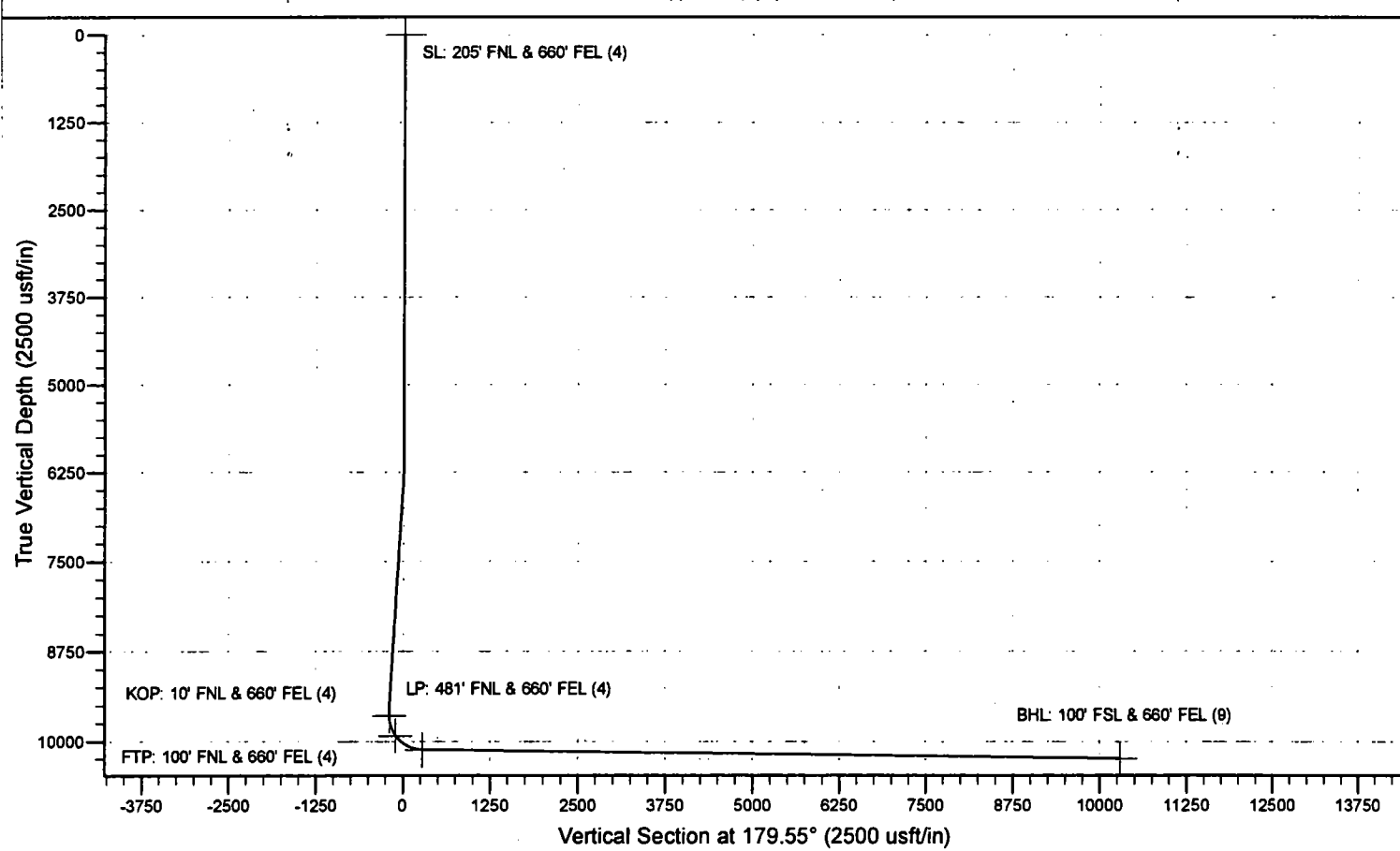
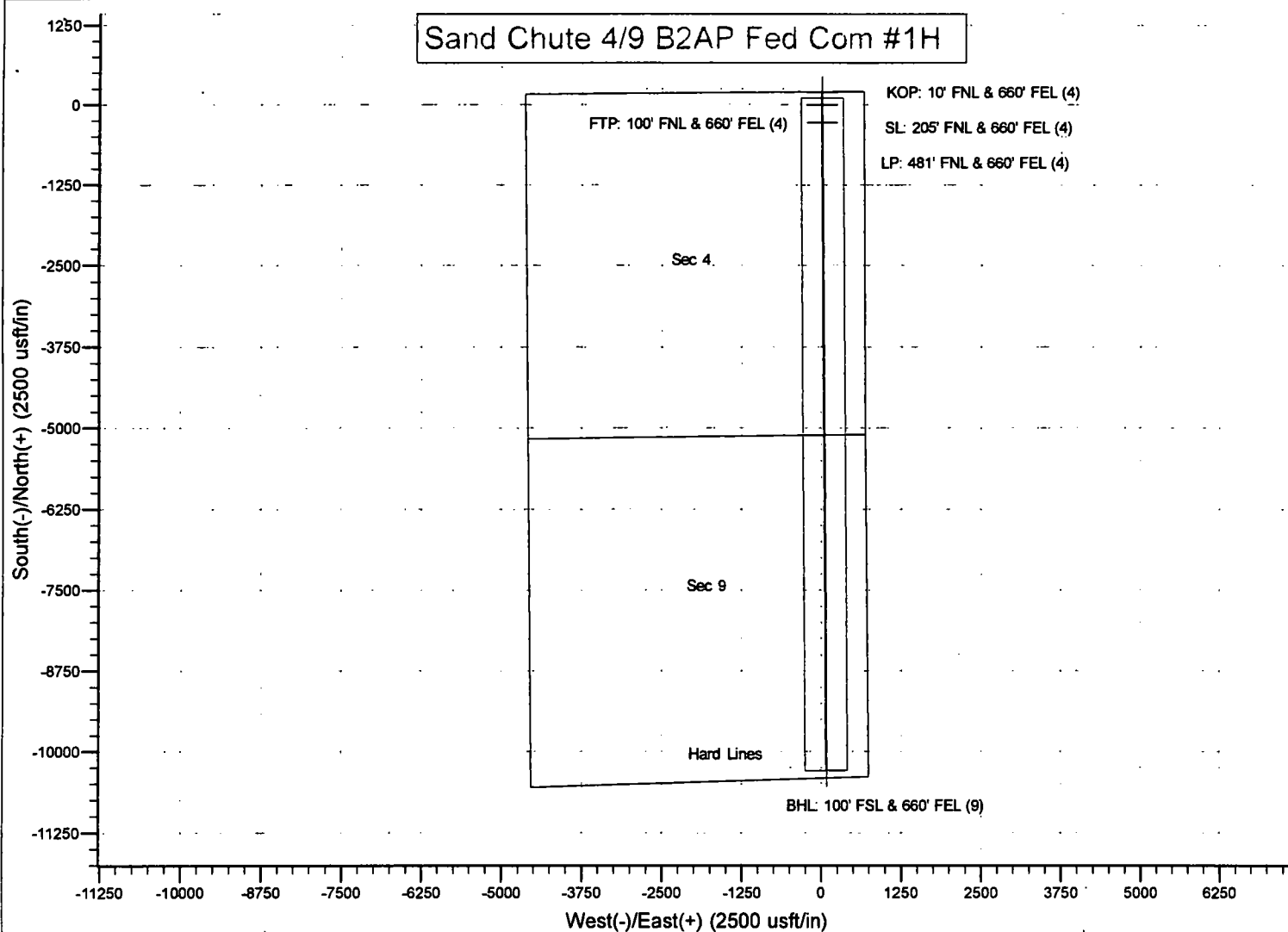
Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
20,414.0	89.29	179.55	10,248.0	-10,294.0	80.0	10,294.3	0.00	0.00	0.00
BHL: 100' FSL & 660' FEL (9)									

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: 205' FNL & 660' FEL - plan hits target center - Point	0.00	0.00	0.0	0.0	0.0	586,414.00	811,535.00	32.6090385	-103.4558596
KOP: 10' FNL & 660' FE - plan hits target center - Point	0.00	0.00	9,645.5	195.0	-2.0	586,609.00	811,533.00	32.6095744	-103.4558609
FTP: 100' FNL & 660' FE - plan hits target center - Point	0.00	0.00	9,924.6	105.0	-1.3	586,519.00	811,533.70	32.6093271	-103.4558610
LP: 481' FNL & 660' FEL - plan hits target center - Point	0.00	0.00	10,123.0	-276.5	1.7	586,137.50	811,536.70	32.6082785	-103.4558615
BHL: 100' FSL & 660' FE - plan hits target center - Point	0.00	0.00	10,248.0	-10,294.0	80.0	576,120.00	811,615.00	32.5807444	-103.4558756

Sand Chute 4/9 B2AP Fed Com #1H



PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	MEWBOURNE OIL COMPANY
LEASE NO.:	NMNM7485
WELL NAME & NO.:	SAND CHUTE 4-9 B2AP FED COM - 1H
SURFACE HOLE FOOTAGE:	205'/N & 660'/E
BOTTOM HOLE FOOTAGE:	100'/S & 660'/E
LOCATION:	SECTION 4, T20S, R35E, NMPM
COUNTY:	LEA

COA

All previous COAs still apply expect the following:

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

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Yates and Seven Rivers** formation. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

1. The 13-3/8 inch surface casing shall be set at approximately **1825** 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.

Operator shall filled 1/3rd casing with fluid while running intermediate casing to maintain collapse safety factor.

2. The minimum required fill of cement behind the 7 inch production casing is:
 - Cement to surface. If cement does not circulate see B.1.a, c-d above.
3. 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.

CONTINGENCY PLAN

Operator will contact BLM if loss of fluid occur and will run 9 5/8" casing per original approved APD.

4. The minimum required fill of cement behind the 9-5/8 inch intermediate casing shall be set at 6395 ft:
 - 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.

ZS 061019