Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HOBBS OCD

OCT 24 2018

RECEIVED

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.
NMNM0127A

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.
SALADO DRAW 9 16 W1AP FED COM 2H

2. Name of Operator
MEWBOURNE OIL COMPANY

Contact: JACKIE LATHAN
E-Mail: jlathan@mewbourne.com

9. API Well No.
30-025-44913-00-X1

Carlsbad Field Office

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

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

OCD Hobbs

10. Field and Pool or Exploratory Area
RED HILLS - WOLFCAMP (GAS)

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 9 T26S R33E NENE 330FNL 210FEL

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

1) Change well name to ~~Salado Draw 9/16 W1AP Fed Com #2H~~ API ID - 322769
2) Change BHL to 100' FSL & 330' FEL, Sec 16, T26S, R32E
3) Change casing & cement design as detailed in attached drilling program.
4) Variance for use of 5M annular BOP on 10M BOPE stack
5) Variance for use of multi-bowl wellhead
6) Variance to batch drill wells as detailed in attachment

See attachments for C-102, drilling program, directional plan and equipment schematics.

Please contact Andy Taylor with any questions.

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

**Electronic Submission #437870 verified by the BLM Well Information System**
**For MEWBOURNE OIL COMPANY, sent to the Hobbs**
**Committed to AFMSS for processing by PRISCILLA PEREZ on 10/03/2018 (19PP0012SE)**

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

Signature (Electronic Submission) — Date 10/01/2018

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved By ZOTA STEVENS — Title PETROLEUM ENGINEER — Date 10/18/2018

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 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 ****

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 |
|---|---|---|
| 30-025-44913 | | |

| 4 Property Code | 5 Property Name | 6 Well Number |
|---|---|---|
| 322769 | SALADO DRAW 9/16 W1AP FED COM | 2H |

| 7 OGRID NO. | 8 Operator Name | 9 Elevation |
|---|---|---|
| | MEWBOURNE OIL COMPANY | 3332' |

## 10 Surface Location

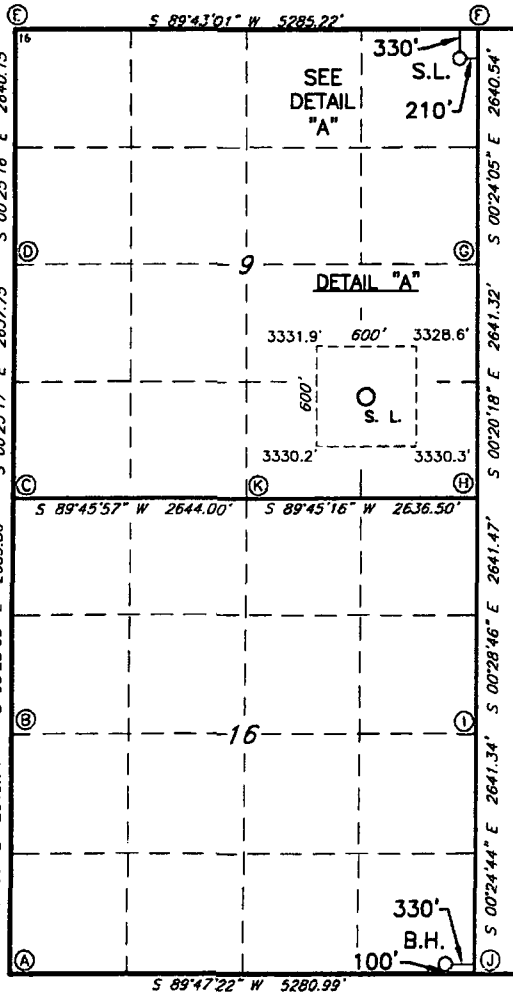
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet From the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| A | 9 | 26S | 33E | | 330 | NORTH | 210 | EAST | LEA |

## 11 Bottom Hole Location If Different From Surface

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| P | 16 | 26S | 33E | | 100 | SOUTH | 330 | EAST | LEA |

| 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.




GEODETIC DATA
NAD 83 GRID – NM EAST

SURFACE LOCATION
N: 387986.6 – E: 777986.7

LAT: 32.0643526° N
LONG: 103.5693952° W

BOTTOM HOLE
N: 377853.9 – E: 777938.9

LAT: 32.0365012° N
LONG: 103.5697809° W

CORNER DATA
NAD 83 GRID – NM EAST

A: CALCULATED CORNER
N: 377735.7 – E: 772989.6

B: FOUND BRASS CAP "1913"
N: 380375.9 – E: 772970.6

C: FOUND BRASS CAP "1913"
N: 383014.7 – E: 772949.0

D: FOUND BRASS CAP "1913"
N: 385651.9 – E: 772929.6

E: FOUND BRASS CAP "1913"
N: 388291.5 – E: 772910.2

F: FOUND BRASS CAP "1913"
N: 388317.6 – E: 778194.4

G: FOUND BRASS CAP "1913"
N: 385677.6 – E: 778212.9

H: CALCULATED CORNER
N: 383036.8 – E: 778228.5

I: FOUND BRASS CAP "1913"
N: 380395.9 – E: 778250.6

J: FOUND BRASS CAP "1913"
N: 377755.1 – E: 778269.6

K: FOUND BRASS CAP "1913"
N: 383025.5 – E: 775592.5

## 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.*

Signature: Andrew Taylor Date: 10/1/2018

Printed Name: Andrew Taylor

E-mail Address: ataylor@mewbourne.com

## 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.*

11-18-2015
Date of Survey

Signature and Seal of Professional Surveyor: ROBERT M. HOWETT NEW MEXICO 19680 PROFESSIONAL SURVEYOR

19680
Certificate Number

REV: 9/28/18 NAME_BH

Job No.: LS1509543D

| Operator Name: | Property Name: | Well Number |
|---|---|---|
| Mewbourne Oil Co. | Salado Draw 9/16 W1AP Fed Com | 2H |

Kick Off Point (KOP)

| UL | Section | Township | Range | Lot | Feet | From N/S | Feet | From E/W | County |
|---|---|---|---|---|---|---|---|---|---|
| A | 9 | 26S | 32E | | 10 | N | 330 | E | Lea |

| Latitude | Longitude | NAD |
|---|---|---|
| 32.0652329 | -103.5697841 | 83 |

First Take Point (FTP)

| UL | Section | Township | Range | Lot | Feet | From N/S | Feet | From E/W | County |
|---|---|---|---|---|---|---|---|---|---|
| A | 9 | 26S | 32E | | 100 | N | 330 | E | Lea |

| Latitude | Longitude | NAD |
|---|---|---|
| 32.0649882 | -103.5697841 | 83 |

Last Take Point (LTP)

| UL | Section | Township | Range | Lot | Feet | From N/S | Feet | From E/W | County |
|---|---|---|---|---|---|---|---|---|---|
| P | 16 | 26S | 32E | | 100 | S | 330 | E | Lea |

| Latitude | Longitude | NAD |
|---|---|---|
| 32.0365016 | -103.5697806 | 83 |

Is this well the defining well for the Horizontal Spacing Unit? N

Is this well an infill well? Y

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

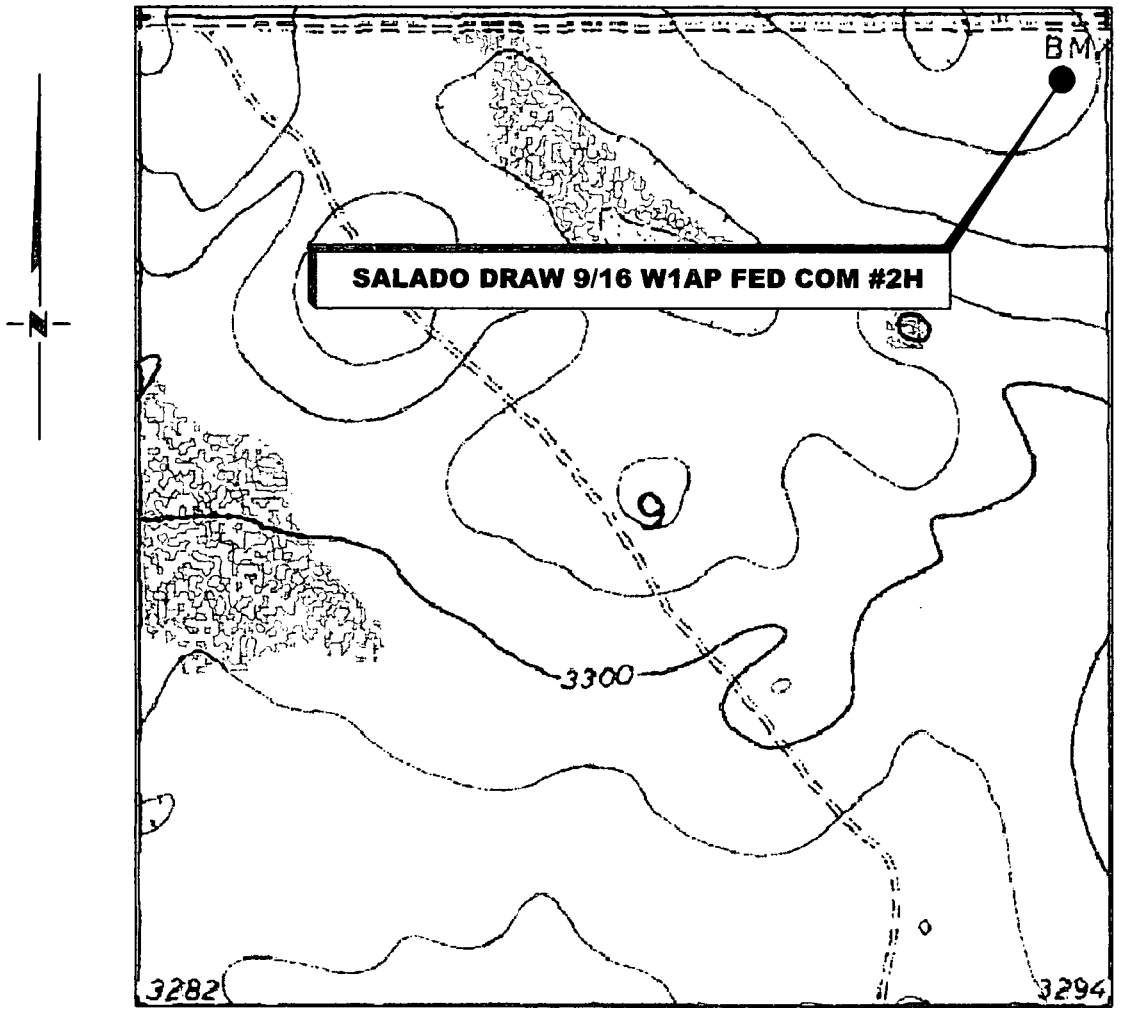
| API # |
|---|
| 30-025-44648 |

| Operator Name: | Property Name: | Well Number |
|---|---|---|
| Mewbourne Oil Co. | Salado Draw 9/16 W0AP Fed Com | 3H |

KZ 06/27/2018

# LOCATION VERIFICATION MAP

NOT TO SCALE




*SECTION 9, TWP. 26 SOUTH, RGE. 33 EAST,*
*N. M. P. M., LEA COUNTY, NEW MEXICO*

OPERATOR: Mewbourne Oil Company
LEASE: Salado Draw 9/16 W1AP Fed Com
WELL NO.: 2H
ELEVATION: 3332'

LOCATION: 330' FNL & 210' FEL
CONTOUR INTERVAL: 10'
USGS TOPO. SOURCE MAP:
Paduca Breaks East, NM (1973)



| NO. | REVISION | DATE |
|---|---|---|
| | | |
| | | |
| | | |

JOB NO.: LS1509543D
DWG. NO.: 1509543LVM

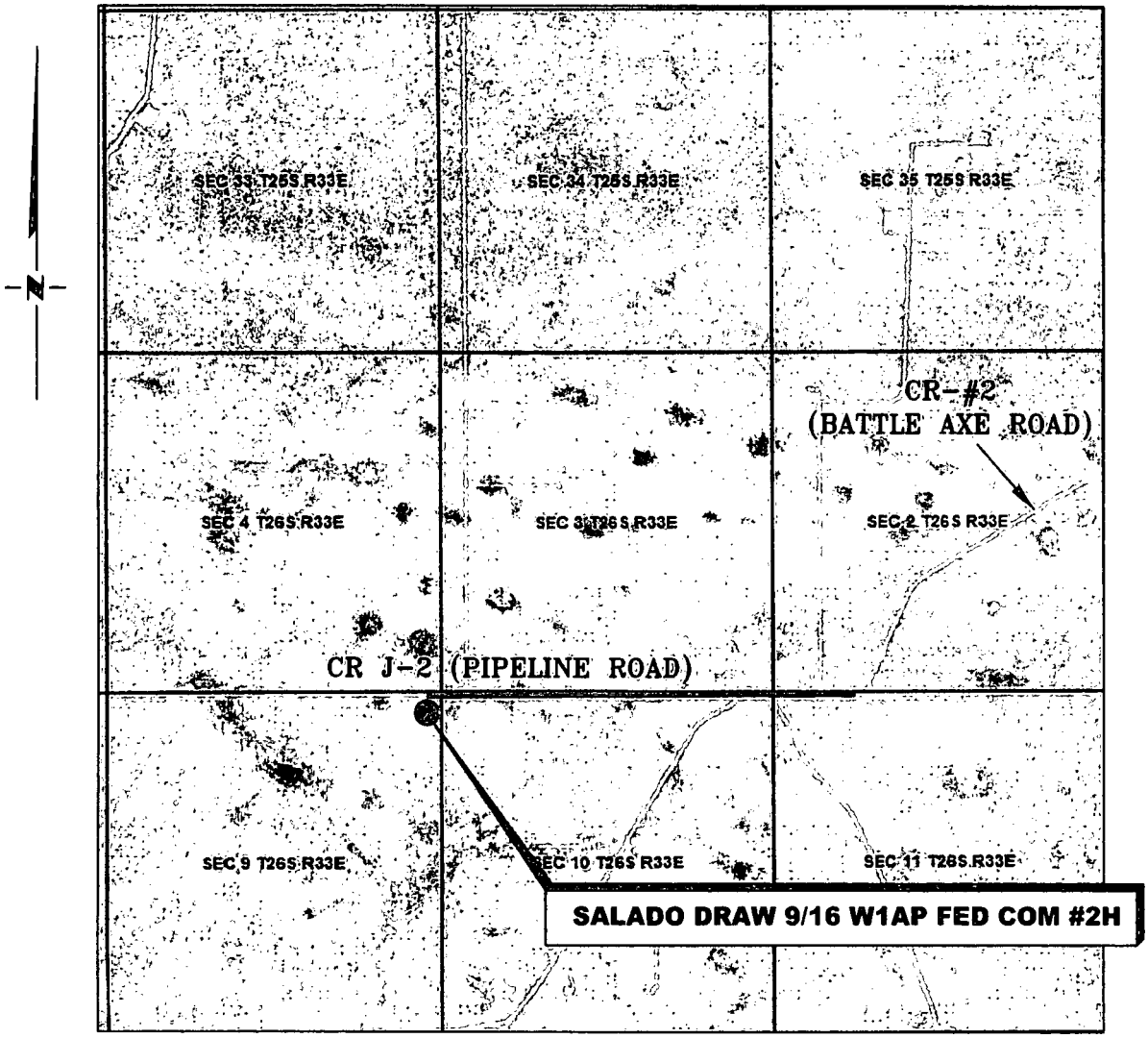
RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: N. T. S.
DATE: 11-18-2015
SURVEYED BY: BC/HD
DRAWN BY: LPS
APPROVED BY: RMH
SHEET: 1 OF 1

# VICINITY MAP

NOT TO SCALE




*SECTION 9, TWP. 26 SOUTH, RGE. 33 EAST,*
*N. M. P. M., LEA COUNTY, NEW MEXICO*

OPERATOR: Mewbourne Oil Company
LEASE: Salado Draw 9/16 W1AP Fed Com
WELL NO.: 2H

LOCATION: 330' FNL & 210' FEL
ELEVATION: 3332'



| NO. | REVISION | DATE |
|---|---|---|
| | | |
| | | |
| | | |

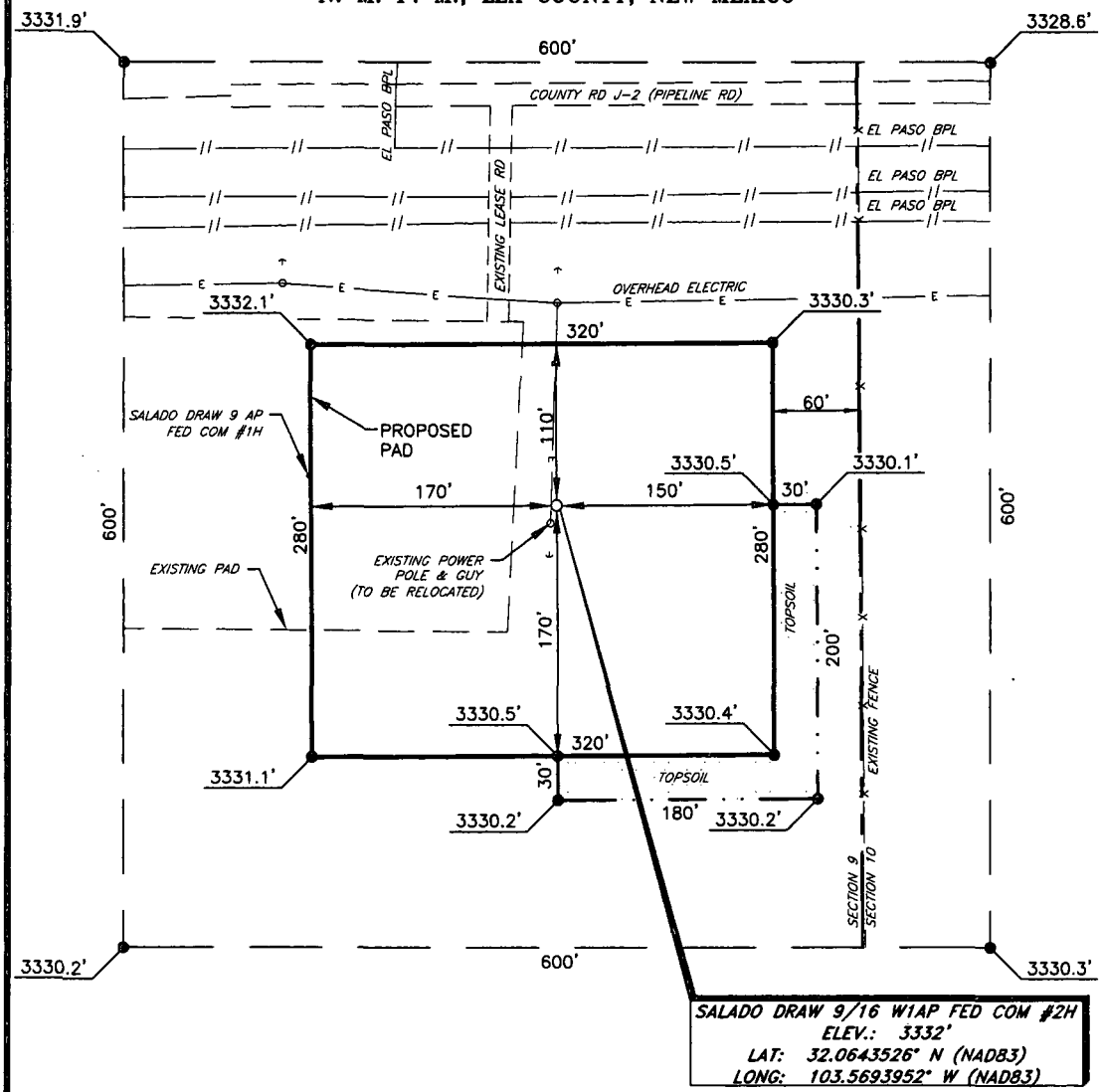
JOB NO.: LS1509543D
DWG. NO.: 1509543LVM

RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: N. T. S.
DATE: 11-18-2015
SURVEYED BY: BC/HD
DRAWN BY: LPS
APPROVED BY: RMH
SHEET: 1 OF 1

# MEWBOURNE OIL COMPANY
## SALADO DRAW 9/16 W1AP FED COM #2H
## (330' FNL & 210' FEL)
### SECTION 9, T26S, R33E
### N. M. P. M., LEA COUNTY, NEW MEXICO




*DIRECTIONS TO LOCATION*

*From the intersection of J-2 (Pipeline Rd.) and CR-2 (Battle Axe Rd.) Go West on J-2 (Pipeline Rd.) approx. 0.9 miles to location on the left.*

THIS IS NOT A BOUNDARY SURVEY, APPARENT PROPERTY CORNERS AND PROPERTY LINES ARE SHOWN FOR INFORMATION ONLY. BOUNDARY DATA IS SHOWN FROM A PREVIOUS SURVEY REFERENCED HEREON.

I, R. M. Howett, a N. M. Professional Surveyor, hereby certify that I prepared this unclassified survey of a well location from an actual survey made on the ground under my direct supervision, said survey and plat meet the Min. Stds. for Land Surveying in the State of N. M. and are true and correct to the best of my knowledge and belief.

Robert M. Howett
Robert M. Howett NM PS 19680

ROBERT M. HOWETT NEW MEXICO 19680 11/18/15 PROFESSIONAL SURVEYOR

SCALE: 1" = 100'
0 50 100

BEARINGS ARE NAD 83 GRID - NM EAST
DISTANCES ARE GROUND



| NO. | REVISION | DATE |
|---|---|---|
| | | |
| | | |
| 1 | Name/BH | 9/28/18 |

JOB NO.: LS1509543D
DWG. NO.: 1509543PAD

RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: 1" = 100'
DATE: 11-18-2015
SURVEYED BY: BC/HD
DRAWN BY: LPS
APPROVED BY: RMH
SHEET: 1 OF 1

**Mewbourne Oil Company, Salado Draw 9/16 W1AP Fed Com #2H**
**Sec 9, T26S, R33E**
**SL: 330' FNL & 210' FEL, Sec 9**
**BHL: 100' FSL & 330' FEL, Sec 16**

## 1. Geologic Formations

| | | | |
|---|---|---|---|
| TVD of target | 12,310' | Pilot hole depth | NA |
| MD at TD: | 17,014' | Deepest expected fresh water: | 250' |

**Basin**

| Formation | Depth (TVD) from KB | Water/Mineral Bearing/ Target Zone? | Hazards* |
|---|---|---|---|
| Quaternary Fill | Surface | | |
| Rustler | 934 | | |
| Top of Salt | 1292 | | |
| Castile | 3502 | | |
| Base of Salt | 4874 | | |
| Lamar | 5005 | Oil | |
| Bell Canyon | 5052 | | |
| Cherry Canyon | 6108 | | |
| Manzanita Marker | 6227 | | |
| Brushy Canyon | 7590 | | |
| Bone Spring | 9022 | Oil/Gas | |
| 1st Bone Spring Sand | 10,010 | | |
| 2nd Bone Spring Sand | 10,589 | | |
| 3rd Bone Spring Sand | 11,652 | | |
| Abo | | | |
| Wolfcamp | 12,107 | Target Zone | |
| Devonian | | | |
| Fusselman | | | |
| Ellenburger | | | |
| Granite Wash | | | |

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

**Mewbourne Oil Company, Salado Draw 9/16 W1AP Fed Com #2H**
**Sec 9, T26S, R33E**
**SL: 330' FNL & 210' FEL, Sec 9**
**BHL: 100' FSL & 330' FEL, Sec 16**

## 2. Casing Program

| Hole Size | Casing Interval From | To | Csg. Size | Weight (lbs/ft) | Grade | Conn. | SF Collapse | SF Burst | SF Jt Tension | SF Body Tension |
|---|---|---|---|---|---|---|---|---|---|---|
| 20" | 0' | 1010' | 16" | 65 | H40 | BTC | 1.36 | 3.55 | 11.90 | 11.21 |
| 13.5" | 0' | 4930' | 10.75" | 45.5 | HCL80 | BTC | 1.23 | 2.04 | 5.24 | 4.64 |
| 9.875" | 0' | 11,900' | 7.625" | 29.7 | HCP110 | LTC | 1.16 | 1.53 | 2.18 | 2.66 |
| 6.5" | 0' | 22,779' | 5.5" | 23 | P110 | UFJ | 1.70 | 1.70 | 1.67 | 2.51 |
| BLM Minimum Safety Factor | | | | | | | 1.125 | 1 | 1.6 Dry<br>1.8 Wet | 1.6 Dry<br>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? | 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? | |

### 3. Cementing Program

| asing | # Sks | Wt. lb/ gal | Yld ft3/ sack | $H_2O$ gal/ sk | 500# Comp. Strength (hours) | Slurry Description |
|---|---|---|---|---|---|---|
| urf. | 625 | 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 |
| nter. | 1100 | 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 |
| rod. tg 1 | 500 | 12.5 | 2.12 | 11 | 9 | Lead: Class C + Gel + Retarder + Defoamer + Extender |
| | 400 | 15.6 | 1.18 | 5.2 | 13 | Tail: Class H + Retarder + Fluid Loss + Defoamer |
| ECP/DV Tool @ 6227' | | | | | | |
| rod. tg 2 | 130 | 12.5 | 2.12 | 11 | 16 | Lead: Class C + Gel + Retarder + Defoamer + Extender |
| | 100 | 14.8 | 1.34 | 6.3 | 8 | Tail: Class C + Retarder |
| iner | 425 | 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 | 4730' | 25% |
| Liner | 11,000' | 25% |

## 4. Pressure Control Equipment

| | |
|---|---|
| Y | Variance: A variance is requested for use of a 5000 psi annular BOP with the 10,000 psi BOP stack. Please see attached description and procedure. |

| BOP installed and tested before drilling which hole? | Size? | System Rated WP | Type | ✓ | Tested to: |
|---|---|---|---|---|---|
| 13-1/2" | 13-5/8" | 3M | Annular | X | 1500# |
| | | | Blind Ram | X | 3000# |
| | | | Pipe Ram | X | |
| | | | Double Ram | | |
| | | | Other* | | |
| 9-7/8" | 13-5/8" | 10M | Annular | X | 5000# |
| | | | Blind Ram | X | 10,000# |
| | | | 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.<br>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.<br><br>• Provide description here: See attached schematic. |

## 5. Mud Program

| TVD | | Type | Weight (ppg) | Viscosity | Water Loss |
|---|---|---|---|---|---|
| From | To | | | | |
| 0 | 1010 | FW Gel | 8.6-8.8 | 28-34 | N/C |
| 1010 | 4930 | Saturated Brine | 10.0 | 28-34 | N/C |
| 4930 | 11,900 | Cut Brine | 8.6-10.0 | 28-34 | N/C |
| 11,900 | 12,629 | OBM | 10.0-13.0 | 30-40 | <10cc |

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

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

## 6. Logging and Testing Procedures

| Logging, Coring and Testing. | |
|---|---|
| X | Will run GR/CNL from KOP (12,000') 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 | 12,000' (KOP) to TD |
| | Density | |
| | CBL | |
| | Mud log | |
| | PEX | |

## 7. Drilling Conditions

| Condition | Specify what type and where? |
|---|---|
| BH Pressure at deepest TVD | 8537 psi |
| Abnormal Temperature | No |

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

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

## 8. Other facets of operation

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

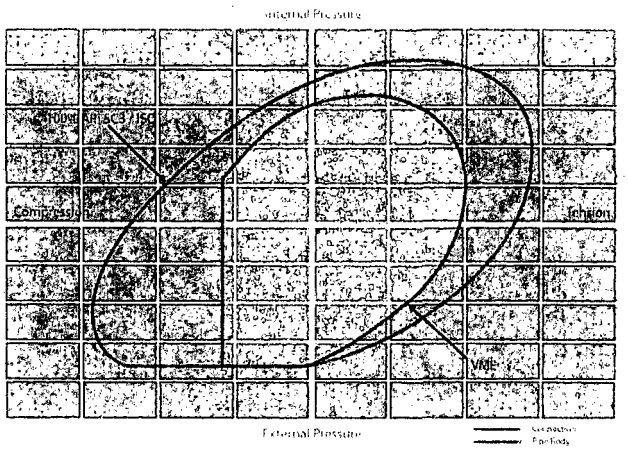
Attachments
___ Directional Plan
___ Other, describe

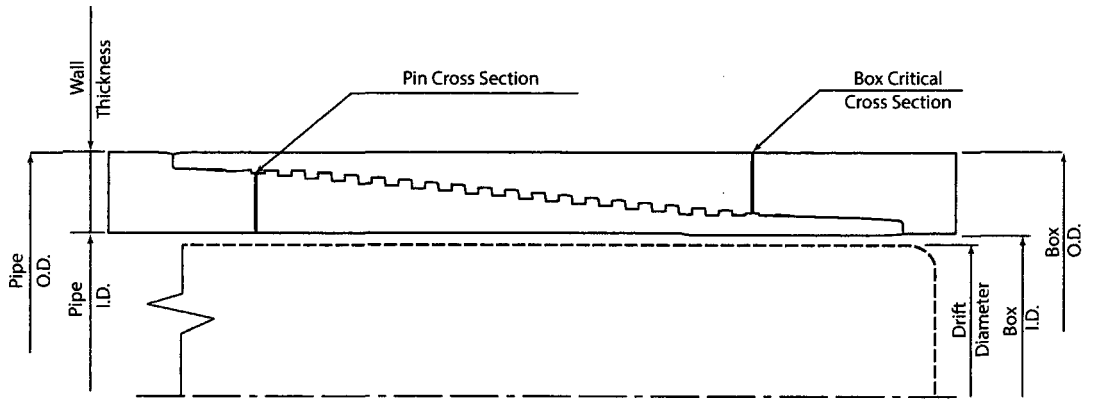
| TUBULAR PARAMETERS | |
|---|---|
| Nominal OD, (inch) | 5.500 |
| Wall Thickness, (inch) | 0.562 |
| Pipe Grade | P110 HC |
| Drift | Standard |

| CONNECTION PARAMETERS | |
|---|---|
| Connection OD (inch) | 5.50 |
| Connection ID, (inch) | 4.373 |
| Make-Up Loss, (inch) | 5.040 |
| Connection Critical Area, (sq inch) | 4.886 |
| Yield Strength in Tension, (klbs) | 717 |
| Yeld Strength in Compression, (klbs) | 618 |
| Tension Efficiency | 75% |
| Compression Efficiency | 64% |
| Min. Internal Yield Pressure, (psi) | 19 670 |
| Collapse Pressure, (psi) | 22 200 |
| Uniaxial Bending (deg/100ft) | 69.0 |

| MAKE-UP TORQUES | |
|---|---|
| Yield Torque, (ft-lb) | 18 800 |
| Minimum Make-Up Torque, (ft-lb) | 10 600 |
| Optimum Make-Up Torque, (ft-lb) | 11 800 |
| Maximum Make-Up Torque, (ft-lb) | 13 000 |

| PIPE BODY PROPERTIES | |
|---|---|
| PE Weight, (lbs/ft) | 29.64 |
| Nominal Weight, (lbs/ft) | 29.70 |
| Nominal ID, (inch) | 4.376 |
| Drift Diameter, (inch) | 4.251 |
| Nominal Pipe Body Area, (sq inch) | 8.718 |
| Yield Strength in Tension, (klbs) | 959 |
| Min. Internal Yield Pressure, (psi) | 19 670 |
| Collapse Pressure, (psi) | 22 200 |



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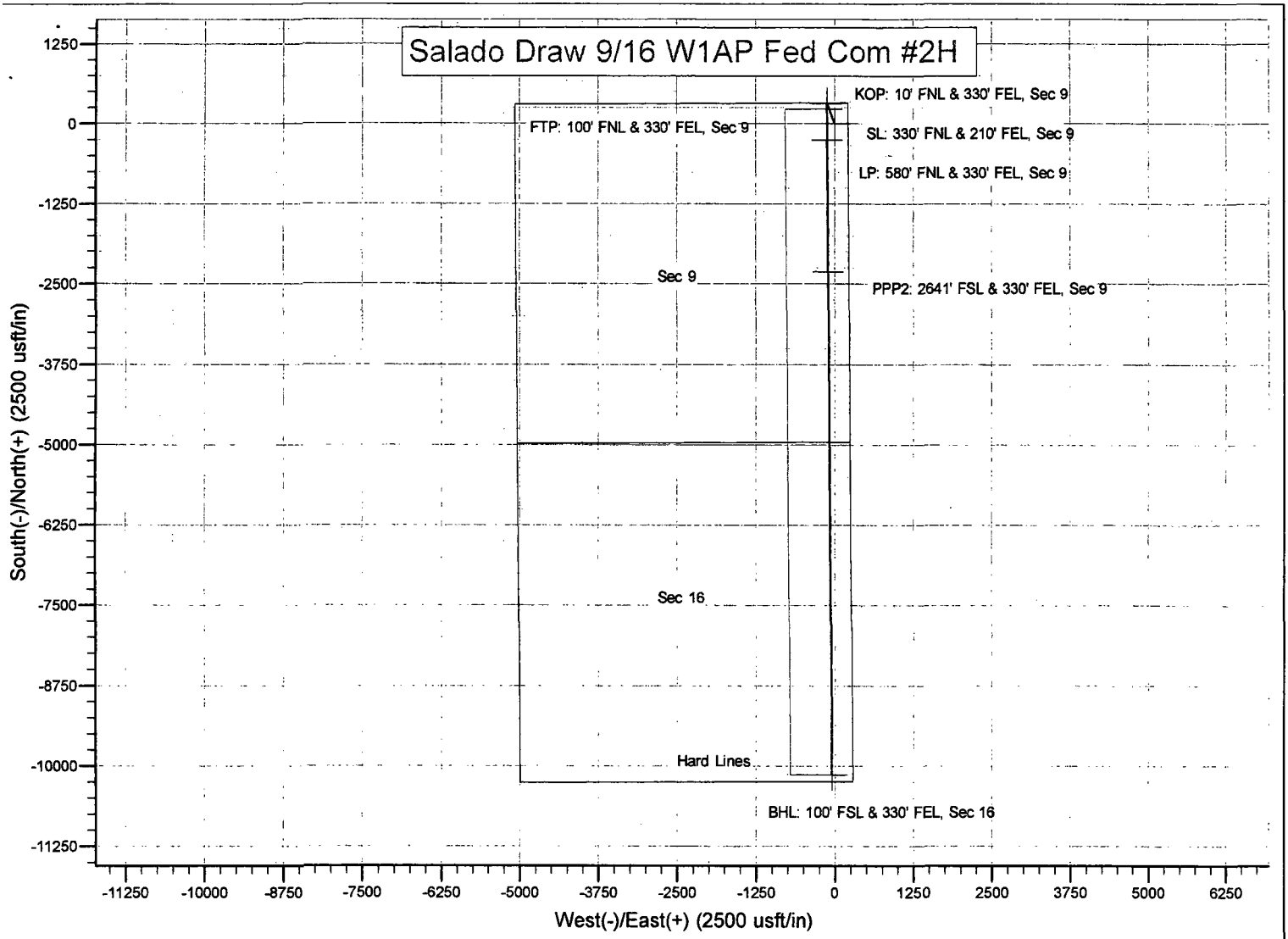
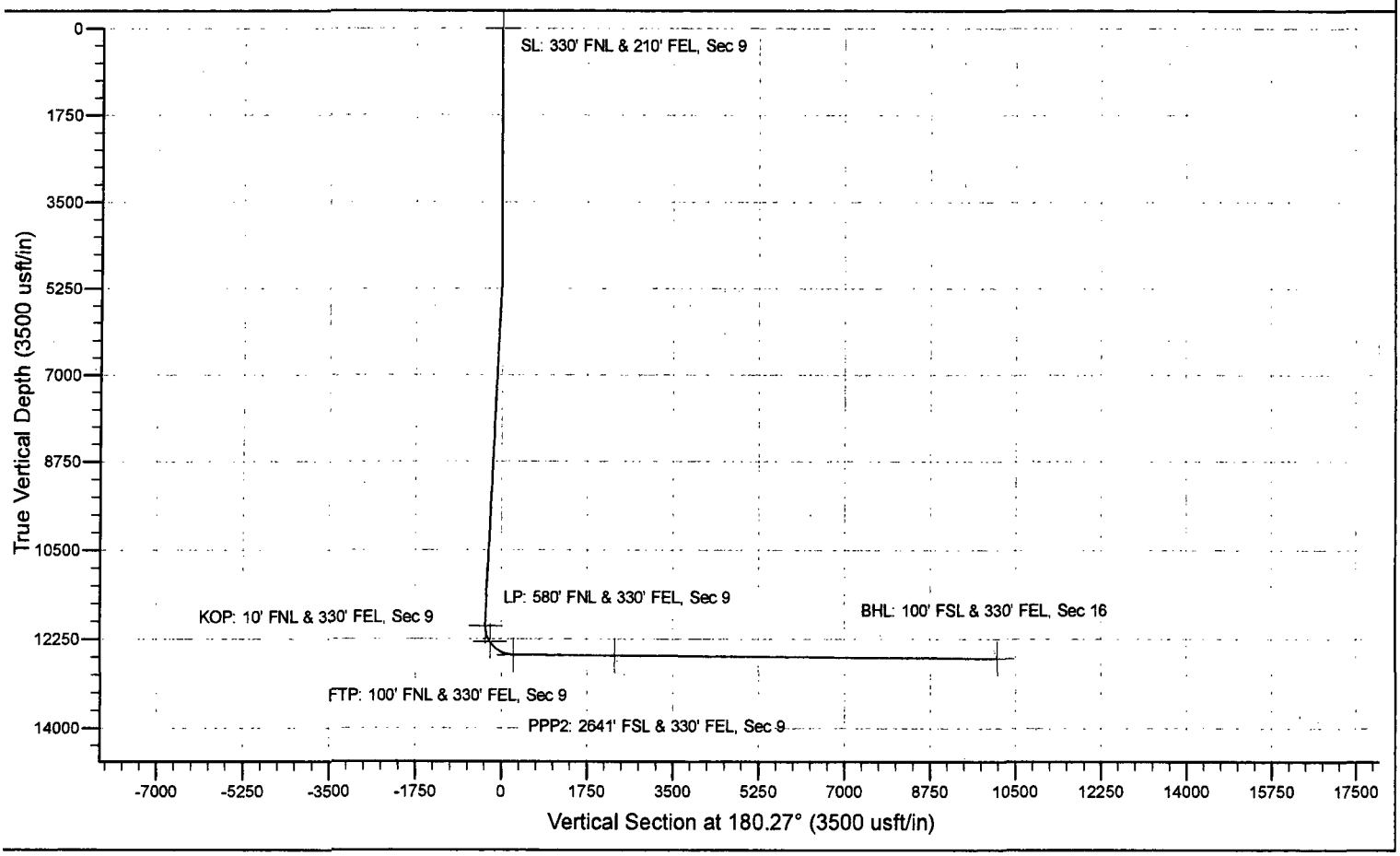

Salado Draw 9/16 W1AP Fed Com #2H
KOP: 10' FNL & 330' FEL, Sec 9
FTP: 100' FNL & 330' FEL, Sec 9
SL: 330' FNL & 210' FEL, Sec 9
LP: 580' FNL & 330' FEL, Sec 9
Sec 9
PPP2: 2641' FSL & 330' FEL, Sec 9
Sec 16
Hard Lines
BHL: 100' FSL & 330' FEL, Sec 16
South(-)/North(+) (2500 usft/in)
West(-)/East(+) (2500 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: 330' FNL & 210' FEL, Sec 9
LP: 580' FNL & 330' FEL, Sec 9
KOP: 10' FNL & 330' FEL, Sec 9
BHL: 100' FSL & 330' FEL, Sec 16
FTP: 100' FNL & 330' FEL, Sec 9
PPP2: 2641' FSL & 330' FEL, Sec 9
True Vertical Depth (3500 usft/in)
Vertical Section at 180.27° (3500 usft/in)
0
1750
3500
5250
7000
8750
10500
12250
14000
-7000 -5250 -3500 -1750 0 1750 3500 5250 7000 8750 10500 12250 14000 15750 17500

# Mewbourne Oil Company

**Lea County, New Mexico NAD 83**
**Salado Draw 9/16 W1AP Fed Com #2H**
**Sec 9, T26S, R33E**
**SL: 330' FNL & 210' FEL, Sec 9**
**BHL: 100' FSL & 330' FEL, Sec 16**

**Plan: Design #1**

# Standard Planning Report

**27 September, 2018**

| | | | |
|---|---|---|---|
| **Database:** | Hobbs | **Local Co-ordinate Reference:** | Site Salado Draw 9/16 W1AP Fed Com #2H |
| **Company:** | Mewbourne Oil Company | **TVD Reference:** | WELL @ 3359.0usft (Original Well Elev) |
| **Project:** | Lea County, New Mexico NAD 83 | **MD Reference:** | WELL @ 3359.0usft (Original Well Elev) |
| **Site:** | Salado Draw 9/16 W1AP Fed Com #2H | **North Reference:** | Grid |
| **Well:** | Sec 9, T26S, R33E | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | BHL: 100' FSL & 330' FEL, Sec 16 | | |
| **Design:** | Design #1 | | |

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

| **Site** | Salado Draw 9/16 W1AP Fed Com #2H | | | | |
|---|---|---|---|---|---|
| **Site Position:** | | **Northing:** | 387,987.00 usft | **Latitude:** | 32.0643537 |
| **From:** | Map | **Easting:** | 777,986.00 usft | **Longitude:** | -103.5693976 |
| **Position Uncertainty:** | 0.0 usft | **Slot Radius:** | 13-3/16 " | **Grid Convergence:** | 0.41 ° |

| **Well** | Sec 9, T26S, R33E | | | | | |
|---|---|---|---|---|---|---|
| **Well Position** | **+N/-S** | 0.0 usft | **Northing:** | 387,987.00 usft | **Latitude:** | 32.0643537 |
| | **+E/-W** | 0.0 usft | **Easting:** | 777,986.00 usft | **Longitude:** | -103.5693976 |
| **Position Uncertainty** | | 0.0 usft | **Wellhead Elevation:** | 3,359.0 usft | **Ground Level:** | 3,332.0 usft |

| **Wellbore** | BHL: 100' FSL & 330' FEL, Sec 16 | | | |
|---|---|---|---|---|
| **Magnetics** | **Model Name** | **Sample Date** | **Declination (°)** | **Dip Angle (°)** | **Field Strength (nT)** |
| | IGRF2010 | 9/27/2018 | 6.67 | 59.85 | 47,793 |

| **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 | 180.27 |

**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 | |
| 5,000.0 | 0.00 | 0.00 | 5,000.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 5,191.7 | 2.88 | 339.07 | 5,191.6 | 4.5 | -1.7 | 1.50 | 1.50 | 0.00 | 339.07 | |
| 11,807.8 | 2.88 | 339.07 | 11,799.4 | 314.5 | -120.3 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 11,999.5 | 0.00 | 0.00 | 11,991.0 | 319.0 | -122.0 | 1.50 | -1.50 | 0.00 | 180.00 | KOP: 10' FNL & 330' I |
| 12,895.8 | 89.62 | 179.59 | 12,564.0 | -250.2 | -117.9 | 10.00 | 10.00 | 0.00 | 179.59 | |
| 22,779.1 | 89.62 | 179.59 | 12,629.0 | -10,133.0 | -47.0 | 0.00 | 0.00 | 0.00 | 0.00 | BHL: 100' FSL & 330' |

| | | | |
|---|---|---|---|
| **Database:** | Hobbs | **Local Co-ordinate Reference:** | Site Salado Draw 9/16 W1AP Fed Com #2H |
| **Company:** | Mewbourne Oil Company | **TVD Reference:** | WELL @ 3359.0usft (Original Well Elev) |
| **Project:** | Lea County, New Mexico NAD 83 | **MD Reference:** | WELL @ 3359.0usft (Original Well Elev) |
| **Site:** | Salado Draw 9/16 W1AP Fed Com #2H | **North Reference:** | Grid |
| **Well:** | Sec 9, T26S, R33E | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | BHL: 100' FSL & 330' FEL, Sec 16 | | |
| **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: 330' FNL & 210' FEL, Sec 9** | | | | | | | | | |
| 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 | 1.50 | 339.07 | 5,100.0 | 1.2 | -0.5 | -1.2 | 1.50 | 1.50 | 0.00 |
| 5,191.7 | 2.88 | 339.07 | 5,191.6 | 4.5 | -1.7 | -4.5 | 1.50 | 1.50 | 0.00 |

| | | | |
|---|---|---|---|
| **Database:** | Hobbs | **Local Co-ordinate Reference:** | Site Salado Draw 9/16 W1AP Fed Com #2H |
| **Company:** | Mewbourne Oil Company | **TVD Reference:** | WELL @ 3359.0usft (Original Well Elev) |
| **Project:** | Lea County, New Mexico NAD 83 | **MD Reference:** | WELL @ 3359.0usft (Original Well Elev) |
| **Site:** | Salado Draw 9/16 W1AP Fed Com #2H | **North Reference:** | Grid |
| **Well:** | Sec 9, T26S, R33E | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | BHL: 100' FSL & 330' FEL, Sec 16 | | |
| **Design:** | Design #1 | | |

**Planned Survey**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---|---|---|---|---|---|---|---|---|---|
| 5,200.0 | 2.88 | 339.07 | 5,199.9 | 4.9 | -1.9 | -4.9 | 0.00 | 0.00 | 0.00 |
| 5,300.0 | 2.88 | 339.07 | 5,299.8 | 9.6 | -3.7 | -9.5 | 0.00 | 0.00 | 0.00 |
| 5,400.0 | 2.88 | 339.07 | 5,399.7 | 14.3 | -5.5 | -14.2 | 0.00 | 0.00 | 0.00 |
| 5,500.0 | 2.88 | 339.07 | 5,499.5 | 18.9 | -7.2 | -18.9 | 0.00 | 0.00 | 0.00 |
| 5,600.0 | 2.88 | 339.07 | 5,599.4 | 23.6 | -9.0 | -23.6 | 0.00 | 0.00 | 0.00 |
| 5,700.0 | 2.88 | 339.07 | 5,699.3 | 28.3 | -10.8 | -28.3 | 0.00 | 0.00 | 0.00 |
| 5,800.0 | 2.88 | 339.07 | 5,799.2 | 33.0 | -12.6 | -32.9 | 0.00 | 0.00 | 0.00 |
| 5,900.0 | 2.88 | 339.07 | 5,899.0 | 37.7 | -14.4 | -37.6 | 0.00 | 0.00 | 0.00 |
| 6,000.0 | 2.88 | 339.07 | 5,998.9 | 42.4 | -16.2 | -42.3 | 0.00 | 0.00 | 0.00 |
| 6,100.0 | 2.88 | 339.07 | 6,098.8 | 47.1 | -18.0 | -47.0 | 0.00 | 0.00 | 0.00 |
| 6,200.0 | 2.88 | 339.07 | 6,198.6 | 51.7 | -19.8 | -51.6 | 0.00 | 0.00 | 0.00 |
| 6,300.0 | 2.88 | 339.07 | 6,298.5 | 56.4 | -21.6 | -56.3 | 0.00 | 0.00 | 0.00 |
| 6,400.0 | 2.88 | 339.07 | 6,398.4 | 61.1 | -23.4 | -61.0 | 0.00 | 0.00 | 0.00 |
| 6,500.0 | 2.88 | 339.07 | 6,498.3 | 65.8 | -25.2 | -65.7 | 0.00 | 0.00 | 0.00 |
| 6,600.0 | 2.88 | 339.07 | 6,598.1 | 70.5 | -27.0 | -70.4 | 0.00 | 0.00 | 0.00 |
| 6,700.0 | 2.88 | 339.07 | 6,698.0 | 75.2 | -28.7 | -75.0 | 0.00 | 0.00 | 0.00 |
| 6,800.0 | 2.88 | 339.07 | 6,797.9 | 79.9 | -30.5 | -79.7 | 0.00 | 0.00 | 0.00 |
| 6,900.0 | 2.88 | 339.07 | 6,897.8 | 84.5 | -32.3 | -84.4 | 0.00 | 0.00 | 0.00 |
| 7,000.0 | 2.88 | 339.07 | 6,997.6 | 89.2 | -34.1 | -89.1 | 0.00 | 0.00 | 0.00 |
| 7,100.0 | 2.88 | 339.07 | 7,097.5 | 93.9 | -35.9 | -93.7 | 0.00 | 0.00 | 0.00 |
| 7,200.0 | 2.88 | 339.07 | 7,197.4 | 98.6 | -37.7 | -98.4 | 0.00 | 0.00 | 0.00 |
| 7,300.0 | 2.88 | 339.07 | 7,297.3 | 103.3 | -39.5 | -103.1 | 0.00 | 0.00 | 0.00 |
| 7,400.0 | 2.88 | 339.07 | 7,397.1 | 108.0 | -41.3 | -107.8 | 0.00 | 0.00 | 0.00 |
| 7,500.0 | 2.88 | 339.07 | 7,497.0 | 112.7 | -43.1 | -112.5 | 0.00 | 0.00 | 0.00 |
| 7,600.0 | 2.88 | 339.07 | 7,596.9 | 117.3 | -44.9 | -117.1 | 0.00 | 0.00 | 0.00 |
| 7,700.0 | 2.88 | 339.07 | 7,696.8 | 122.0 | -46.7 | -121.8 | 0.00 | 0.00 | 0.00 |
| 7,800.0 | 2.88 | 339.07 | 7,796.6 | 126.7 | -48.5 | -126.5 | 0.00 | 0.00 | 0.00 |
| 7,900.0 | 2.88 | 339.07 | 7,896.5 | 131.4 | -50.3 | -131.2 | 0.00 | 0.00 | 0.00 |
| 8,000.0 | 2.88 | 339.07 | 7,996.4 | 136.1 | -52.0 | -135.8 | 0.00 | 0.00 | 0.00 |
| 8,100.0 | 2.88 | 339.07 | 8,096.3 | 140.8 | -53.8 | -140.5 | 0.00 | 0.00 | 0.00 |
| 8,200.0 | 2.88 | 339.07 | 8,196.1 | 145.5 | -55.6 | -145.2 | 0.00 | 0.00 | 0.00 |
| 8,300.0 | 2.88 | 339.07 | 8,296.0 | 150.1 | -57.4 | -149.9 | 0.00 | 0.00 | 0.00 |
| 8,400.0 | 2.88 | 339.07 | 8,395.9 | 154.8 | -59.2 | -154.5 | 0.00 | 0.00 | 0.00 |
| 8,500.0 | 2.88 | 339.07 | 8,495.8 | 159.5 | -61.0 | -159.2 | 0.00 | 0.00 | 0.00 |
| 8,600.0 | 2.88 | 339.07 | 8,595.6 | 164.2 | -62.8 | -163.9 | 0.00 | 0.00 | 0.00 |
| 8,700.0 | 2.88 | 339.07 | 8,695.5 | 168.9 | -64.6 | -168.6 | 0.00 | 0.00 | 0.00 |
| 8,800.0 | 2.88 | 339.07 | 8,795.4 | 173.6 | -66.4 | -173.3 | 0.00 | 0.00 | 0.00 |
| 8,900.0 | 2.88 | 339.07 | 8,895.2 | 178.3 | -68.2 | -177.9 | 0.00 | 0.00 | 0.00 |
| 9,000.0 | 2.88 | 339.07 | 8,995.1 | 182.9 | -70.0 | -182.6 | 0.00 | 0.00 | 0.00 |
| 9,100.0 | 2.88 | 339.07 | 9,095.0 | 187.6 | -71.8 | -187.3 | 0.00 | 0.00 | 0.00 |
| 9,200.0 | 2.88 | 339.07 | 9,194.9 | 192.3 | -73.5 | -192.0 | 0.00 | 0.00 | 0.00 |
| 9,300.0 | 2.88 | 339.07 | 9,294.7 | 197.0 | -75.3 | -196.6 | 0.00 | 0.00 | 0.00 |
| 9,400.0 | 2.88 | 339.07 | 9,394.6 | 201.7 | -77.1 | -201.3 | 0.00 | 0.00 | 0.00 |
| 9,500.0 | 2.88 | 339.07 | 9,494.5 | 206.4 | -78.9 | -206.0 | 0.00 | 0.00 | 0.00 |
| 9,600.0 | 2.88 | 339.07 | 9,594.4 | 211.1 | -80.7 | -210.7 | 0.00 | 0.00 | 0.00 |
| 9,700.0 | 2.88 | 339.07 | 9,694.2 | 215.7 | -82.5 | -215.4 | 0.00 | 0.00 | 0.00 |
| 9,800.0 | 2.88 | 339.07 | 9,794.1 | 220.4 | -84.3 | -220.0 | 0.00 | 0.00 | 0.00 |
| 9,900.0 | 2.88 | 339.07 | 9,894.0 | 225.1 | -86.1 | -224.7 | 0.00 | 0.00 | 0.00 |
| 10,000.0 | 2.88 | 339.07 | 9,993.9 | 229.8 | -87.9 | -229.4 | 0.00 | 0.00 | 0.00 |
| 10,100.0 | 2.88 | 339.07 | 10,093.7 | 234.5 | -89.7 | -234.1 | 0.00 | 0.00 | 0.00 |
| 10,200.0 | 2.88 | 339.07 | 10,193.6 | 239.2 | -91.5 | -238.7 | 0.00 | 0.00 | 0.00 |
| 10,300.0 | 2.88 | 339.07 | 10,293.5 | 243.9 | -93.3 | -243.4 | 0.00 | 0.00 | 0.00 |
| 10,400.0 | 2.88 | 339.07 | 10,393.4 | 248.5 | -95.1 | -248.1 | 0.00 | 0.00 | 0.00 |
| 10,500.0 | 2.88 | 339.07 | 10,493.2 | 253.2 | -96.8 | -252.8 | 0.00 | 0.00 | 0.00 |

| | | | |
|---|---|---|---|
| **Database:** | Hobbs | **Local Co-ordinate Reference:** | Site Salado Draw 9/16 W1AP Fed Com #2H |
| **Company:** | Mewbourne Oil Company | **TVD Reference:** | WELL @ 3359.0usft (Original Well Elev) |
| **Project:** | Lea County, New Mexico NAD 83 | **MD Reference:** | WELL @ 3359.0usft (Original Well Elev) |
| **Site:** | Salado Draw 9/16 W1AP Fed Com #2H | **North Reference:** | Grid |
| **Well:** | Sec 9, T26S, R33E | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | BHL: 100' FSL & 330' FEL, Sec 16 | | |
| **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) |
|---|---|---|---|---|---|---|---|---|---|
| 10,600.0 | 2.88 | 339.07 | 10,593.1 | 257.9 | -98.6 | -257.5 | 0.00 | 0.00 | 0.00 |
| 10,700.0 | 2.88 | 339.07 | 10,693.0 | 262.6 | -100.4 | -262.1 | 0.00 | 0.00 | 0.00 |
| 10,800.0 | 2.88 | 339.07 | 10,792.9 | 267.3 | -102.2 | -266.8 | 0.00 | 0.00 | 0.00 |
| 10,900.0 | 2.88 | 339.07 | 10,892.7 | 272.0 | -104.0 | -271.5 | 0.00 | 0.00 | 0.00 |
| 11,000.0 | 2.88 | 339.07 | 10,992.6 | 276.7 | -105.8 | -276.2 | 0.00 | 0.00 | 0.00 |
| 11,100.0 | 2.88 | 339.07 | 11,092.5 | 281.3 | -107.6 | -280.8 | 0.00 | 0.00 | 0.00 |
| 11,200.0 | 2.88 | 339.07 | 11,192.4 | 286.0 | -109.4 | -285.5 | 0.00 | 0.00 | 0.00 |
| 11,300.0 | 2.88 | 339.07 | 11,292.2 | 290.7 | -111.2 | -290.2 | 0.00 | 0.00 | 0.00 |
| 11,400.0 | 2.88 | 339.07 | 11,392.1 | 295.4 | -113.0 | -294.9 | 0.00 | 0.00 | 0.00 |
| 11,500.0 | 2.88 | 339.07 | 11,492.0 | 300.1 | -114.8 | -299.5 | 0.00 | 0.00 | 0.00 |
| 11,600.0 | 2.88 | 339.07 | 11,591.9 | 304.8 | -116.6 | -304.2 | 0.00 | 0.00 | 0.00 |
| 11,700.0 | 2.88 | 339.07 | 11,691.7 | 309.5 | -118.3 | -308.9 | 0.00 | 0.00 | 0.00 |
| 11,800.0 | 2.88 | 339.07 | 11,791.6 | 314.1 | -120.1 | -313.6 | 0.00 | 0.00 | 0.00 |
| 11,807.8 | 2.88 | 339.07 | 11,799.4 | 314.5 | -120.3 | -313.9 | 0.00 | 0.00 | 0.00 |
| 11,900.0 | 1.49 | 339.07 | 11,891.5 | 317.8 | -121.5 | -317.2 | 1.50 | -1.50 | 0.00 |
| 11,999.5 | 0.00 | 0.00 | 11,991.0 | 319.0 | -122.0 | -318.4 | 1.50 | -1.50 | 0.00 |
| **KOP: 10' FNL & 330' FEL, Sec 9** | | | | | | | | | |
| 12,000.0 | 0.05 | 179.59 | 11,991.5 | 319.0 | -122.0 | -318.4 | 10.00 | 10.00 | 0.00 |
| 12,100.0 | 10.05 | 179.59 | 12,091.0 | 310.2 | -121.9 | -309.6 | 10.00 | 10.00 | 0.00 |
| 12,200.0 | 20.05 | 179.59 | 12,187.4 | 284.3 | -121.8 | -283.7 | 10.00 | 10.00 | 0.00 |
| 12,300.0 | 30.05 | 179.59 | 12,277.9 | 242.0 | -121.4 | -241.4 | 10.00 | 10.00 | 0.00 |
| 12,323.2 | 32.36 | 179.59 | 12,297.7 | 230.0 | -121.4 | -229.4 | 10.00 | 10.00 | 0.00 |
| **FTP: 100' FNL & 330' FEL, Sec 9** | | | | | | | | | |
| 12,400.0 | 40.05 | 179.59 | 12,359.7 | 184.7 | -121.0 | -184.1 | 10.00 | 10.00 | 0.00 |
| 12,500.0 | 50.05 | 179.59 | 12,430.3 | 114.0 | -120.5 | -113.4 | 10.00 | 10.00 | 0.00 |
| 12,600.0 | 60.05 | 179.59 | 12,487.5 | 32.1 | -119.9 | -31.6 | 10.00 | 10.00 | 0.00 |
| 12,700.0 | 70.05 | 179.59 | 12,529.6 | -58.4 | -119.3 | 59.0 | 10.00 | 10.00 | 0.00 |
| 12,800.0 | 80.04 | 179.59 | 12,555.4 | -154.9 | -118.6 | 155.5 | 10.00 | 10.00 | 0.00 |
| 12,895.8 | 89.62 | 179.59 | 12,564.0 | -250.2 | -117.9 | 250.7 | 10.00 | 10.00 | 0.00 |
| **LP: 580' FNL & 330' FEL, Sec 9** | | | | | | | | | |
| 12,900.0 | 89.62 | 179.59 | 12,564.0 | -254.4 | -117.9 | 254.9 | 0.00 | 0.00 | 0.00 |
| 13,000.0 | 89.62 | 179.59 | 12,564.7 | -354.4 | -117.2 | 354.9 | 0.00 | 0.00 | 0.00 |
| 13,100.0 | 89.62 | 179.59 | 12,565.3 | -454.4 | -116.5 | 454.9 | 0.00 | 0.00 | 0.00 |
| 13,200.0 | 89.62 | 179.59 | 12,566.0 | -554.4 | -115.7 | 554.9 | 0.00 | 0.00 | 0.00 |
| 13,300.0 | 89.62 | 179.59 | 12,566.7 | -654.4 | -115.0 | 654.9 | 0.00 | 0.00 | 0.00 |
| 13,400.0 | 89.62 | 179.59 | 12,567.3 | -754.4 | -114.3 | 754.9 | 0.00 | 0.00 | 0.00 |
| 13,500.0 | 89.62 | 179.59 | 12,568.0 | -854.4 | -113.6 | 854.9 | 0.00 | 0.00 | 0.00 |
| 13,600.0 | 89.62 | 179.59 | 12,568.6 | -954.4 | -112.9 | 954.9 | 0.00 | 0.00 | 0.00 |
| 13,700.0 | 89.62 | 179.59 | 12,569.3 | -1,054.4 | -112.1 | 1,054.9 | 0.00 | 0.00 | 0.00 |
| 13,800.0 | 89.62 | 179.59 | 12,569.9 | -1,154.4 | -111.4 | 1,154.9 | 0.00 | 0.00 | 0.00 |
| 13,900.0 | 89.62 | 179.59 | 12,570.6 | -1,254.4 | -110.7 | 1,254.9 | 0.00 | 0.00 | 0.00 |
| 14,000.0 | 89.62 | 179.59 | 12,571.3 | -1,354.4 | -110.0 | 1,354.8 | 0.00 | 0.00 | 0.00 |
| 14,100.0 | 89.62 | 179.59 | 12,571.9 | -1,454.3 | -109.3 | 1,454.8 | 0.00 | 0.00 | 0.00 |
| 14,200.0 | 89.62 | 179.59 | 12,572.6 | -1,554.3 | -108.6 | 1,554.8 | 0.00 | 0.00 | 0.00 |
| 14,300.0 | 89.62 | 179.59 | 12,573.2 | -1,654.3 | -107.8 | 1,654.8 | 0.00 | 0.00 | 0.00 |
| 14,400.0 | 89.62 | 179.59 | 12,573.9 | -1,754.3 | -107.1 | 1,754.8 | 0.00 | 0.00 | 0.00 |
| 14,500.0 | 89.62 | 179.59 | 12,574.6 | -1,854.3 | -106.4 | 1,854.8 | 0.00 | 0.00 | 0.00 |
| 14,600.0 | 89.62 | 179.59 | 12,575.2 | -1,954.3 | -105.7 | 1,954.8 | 0.00 | 0.00 | 0.00 |
| 14,700.0 | 89.62 | 179.59 | 12,575.9 | -2,054.3 | -105.0 | 2,054.8 | 0.00 | 0.00 | 0.00 |
| 14,800.0 | 89.62 | 179.59 | 12,576.5 | -2,154.3 | -104.3 | 2,154.8 | 0.00 | 0.00 | 0.00 |
| 14,900.0 | 89.62 | 179.59 | 12,577.2 | -2,254.3 | -103.5 | 2,254.8 | 0.00 | 0.00 | 0.00 |
| 14,955.7 | 89.62 | 179.59 | 12,577.5 | -2,310.0 | -103.1 | 2,310.5 | 0.00 | 0.00 | 0.00 |
| **PPP2: 2641' FSL & 330' FEL, Sec 9** | | | | | | | | | |

| | | | |
|---|---|---|---|
| **Database:** | Hobbs | **Local Co-ordinate Reference:** | Site Salado Draw 9/16 W1AP Fed Com #2H |
| **Company:** | Mewbourne Oil Company | **TVD Reference:** | WELL @ 3359.0usft (Original Well Elev) |
| **Project:** | Lea County, New Mexico NAD 83 | **MD Reference:** | WELL @ 3359.0usft (Original Well Elev) |
| **Site:** | Salado Draw 9/16 W1AP Fed Com #2H | **North Reference:** | Grid |
| **Well:** | Sec 9, T26S, R33E | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | BHL: 100' FSL & 330' FEL, Sec 16 | | |
| **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) |
|---|---|---|---|---|---|---|---|---|---|
| 15,000.0 | 89.62 | 179.59 | 12,577.8 | -2,354.3 | -102.8 | 2,354.8 | 0.00 | 0.00 | 0.00 |
| 15,100.0 | 89.62 | 179.59 | 12,578.5 | -2,454.3 | -102.1 | 2,454.7 | 0.00 | 0.00 | 0.00 |
| 15,200.0 | 89.62 | 179.59 | 12,579.2 | -2,554.3 | -101.4 | 2,554.7 | 0.00 | 0.00 | 0.00 |
| 15,300.0 | 89.62 | 179.59 | 12,579.8 | -2,654.3 | -100.7 | 2,654.7 | 0.00 | 0.00 | 0.00 |
| 15,400.0 | 89.62 | 179.59 | 12,580.5 | -2,754.3 | -99.9 | 2,754.7 | 0.00 | 0.00 | 0.00 |
| 15,500.0 | 89.62 | 179.59 | 12,581.1 | -2,854.3 | -99.2 | 2,854.7 | 0.00 | 0.00 | 0.00 |
| 15,600.0 | 89.62 | 179.59 | 12,581.8 | -2,954.3 | -98.5 | 2,954.7 | 0.00 | 0.00 | 0.00 |
| 15,700.0 | 89.62 | 179.59 | 12,582.4 | -3,054.3 | -97.8 | 3,054.7 | 0.00 | 0.00 | 0.00 |
| 15,800.0 | 89.62 | 179.59 | 12,583.1 | -3,154.3 | -97.1 | 3,154.7 | 0.00 | 0.00 | 0.00 |
| 15,900.0 | 89.62 | 179.59 | 12,583.8 | -3,254.3 | -96.4 | 3,254.7 | 0.00 | 0.00 | 0.00 |
| 16,000.0 | 89.62 | 179.59 | 12,584.4 | -3,354.3 | -95.6 | 3,354.7 | 0.00 | 0.00 | 0.00 |
| 16,100.0 | 89.62 | 179.59 | 12,585.1 | -3,454.3 | -94.9 | 3,454.7 | 0.00 | 0.00 | 0.00 |
| 16,200.0 | 89.62 | 179.59 | 12,585.7 | -3,554.2 | -94.2 | 3,554.6 | 0.00 | 0.00 | 0.00 |
| 16,300.0 | 89.62 | 179.59 | 12,586.4 | -3,654.2 | -93.5 | 3,654.6 | 0.00 | 0.00 | 0.00 |
| 16,400.0 | 89.62 | 179.59 | 12,587.0 | -3,754.2 | -92.8 | 3,754.6 | 0.00 | 0.00 | 0.00 |
| 16,500.0 | 89.62 | 179.59 | 12,587.7 | -3,854.2 | -92.1 | 3,854.6 | 0.00 | 0.00 | 0.00 |
| 16,600.0 | 89.62 | 179.59 | 12,588.4 | -3,954.2 | -91.3 | 3,954.6 | 0.00 | 0.00 | 0.00 |
| 16,700.0 | 89.62 | 179.59 | 12,589.0 | -4,054.2 | -90.6 | 4,054.6 | 0.00 | 0.00 | 0.00 |
| 16,800.0 | 89.62 | 179.59 | 12,589.7 | -4,154.2 | -89.9 | 4,154.6 | 0.00 | 0.00 | 0.00 |
| 16,900.0 | 89.62 | 179.59 | 12,590.3 | -4,254.2 | -89.2 | 4,254.6 | 0.00 | 0.00 | 0.00 |
| 17,000.0 | 89.62 | 179.59 | 12,591.0 | -4,354.2 | -88.5 | 4,354.6 | 0.00 | 0.00 | 0.00 |
| 17,100.0 | 89.62 | 179.59 | 12,591.6 | -4,454.2 | -87.7 | 4,454.6 | 0.00 | 0.00 | 0.00 |
| 17,200.0 | 89.62 | 179.59 | 12,592.3 | -4,554.2 | -87.0 | 4,554.6 | 0.00 | 0.00 | 0.00 |
| 17,300.0 | 89.62 | 179.59 | 12,593.0 | -4,654.2 | -86.3 | 4,654.5 | 0.00 | 0.00 | 0.00 |
| 17,400.0 | 89.62 | 179.59 | 12,593.6 | -4,754.2 | -85.6 | 4,754.5 | 0.00 | 0.00 | 0.00 |
| 17,500.0 | 89.62 | 179.59 | 12,594.3 | -4,854.2 | -84.9 | 4,854.5 | 0.00 | 0.00 | 0.00 |
| 17,600.0 | 89.62 | 179.59 | 12,594.9 | -4,954.2 | -84.2 | 4,954.5 | 0.00 | 0.00 | 0.00 |
| 17,700.0 | 89.62 | 179.59 | 12,595.6 | -5,054.2 | -83.4 | 5,054.5 | 0.00 | 0.00 | 0.00 |
| 17,800.0 | 89.62 | 179.59 | 12,596.3 | -5,154.2 | -82.7 | 5,154.5 | 0.00 | 0.00 | 0.00 |
| 17,900.0 | 89.62 | 179.59 | 12,596.9 | -5,254.2 | -82.0 | 5,254.5 | 0.00 | 0.00 | 0.00 |
| 18,000.0 | 89.62 | 179.59 | 12,597.6 | -5,354.2 | -81.3 | 5,354.5 | 0.00 | 0.00 | 0.00 |
| 18,100.0 | 89.62 | 179.59 | 12,598.2 | -5,454.2 | -80.6 | 5,454.5 | 0.00 | 0.00 | 0.00 |
| 18,200.0 | 89.62 | 179.59 | 12,598.9 | -5,554.2 | -79.9 | 5,554.5 | 0.00 | 0.00 | 0.00 |
| 18,300.0 | 89.62 | 179.59 | 12,599.5 | -5,654.1 | -79.1 | 5,654.5 | 0.00 | 0.00 | 0.00 |
| 18,400.0 | 89.62 | 179.59 | 12,600.2 | -5,754.1 | -78.4 | 5,754.4 | 0.00 | 0.00 | 0.00 |
| 18,500.0 | 89.62 | 179.59 | 12,600.9 | -5,854.1 | -77.7 | 5,854.4 | 0.00 | 0.00 | 0.00 |
| 18,600.0 | 89.62 | 179.59 | 12,601.5 | -5,954.1 | -77.0 | 5,954.4 | 0.00 | 0.00 | 0.00 |
| 18,700.0 | 89.62 | 179.59 | 12,602.2 | -6,054.1 | -76.3 | 6,054.4 | 0.00 | 0.00 | 0.00 |
| 18,800.0 | 89.62 | 179.59 | 12,602.8 | -6,154.1 | -75.6 | 6,154.4 | 0.00 | 0.00 | 0.00 |
| 18,900.0 | 89.62 | 179.59 | 12,603.5 | -6,254.1 | -74.8 | 6,254.4 | 0.00 | 0.00 | 0.00 |
| 19,000.0 | 89.62 | 179.59 | 12,604.1 | -6,354.1 | -74.1 | 6,354.4 | 0.00 | 0.00 | 0.00 |
| 19,100.0 | 89.62 | 179.59 | 12,604.8 | -6,454.1 | -73.4 | 6,454.4 | 0.00 | 0.00 | 0.00 |
| 19,200.0 | 89.62 | 179.59 | 12,605.5 | -6,554.1 | -72.7 | 6,554.4 | 0.00 | 0.00 | 0.00 |
| 19,300.0 | 89.62 | 179.59 | 12,606.1 | -6,654.1 | -72.0 | 6,654.4 | 0.00 | 0.00 | 0.00 |
| 19,400.0 | 89.62 | 179.59 | 12,606.8 | -6,754.1 | -71.2 | 6,754.4 | 0.00 | 0.00 | 0.00 |
| 19,500.0 | 89.62 | 179.59 | 12,607.4 | -6,854.1 | -70.5 | 6,854.3 | 0.00 | 0.00 | 0.00 |
| 19,600.0 | 89.62 | 179.59 | 12,608.1 | -6,954.1 | -69.8 | 6,954.3 | 0.00 | 0.00 | 0.00 |
| 19,700.0 | 89.62 | 179.59 | 12,608.7 | -7,054.1 | -69.1 | 7,054.3 | 0.00 | 0.00 | 0.00 |
| 19,800.0 | 89.62 | 179.59 | 12,609.4 | -7,154.1 | -68.4 | 7,154.3 | 0.00 | 0.00 | 0.00 |
| 19,900.0 | 89.62 | 179.59 | 12,610.1 | -7,254.1 | -67.7 | 7,254.3 | 0.00 | 0.00 | 0.00 |
| 20,000.0 | 89.62 | 179.59 | 12,610.7 | -7,354.1 | -66.9 | 7,354.3 | 0.00 | 0.00 | 0.00 |
| 20,100.0 | 89.62 | 179.59 | 12,611.4 | -7,454.1 | -66.2 | 7,454.3 | 0.00 | 0.00 | 0.00 |
| 20,200.0 | 89.62 | 179.59 | 12,612.0 | -7,554.1 | -65.5 | 7,554.3 | 0.00 | 0.00 | 0.00 |
| 20,300.0 | 89.62 | 179.59 | 12,612.7 | -7,654.1 | -64.8 | 7,654.3 | 0.00 | 0.00 | 0.00 |

| | | | |
|---|---|---|---|
| **Database:** | Hobbs | **Local Co-ordinate Reference:** | Site Salado Draw 9/16 W1AP Fed Com #2H |
| **Company:** | Mewbourne Oil Company | **TVD Reference:** | WELL @ 3359.0usft (Original Well Elev) |
| **Project:** | Lea County, New Mexico NAD 83 | **MD Reference:** | WELL @ 3359.0usft (Original Well Elev) |
| **Site:** | Salado Draw 9/16 W1AP Fed Com #2H | **North Reference:** | Grid |
| **Well:** | Sec 9, T26S, R33E | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | BHL: 100' FSL & 330' FEL, Sec 16 | | |
| **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) |
|---|---|---|---|---|---|---|---|---|---|
| 20,400.0 | 89.62 | 179.59 | 12,613.4 | -7,754.0 | -64.1 | 7,754.3 | 0.00 | 0.00 | 0.00 |
| 20,500.0 | 89.62 | 179.59 | 12,614.0 | -7,854.0 | -63.4 | 7,854.3 | 0.00 | 0.00 | 0.00 |
| 20,600.0 | 89.62 | 179.59 | 12,614.7 | -7,954.0 | -62.6 | 7,954.2 | 0.00 | 0.00 | 0.00 |
| 20,700.0 | 89.62 | 179.59 | 12,615.3 | -8,054.0 | -61.9 | 8,054.2 | 0.00 | 0.00 | 0.00 |
| 20,800.0 | 89.62 | 179.59 | 12,616.0 | -8,154.0 | -61.2 | 8,154.2 | 0.00 | 0.00 | 0.00 |
| 20,900.0 | 89.62 | 179.59 | 12,616.6 | -8,254.0 | -60.5 | 8,254.2 | 0.00 | 0.00 | 0.00 |
| 21,000.0 | 89.62 | 179.59 | 12,617.3 | -8,354.0 | -59.8 | 8,354.2 | 0.00 | 0.00 | 0.00 |
| 21,100.0 | 89.62 | 179.59 | 12,618.0 | -8,454.0 | -59.0 | 8,454.2 | 0.00 | 0.00 | 0.00 |
| 21,200.0 | 89.62 | 179.59 | 12,618.6 | -8,554.0 | -58.3 | 8,554.2 | 0.00 | 0.00 | 0.00 |
| 21,300.0 | 89.62 | 179.59 | 12,619.3 | -8,654.0 | -57.6 | 8,654.2 | 0.00 | 0.00 | 0.00 |
| 21,400.0 | 89.62 | 179.59 | 12,619.9 | -8,754.0 | -56.9 | 8,754.2 | 0.00 | 0.00 | 0.00 |
| 21,500.0 | 89.62 | 179.59 | 12,620.6 | -8,854.0 | -56.2 | 8,854.2 | 0.00 | 0.00 | 0.00 |
| 21,600.0 | 89.62 | 179.59 | 12,621.2 | -8,954.0 | -55.5 | 8,954.2 | 0.00 | 0.00 | 0.00 |
| 21,700.0 | 89.62 | 179.59 | 12,621.9 | -9,054.0 | -54.7 | 9,054.1 | 0.00 | 0.00 | 0.00 |
| 21,800.0 | 89.62 | 179.59 | 12,622.6 | -9,154.0 | -54.0 | 9,154.1 | 0.00 | 0.00 | 0.00 |
| 21,900.0 | 89.62 | 179.59 | 12,623.2 | -9,254.0 | -53.3 | 9,254.1 | 0.00 | 0.00 | 0.00 |
| 22,000.0 | 89.62 | 179.59 | 12,623.9 | -9,354.0 | -52.6 | 9,354.1 | 0.00 | 0.00 | 0.00 |
| 22,100.0 | 89.62 | 179.59 | 12,624.5 | -9,454.0 | -51.9 | 9,454.1 | 0.00 | 0.00 | 0.00 |
| 22,200.0 | 89.62 | 179.59 | 12,625.2 | -9,554.0 | -51.2 | 9,554.1 | 0.00 | 0.00 | 0.00 |
| 22,300.0 | 89.62 | 179.59 | 12,625.8 | -9,654.0 | -50.4 | 9,654.1 | 0.00 | 0.00 | 0.00 |
| 22,400.0 | 89.62 | 179.59 | 12,626.5 | -9,754.0 | -49.7 | 9,754.1 | 0.00 | 0.00 | 0.00 |
| 22,500.0 | 89.62 | 179.59 | 12,627.2 | -9,853.9 | -49.0 | 9,854.1 | 0.00 | 0.00 | 0.00 |
| 22,600.0 | 89.62 | 179.59 | 12,627.8 | -9,953.9 | -48.3 | 9,954.1 | 0.00 | 0.00 | 0.00 |
| 22,700.0 | 89.62 | 179.59 | 12,628.5 | -10,053.9 | -47.6 | 10,054.1 | 0.00 | 0.00 | 0.00 |
| 22,779.1 | 89.62 | 179.59 | 12,629.0 | -10,133.0 | -47.0 | 10,133.1 | 0.00 | 0.00 | 0.00 |
| **BHL: 100' FSL & 330' FEL, Sec 16** | | | | | | | | | |

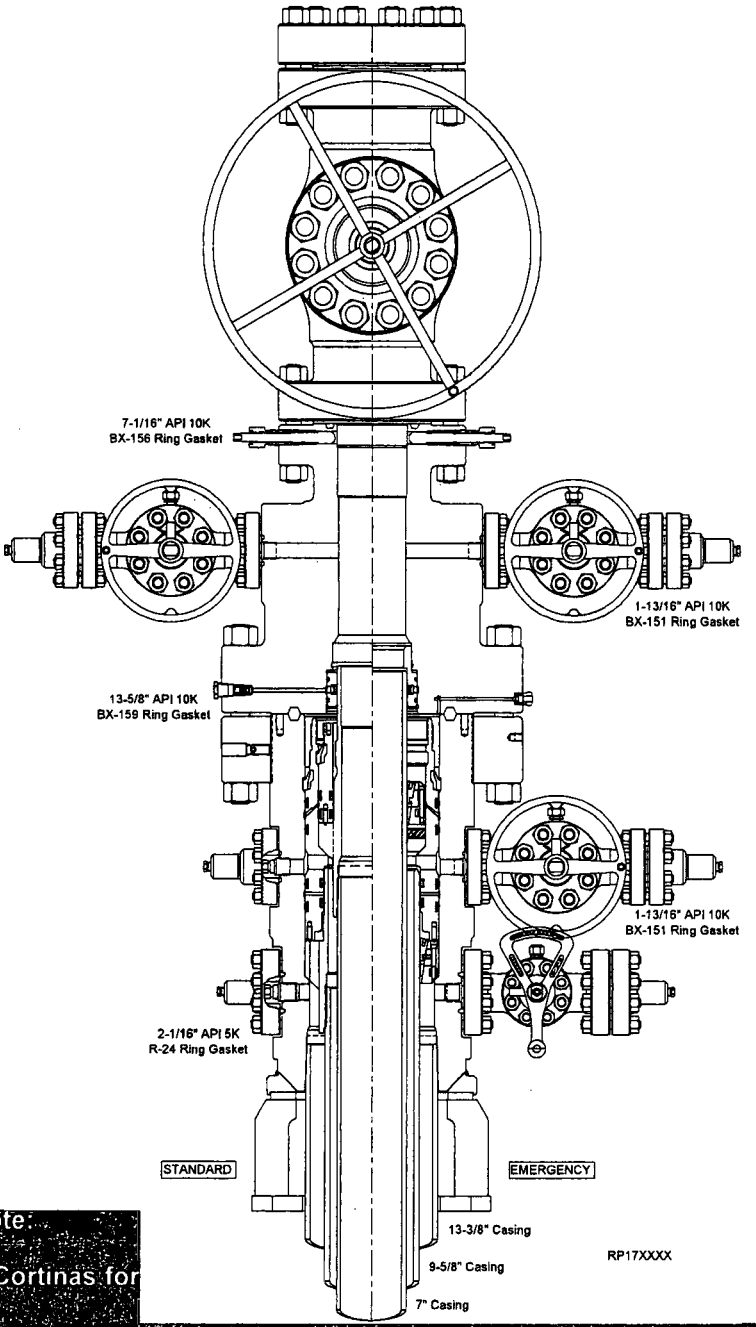
**Design Targets**

| 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: 330' FNL & 210' FEL<br>- plan hits target center<br>- Point | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 387,987.00 | 777,986.00 | 32.0643537 | -103.5693976 |
| KOP: 10' FNL & 330' FE<br>- plan hits target center<br>- Point | 0.00 | 0.00 | 11,991.0 | 319.0 | -122.0 | 388,306.00 | 777,864.00 | 32.0652329 | -103.5697841 |
| FTP: 100' FNL & 330' FE<br>- plan hits target center<br>- Point | 0.00 | 0.00 | 12,297.7 | 230.0 | -121.4 | 388,217.00 | 777,864.64 | 32.0649882 | -103.5697841 |
| LP: 580' FNL & 330' FEL<br>- plan hits target center<br>- Point | 0.00 | 0.00 | 12,564.0 | -250.2 | -117.9 | 387,736.80 | 777,868.10 | 32.0636682 | -103.5697838 |
| PPP2: 2641' FSL & 330'<br>- plan hits target center<br>- Point | 0.00 | 0.00 | 12,577.5 | -2,310.0 | -103.1 | 385,677.00 | 777,882.86 | 32.0580061 | -103.5697832 |
| BHL: 100' FSL & 330' FE<br>- plan hits target center<br>- Point | 0.00 | 0.00 | 12,629.0 | -10,133.0 | -47.0 | 377,854.00 | 777,939.00 | 32.0365016 | -103.5697806 |

| | | | |
|---|---|---|---|
| **Database:** | Hobbs | **Local Co-ordinate Reference:** | Site Salado Draw 9/16 W1AP Fed Com #2H |
| **Company:** | Mewbourne Oil Company | **TVD Reference:** | WELL @ 3359.0usft (Original Well Elev) |
| **Project:** | Lea County, New Mexico NAD 83 | **MD Reference:** | WELL @ 3359.0usft (Original Well Elev) |
| **Site:** | Salado Draw 9/16 W1AP Fed Com #2H | **North Reference:** | Grid |
| **Well:** | Sec 9, T26S, R33E | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | BHL: 100' FSL & 330' FEL, Sec 16 | | |
| **Design:** | Design #1 | | |

# RUNNING PROCEDURE

# Mewbourne Oil Co




Publication Status Note:

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

Surface Systems Publication

| | | |
|---|---|---|
| CAMERON<br>A Schlumberger Company | 13-5/8" 10K MN-DS System<br>13-3/8" x 9-5/8" x 7" Casing Program | RP-003815<br>Rev 01 Draft A |

# 5,000 PSI Annular BOP Variance Request

Mewbourne Oil Company request a variance to use a 5000 psi annular BOP with a 10,000 psi BOP stack. The component and compatibility tables along with the general well control plans demonstrate how the 5000 psi annular BOP will be protected from pressures that exceed its rated working pressure (RWP). The pressure at which the control of the wellbore is transferred from the annular preventer to another available preventer will not exceed 3500 psi (70% of the RWP of the 5000 psi annular BOP).

## 1. Component and Preventer Compatibility Tables

The tables below outline the tubulars and the compatible preventers in use. This table, combined with the drilling fluid, documents that two barriers to flow will be maintained at all times.

| 12-1/4" Intermediate Hole Section<br>10M psi Requirement | | | | | |
|---|---|---|---|---|---|
| **Component** | **OD** | **Primary Preventer** | **RWP** | **Alternate Preventer(s)** | **RWP** |
| Drillpipe | 5.000" or<br>4.500" | Annular | 5M | Upper 3.5"-5.5" VBR<br>Lower 3.5"-5.5" VBR | 10M<br>10M |
| HWDP | 5.000" or<br>4.500" | Annular | 5M | Upper 3.5"-5.5" VBR<br>Lower 3.5"-5.5" VBR | 10M<br>10M |
| Jars | 6.500" | Annular | 5M | - | - |
| DCs and MWD tools | 6.500"-<br>8.000" | Annular | 5M | - | - |
| Mud Motor | 8.000"-<br>9.625" | Annular | 5M | - | - |
| Intermediate Casing | 10.75" | Annular | 5M | - | - |
| Open-Hole | - | Blind Rams | 10M | - | - |

| 9-7/8" Production Hole Section<br>10M psi Requirement | | | | | |
|---|---|---|---|---|---|
| **Component** | **OD** | **Primary Preventer** | **RWP** | **Alternate Preventer(s)** | **RWP** |
| Drillpipe | 5.000" or<br>4.500" | Annular | 5M | Upper 3.5"-5.5" VBR<br>Lower 3.5"-5.5" VBR | 10M<br>10M |
| HWDP | 5.000" or<br>4.500" | Annular | 5M | Upper 3.5"-5.5" VBR<br>Lower 3.5"-5.5" VBR | 10M<br>10M |
| Jars | 6.500" | Annular | 5M | - | - |
| DCs and MWD tools | 6.500"-<br>8.000" | Annular | 5M | - | - |
| Mud Motor | 6.750"-<br>8.000" | Annular | 5M | - | - |
| Production Casing | 7.625" | Annular | 5M | - | - |

| | | | | | |
|---|---|---|---|---|---|
| Open-Hole | - | Blind Rams | 10M | - | - |

| 6-1/8" Lateral Hole Section<br>10M psi Requirement | | | | | |
|---|---|---|---|---|---|
| **Component** | **OD** | **Primary Preventer** | **RWP** | **Alternate Preventer(s)** | **RWP** |
| Drillpipe | 4.500" | Annular | 5M | Upper 3.5"-5.5" VBR<br>Lower 3.5"-5.5" VBR | 10M<br>10M |
| HWDP | 4.500" | Annular | 5M | Upper 3.5"-5.5" VBR<br>Lower 3.5"-5.5" VBR | 10M<br>10M |
| DCs and MWD tools | 4.750"-<br>5.500" | Annular | 5M | Upper 3.5"-5.5" VBR<br>Lower 3.5"-5.5" VBR | 10M<br>10M |
| Mud Motor | 4.750"-<br>5.500" | Annular | 5M | Upper 3.5"-5.5" VBR<br>Lower 3.5"-5.5" VBR | 10M<br>10M |
| Production Casing | 5.500" | Annular | 5M | Upper 3.5"-5.5" VBR<br>Upper 3.5"-5.5" VBR | 10M<br>10M |
| Open-Hole | - | Blind Rams | 10M | - | - |

VBR = Variable Bore Ram

## 2. Well Control Procedures

Below are the minimal high-level tasks prescribed to assure a proper shut-in while drilling, tripping, running casing, pipe out of the hole (open hole), and moving the BHA through the BOPs. At least one well control drill will be performed weekly per crew to demonstrate compliance with the procedure and well control plan. The well control drill will be recorded in the daily drilling log. The type of drill will be determined by the ongoing operations, but reasonable attempts will be made to vary the type of drill conducted (pit, trip, open hole, choke, etc.). This well control plan will be available for review by rig personnel in the Mewbourne Oil Company drilling supervisor's office on location and on the rig floor. All BOP equipment will be tested as per Onshore O&G Order No. 2 with the exception of the 5000 psi annular which will be tested to 70% of its RWP.

General Procedure While Drilling

1. Sound alarm (alert crew)
2. Space out drill string
3. Shut down pumps (stop pumps and rotary)
4. Shut-in well (uppermost applicable BOP, typically annular preventer, first. HCR & choke will already be in the closed position.)

5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
    a. SIDPP & SICP
    b. Pit gain
    c. Time
8. Regroup and identify forward plan
9. If pressure has built or is anticipated during the kill to reach 70% or greater of the RWP of the annular preventer, confirm spacing and close the upper variable bore rams.

General Procedure While Tripping

1. Sound alarm (alert crew)
2. Stab full-opening safety valve & close
3. Space out drill string
4. Shut-in well (uppermost applicable BOP, typically annular preventer, first. HCR & choke will already be in the closed position.)
5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
    a. SIDPP & SICP
    b. Pit gain
    c. Time
8. Regroup and identify forward plan
9. If pressure has built or is anticipated during the kill to reach 70% of the RWP of the annular preventer, confirm spacing and close the upper variable bore rams.

General Procedure While Running Production Casing

1. Sound alarm (alert crew)

2. Stab crossover and full-opening safety valve and close
3. Space out string
4. Shut-in well (uppermost applicable BOP, typically annular preventer, first. HCR & choke will already be in the closed position.)
5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
    a. SIDPP & SICP
    b. Pit gain
    c. Time
8. Regroup and identify forward plan
9. If pressure has built or is anticipated during the kill to reach 70% or greater of the RWP of the annular preventer, confirm spacing and close the upper variable bore rams.

General Procedure With No Pipe In Hole (Open Hole)

1. Sound alarm (alert crew)
2. Shut-in with blind rams (HCR & choke will already be in the closed position)
3. Confirm shut-in
4. Notify toolpusher/company representative
5. Read and record the following:
    a. SICP
    b. Pit gain
    c. Time
6. Regroup and identify forward plan

General Procedures While Pulling BHA Through Stack

1. PRIOR to pulling last joint of drillpipe through stack:
    a. Perform flow check. If flowing, continue to (b).
    b. Sound alarm (alert crew)
    c. Stab full-opening safety valve and close
    d. Space out drill string with tool joint just beneath the upper variable bore rams
    e. Shut-in using upper variable bore rams (HCR & choke will already be in the closed position)
    f. Confirm shut-in
    g. Notify toolpusher/company representative
    h. Read and record the following:
        i. SIDPP & SICP
        ii. Pit gain
        iii. Time
    i. Regroup and identify forward plan
2. With BHA in the stack and compatible ram preventer and pipe combination immediately available:
    a. Sound alarm (alert crew)
    b. Stab crossover and full-opening safety valve and close
    c. Space out drill string with upset just beneath the upper variable bore rams
    d. Shut-in using upper variable bore rams (HCR & choke will already be in the closed position)
    e. Confirm shut-in
    f. Notify toolpusher/company representative
    g. Read and record the following:
        i. SIDPP & SICP
        ii. Pit gain

iii. Time

h. Regroup and identify forward plan

3. With BHA in the stack and NO compatible ram preventer and pipe combination immediately available:

   a. Sound alarm (alert crew)

   b. If possible, pull string clear of the stack and follow "Open Hole" procedure.

   c. If impossible to pull string clear of the stack:

   d. Stab crossover, make up one joint/stand of drillpipe and full-opening safety valve and close

   e. Space out drill string with tooljoint just beneath the upper variable bore ram

   f. Shut-in using upper variable bore ram (HCR & choke will already be in the closed position)

   g. Confirm shut-in

   h. Notify toolpusher/company representative

   i. Read and record the following:

      i. SIDPP & SICP

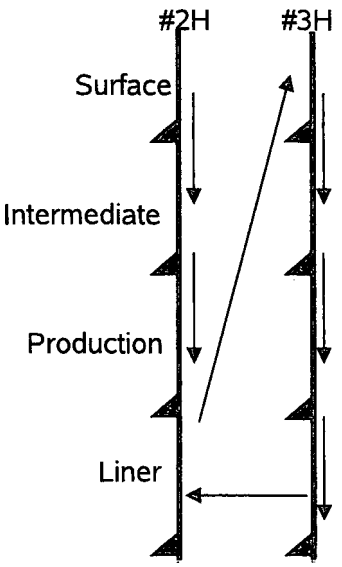
      ii. Pit gain

      iii. Time

   j. Regroup and identify forward plan

**Mewbourne Oil Company, Salado Draw 9/16 W1AP Fed Com #2H**
**Sec 9, T26S, R32E**
**SL: 330' FNL & 210' FEL, Sec 9**
**BHL: 100' FSL & 330' FEL, Sec 16**

Mewbourne Oil Co. requests approval to batch drill the Salado Draw 9/16 W1AP Fed Com #2H and Salado Draw 9/16 W0AP Fed Com #3H in the sequence depicted below.




- Surface, Production & Intermediate Hole:

1. Drill 17-1/2" surface hole with fresh water to planned casing set depth.
2. Run casing as stated by approved APD, land out wellhead, and cement.
3. N/U and test 13-5/8" BOPE to 250 psi / 5,000 psi.
4. Test casing to required pressure. Drill out shoe and 10' of new formation. Perform FIT.
5. Drill 12-1/4" hole to planned casing set depth.
6. Run casing as stated by approved APD, land out hanger and cement.
7. Test casing to required pressure. Drill out shoe and 10' of new formation. Perform FIT.
8. Drill ~~8-3/4~~ 9 7/8" vertical section and curve as stated by approved APD.
9. Run casing as stated by approved APD, land out hanger and cement.
10. Secure with wellhead cover, walk rig to Salado Draw 9/16 W0AP Fed Com #3H and repeat Steps 1-9.

- Lateral:

1. Test casing to required pressure. Drill out shoe and 10' of new formation. Perform FIT.
2. Drill 6-1/8" lateral as stated by approved APD.
3. Run liner as stated by approved APD, cement, set liner hanger and secure with wellhead cover.
4. Walk rig to Salado Draw 9/16 W1AP Fed Com #2H.
5. N/U and test 13-5/8" BOPE to 250 psi / 5000 psi.
6. Repeat Steps 1-3.

# PECOS DISTRICT
# DRILLING CONDITIONS OF APPROVAL

| | |
|---|---|
| **OPERATOR'S NAME:** | **Mewbourne Oil Company** |
| **LEASE NO.:** | **NMNM0000127A** |
| **WELL NAME & NO.:** | **2H-Salado Draw 9/16 W1AP Fed Com** |
| **SURFACE HOLE FOOTAGE:** | **330'/N & 210'/E** |
| **BOTTOM HOLE FOOTAGE** | **100'/S & 330/E; Sec. 16** |
| **LOCATION:** | **Section 9, T.26 S., R.33 E., NMPM** |
| **COUNTY:** | **Lea County, New Mexico** |

COA

**All COA 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 **Delaware** 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~~ 16 inch surface casing shall be set at approximately **1010** 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 **10 3/4** inch **1st** intermediate is:
   - Cement to surface. If cement does not circulate see B.1.a, c-d above. **Additional cement maybe required. Excess calculates to 24%.**

   ❖ In Medium/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.

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3. The minimum required fill of cement behind the **7-5/8** inch **2nd** intermediate 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 **5-1/2** inch production casing is:
   - Cement should tie-back 200' 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 **3000 (3M)** psi.

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8** intermediate casing shoe shall be **5000 (5M)** psi.

4. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **7** intermediate casing shoe shall be **10,000 (10M)** psi.

**Variance approved to use a 5M annular. The annular must be tested to full working pressure (5000 psi.).**

**SPECIAL REQUIREMENTS**

**Communitization Agreement**

- The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

# GENERAL REQUIREMENTS

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

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

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

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
   a. **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 101818**

263309 SUNDRY 437870 Salado Draw 9 W1AP Fed 2H 30015 NM-0127A Mewbourne v12.0
ZS 10.16.2018

| 16 | surface csg in a | 20 | inch hole. | | Design Factors | | SURFACE | |
|---|---|---|---|---|---|---|---|---|
| Segment | #/ft | Grade | Coupling | Body | Collapse | Burst | Length | Weight |
| "A" | 65.00 | H 40 | BUTT | 11.22 | 1.36 | 0.64 | 1,010 | 65,650 |
| "B" | | | | | | | 0 | 0 |
| w/8.4#/g mud, 30min Sfc Csg Test psig: 707 | | | Tail Cmt | does not | circ to sfc. | Totals: | 1,010 | 65,650 |

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 |
|---|---|---|---|---|---|---|---|---|---|
| 20 | 0.7854 | 825 | 1593 | 988 | 61 | 8.80 | 1476 | 2M | 1.50 |

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

| 10 3/4 | casing inside the | 16 | | | Design Factors | | INTERMEDIATE | |
|---|---|---|---|---|---|---|---|---|
| Segment | #/ft | Grade | Coupling | Body | Collapse | Burst | Length | Weight |
| "A" | 45.50 | HCL 80 | BUTT | 4.64 | 1.22 | 0.84 | 4,930 | 224,315 |
| "B" | | | | | | | 0 | 0 |
| w/8.4#/g mud, 30min Sfc Csg Test psig: | | | | | | Totals: | 4,930 | 224,315 |
| The cement volume(s) are intended to achieve a top of | | | | 0 | ft from surface or a | | 1010 | 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 |
|---|---|---|---|---|---|---|---|---|---|
| 13 1/2 | 0.3637 | 1300 | 2600 | 2094 | 24 | 10.00 | 3561 | 5M | 0.88 |

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 1.06, b, c, d All

| 7 5/8 | casing inside the | 10 3/4 | | | Design Factors | | INTERMEDIATE | |
|---|---|---|---|---|---|---|---|---|
| Segment | #/ft | Grade | Coupling | Joint | Collapse | Burst | Length | Weight |
| "A" | 29.70 | HCP 110 | LT&C | 2.18 | 1.16 | 1.11 | 11,900 | 353,430 |
| "B" | | | | | | | 0 | 0 |
| w/8.4#/g mud, 30min Sfc Csg Test psig: 1,440 | | | | | | Totals: | 11,900 | 353,430 |
| The cement volume(s) are intended to achieve a top of | | | | 4730 | ft from surface or a | | 200 | 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 |
|---|---|---|---|---|---|---|---|---|---|
| 9 7/8 | 0.2148 | look ↘ | 0 | 1553 | | 10.00 | 5750 | 10M | 0.69 |
| Setting Depths for D V Tool(s): | | 6227 | | | | | sum of sx | Σ CuFt | Σ%excess |
| % excess cmt by stage: | | 25 | 27 | | | | 1130 | 1942 | 25 |

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

Tail cmt

| 5 1/2 | casing inside the | 7 5/8 | | | Design Factors | | PRODUCTION | |
|---|---|---|---|---|---|---|---|---|
| Segment | #/ft | Grade | Coupling | Joint | Collapse | Burst | Length | Weight |
| "A" | 23.00 | P 110 | #N/A | 2.47 | 2.74 | 2.31 | 12,000 | 276,000 |
| "B" | 23.00 | P 110 | #N/A | 7.61 | 2.36 | 2.31 | 10,779 | 247,917 |
| w/8.4#/g mud, 30min Sfc Csg Test psig: 2,640 | | | | | | Totals: | 22,779 | 523,917 |
| B Segment Design Factors would be: | | | | 49.56 | 2.6 | if it were a vertical wellbore. | | |

| No Pilot Hole Planned | MTD | Max VTD | Csg VD | Curve KOP | Dogleg° | Severity° | MEOC |
|---|---|---|---|---|---|---|---|
| | 22779 | 12629 | 12629 | 12000 | 90 | 10 | 12896 |

The cement volume(s) are intended to achieve a top of 11700 ft from surface or a 200 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 1/2 | 0.0654 | 425 | 1262 | 735 | 72 | 13.00 | | | 0.50 |

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