NM OIL CONSERVATION
ARTESIA DISTRICT
NOV 10 2014

OCD Artesia

TES
11-19-2014

Form 3160-3
(March 2012)

RECEIVED

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

# APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

5. Lease Serial No. 0144698
GL + BHL NMNM~~13237~~

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

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

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone

8. Lease Name and Well No. <313892>
S:9 5/6 BZKL FED #1H

2. Name of Operator Mewbourne Oil Company <14744>

9. API Well No. 30-015-42804

3a. Address PO Box 5270
Hobbs, NM 88241

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

10. Field and Pool, or Exploratory
Winchester Bone Spring (65010)

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface 2020' FSL & 2370' FEL, Sec. 5 T20S R29E
At proposed prod. zone 1850' FSL & 330' FWL, Sec. 6 T20S R29E

11. Sec., T. R. M. or Blk. and Survey or Area
Sec. 5 T20S R29E

14. Distance in miles and direction from nearest town or post office*
15 miles NE of Carlsbad, NM

12. County or Parish
Eddy

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)
278'

16. No. of acres in lease
NM 144698
~~NMNM13237 919.88~~
1743.54

17. Spacing Unit dedicated to this well
229.91

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
40' MOC's Colt 6 Fed. #1

19. Proposed Depth
15,236' - MD
7761' - TVD

20. BLM/BIA Bond No. on file
NM-1693 nationwide, NMB-000919

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3291' - GL

22. Approximate date work will start*
3-31-14

23. Estimated duration
60 days

## 24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, must be attached to this form:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the BLM.

25. Signature Bradley Bishop
Name *(Printed/Typed)* Bradley Bishop
Date 2-27-14

Title

Approved by *(Signature)* Steve Caffey
Name *(Printed/Typed)*
Date NOV - 5 2014

Title FIELD MANAGER
Office CARLSBAD FIELD OFFICE

Application approval 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.
Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

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.

(Continued on page 2)

*(Instructions on page 2)

Capitan Controlled Water Basin

Must be in compliance with NMOCD Rule 5.9 prior to transporting/selling product.

NM OIL CONSERVATION
ARTESIA DISTRICT
NOV 10 2014

RECEIVED

Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

# Mewbourne Oil Company

PO Box 5270
Hobbs, NM 88241
(575) 393-5905

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of State and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

Executed this 30 day of JULY, 2014.

Name: NM Young

Signature: for NM Young

Position Title: Hobbs District Manager

Address: PO Box 5270, Hobbs NM 88241

Telephone: 575-393-5905

E-mail: myoung@mewbourne.com

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

5-10

# WELL LOCATION AND ACREAGE DEDICATION PLAT

| 1 API Number | 2 Pool Code | 3 Pool Name |
|---|---|---|
| 30-015-42804 | 65010 | WINCHESTER BONE SPRING |

| 4 Property Code | 5 Property Name | 6 Well Number |
|---|---|---|
| ~~313982~~ 313892 | Sig 5/6 BZKL FEDERAL | 1H |

| 7 OGRID No. | 8 Operator Name | 9 Elevation |
|---|---|---|
| 14744 | MEWBOURNE OIL COMPANY | 3291' |

## 10 Surface Location

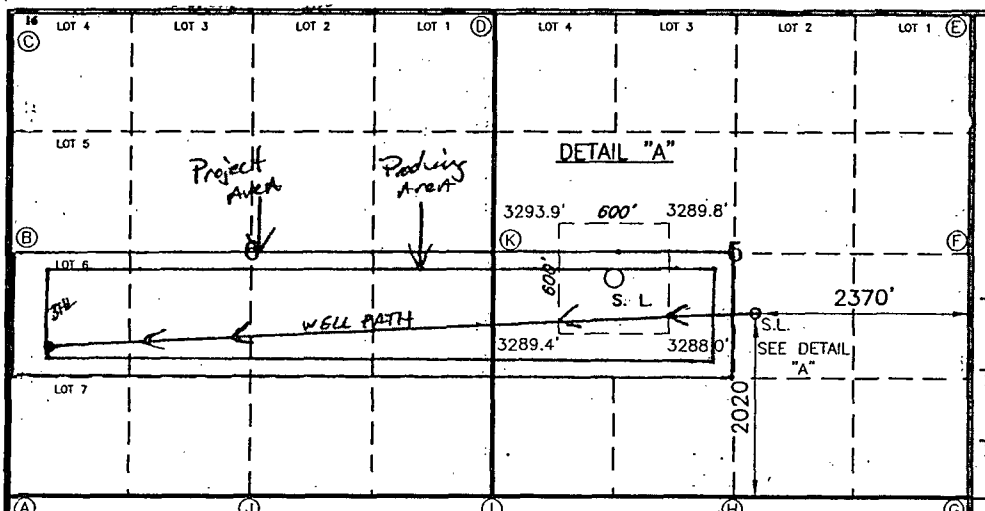
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| J | 5 | 20-S | 29-E | | 2020 | SOUTH | 2370 | EAST | EDDY |

## 11 Bottom Hole Location If Different From Surface

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| L | 6 | 20-S | 29-E | | 1850 | SOUTH | 330 | WEST | EDDY |

| 12 Dedicated Acres | 13 Joint or Infill | 14 Consolidation Code | 15 Order No. |
|---|---|---|---|
| 229.91 | | | |

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.




CORNER DATA
NAD 27 GRID – NM EAST
A: FND BRASS CAP 1916
N 580303.8 – E 565282.9
B: BRASS CAP 1942
N 582962.1 – E: 565287.4
C: FND BRASS CAP 1916
N 585705.4 – E 565272.7
D: FND BRASS CAP
N 585695.8 – E 570220.6
E: FND BRASS CAP 1916
N 585687.9 – E 575516.6
F: FND BRASS CAP 1916
N 582949.4 – E 575521.3
G: FND BRASS CAP 1916
N 580303.2 – E 575525.8

GEODETIC DATA
NAD 27 GRID – NM EAST
SURFACE LOCATION
N 582326.3
E 573152.9
LAT: 32.60069552° N
LONG: 104.09579077° W

CORNER DATA
NAD 27 GRID – NM EAST
H: FND BRASS CAP 1916
N 580307.3 – E 572878.0
I: FND BRASS CAP 1916
N 580310.8 – E 570233.0
J: FND 1/2"" RB IN PIPE
N 580306.7 – E 567592.0
K: FND BRASS CAP 1916
N 582952.0 – E 570226.6

## 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.*

Bradley Bishop 2-27-14
Signature Date

BRADLEY BISHOP
Printed Name

E-mail Address

## 18 SURVEYOR CERTIFICATION

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

10/8/13
Date of Survey

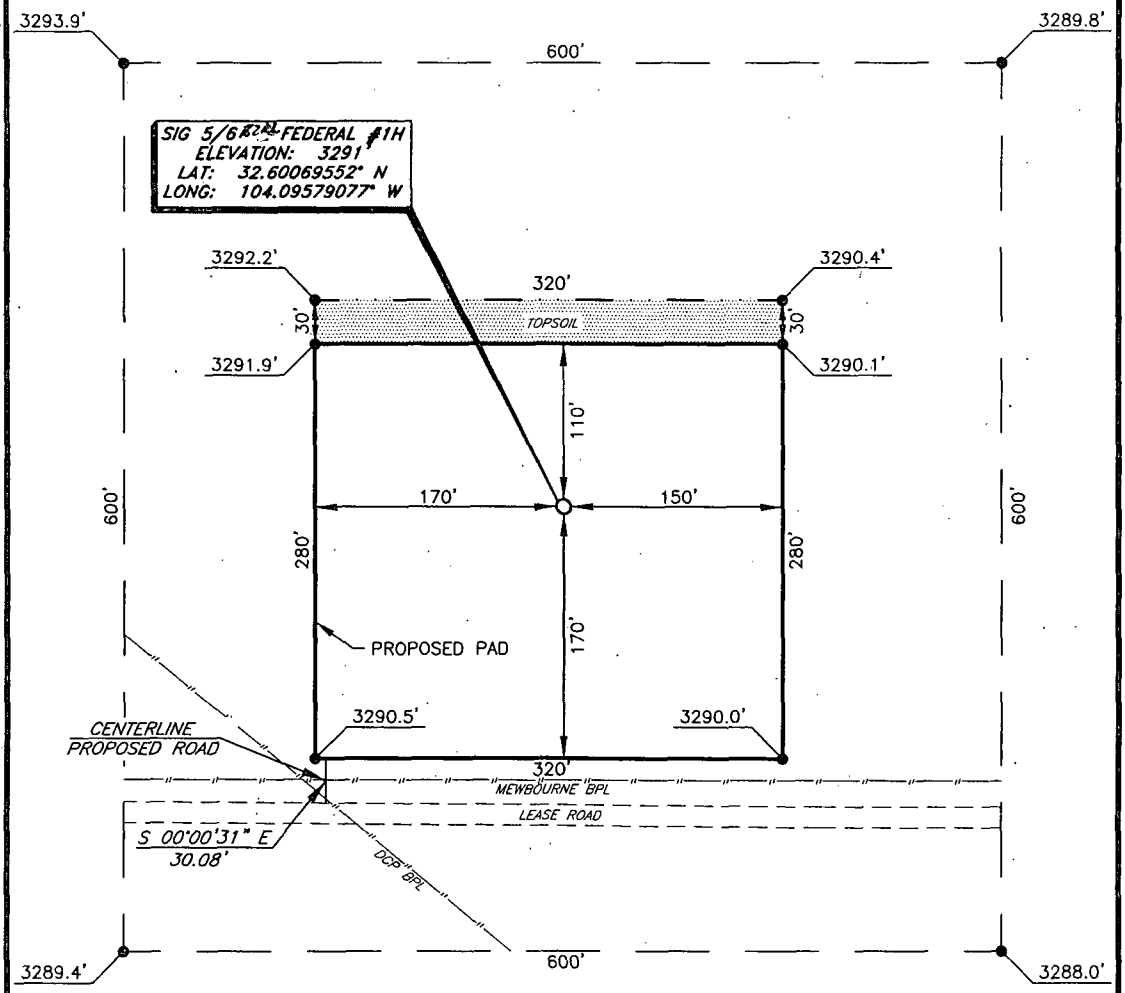
Signature and Seal of Professional Surveyor

ROBERT M. HOWETT
NEW MEXICO
19680
PROFESSIONAL SURVEYOR

19680
Certificate Number

# MEWBOURNE OIL COMPANY

## Sig 5/6 BZKL Federal #1H
## (2020' FSL & 2370' FEL)
## Section 5, T-20-S, R-29-E,
## N. M. P. M., Eddy Co., New Mexico




SCALE: 1" = 100'
0 50 100

BEARINGS ARE NAD 27 GRID - NM EAST
DISTANCES ARE GROUND.

*DIRECTIONS TO LOCATION*

*From the intersection of CR-243 (Magnum) and CR-238 (Burton Flat):*

*Go East on CR-238 approx. 1.9 mile to lease road.*

*Turn left and go North winding West approx. 1.2 mile to a "Y".*

*Take right fork and go Northwest turning Northeast approx. 0.8 mile to a "Y".*

*Take left fork and go North approx. 0.5 mile to a "Y".*

*Take left fork and go West approx. 0.5 mile to a proposed road.*

*Turn right and go North approx. 200 feet to this location.*



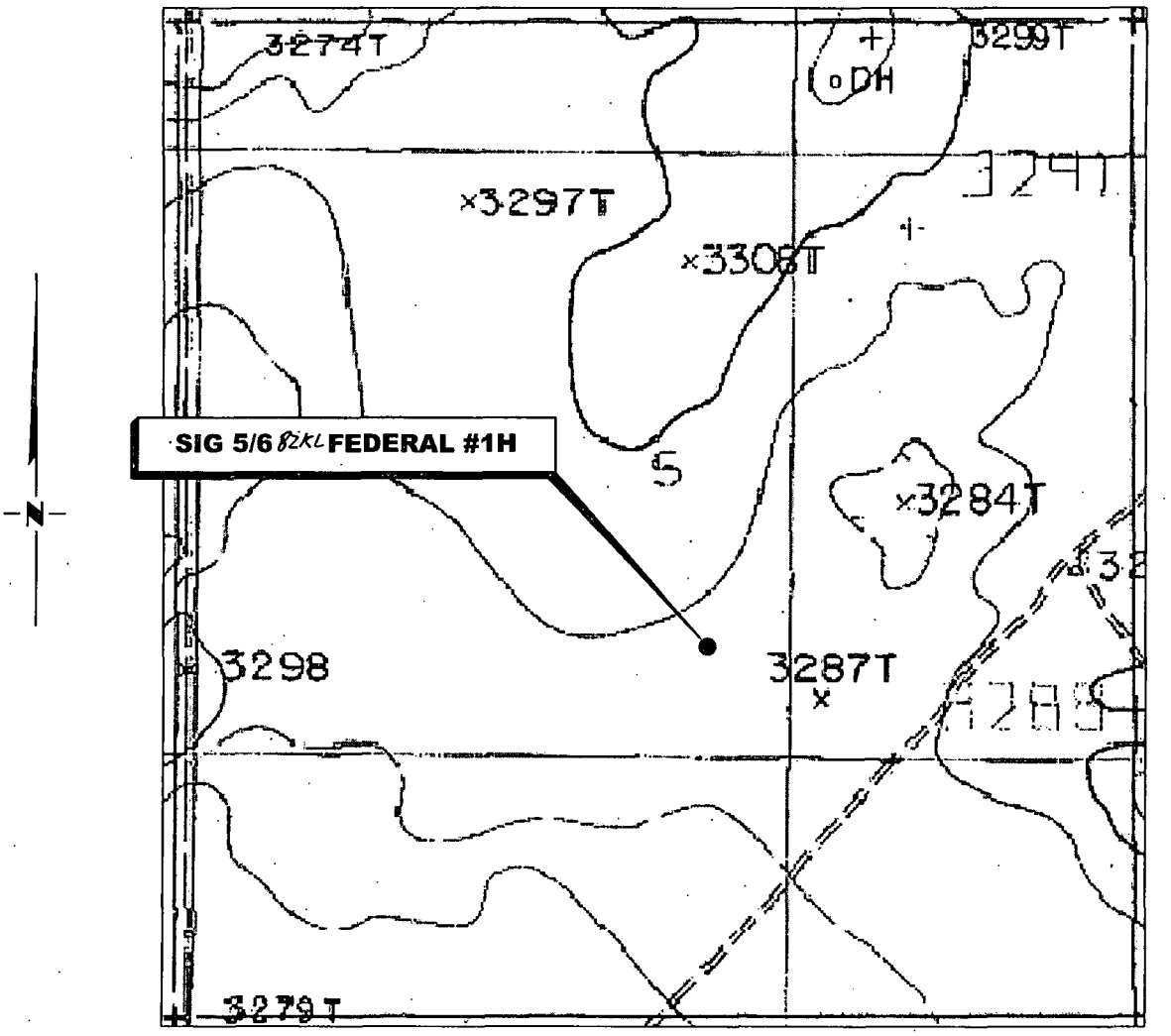
| NO. | REVISION | DATE |
|---|---|---|
| | | |
| | | |
| | | |

JOB NO.: LS130404
DWG. NO.: 130404PAD

PROSPERITY CONSULTANTS, LLC
2251 Double Creek Drive, Suite 602, Round Rock, Texas 78664 o (512) 992-2087 f (512) 251-2518

SCALE: 1" = 100'
DATE: 10/8/13
SURVEYED BY: BK/IE
DRAWN BY: AF
APPROVED BY: LWB
SHEET : 1 OF 1

# LOCATION VERIFICATION MAP




*SECTION 5, TWP. 20 SOUTH, RGE. 29 EAST,*
*N. M. P. M., EDDY COUNTY, NEW MEXICO*

OPERATOR: Mewbourne Oil Company
LEASE: Sig 5/6 BZKL Federal
WELL NO.: 1H
ELEVATION: 3291'

LOCATION: 2020' FSL & 2370' FEL
CONTOUR INTERVAL: 10'
USGS TOPO. SOURCE MAP:
Illinois Camp SE, NM (P.E. 1985)



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

JOB NO.: LS130404
DWG. NO.: 130404LVM

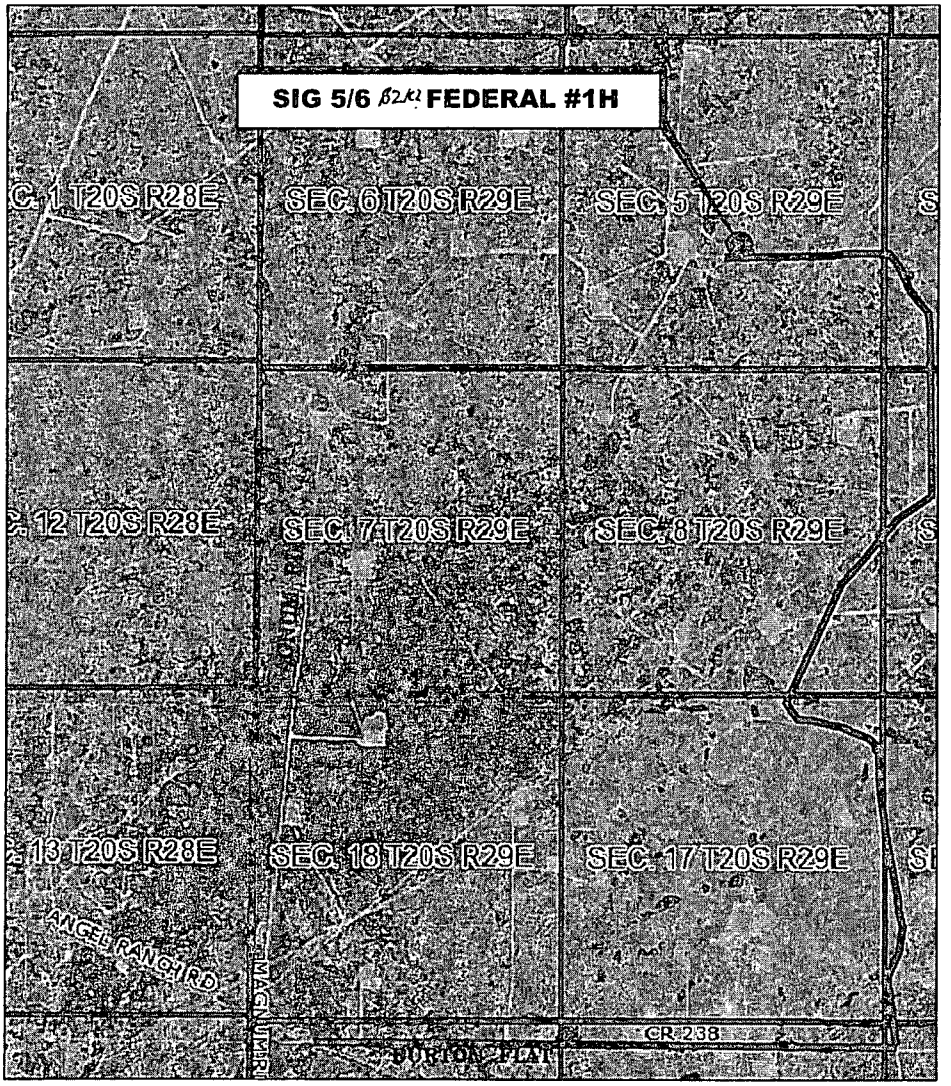
PROSPERITY CONSULTANTS, LLC

2251 Double Creek Drive, Suite 602, Round Rock, Texas 78664 o (512) 992-2087 f (512) 251-2518

SCALE: 1" = 1000'
DATE: 10/8/13
SURVEYED BY: BK/IE
DRAWN BY: AF
APPROVED BY: LWB
SHEET : 1 OF 1

# VICINITY MAP

NOT TO SCALE




## *SECTION 5, TWP. 20 SOUTH, RGE. 29 EAST, N. M. P. M., EDDY COUNTY, NEW MEXICO*

OPERATOR: Mewbourne Oil Company
LEASE: Sig 5/6 B2KL Federal
WELL NO.: 1H

LOCATION: 2020' FSL & 2370' FEL
ELEVATION: 3291'



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

JOB NO.: LS130404
DWG. NO.: 130404VM

PROSPERITY CONSULTANTS, LLC
2251 Double Creek Drive, Suite 602, Round Rock, Texas 78664
o (512) 992-2087 f (512) 251-2518

SCALE: N.T.S.
DATE: 10/8/13
SURVEYED BY: BK/IE
DRAWN BY: AF
APPROVED BY: LWB
SHEET : 1 OF 1

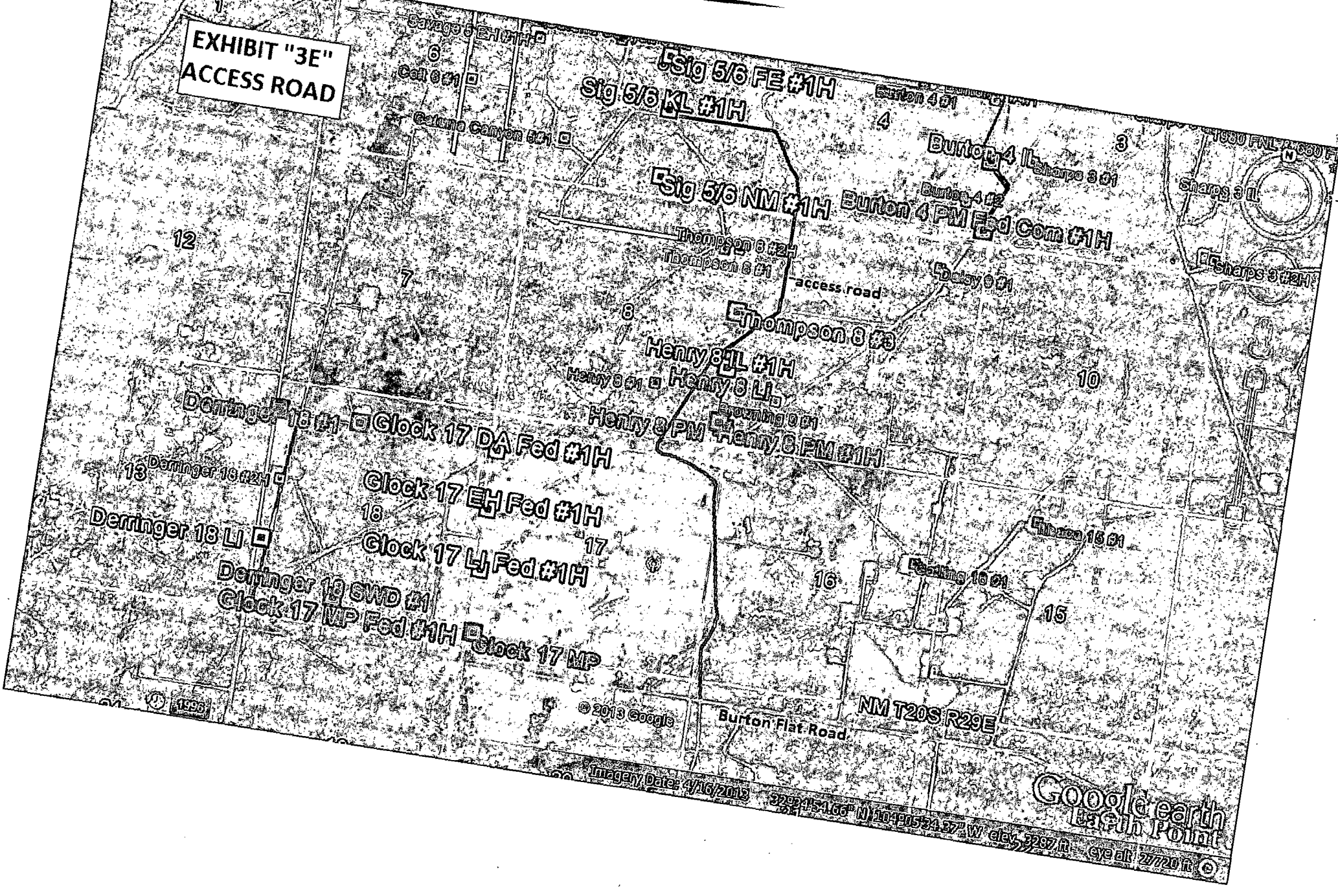


EXHIBIT "3E"
ACCESS ROAD
Sig 5/6 FE #1H
Sig 5/6 KL #1H
Sig 5/6 NM #1H
Burton 4 PM Fed Com #1H
Burton 4 IL
Burton 4 #1
Burton 4 #2
Sharps 3 #1
Sharps 3 IL
Sharps 3 #2H
Thompson 8 #2H
Thompson 8 #1
Delay 9 #1
access road
Thompson 8 #3
Henry 8 IL #1H
Henry 8 #1
Henry 8 LL
Derringer 18 #1
Glock 17 DA Fed #1H
Henry 8 PM
Henry 8 PM #1H
Derringer 18 #2H
Glock 17 EH Fed #1H
Derringer 18 LL
Glock 17 LL Fed #1H
Derringer 18 SWD #1
Glock 17 MP Fed #1H
Glock 17 MP
Sharps 16 #1
Keeling 16 #1
NM T20S R29E
Burton Flat Road
© 2013 Google
Imagery Date: 4/16/2013
Google earth
Earth Point

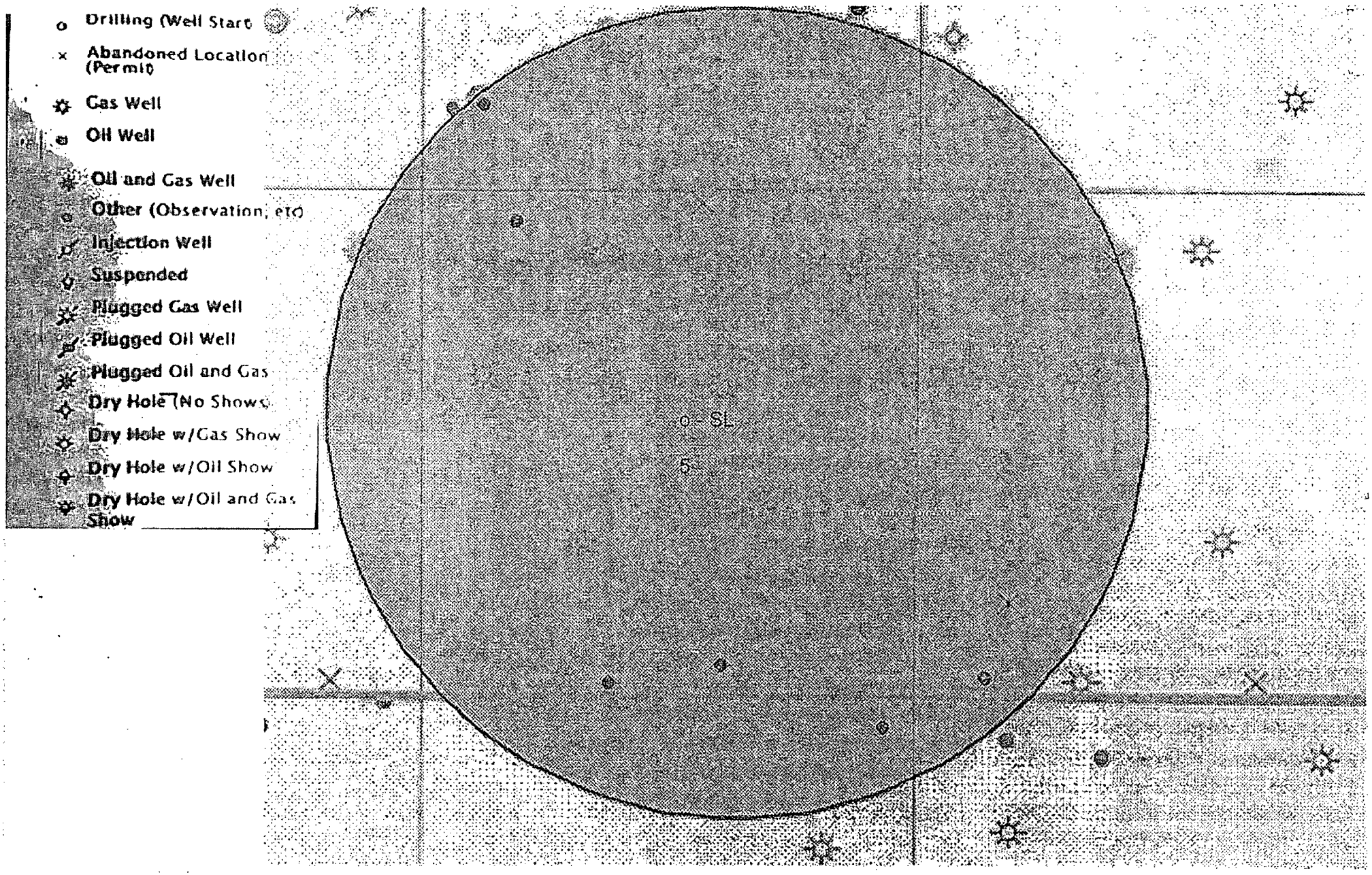



Exhibit "4" - SL - Sig 5/6 KL Federal #1H - 2020' FSL & 2370' FEL, Sec. 5 T20S R29E, Eddy Co. NM

B2

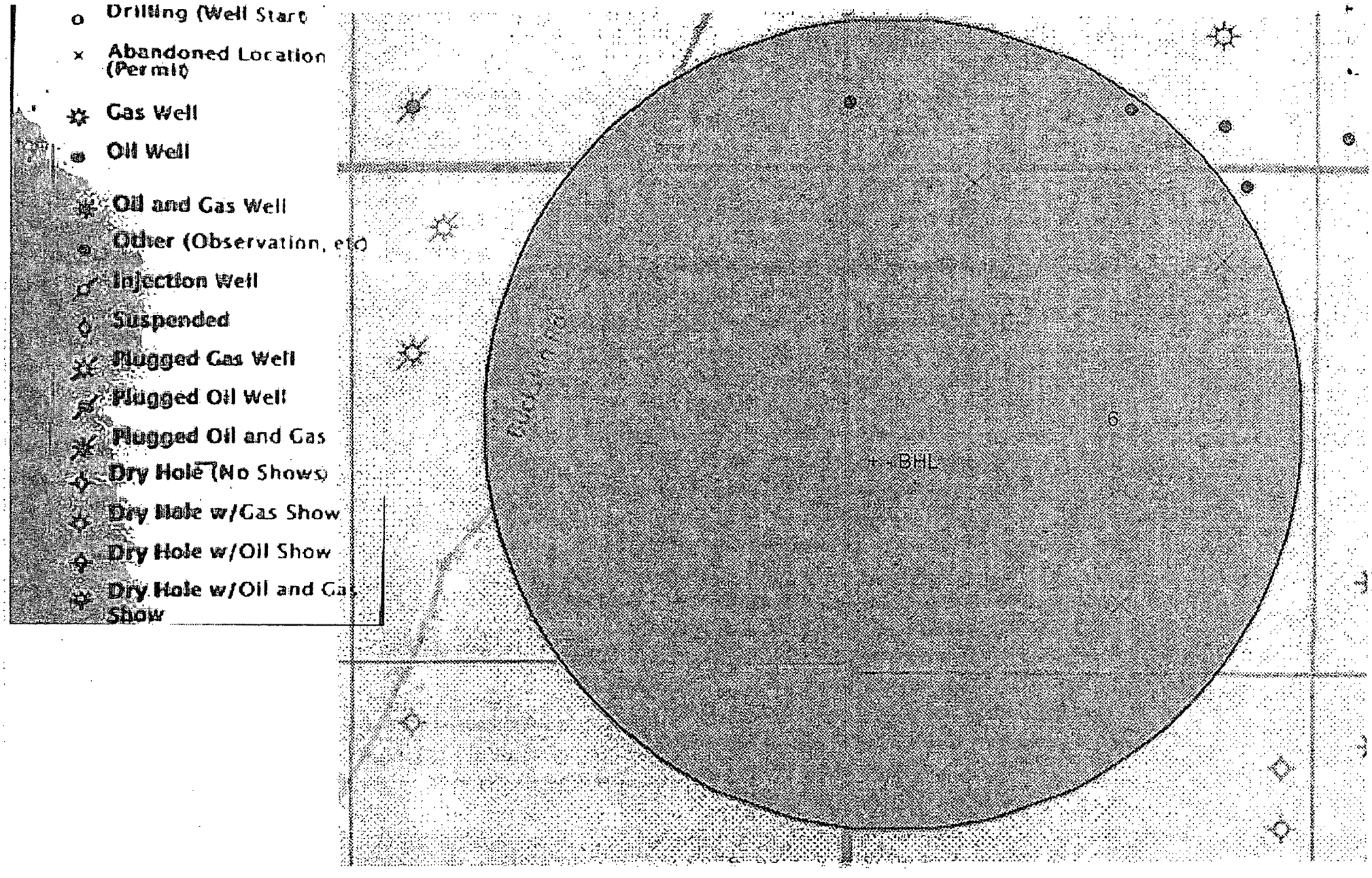



Exhibit "4A" - BHL - Sig 5/6 KL Federal #1H - 1850' FSL & 330' FWL, Sec. 6 T20S R29E, Eddy Co. NM

BZ

# Drilling Program
**Mewbourne Oil Company**
Sig 5/6 B2KL Federal #1H
2020' FSL & 2370' FEL (SHL)
Sec 5-T20S-R29E
Eddy County, New Mexico

**1. The estimated tops of geological markers are as follows:**

| | |
|---|---|
| Rustler | 340' |
| Top Salt | 450' |
| Base Salt/Tansill | 995' |
| Yates | 1200' |
| Seven Rivers | NP |
| Queen | NP |
| Capitan | 1380' |
| Grayburg | 2385' |
| San Andres | 2787' |
| *Delaware | 3200' |
| *Bone Spring | 5480' |
| *1st Bone Spring | 6870' |
| *2nd Bone Spring | 7465' |

**2. Estimated depths of anticipated fresh water, oil, or gas:**

| | |
|---|---|
| Water | Fresh water is anticipated at 65' and will be protected by setting surface casing at 365' and cementing to surface. |
| Hydrocarbons | Oil and gas are anticipated in the above (*) formations. These zones will be protected by casing as necessary. |

**3. Pressure control equipment:**

MOC requests a variance to install a 2M diverter after running 20" casing. A 2000# WP Annular will be installed after running 13 ⅜" casing. A 3000# WP Double Ram BOP and 3000# WP Annular will be installed after running 9 ⅝" & 7" casing strings. Pressure tests will be conducted prior to drilling out under all casing strings. BOPE will be inspected and operated as recommended in Onshore Order #2. A kelly cock and a sub equipped with a full opening valve sized to fit the drill pipe and collars will be available on the rig floor in the open position when the kelly is not in use.

Will test the 7" & 9 ⅝" BOPE to 3000# and both Annular BOPs to 1500# with a third party testing company before drilling below each shoe, but will test again, if needed, in 30 days from the 1st test as per BLM Onshore Oil and Gas Order #2.

**4. Drilling Program:**

MOC proposes to drill a vertical wellbore to 7423' & kick off to horizontal @ 7901' TVD. The well will be drilled to 15236' MD (7761' TVD). See attached directional plan.

**5. Proposed casing and cementing program:**

**A. Casing Program:**

| Hole Size | Casing | Wt/Ft. | Grade | Depth | Jt Type |
|---|---|---|---|---|---|
| 26" | 20" (new) | 94# | K55 | 0'-365' | BT&C |
| 17 ½" | 13 ⅜" (new) | 48# | H40 | 0'-1150' | ST&C |
| 17 ½" | 13 ⅜" (new) | 54.5# | J55 | 1150'-1300' | ST&C |
| 12 ¼" | 9 ⅝" (new) | 36# | J55 | 0'-3100' | LT&C |
| 8 ¾" | 7" (new) | 26# | P110 | 0'-7423' MD | LT&C |
| 8 ¾" | 7" (new) | 26# | P110 | 7423'-8183' MD | BT&C |
| 6 1/8" | 4 ½" (new) | 13.5# | P110 | 7983'-15236' MD | LT&C |

Minimum casing design factors: Collapse 1.125, Burst 1.0, Tensile strength 1.8.
*Subject to availability of casing.



**B. Cementing Program:**

i. Surface Casing: 420 sacks Class "C" (35:65:4) light cement w/ 2% CaCl2 & LCM additives. Yield at 2.0 cuft/sk. Mix water @ 11.17 gal/sk. 200 sacks Class "C" cement w/ 2% CaCl2. Yield at 1.34 cuft/sk. Mix water @ 6.33 gal/sk. Cmt circulated to surface w/100% excess.

ii. 1st Intermediate Casing: 460 sacks Class "C" (35:65:4) light cement w/ salt and LCM additives. Yield at 2.0 cuft/sk. Mix water @ 11.17 gal/sk. 200 sacks Class "C" cement w/2% CaCl2. Yield at 1.34 cuft/sk. Mix water @ 6.33 gal/sk. Cmt circulated to surface w/25% excess.
See COA

iii. 2nd Intermediate Casing: 480 sacks Class "C" (35:65:4) light cement w/ salt and LCM additives. Yield at 2.0 cuft/sk. Mix water @ 11.17 gal/sk. 200 sacks Class "C" cement w/2% CaCl2. Yield at 1.34 cuft/sk. Mix water @ 6.33 gal/sk. Cmt circulated to surface w/25% excess.
See COA

iii Production Casing: 375 sacks Class H light cement (35:65:4) with fluid loss, LCM, & salt additives. Yield at 2.12 cuft/sk. Mix water @ 11.32 gal/sk. 400 sacks Class H cement containing fluid loss additives. Yield at 1.18 cuft/sk. Mix water @ 5.22 gal/sk. Yield at 1.18 cuft/sk. Cmt calculated to tie back 50' above the top of the Capitan Reef @ 1320' w/25% excess.
See COA

iv. Production Liner: This will be a Packer/Port completion from TD to 200' inside 7" casing with packer type liner hanger.

*Referring to above blends of light cement: (wt% fly ash : wt% cement : wt% bentonite of the total of first two numbers). Generic names of additives are used since the availability of specific company and products are unknown at this time.

**6. Mud Program:**

| Interval | Type System | Weight | Viscosity | Fluid Loss |
|---|---|---|---|---|
| 0'-365' | FW spud mud | 8.6-9.0 | 32-34 | NA |
| 365'-1300' | Brine water | 10.0-10.2 | 28-30 | NA |
| 1300'-7423'(KOP) | FW | 8.5-8.7 | 28-30 | NA |
| 7423'- TD | FW w/Polymer | 8.5-8.7 | 32-35 | 15 |

*Visual mud monitoring system shall be in place to detect volume changes indicating loss or gain of circulation fluid volume. Sufficient mud materials will be kept on location at all times to combat abnormal conditions.

**7. Evaluation Program:**

Samples: 10' samples from surface casing to TD
Logging: GR, CN & Gyro 100' above KOP (7323') to surface. GR from 7323' to TD.

**8. Downhole Conditions**

Zones of abnormal pressure: None anticipated
Zones of lost circulation: Anticipated in surface and intermediate holes
Maximum bottom hole temperature: 120 degree F
Maximum bottom hole pressure: 8.3 lbs/gal gradient or less (.43368x7901'=3426psi)
MOC does not anticipate H2S, However H2S contingency plan is attached.

**9. Anticipated Starting Date:** Mewbourne Oil Company intends to drill this well as soon as possible after receiving approval with approximately 60 days involved in drilling operations and an additional 20 days involved in completion operations on the project.

# Mewbourne Oil Co

Eddy County, New Mexico
Sec 5, T20S, R29E
Sig 5/6 BXL Federal #1H

Wellbore #1

Plan: Design #1

# DDC Well Planning Report

12 November, 2013

The DIRECTIONAL DRILLING COMPANY

| | | | |
|---|---|---|---|
| Database: | EDM 5000.1 Single User Db | Local Co-ordinate Reference: | Well Sig 5/6 KL Federal #1H |
| Company: | Mewbourne Oil Co | TVD Reference: | WELL @ 3311.0usft (Patterson #46) |
| Project: | Eddy County, New Mexico | MD Reference: | WELL @ 3311.0usft (Patterson #46) |
| Site: | Sec 5, T20S, R29E | North Reference: | Grid |
| Well: | Sig 5/6 KL Federal #1H | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Design #1 | | |

**Project** Eddy County, New Mexico

| | | | |
|---|---|---|---|
| Map System: | US State Plane 1927 (Exact solution) | System Datum: | Mean Sea Level |
| Geo Datum: | NAD 1927 (NADCON CONUS) | | |
| Map Zone: | New Mexico East 3001 | | |

**Site** Sec 5, T20S, R29E

| | | | | | |
|---|---|---|---|---|---|
| Site Position: | | Northing: | 582,326.30 usft | Latitude: | 32° 36' 2.504 N |
| From: | Map | Easting: | 573,152.90 usft | Longitude: | 104° 5' 44.847 W |
| Position Uncertainty: | 0.0 usft | Slot Radius: | 13-3/16 " | Grid Convergence: | 0.13 ° |

**Well** Sig 5/6 KL Federal #1H

| | | | | | | |
|---|---|---|---|---|---|---|
| Well Position | +N/-S | 0.0 usft | Northing: | 582,326.30 usft | Latitude: | 32° 36' 2.504 N |
| | +E/-W | 0.0 usft | Easting: | 573,152.90 usft | Longitude: | 104° 5' 44.847 W |
| Position Uncertainty | | 0.0 usft | Wellhead Elevation: | | Ground Level: | 3,291.0 usft |

**Wellbore** Wellbore #1

| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|---|---|---|---|---|---|
| | IGRF2010 | 11/12/2013 | 7.56 | 60.39 | 48,545 |

**Design** Design #1

Audit Notes:

| | | | | | |
|---|---|---|---|---|---|
| Version: | | Phase: | PLAN | Tie On Depth: | 0.0 |

| Vertical Section: | Depth From (TVD) (usft) | +N/-S (usft) | +E/-W (usft) | Direction (°) |
|---|---|---|---|---|
| | 0.0 | 0.0 | 0.0 | 268.69 |

**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 | |
| 7,423.6 | 0.00 | 0.00 | 7,423.6 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 8,183.1 | 91.14 | 268.69 | 7,901.0 | -11.1 | -486.8 | 12.00 | 12.00 | -12.02 | 268.69 | |
| 15,236.4 | 91.14 | 268.69 | 7,761.0 | -172.1 | -7,536.9 | 0.00 | 0.00 | 0.00 | 0.00 | PBHL Sig 5/6 KL Fed |

| | | | |
|---|---|---|---|
| Database: | EDM 5000.1 Single User Db | Local Co-ordinate Reference: | Well Sig 5/6 KL Federal #1H |
| Company: | Mewbourne Oil Co. | TVD Reference: | WELL @ 3311.0usft (Patterson #46) |
| Project: | Eddy County, New Mexico | MD Reference: | WELL @ 3311.0usft (Patterson #46) |
| Site: | Sec 5, T20S, R29E | North Reference: | Grid |
| Well: | Sig 5/6 KL Federal #1H | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| 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) |
|---|---|---|---|---|---|---|---|---|---|
| Build 12°/ 100' | | | | | | | | | |
| 7,423.6 | 0.00 | 0.00 | 7,423.6 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 7,500.0 | 9.17 | 268.69 | 7,499.7 | -0.1 | -6.1 | 6.1 | 12.00 | 12.00 | 0.00 |
| 7,600.0 | 21.17 | 268.69 | 7,596.0 | -0.7 | -32.2 | 32.2 | 12.00 | 12.00 | 0.00 |
| 7,700.0 | 33.17 | 268.69 | 7,684.8 | -1.8 | -77.8 | 77.8 | 12.00 | 12.00 | 0.00 |
| 7,800.0 | 45.17 | 268.69 | 7,762.2 | -3.2 | -140.8 | 140.8 | 12.00 | 12.00 | 0.00 |
| 7,900.0 | 57.17 | 268.69 | 7,824.8 | -5.0 | -218.5 | 218.6 | 12.00 | 12.00 | 0.00 |
| 8,000.0 | 69.17 | 268.69 | 7,869.9 | -7.0 | -307.6 | 307.7 | 12.00 | 12.00 | 0.00 |
| 8,100.0 | 81.17 | 268.69 | 7,895.4 | -9.2 | -404.1 | 404.2 | 12.00 | 12.00 | 0.00 |
| End of Curve / 91.14° Inc / 268.69° Azm / 7901' TVD | | | | | | | | | |
| 8,183.1 | 91.14 | 268.69 | 7,901.0 | -11.1 | -486.8 | 486.9 | 12.00 | 12.00 | 0.00 |
| 8,200.0 | 91.14 | 268.69 | 7,900.6 | -11.5 | -503.7 | 503.9 | 0.00 | 0.00 | 0.00 |
| 8,300.0 | 91.14 | 268.69 | 7,898.7 | -13.8 | -603.7 | 603.8 | 0.00 | 0.00 | 0.00 |
| 8,400.0 | 91.14 | 268.69 | 7,896.7 | -16.1 | -703.6 | 703.8 | 0.00 | 0.00 | 0.00 |
| 8,500.0 | 91.14 | 268.69 | 7,894.7 | -18.3 | -803.6 | 803.8 | 0.00 | 0.00 | 0.00 |
| 8,600.0 | 91.14 | 268.69 | 7,892.7 | -20.6 | -903.5 | 903.8 | 0.00 | 0.00 | 0.00 |
| 8,700.0 | 91.14 | 268.69 | 7,890.7 | -22.9 | -1,003.5 | 1,003.8 | 0.00 | 0.00 | 0.00 |
| 8,800.0 | 91.14 | 268.69 | 7,888.7 | -25.2 | -1,103.5 | 1,103.7 | 0.00 | 0.00 | 0.00 |
| 8,900.0 | 91.14 | 268.69 | 7,886.7 | -27.5 | -1,203.4 | 1,203.7 | 0.00 | 0.00 | 0.00 |
| 9,000.0 | 91.14 | 268.69 | 7,884.8 | -29.8 | -1,303.4 | 1,303.7 | 0.00 | 0.00 | 0.00 |
| 9,100.0 | 91.14 | 268.69 | 7,882.8 | -32.0 | -1,403.3 | 1,403.7 | 0.00 | 0.00 | 0.00 |
| 9,200.0 | 91.14 | 268.69 | 7,880.8 | -34.3 | -1,503.3 | 1,503.7 | 0.00 | 0.00 | 0.00 |
| 9,300.0 | 91.14 | 268.69 | 7,878.8 | -36.6 | -1,603.2 | 1,603.6 | 0.00 | 0.00 | 0.00 |
| 9,400.0 | 91.14 | 268.69 | 7,876.8 | -38.9 | -1,703.2 | 1,703.6 | 0.00 | 0.00 | 0.00 |
| 9,500.0 | 91.14 | 268.69 | 7,874.8 | -41.2 | -1,803.1 | 1,803.6 | 0.00 | 0.00 | 0.00 |
| 9,600.0 | 91.14 | 268.69 | 7,872.9 | -43.5 | -1,903.1 | 1,903.6 | 0.00 | 0.00 | 0.00 |
| 9,700.0 | 91.14 | 268.69 | 7,870.9 | -45.7 | -2,003.0 | 2,003.6 | 0.00 | 0.00 | 0.00 |
| 9,800.0 | 91.14 | 268.69 | 7,868.9 | -48.0 | -2,103.0 | 2,103.5 | 0.00 | 0.00 | 0.00 |
| 9,900.0 | 91.14 | 268.69 | 7,866.9 | -50.3 | -2,203.0 | 2,203.5 | 0.00 | 0.00 | 0.00 |
| 10,000.0 | 91.14 | 268.69 | 7,864.9 | -52.6 | -2,302.9 | 2,303.5 | 0.00 | 0.00 | 0.00 |
| 10,100.0 | 91.14 | 268.69 | 7,862.9 | -54.9 | -2,402.9 | 2,403.5 | 0.00 | 0.00 | 0.00 |
| 10,200.0 | 91.14 | 268.69 | 7,860.9 | -57.1 | -2,502.8 | 2,503.5 | 0.00 | 0.00 | 0.00 |
| 10,300.0 | 91.14 | 268.69 | 7,859.0 | -59.4 | -2,602.8 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 10,400.0 | 91.14 | 268.69 | 7,857.0 | -61.7 | -2,702.7 | 2,703.4 | 0.00 | 0.00 | 0.00 |
| 10,500.0 | 91.14 | 268.69 | 7,855.0 | -64.0 | -2,802.7 | 2,803.4 | 0.00 | 0.00 | 0.00 |
| 10,600.0 | 91.14 | 268.69 | 7,853.0 | -66.3 | -2,902.6 | 2,903.4 | 0.00 | 0.00 | 0.00 |
| 10,700.0 | 91.14 | 268.69 | 7,851.0 | -68.6 | -3,002.6 | 3,003.4 | 0.00 | 0.00 | 0.00 |
| 10,800.0 | 91.14 | 268.69 | 7,849.0 | -70.8 | -3,102.5 | 3,103.3 | 0.00 | 0.00 | 0.00 |
| 10,900.0 | 91.14 | 268.69 | 7,847.1 | -73.1 | -3,202.5 | 3,203.3 | 0.00 | 0.00 | 0.00 |
| 11,000.0 | 91.14 | 268.69 | 7,845.1 | -75.4 | -3,302.4 | 3,303.3 | 0.00 | 0.00 | 0.00 |
| 11,100.0 | 91.14 | 268.69 | 7,843.1 | -77.7 | -3,402.4 | 3,403.3 | 0.00 | 0.00 | 0.00 |
| 11,200.0 | 91.14 | 268.69 | 7,841.1 | -80.0 | -3,502.4 | 3,503.3 | 0.00 | 0.00 | 0.00 |
| 11,300.0 | 91.14 | 268.69 | 7,839.1 | -82.2 | -3,602.3 | 3,603.3 | 0.00 | 0.00 | 0.00 |
| 11,400.0 | 91.14 | 268.69 | 7,837.1 | -84.5 | -3,702.3 | 3,703.2 | 0.00 | 0.00 | 0.00 |
| 11,500.0 | 91.14 | 268.69 | 7,835.1 | -86.8 | -3,802.2 | 3,803.2 | 0.00 | 0.00 | 0.00 |
| 11,600.0 | 91.14 | 268.69 | 7,833.2 | -89.1 | -3,902.2 | 3,903.2 | 0.00 | 0.00 | 0.00 |
| 11,700.0 | 91.14 | 268.69 | 7,831.2 | -91.4 | -4,002.1 | 4,003.2 | 0.00 | 0.00 | 0.00 |
| 11,800.0 | 91.14 | 268.69 | 7,829.2 | -93.7 | -4,102.1 | 4,103.2 | 0.00 | 0.00 | 0.00 |
| 11,900.0 | 91.14 | 268.69 | 7,827.2 | -95.9 | -4,202.0 | 4,203.1 | 0.00 | 0.00 | 0.00 |
| 12,000.0 | 91.14 | 268.69 | 7,825.2 | -98.2 | -4,302.0 | 4,303.1 | 0.00 | 0.00 | 0.00 |
| 12,100.0 | 91.14 | 268.69 | 7,823.2 | -100.5 | -4,401.9 | 4,403.1 | 0.00 | 0.00 | 0.00 |
| 12,200.0 | 91.14 | 268.69 | 7,821.3 | -102.8 | -4,501.9 | 4,503.1 | 0.00 | 0.00 | 0.00 |
| 12,300.0 | 91.14 | 268.69 | 7,819.3 | -105.1 | -4,601.9 | 4,603.1 | 0.00 | 0.00 | 0.00 |
| 12,400.0 | 91.14 | 268.69 | 7,817.3 | -107.4 | -4,701.8 | 4,703.0 | 0.00 | 0.00 | 0.00 |

| | | | |
|---|---|---|---|
| Database: | EDM 5000.1 Single User Db | Local Co-ordinate Reference: | Well Sig 5/6 KL Federal #1H |
| Company: | Mewbourne Oil Co | TVD Reference: | WELL @ 3311.0usft (Patterson #46) |
| Project: | Eddy County, New Mexico | MD Reference: | WELL @ 3311.0usft (Patterson #46) |
| Site: | Sec 5, T20S, R29E | North Reference: | Grid |
| Well: | Sig 5/6 KL Federal #1H | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| 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) |
|---|---|---|---|---|---|---|---|---|---|
| 12,500.0 | 91.14 | 268.69 | 7,815.3 | -109.6 | -4,801.8 | 4,803.0 | 0.00 | 0.00 | 0.00 |
| 12,600.0 | 91.14 | 268.69 | 7,813.3 | -111.9 | -4,901.7 | 4,903.0 | 0.00 | 0.00 | 0.00 |
| 12,700.0 | 91.14 | 268.69 | 7,811.3 | -114.2 | -5,001.7 | 5,003.0 | 0.00 | 0.00 | 0.00 |
| 12,800.0 | 91.14 | 268.69 | 7,809.3 | -116.5 | -5,101.6 | 5,103.0 | 0.00 | 0.00 | 0.00 |
| 12,900.0 | 91.14 | 268.69 | 7,807.4 | -118.8 | -5,201.6 | 5,202.9 | 0.00 | 0.00 | 0.00 |
| 13,000.0 | 91.14 | 268.69 | 7,805.4 | -121.0 | -5,301.5 | 5,302.9 | 0.00 | 0.00 | 0.00 |
| 13,100.0 | 91.14 | 268.69 | 7,803.4 | -123.3 | -5,401.5 | 5,402.9 | 0.00 | 0.00 | 0.00 |
| 13,200.0 | 91.14 | 268.69 | 7,801.4 | -125.6 | -5,501.4 | 5,502.9 | 0.00 | 0.00 | 0.00 |
| 13,300.0 | 91.14 | 268.69 | 7,799.4 | -127.9 | -5,601.4 | 5,602.9 | 0.00 | 0.00 | 0.00 |
| 13,400.0 | 91.14 | 268.69 | 7,797.4 | -130.2 | -5,701.4 | 5,702.8 | 0.00 | 0.00 | 0.00 |
| 13,500.0 | 91.14 | 268.69 | 7,795.5 | -132.5 | -5,801.3 | 5,802.8 | 0.00 | 0.00 | 0.00 |
| 13,600.0 | 91.14 | 268.69 | 7,793.5 | -134.7 | -5,901.3 | 5,902.8 | 0.00 | 0.00 | 0.00 |
| 13,700.0 | 91.14 | 268.69 | 7,791.5 | -137.0 | -6,001.2 | 6,002.8 | 0.00 | 0.00 | 0.00 |
| 13,800.0 | 91.14 | 268.69 | 7,789.5 | -139.3 | -6,101.2 | 6,102.8 | 0.00 | 0.00 | 0.00 |
| 13,900.0 | 91.14 | 268.69 | 7,787.5 | -141.6 | -6,201.1 | 6,202.7 | 0.00 | 0.00 | 0.00 |
| 14,000.0 | 91.14 | 268.69 | 7,785.5 | -143.9 | -6,301.1 | 6,302.7 | 0.00 | 0.00 | 0.00 |
| 14,100.0 | 91.14 | 268.69 | 7,783.6 | -146.1 | -6,401.0 | 6,402.7 | 0.00 | 0.00 | 0.00 |
| 14,200.0 | 91.14 | 268.69 | 7,781.6 | -148.4 | -6,501.0 | 6,502.7 | 0.00 | 0.00 | 0.00 |
| 14,300.0 | 91.14 | 268.69 | 7,779.6 | -150.7 | -6,600.9 | 6,602.7 | 0.00 | 0.00 | 0.00 |
| 14,400.0 | 91.14 | 268.69 | 7,777.6 | -153.0 | -6,700.9 | 6,702.6 | 0.00 | 0.00 | 0.00 |
| 14,500.0 | 91.14 | 268.69 | 7,775.6 | -155.3 | -6,800.8 | 6,802.6 | 0.00 | 0.00 | 0.00 |
| 14,600.0 | 91.14 | 268.69 | 7,773.6 | -157.6 | -6,900.8 | 6,902.6 | 0.00 | 0.00 | 0.00 |
| 14,700.0 | 91.14 | 268.69 | 7,771.6 | -159.8 | -7,000.8 | 7,002.6 | 0.00 | 0.00 | 0.00 |
| 14,800.0 | 91.14 | 268.69 | 7,769.7 | -162.1 | -7,100.7 | 7,102.6 | 0.00 | 0.00 | 0.00 |
| 14,900.0 | 91.14 | 268.69 | 7,767.7 | -164.4 | -7,200.7 | 7,202.5 | 0.00 | 0.00 | 0.00 |
| 15,000.0 | 91.14 | 268.69 | 7,765.7 | -166.7 | -7,300.6 | 7,302.5 | 0.00 | 0.00 | 0.00 |
| 15,100.0 | 91.14 | 268.69 | 7,763.7 | -169.0 | -7,400.6 | 7,402.5 | 0.00 | 0.00 | 0.00 |
| 15,200.0 | 91.14 | 268.69 | 7,761.7 | -171.3 | -7,500.5 | 7,502.5 | 0.00 | 0.00 | 0.00 |
| TD @ 15236' MD / 7761' TVD | | | | | | | | | |
| 15,236.4 | 91.14 | 268.69 | 7,761.0 | -172.1 | -7,536.9 | 7,538.8 | 0.00 | 0.00 | 0.00 |

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 |
|---|---|---|---|---|---|---|---|---|---|
| PBHL Sig 5/6 KL Federa<br>- plan hits target center<br>- Point | 0.00 | 0.00 | 7,761.0 | -172.1 | -7,536.9 | 582,154.22 | 565,616.04 | 32° 36' 0.959 N | 104° 7' 12.956 W |

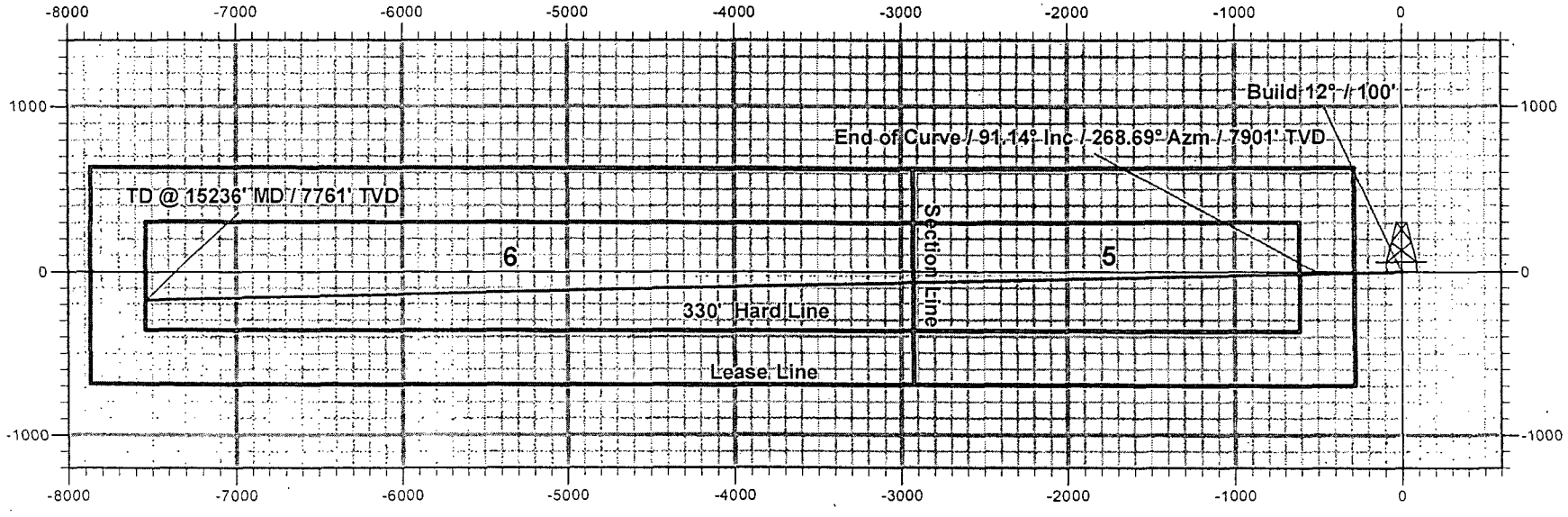
Plan Annotations

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates +N/-S (usft) | Local Coordinates +E/-W (usft) | Comment |
|---|---|---|---|---|
| 7,423.6 | 7,423.6 | 0.0 | 0.0 | Build 12° / 100' |
| 8,183.1 | 7,901.0 | -11.1 | -486.8 | End of Curve / 91.14° Inc / 268.69° Azm / 7901' TVD |
| 15,236.4 | 7,761.0 | -172.1 | -7,536.9 | TD @ 15236' MD / 7761' TVD |

# Mewbourne Oil Company

The DIRECTIONAL DRILLING COMPANY

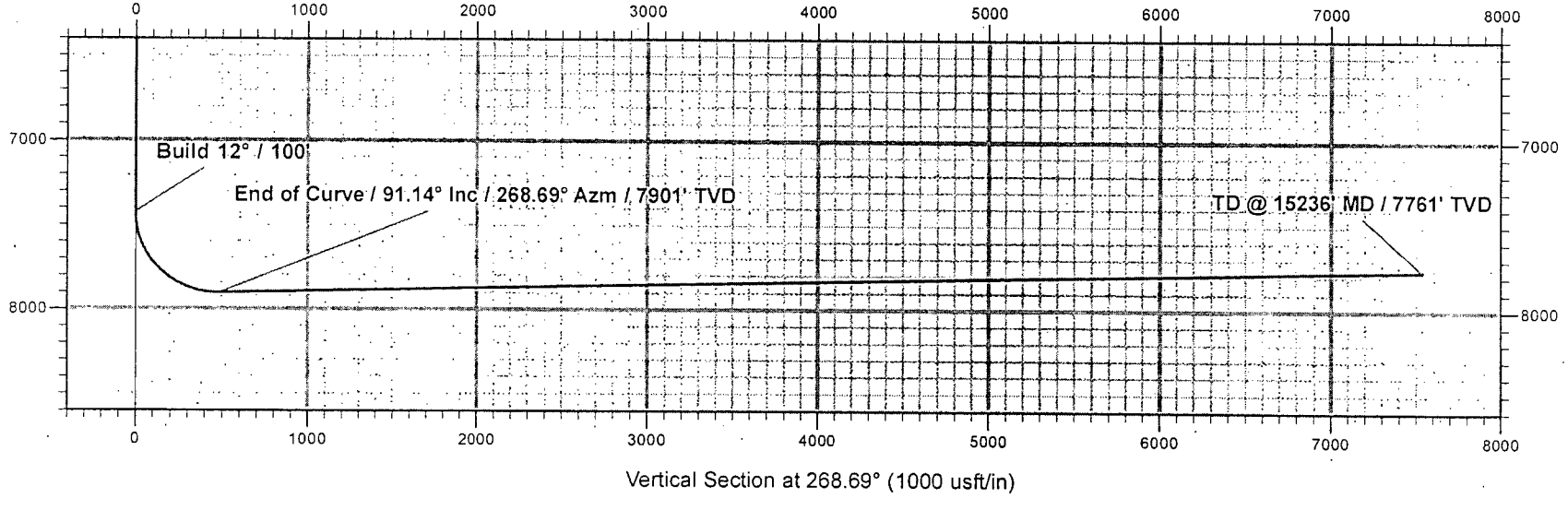
Sig 5/6 KL Federal #1H
Eddy County, New Mexico
Design #1



# Mewbourne Oil Company

Eddy County, New Mexico
Sig 5/6 KL Federal #1H
Design #1

The DIRECTIONAL DRILLING COMPANY

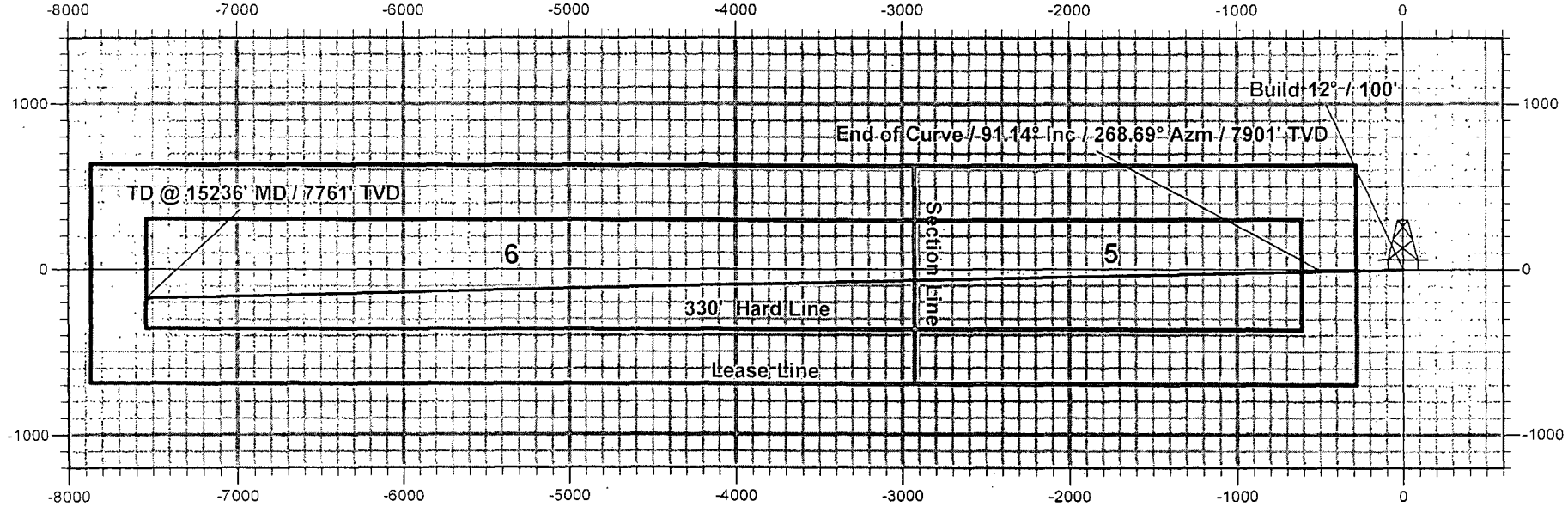



Vertical Section at 268.69° (1000 usft/in)

# Mewbourne Oil Company

The DIRECTIONAL DRILLING COMPANY

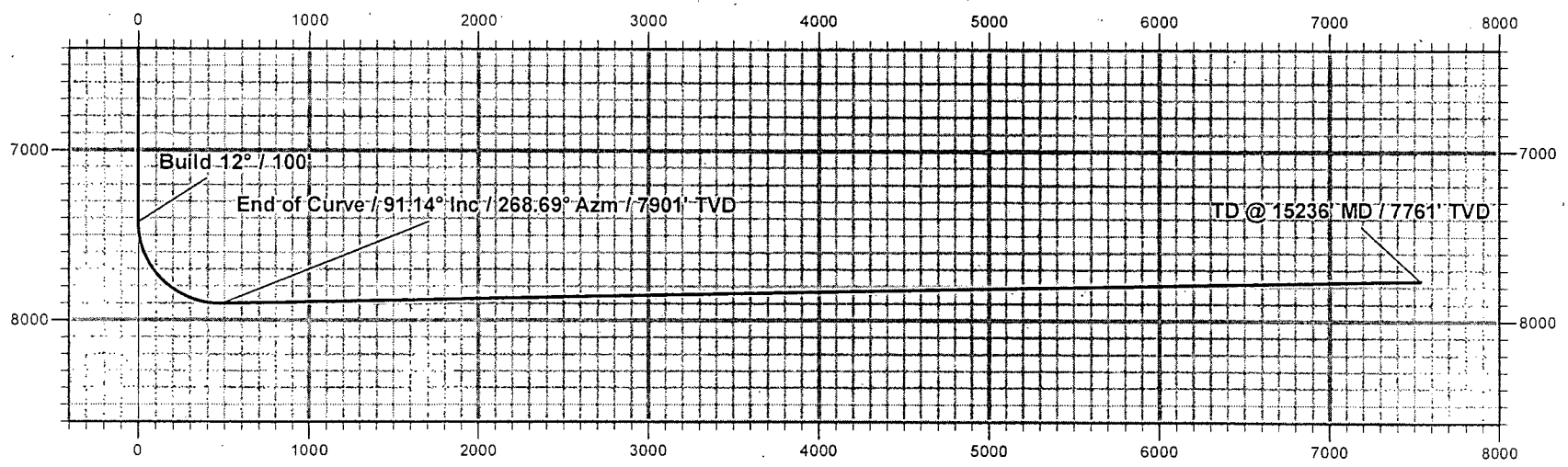
Sig 5/6 KL Federal #1H
Eddy County, New Mexico
Design #1



# Mewbourne Oil Company

Eddy County, New Mexico
Sig 5/6 KL Federal #1H
Design #1

The DIRECTIONAL DRILLING COMPANY




Vertical Section at 268.69° (1000 usft/in)

## Notes Regarding Blowout Preventer

**Mewbourne Oil Company**

S;S 5/6 B2AL FED #1H

2020' FSL & 2370' FEL (SHL)

Sec 5-T20S-R29E

Eddy County, New Mexico

I. Drilling nipple (bell nipple) to be constructed so that it can be removed without the use of a welder through the opening of the rotary table, with minimum internal diameter equal to blowout preventer bore.

II. Blowout preventer and all fittings must be in good condition with a minimum 2000 psi working pressure on 13 3/8" casing and 3000 psi working pressure on 9 5/8" & 7" casing.

III. Safety valve must be available on the rig floor at all times with proper connections to install in the drill string. Valve must be full bore with minimum 3000 psi working pressure.

IV. Equipment through which bit must pass shall be at least as large as internal diameter of the casing.

V. A kelly cock shall be installed on the kelly at all times.

Blowout preventer closing equipment to include and accumulator of at least 40 gallon capacity, two independent sources of pressure on closing unit, and meet all other API specifications.

# 20" Diverter & Closed Loop Equipment Schematic

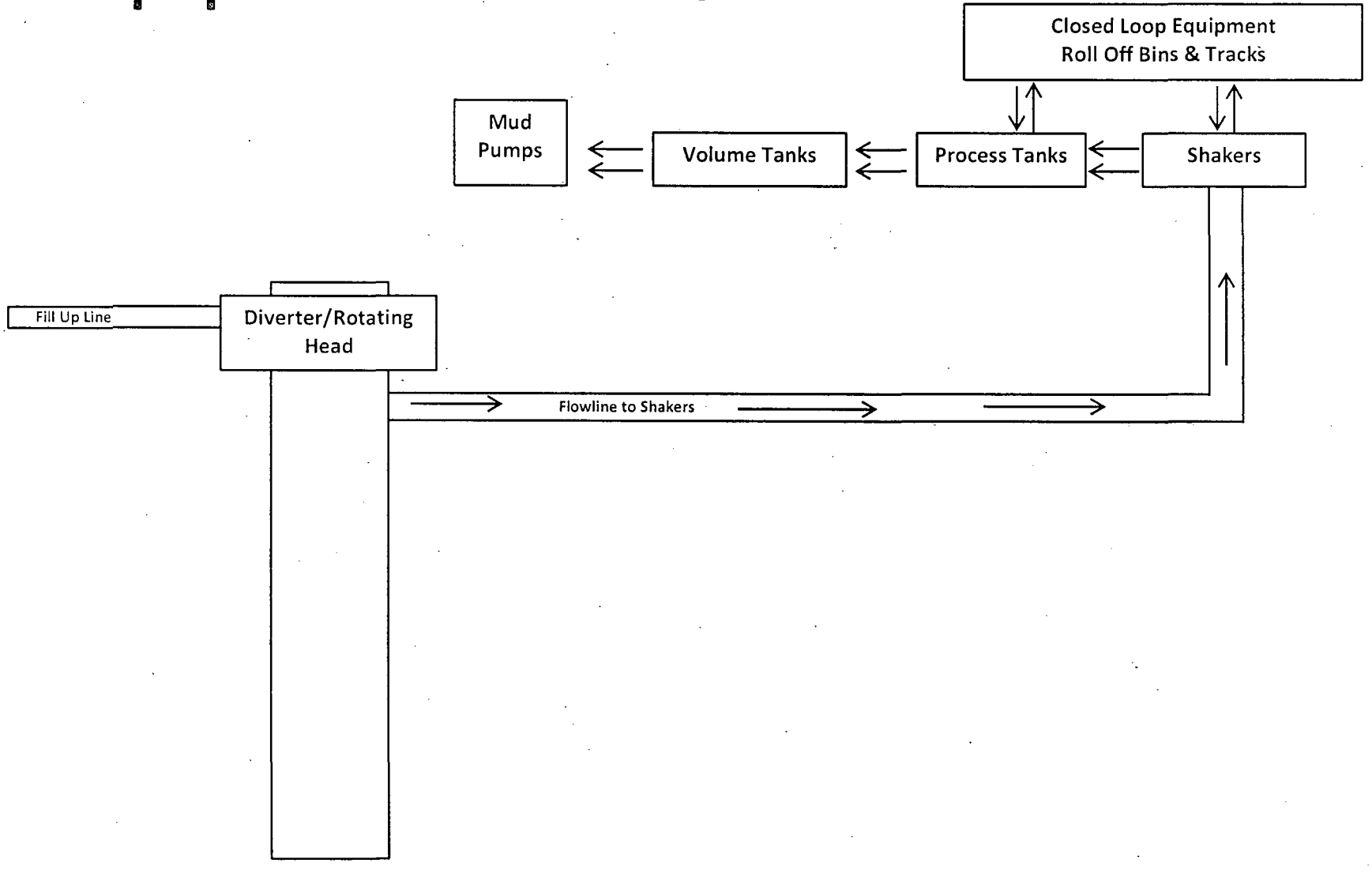
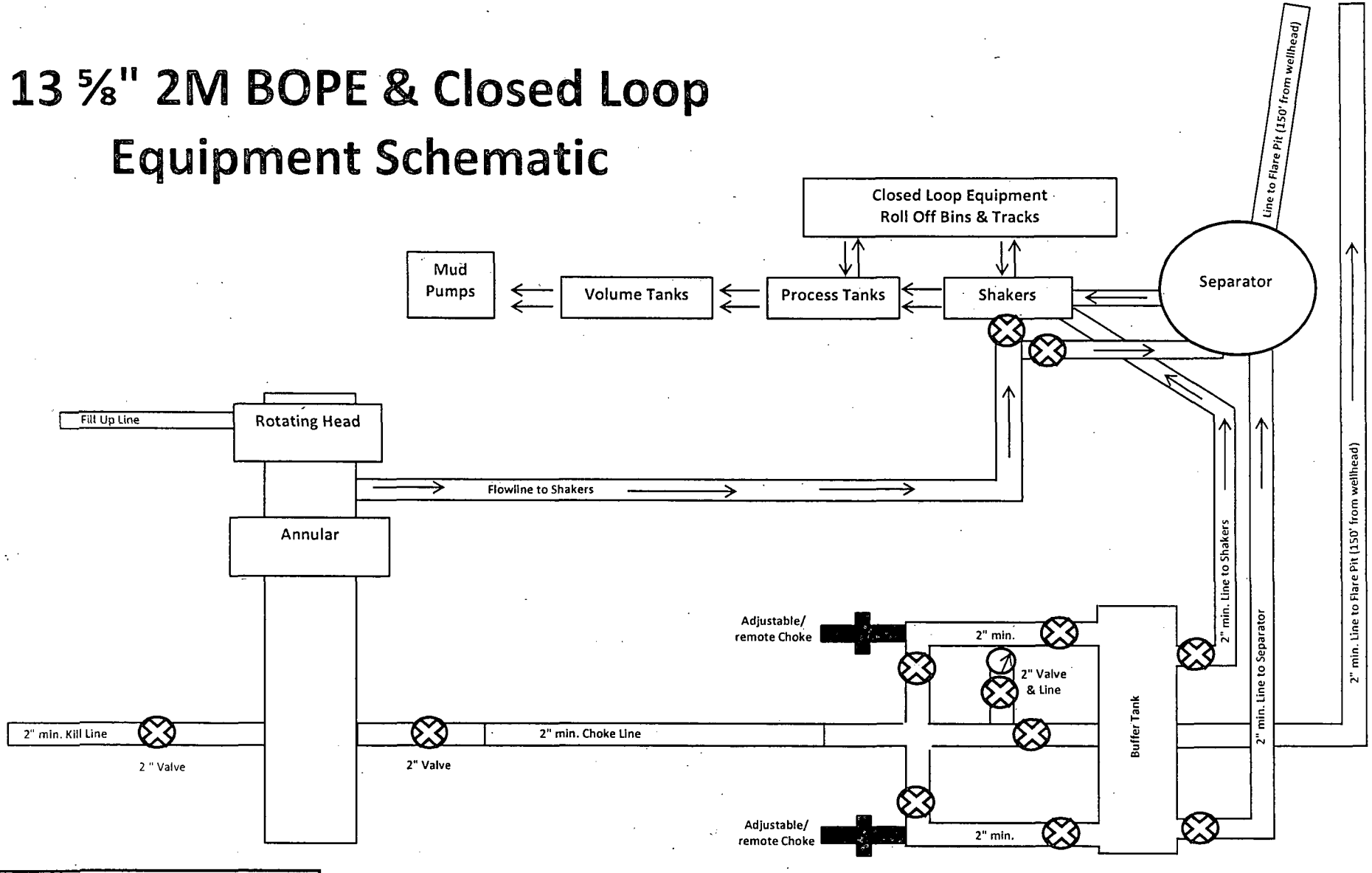



Exhibit 2B

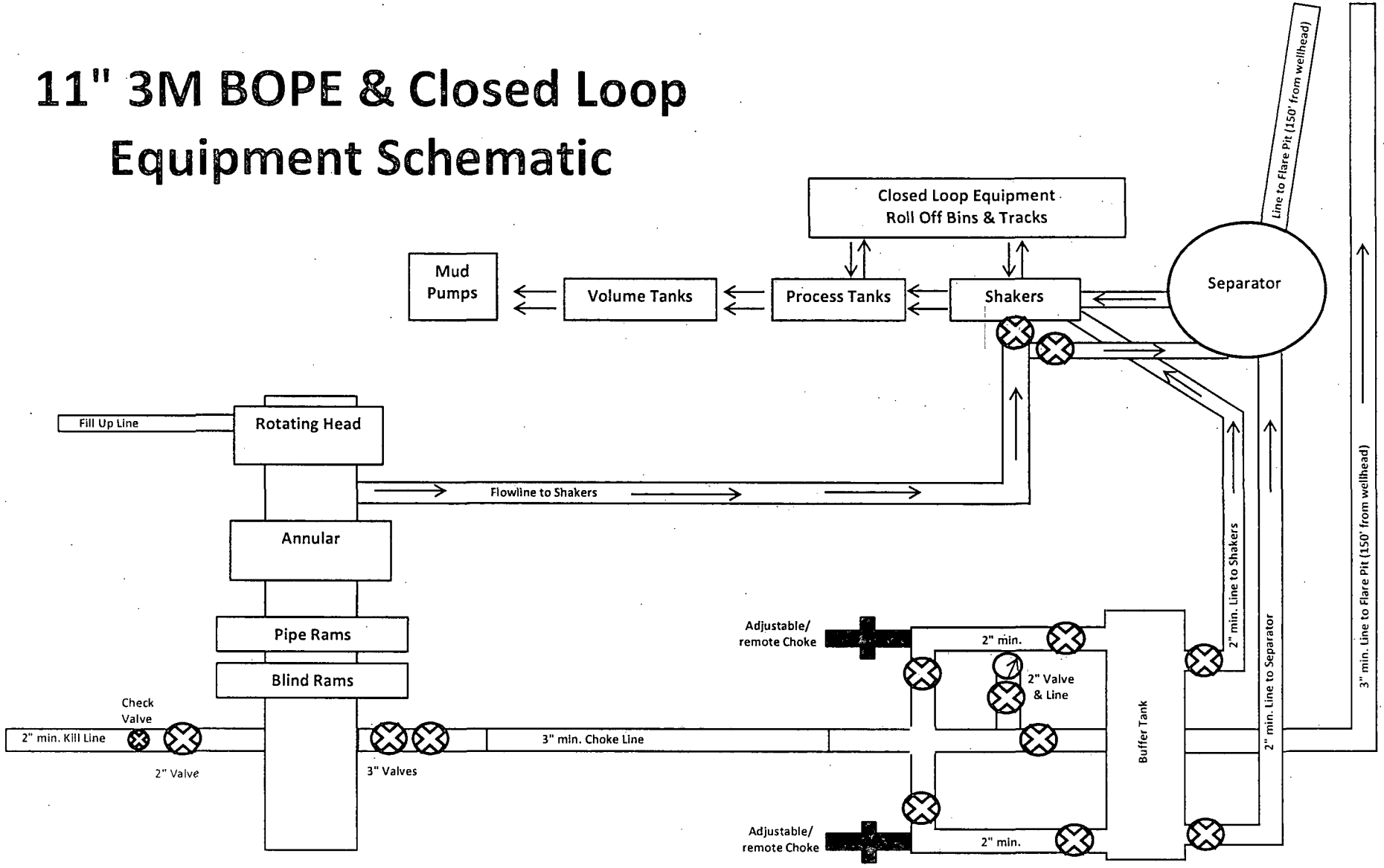
Sig 5/6 82kL FED #1H

# 13 ⅝" 2M BOPE & Closed Loop Equipment Schematic




| Exhibit 2A |
| --- |
| Savage 5 Eh Federal #1H |

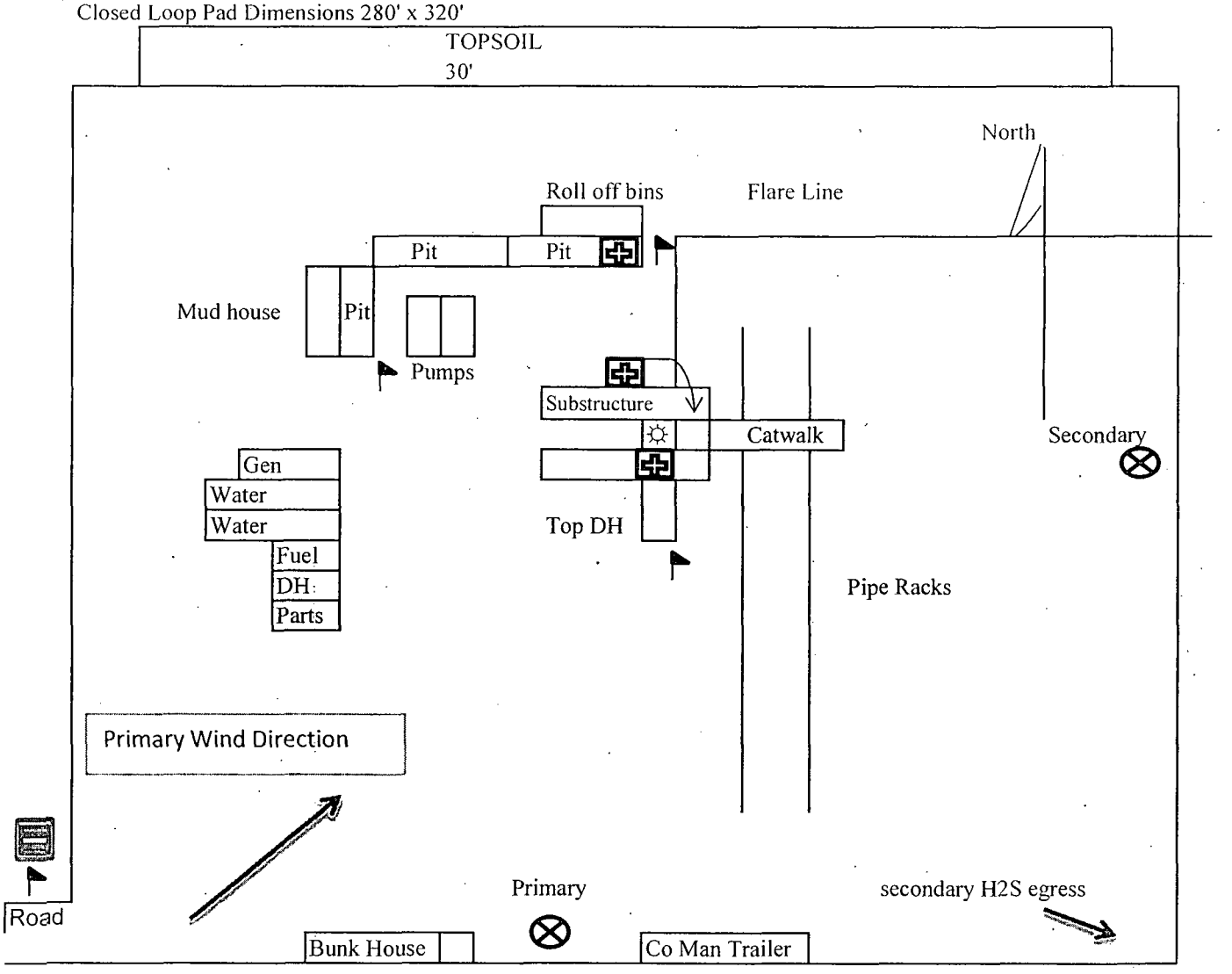
# 11" 3M BOPE & Closed Loop Equipment Schematic




| Exhibit 2 |
| --- |
| Savage 5 EH Federal #1H |

Note: All valves & lines on choke manifold are 3" unless otherwise noted. Exact manifold configuration may vary.

H2S Diagram &
Closed Loop Pad Dimensions 280' x 320'




= Safety Stations

= Wind Markers

= H2S Monitors

= Warning Signs

Exhibit 5

Mewbourne Oil Company
Sig 5/6 Bone Federal #1H
2020' FSL & 2370' FEL
Sec. 5 T20S R29E
Eddy County, NM

Minimum casing design factors: Collapse 1.125, Burst 1.0, Tensile strength 1.8.
*Subject to availability of casing.



**B. Cementing Program:**

i. Surface Casing: 420 sacks Class "C" (35:65:4) light cement w/ 2% CaCl2 & LCM additives. Yield at 2.0 cuft/sk. Mix water @ 11.17 gal/sk. 200 sacks Class "C" cement w/ 2% CaCl2. Yield at 1.34 cuft/sk. Mix water @ 6.33 gal/sk. Cmt circulated to surface w/100% excess.

ii. 1st Intermediate Casing: 460 sacks Class "C" (35:65:4) light cement w/ salt and LCM additives. Yield at 2.0 cuft/sk. Mix water @ 11.17 gal/sk. 200 sacks Class "C" cement w/2% CaCl2. Yield at 1.34 cuft/sk. Mix water @ 6.33 gal/sk. Cmt circulated to surface w/25% excess.

iii. 2nd Intermediate Casing: 480 sacks Class "C" (35:65:4) light cement w/ salt and LCM additives. Yield at 2.0 cuft/sk. Mix water @ 11.17 gal/sk. 200 sacks Class "C" cement w/2% CaCl2. Yield at 1.34 cuft/sk. Mix water @ 6.33 gal/sk. Cmt circulated to surface w/25% excess.

iii Production Casing: 375 sacks Class H light cement (35:65:4) with fluid loss, LCM, & salt additives. Yield at 2.12 cuft/sk. Mix water @ 11.32 gal/sk. 400 sacks Class H cement containing fluid loss additives. Yield at 1.18 cuft/sk. Mix water @ 5.22 gal/sk. Yield at 1.18 cuft/sk. Cmt calculated to tie back 50' above the top of the Capitan Reef @ 1320' w/25% excess.

iv. Production Liner: This will be a Packer/Port completion from TD to 200' inside 7" casing with packer type liner hanger.

*Referring to above blends of light cement: (wt% fly ash : wt% cement : wt% bentonite of the total of first two numbers). Generic names of additives are used since the availability of specific company and products are unknown at this time.

**6. Mud Program:**

| Interval | Type System | Weight | Viscosity | Fluid Loss |
|---|---|---|---|---|
| 0'-365' | FW spud mud | 8.6-9.0 | 32-34 | NA |
| 365'-1300' | Brine water | 10.0-10.2 | 28-30 | NA |
| 1300'-7423'(KOP) | FW | 8.5-8.7 | 28-30 | NA |
| 7423'- TD | FW w/Polymer | 8.5-8.7 | 32-35 | 15 |

*Visual mud monitoring system shall be in place to detect volume changes indicating loss or gain of circulation fluid volume. Sufficient mud materials will be kept on location at all times to combat abnormal conditions.

**7. Evaluation Program:**

Samples: 10' samples from surface casing to TD
Logging: GR, CN, & Gyro 100' above KOP (7323') to surface. GR from 7323' to TD.

**8. Downhole Conditions**

Zones of abnormal pressure: None anticipated
Zones of lost circulation: Anticipated in surface and intermediate holes
Maximum bottom hole temperature: 120 degree F
Maximum bottom hole pressure: 8.3 lbs/gal gradient or less (.43368x7901'=3426psi)
MOC does not anticipate H2S, However H2S contingency plan is attached.

**9. Anticipated Starting Date:** Mewbourne Oil Company intends to drill this well as soon as possible after receiving approval with approximately 60 days involved in drilling operations and an additional 20 days involved in completion operations on the project.

3. Hydrogen Sulfide Protection and Monitoring Equipment
Two portable hydrogen sulfide monitors positioned on location for optimum coverage and detection. The units shall have audible sirens to notify personnel when hydrogen sulfide levels exceed 20 PPM.

4. Visual Warning Systems
A. Wind direction indicators as indicated on the wellsite diagram.
B. Caution signs shall be posted on roads providing access to location. Signs shall be painted a high visibility color with lettering of sufficient size to be readable at reasonable distances from potentially contaminated areas.

## 4. Mud Program

The mud program has been designed to minimize the amount of hydrogen sulfide entrained in the mud system. Proper mud weight, safe drilling practices, and the use of hydrogen sulfide scavengers will minimize hazards while drilling the well.

## 5. Metallurgy

All tubular systems, wellheads, blowout preventers, drilling spools, kill lines, choke manifolds, and valves shall be suitable for service in a hydrogen sulfide environment when chemically treated.

## 6. Communications

State & County Officials phone numbers are posted on rig floor and supervisors trailer. Communications in company vehicles and toolpushers are either two way radios or cellular phones.

## 7. Well Testing

Drill stem testing is not an anticipated requirement for evaluation of this well. A drill stem test is required, it will be conducted with a minimum number of personnel in the immediate vicinity. The test will be conducted during daylight hours only.

## 8. Emergency Phone Numbers

| | | |
|---|---|---|
| **Eddy County Sheriff's Office** | | **911 or 575-887-7551** |
| **Ambulance Service** | | **911 or 575-885-2111** |
| **Artesia Fire Dept** | | **911 or 575-616-7155** |
| **Loco Hills Volunteer Fire Dept.** | | **911 or 575-677-3266** |
| **Closest Medical Facility – Artesia General Hospital** | | **575-748-3333** |
| **Mewbourne Oil Company** | **Hobbs District Office** | **575-393-5905** |
| | **Fax** | **575-397-6252** |
| | **2nd Fax** | **575-393-7259** |
| **District Manager** | **Micky Young** | **575-390-0999** |
| **Drilling Superintendent** | **Frosty Lathan** | **575-390-4103** |
| **Drilling Foreman** | **Wesley Noseff** | **575-441-0729** |
| | **Bradley Bishop** | **575-390-6838** |

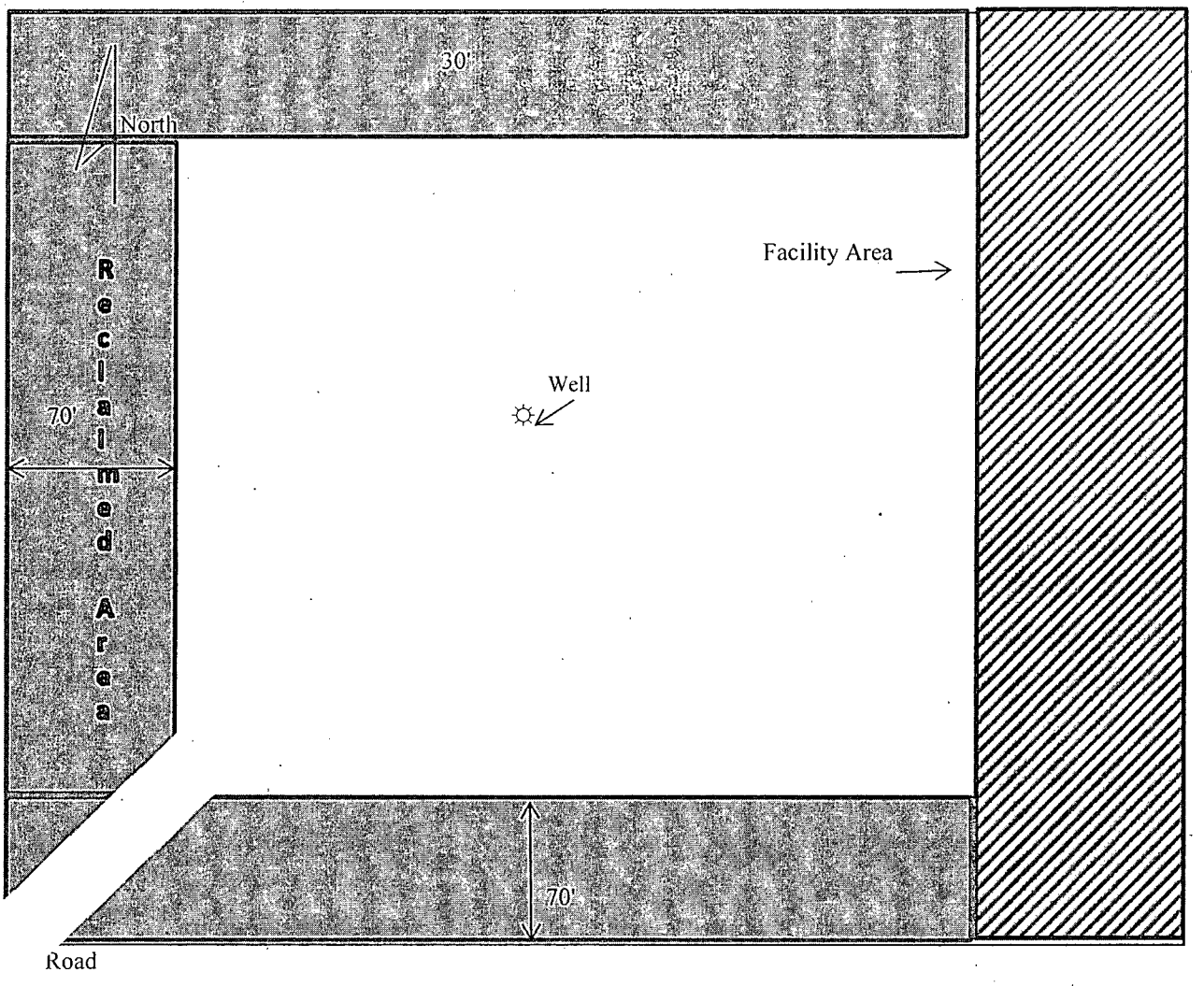



Exhibit 6

Mewbourne Oil Company
Sig 5/6 BKL Federal #1H
2020' FSL & 2370' FEL
Sec. 5 T20S R29E
Eddy County, NM

# MULTI-POINT SURFACE USE AND OPERATIONS PLAN

## MEWBOURNE OIL COMPANY

S/g S/6 BZKL Fed #1H

2020' FSL & 2370' FEL

Sec 5-T20S-R29E

Eddy County, New Mexico

This plan is submitted with Form 3160-3, Application for Permit to Drill, Covering the above described well. The purpose of this plan is to describe the location of the proposed well, the proposed construction activities and operations plan, the magnitude of the surface disturbance involved, and the procedures to be followed in restoring the surface so that a complete appraisal can be made of the environmental impact associated with the proposed operations.

**1. Existing Roads:**

A. Exhibit #3 is a road map showing the location of the proposed well. Existing and proposed roads are highlighted in black. Exhibits 3A-3C are area maps showing the location of the proposed well and access roads.

B. Directions to location from the intersection of CR-243 & CR-238, go east on CR-238 approx. 1.9 miles to a lease road. Turn left and fo north winding west approx.. 1.2 miles to a "Y". Turn right and go NW turning NE .8 miles to a "Y". Turn left and go North .5 mile to a "Y". Turn left and go West .5 mile to proposed road.

C. Existing roads will be maintained in a condition the same as or better than before operations begin.

**2. Proposed Access Road:**

A Approx. 30.08' new road construction will be required.

B. The maximum width of the driving surface will be 14 feet. The road will be crowned and ditched with a 2% slope from the tip of the crown to the edge of the driving surface. The ditches will be 1 foot deep with 3:1 slopes. The road will be surfaced with rolled and compacted caliche.

C. Mewbourne Oil Co. will cooperate with other operators in the maintenance of lease roads.

**3. Location of Existing Wells:**

There are producing wells within the immediate vicinity of the well site. Exhibit 4 shows the proposed well and existing wells within a one mile radius.

**4. Location of Existing and/or Proposed Facilities:**

A. There are no production facilities on this lease at the present time.

B. Production facilities will be to the east.

D. All production vessels left on location will be painted to conform with BLM painting stipulations within 180 days of installation.

**5. Location and Type of Water Supply**

The well will be drilled with a combination of fresh water and brine water based mud systems. The water will be obtained from commercial suppliers in the area and/or hauled to the location by transport trucks over existing and proposed roads as indicated in Exhibit 3. A frac pond in Sec. 3 T20S R29E unit P will be used. All lines for frac pond will follow existing roads.

**6. Source of Construction Materials**

All material required for construction of the drill pad and access roads will be obtained from private, state, or federal pits. The construction contractor will be solely responsible for securing construction materials required for this operation and paying any royalties that may be required on those materials.

**7. Methods of Handling Waste Disposal:**

A. Drill cuttings not retained for evaluation purposed will be hauled to a permitted off-site facility.
B. Water produced during operations will be disposed off-site at an approved facility.
C. If any liquid hydrocarbons are produced during operations, those liquids will be stored in suitable tanks until sold.
D. Portable toilets will be on location during drilling operations. Waste will be disposed at an approved off-site facility.
E. All trash, junk, and other waste materials will be stored in proper containers to prevent dispersal and will be removed to an appropriate facility within one week of cessation of drilling and completion activities.

**8. Ancillary Facilities**

There are no ancillary facilities within the immediate vicinity of the proposed well site.

**9. Well Site Layout**

A A diagram of the drill pad is shown in Exhibit 5. Dimensions of the pad and location of major rig components are shown.
B. The pad dimension of 280' x 320' has been staked and flagged.
C. An archaeological survey has been conducted on the proposed location pad.

**10. Plans for Restoration of Surface**

A. Within 90 days of cessation of drilling and completion operations, all equipment not necessary for production operations will be removed. The location will be cleaned of all trash and junk to assure the well site is left as aesthetically pleasing as reasonably possible.
B. Interim reclamation:
    i. All areas not needed for production operations will be reclaimed.

ii. Caliche will be removed, the land will be recontoured, the top soil from stockpile will be spread over these areas.

iii. The disturbed area will be restored by re-seeding during the proper growing season.

iv. Any additional caliche required for production facilities will be obtained from the area shown in exhibit #6 as interim reclamation.

C. Final Reclamation:

i. Upon cessation of the proposed operations, if the well is abandoned, all equipment and trash will be removed and taken to a proper facility.

ii. The location and road surfacing material will be removed and used to patch area lease roads. The entire location will be restored to the original contour as much as reasonable possible. The top soil used for interim reclamation will be spread over the entire location. All restoration work will be completed within 180 days of cessation of activities.

**11. Surface Ownership:**

The surface is owned by BLM.

**12. Other Information:**

A. The primary use of the surface at the location is for grazing of livestock.

B. Topography: Refer to the archaeological report for a detailed description of flora, fauna, soil characteristics, dwellings, and historical or cultural sites.

**13. Operators Representative:**

A. Through APD approval, drilling, completion and production operations:

**N.M. Young, District Manager**
Mewbourne Oil Company
PO Box 5270
Hobbs, NM 88241
575-393-5905

# PECOS DISTRICT
# CONDITIONS OF APPROVAL

| | |
|---|---|
| OPERATOR'S NAME: | **Mewbourne Oil Company** |
| LEASE NO.: | **NMNM-0144698** |
| WELL NAME & NO.: | **Sig 5/6 B2KL Fed 1H** |
| SURFACE HOLE FOOTAGE: | **2020' FSL & 2370' FEL** |
| BOTTOM HOLE FOOTAGE: | **1850' FSL & 0330' FWL Sec.6, T.20S., R29E.** |
| LOCATION: | **Section 05, T. 20 S., R 29 E., NMPM** |
| COUNTY: | **Eddy County, New Mexico** |

## TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

## I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

## II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

## III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

## IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

## V. SPECIAL REQUIREMENT(S)

## Cave and Karst

** Depending on location, additional Drilling, Casing, and Cementing procedures may be required by engineering to protect critical karst groundwater recharge areas.

### Cave/Karst Surface Mitigation

The following stipulations will be applied to minimize impacts during construction, drilling and production.

**Construction:**
In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

**No Blasting:**
No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

**Pad Berming:**
The entire perimeter of the well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad.

- The compacted berm shall be constructed at a minimum of 12 inches high with impermeable mineral material (e.g. caliche).
- No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad.
- The topsoil stockpile shall be located outside the bermed well pad.
- Topsoil, either from the well pad or surrounding area, shall not be used to construct the berm.
- No storm drains, tubing or openings shall be placed in the berm.
- If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.
- The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed.
- Any access road entering the well pad shall be constructed so that the integrity of the berm height surrounding the well pad is not compromised. (Any access road crossing the berm cannot be lower than the berm height.)

**Tank Battery Liners and Berms:**
Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

**Leak Detection System:**

A method of detecting leaks is required. The method could incorporate gauges to measure loss, situating values and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

**Automatic Shut-off Systems**:
Automatic shut off, check values, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

## Cave/Karst Subsurface Mitigation

The following stipulations will be applied to protect cave/karst and ground water concerns:

**Rotary Drilling with Fresh Water:**
Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

**Directional Drilling:**
Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

**Lost Circulation:**
ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.

Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

**Abandonment Cementing:**
Upon well abandonment in high cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

**Pressure Testing:**
Annual pressure monitoring will be performed by the operator on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

# VI. CONSTRUCTION

## A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

## B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

## C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

## D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

## E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

## F. EXCLOSURE FENCING (CELLARS & PITS)

**Exclosure Fencing**
The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

## G. ON LEASE ACCESS ROADS

**Road Width**
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

**Surfacing**
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

**Crowning**
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

**Ditching**
Ditching shall be required on both sides of the road.

**Turnouts**
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

**Drainage**

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

**Cross Section of a Typical Lead-off Ditch**

All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

**Formula for Spacing Interval of Lead-off Ditches**

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

400 foot road with 4% road slope: $\frac{400'}{4\%} + 100' = 200'$ lead-off ditch interval

**Cattleguards**

An appropriately sized cattleguard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattleguards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguards that are in place and are utilized during lease operations.

**Public Access**

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

# I. DRILLING

## A. DRILLING OPERATIONS REQUIREMENTS

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

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

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

1. A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Bone Spring** 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.**

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

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

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

B. CASING

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

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

**Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. IF OPERATOR DOES NOT HAVE THE WELL SPECIFIC CEMENT DETAILS ONSITE PRIOR TO PUMPING THE CEMENT FOR EACH CASING STRING, THE WOC WILL BE 30 HOURS. See individual casing strings for details regarding lead cement slurry requirements.**

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

**High Cave/Karst**
**Capitan Reef**
**Possibility of water flows in the Artesia Group, Salado, and Captain Reef.**
**Possibility lost circulation in the Artesia Group, Rustler, Capitan Reef, and Delaware.**

**A MINIMUM OF TWO CASING STRINGS CEMENTED TO SURFACE IS REQUIRED IN HIGH CAVE/KARST AREAS. THE CEMENT MUST BE IN A SOLID SHEATH. THEREFORE, ONE INCH OPERATIONS ARE NOT SUFFICIENT TO PROTECT CAVE KARST RESOURCES. A CASING DESIGN THAT HAS A ONE INCH JOB PERFORMED DOES NOT COUNT AS A SOLID SHEATH.**

1. The **20** inch surface casing shall be set at approximately **365** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**

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

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

2. The minimum required fill of cement behind the **13-3/8** inch 1st intermediate casing is:

   ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst. Excess calculates to 12% - Additional cement may be required.**

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

   ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst and Capitan Reef. Excess calculates to 15% - Additional cement may be required.**

**Centralizers required through the curve and a minimum of one every other joint.**

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

   ☒ Cement should tie-back at least **50 feet above the Capitan Reef**. Operator shall provide method of verification. **Excess calculates to 18% - Additional cement may be required.**

5. Cement not required on the **4-1/2"** casing. **Packer system being used.**

**Note: Operator shall not perforate until they are 330' from the hardline.**

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

## C. PRESSURE CONTROL

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

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

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

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

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

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

    b. 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.

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

    d. 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.**

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

## D. DRILL STEM TEST

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

## E. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

**JAM 110514**

# II. PRODUCTION (POST DRILLING)

## A. WELL STRUCTURES & FACILITIES

**Placement of Production Facilities**
Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

**Exclosure Netting (Open-top Tanks)**
Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

**Chemical and Fuel Secondary Containment and Exclosure Screening**
The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

**Open-Vent Exhaust Stack Exclosures**
The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

**Containment Structures**
Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

**Painting Requirement**
All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

## III. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

## X. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the

contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Seed Mixture 1, for Loamy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (small/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

| Species | lb/acre |
|---|---|
| Plains lovegrass (Eragrostis intermedia) | 0.5 |
| Sand dropseed (Sporobolus cryptandrus) | 1.0 |
| Sideoats grama (Bouteloua curtipendula) | 5.0 |
| Plains bristlegrass (Setaria macrostachya) | 2.0 |

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed