NM OIL CONSERVATION
ARTESIA DISTRICT

AUG 3 2015

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SECRETARY'S POTASH

~~NMS-15-37~~

Form 3160-3
(March 2012)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

## APPLICATION FOR PERMIT TO DRILL OR REENTER

| | |
|---|---|
| 1a. Type of work: ☑ DRILL ☐ REENTER | 5. Lease Serial No. NMLC 068408 |
| 1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone | 6. If Indian, Allotee or Tribe Name |
| 2. Name of Operator BOPCO, L.P. | 7. If Unit or CA Agreement, Name and No. Big Eddy Unit NM68294X |
| 3a. Address P.O. Box 2760 Midland, TX 79702 | 3b. Phone No. (include area code) 432-683-2277 |
| 4. Location of Well (Report location clearly and in accordance with any State requirements.*) At surface NWNE, Lot 2, 860' FNL & 2,088' FEL, Lat:N32.607122,Long:W103.889142 At proposed prod. zone 660' FNL,2320'FEL,Sec6,.T20S-R31E,Lat:N32.60762, Long:W103.90710 | 8. Lease Name and Well No. Big Eddy Unit DI4 #266H |
| | 9. API Well No. 30-015-43285 |
| | 10. Field and Pool, or Exploratory WC William Sink (Bone Spring) |
| | 11. Sec., T. R. M. or Blk. and Survey or Area Section 5, T20S-R31E |
| 14. Distance in miles and direction from nearest town or post office* 23 miles northeast of Carlsbad, NM | 12. County or Parish Eddy County / 13. State NM |
| 15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 660' | 16. No. of acres in lease 1328.58 / 17. Spacing Unit dedicated to this well 187.68 |
| 18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 155' | 19. Proposed Depth 14,232' MD / 8,902' TVD / 20. BLM/BIA Bond No. on file COB 000050 |
| 21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3466' GL | 22. Approximate date work will start* 11/01/2014 / 23. Estimated duration 30 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 Whitney McKee | Name (Printed/Typed) Whitney McKee | Date 9/16/14 |
| Title Engineering Assistant | | |
| Approved by (Signature) /s/George MacDonell | Name (Printed/Typed) | Date JUL 27 2015 |
| 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

8/13/15

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Approval Subject to General Requirements & Special Stipulations Attached

Provisions of the MOA:

A. No new Class III inventories are required of industry within the Project Area for those projects where industry elects to contribute to the mitigation fund.

B. The amount of funds contributed was derived from the rate schedule established within Appendix B of the MOA. The amount of the funding contribution acknowledged on this form reflects those rates.

C. The BLM will utilize the funding to carry out a program of mitigation at high-priority sited whose study is needed to answer key questions identified within the Regional Research Design.

D. Donating to the fund is voluntary. Industry acknowledges that it is aware it has the right to pay for Class III survey rather than contributing to the mitigation fund, and that it must avoid or fund data recovery at those sites already recorded that are eligible for nomination to the National Register or whose eligibility is unknown and that any such payments are independent of the mitigation funds established by this MOA.

E. Previously recorded archeological sites determined eligible for nomination to the National Register or whose eligibility remains undetermined must be avoided or mitigated.

F. If any skeletal remains that might be human or funerary objects are discovered by any activities, the land-use applicant will cease activities in the area of discovery, protect the remains, and notify the BLM within 24 hours. The BLM will determine the appropriate treatment of the remains in consultation with culturally affiliated Indian Tribe(s) and lineal descendents. Applicants will be requited to pay for treatment of the cultural items independent and outside of the mitigation fund.

W Thomas B Mecke — 9/16/14

Company-Authorized Officer — Date

BLM-Authorized Officer — Date

## OPERATOR'S CERTIFICATION

APPLICATION FOR PERMIT TO DRILL
BIG EDDY UNIT DI4 #266H
860' FNL, 2,088' FEL, Sec. 5, T20S, R31E, Eddy County, NM

In reference to the above captioned well, 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 the 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 16 day of September, 2014.

If you have any questions regarding the accuracy of the plan provided herein, please do not hesitate to contact me at (432) 683-2277.

Whitney B. McKee

Whitney McKee
Engineering Assistant

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 Rd., 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 and Natural Resources Department

# OIL CONSERVATION DIVISION

*1220 South St. Francis Dr.*
*Santa Fe, New Mexico 87505*

Form C-102
Revised August 1, 2011

Submit one copy to appropriate District Office

☐ AMENDED REPORT

## WELL LOCATION AND ACREAGE DEDICATION PLAT

| API Number | Pool Code | Pool Name |
|---|---|---|
| 30-015-43285 | ~~97650~~ 96688 | Gatuna Canyon ~~WC WILLIAM SINK~~ (BONE SPRING) |

| Property Code | Property Name | Well Number |
|---|---|---|
| ~~305860~~ 313476 | BIG EDDY UNIT DI4 | 266H |
| **OGRID No.** | **Operator Name** | **Elevation** |
| 260737 | BOPCO, L.P. | 3466' |

### Surface Location

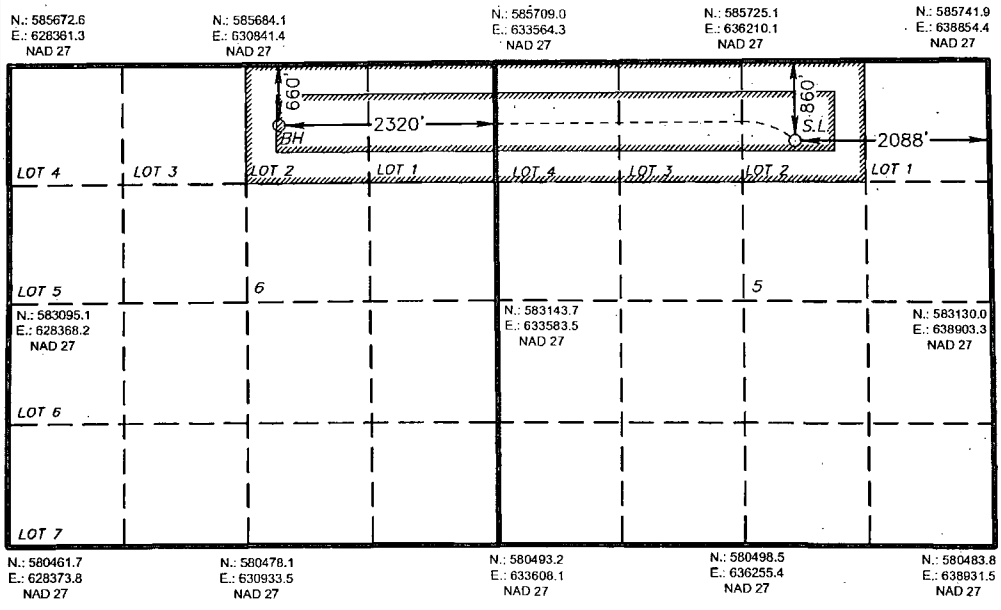
| UL or lot No. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| LOT 2 | 5 | 20 S | 31 E | | 860 | NORTH | 2088 | EAST | EDDY |

### 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 |
|---|---|---|---|---|---|---|---|---|---|
| LOT 2 | 6 | 20 S | 31 E | | 660 | NORTH | 2320 | EAST | EDDY |

| Dedicated Acres | Joint or Infill | Consolidation Code | Order No. |
|---|---|---|---|
| 187.68 | | | |

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




PROPOSED BOTTOM HOLE LOCATION
Lat – N 32°36'27.44"
Long – W 103°54'25.59"
NMSPCE– N 585027.9
E 631249.3
(NAD-27)

SURFACE LOCATION
Lat – N 32°36'25.64"
Long – W 103°53'20.91"
NMSPCE– N 584868.7
E 636782.4
(NAD-27)

### 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 9/16/14 Date

Whitney McKee
Printed Name

Wbmckee@basspet.com
Email Address

### SURVEYOR CERTIFICATION

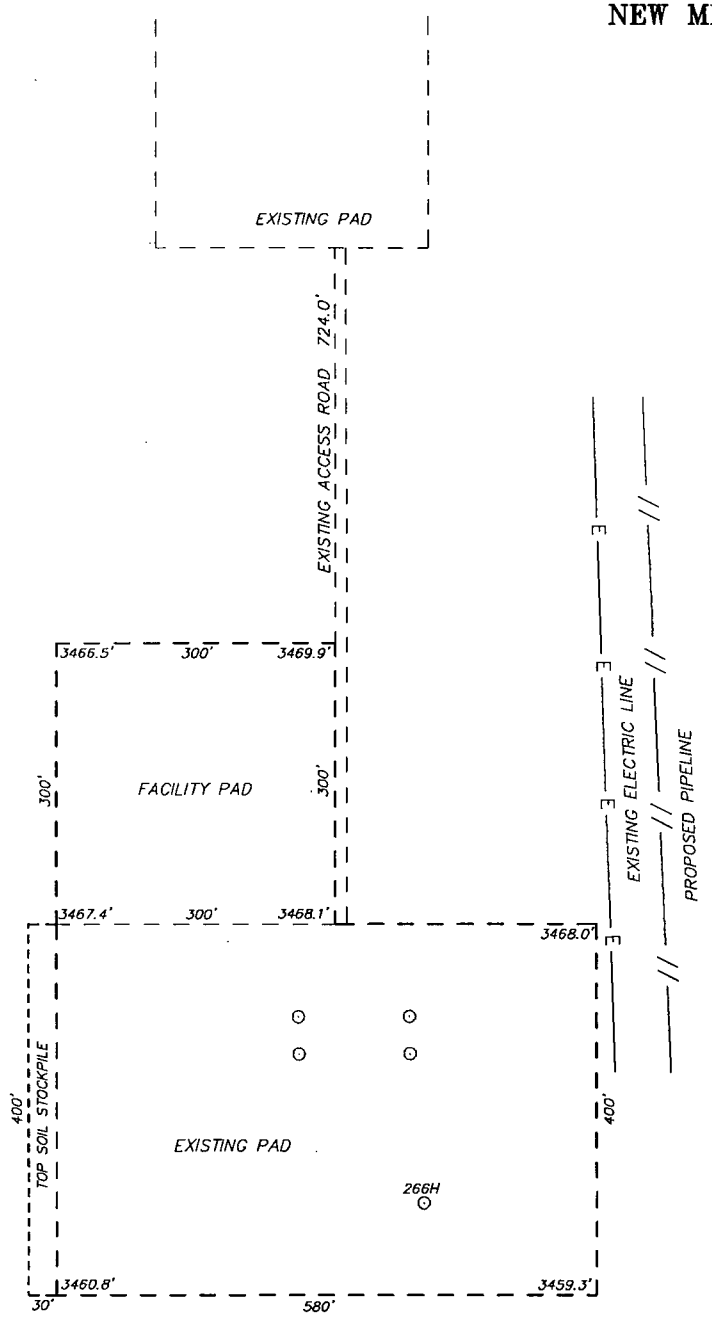
*I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervison, and that the same is true and correct to the best of my belief.*

SEPTEMBER 30, 2014
Date Surveyed
Signature & Seal of Professional Surveyor
7977
Certificate Number Gary L. Jones 7977
BASIN SURVEYS

0' 1000' 2000' 3000' 4000' N
SCALE: 1" = 2000'
WO Num.: 30835

# SECTION 5, TOWNSHIP 20 SOUTH, RANGE 31 EAST, N.M.P.M.,

**EDDY COUNTY,** **NEW MEXICO.**




***BOPCO, L.P.***
***BIG EDDY UNIT DI4 266H***
***ELEV. - 3466'***

Lat - N 32°36'25.64"
Long - W 103°53'20.91"
NMSPCE- N 584868.7
E 636782.4
(NAD-27)

*CARLSBAD, NM IS ±24 MILES TO THE SOUTHWEST OF LOCATION.*

200 0 200 400 FEET

SCALE: 1" = 200'

Directions to Location:

FROM HWY 360 AND CO. RD. 222, GO EAST ON SHUGART FOR 4.0 MILES TURNING SOUTHWEST 1.4 MILES TO EXISTING LEASE ROAD DUE SOUTH TO PROPOSED LOCATION.

## BOPCO, L.P.

REF: BIG EDDY UNIT DI4 266H / WELL PAD TOPO

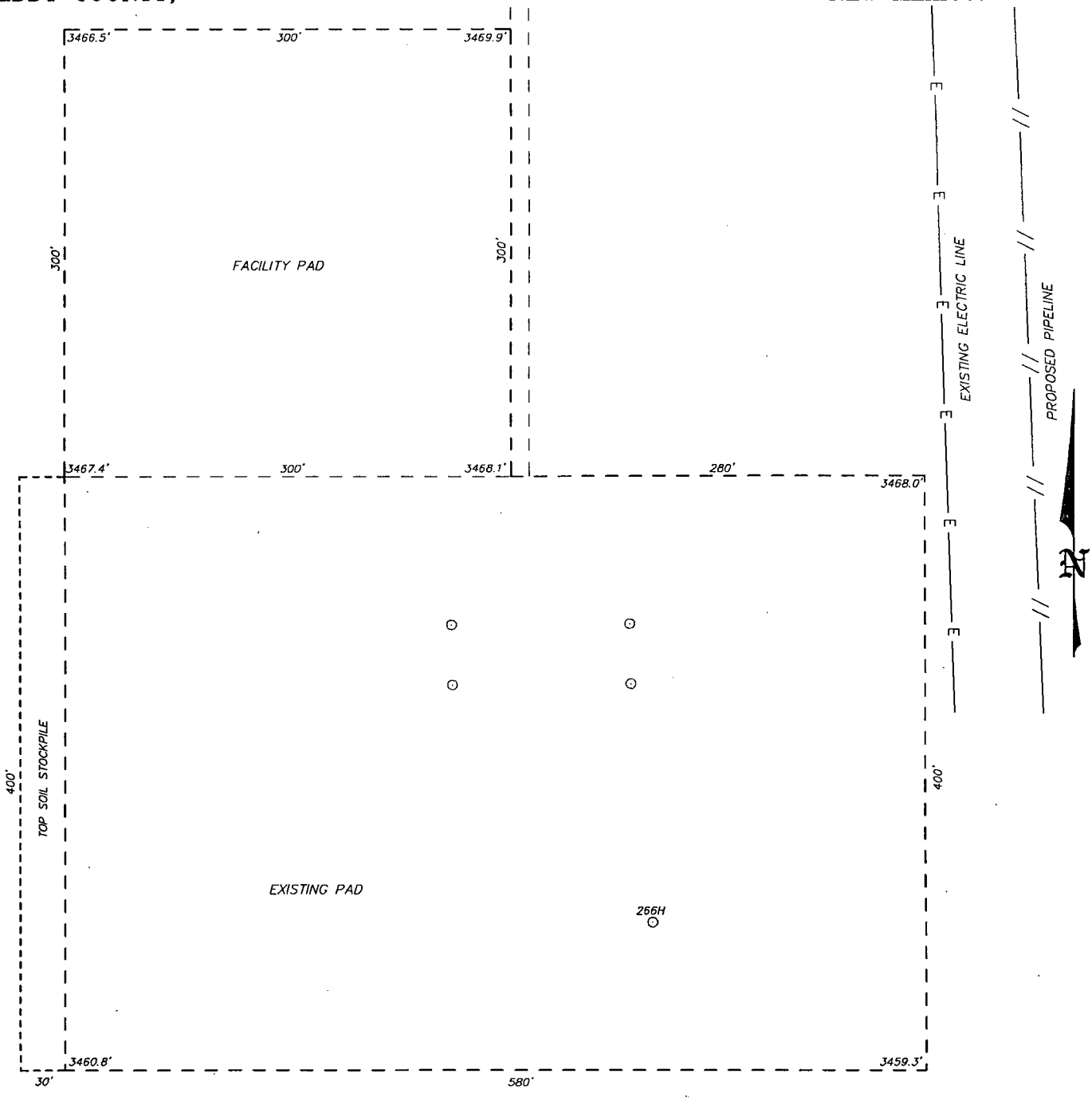
THE BIG EDDY UNIT DI4 266H LOCATED 860' FROM THE NORTH LINE AND 2088' FROM THE EAST LINE OF SECTION 5, TOWNSHIP 20 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.


basin surveys
focused on excellence in the oilfield
P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com


| W.O. Number: 30835 | Drawn By: J SMALL | Date: 08-25-2014 | Survey Date: 09-08-2014 | Sheet 1 of 1 Sheets |
|---|---|---|---|---|

# SECTION 5, TOWNSHIP 20 SOUTH, RANGE 31 EAST, N.M.P.M.,

EDDY COUNTY, NEW MEXICO.




100 0 100 200 FEET

SCALE: 1" = 100'

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REF: BIG EDDY UNIT DI4 266H / WELL PAD TOPO

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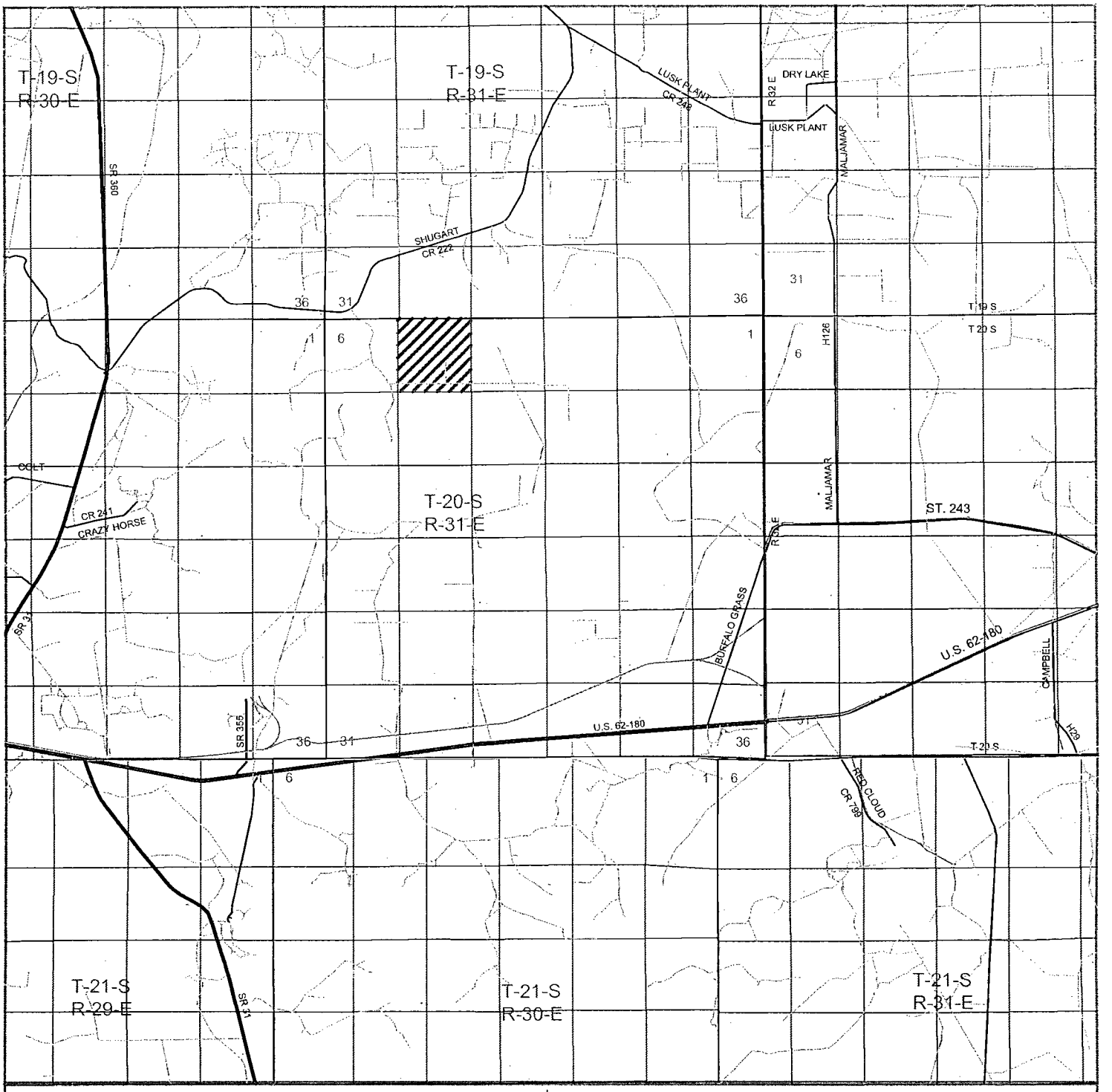


# BIG EDDY UNIT DI4 266H

## Located 860' FNL and 2088' FEL
## Section 5, Township 20 South, Range 31 East,
## N.M.P.M., Eddy County, New Mexico.


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0 1 MI 2 MI 3 MI 4 MI

SCALE: 1" = 2 MILES

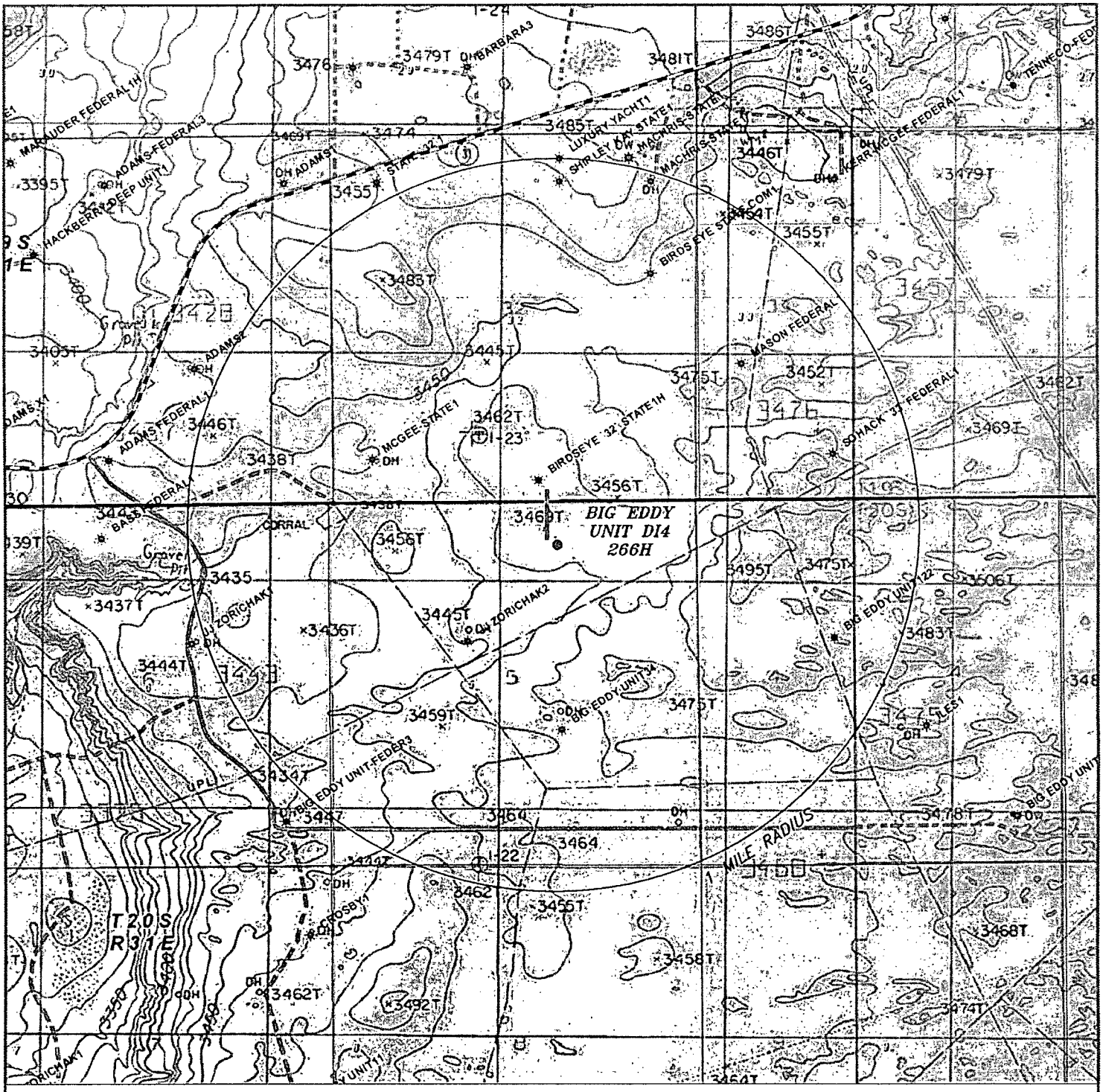
W.O. Number: JMS 30835

Survey Date: 09-08-2014

*YELLOW TINT - USA LAND*
*BLUE TINT - STATE LAND*
*NATURAL COLOR - FEE LAND*

N

**BOPCO, L.P.**

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0' 1000' 2000' 3000' 4000'
SCALE: 1" = 2000'

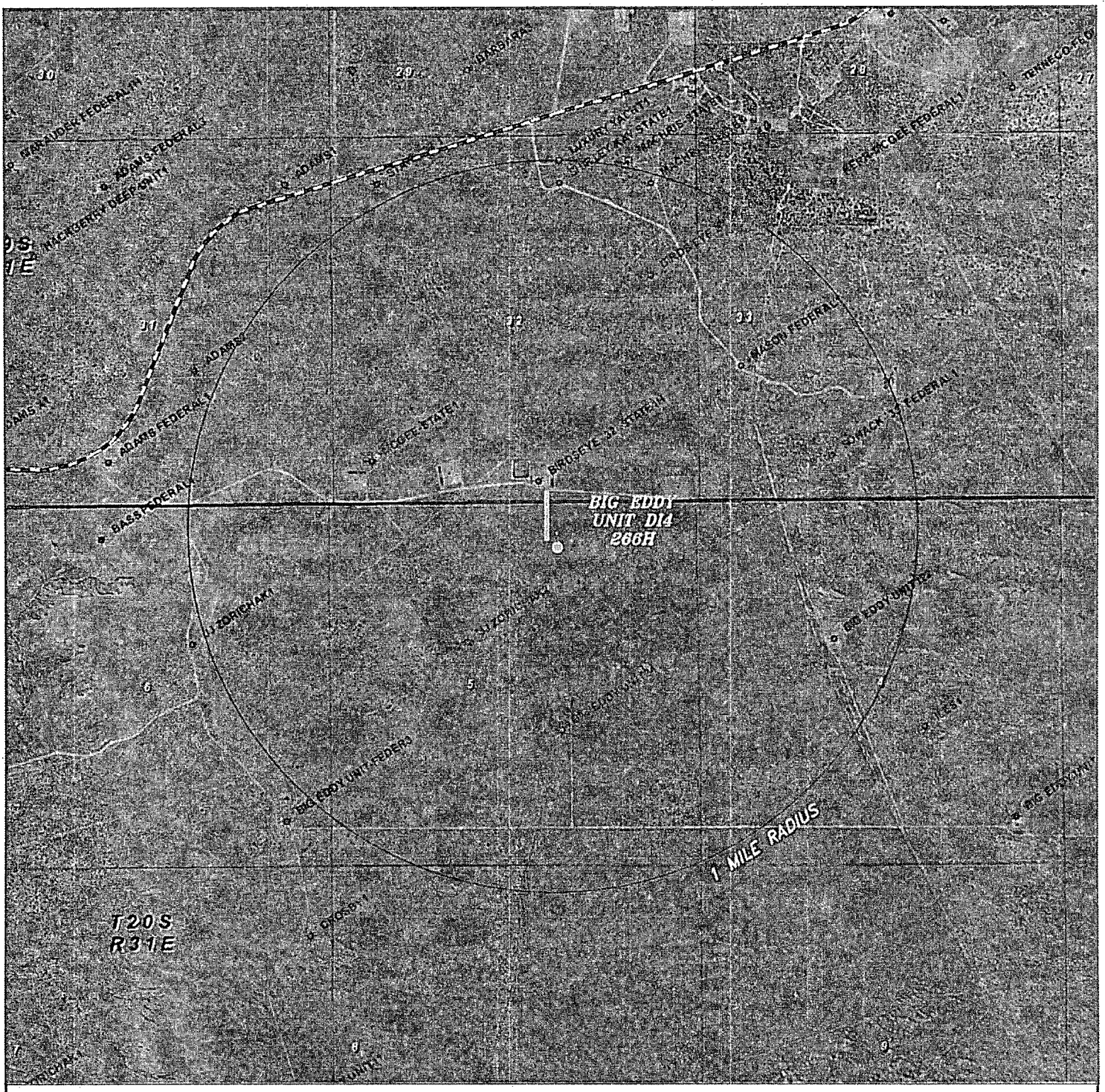
W.O. Number: JMS 30835

Survey Date: 09-08-2014

*YELLOW TINT - USA LAND*
*BLUE TINT - STATE LAND*
*NATURAL COLOR - FEE LAND*

N

**BOPCO, L.P.**

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0' 1000' 2000' 3000' 4000'
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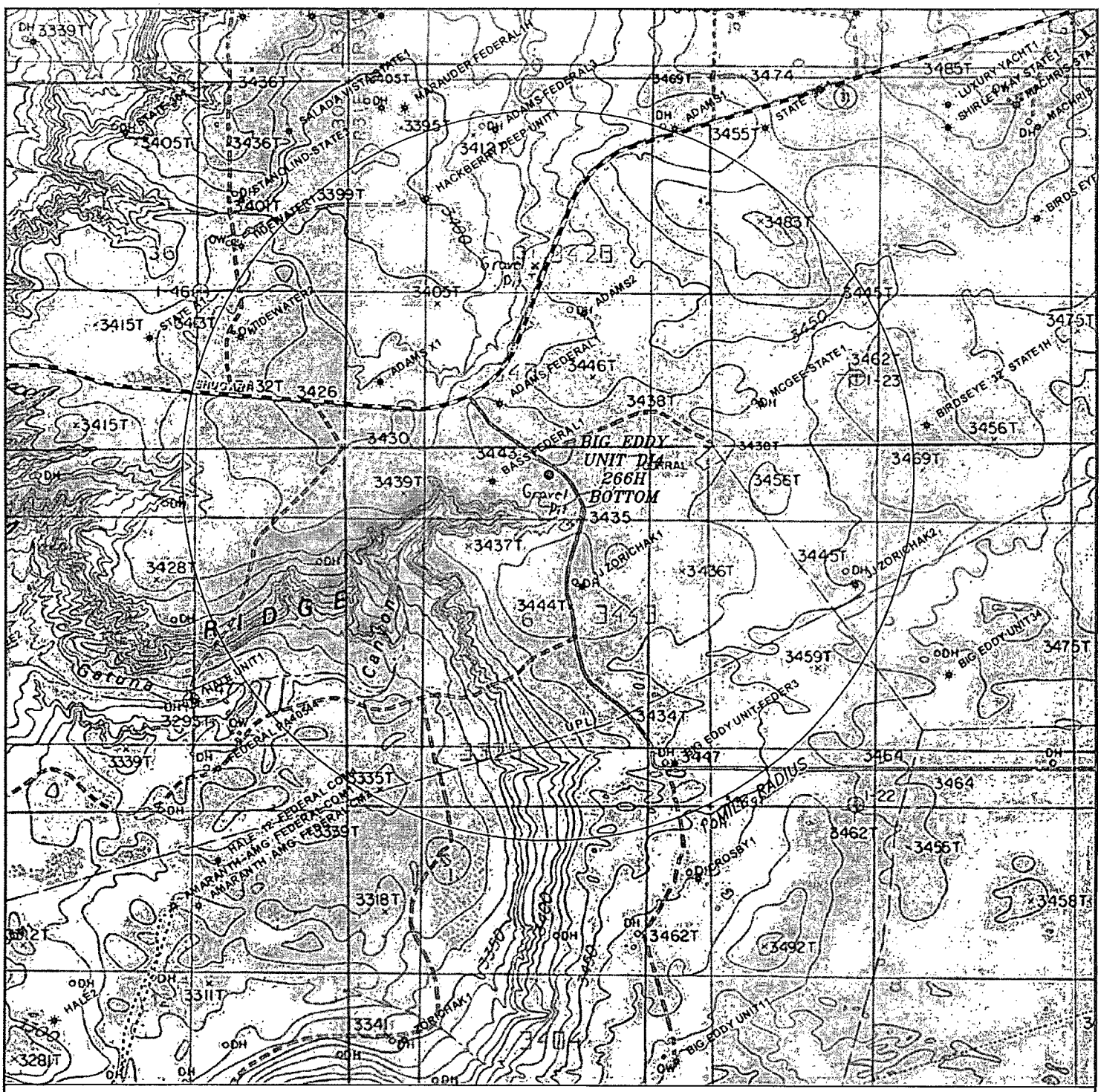
W.O. Number: JMS 30835

Survey Date: 09-08-2014

*YELLOW TINT - USA LAND*
*BLUE TINT - STATE LAND*
*NATURAL COLOR - FEE LAND*

N

**BOPCO, L.P.**




# BIG EDDY UNIT DI4 266H BOTTOM
## Located 660' FNL and 2320' FEL
## Section 6, Township 20 South, Range 31 East, N.M.P.M., Eddy County, New Mexico.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0' 1000' 2000' 3000' 4000'
SCALE: 1" = 2000'

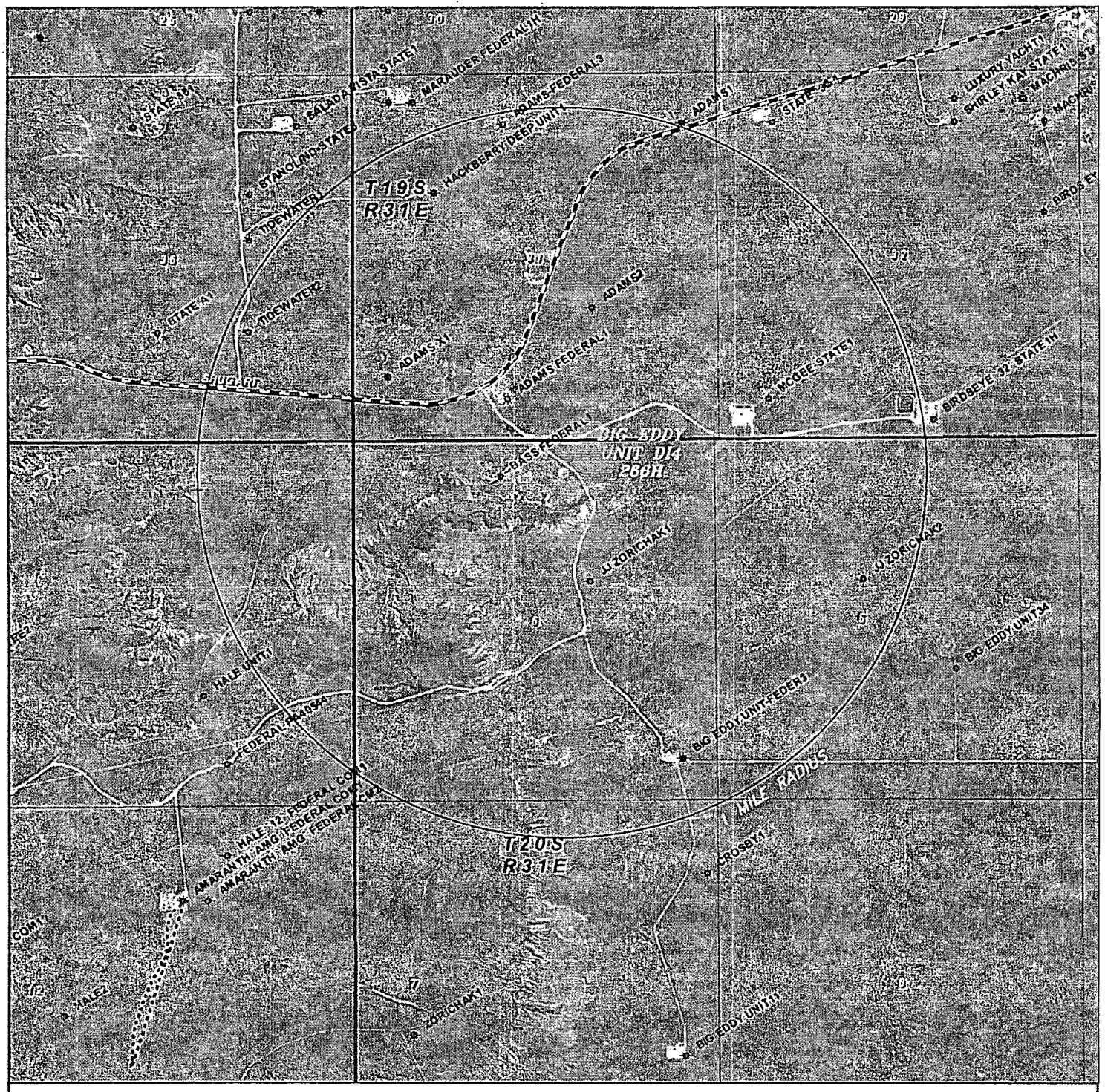
W.O. Number: JMS 30835

Survey Date: 09-08-2014

YELLOW TINT - USA LAND
BLUE TINT - STATE LAND
NATURAL COLOR - FEE LAND

N

**BOPCO, L.P.**

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0' 1000' 2000' 3000' 4000'
SCALE: 1" = 2000'

W.O. Number: JMS 30835

Survey Date: 09-08-2014

YELLOW TINT - USA LAND
BLUE TINT - STATE LAND
NATURAL COLOR - FEE LAND

N

**BOPCO, L.P.**

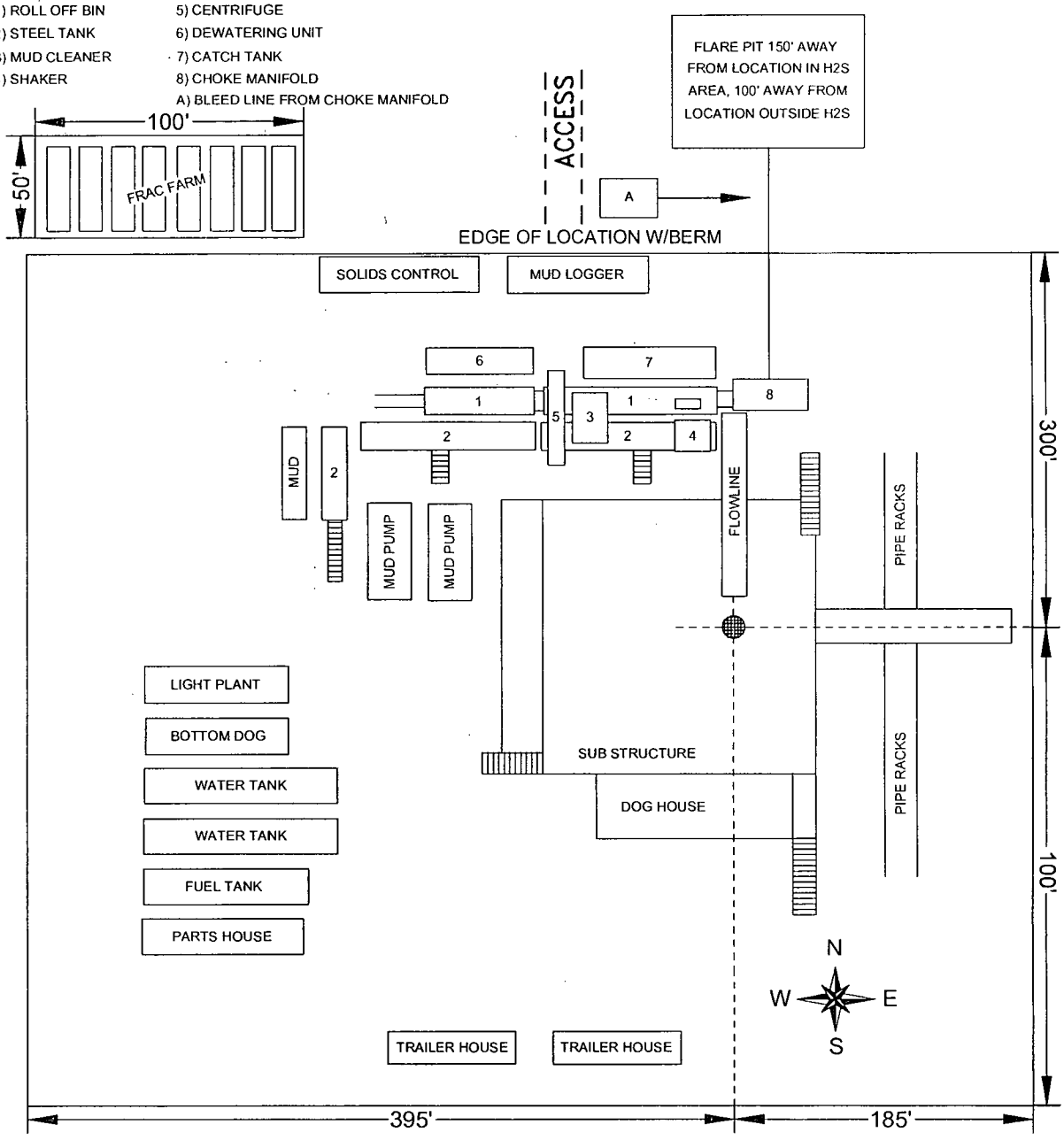
EXHIBIT "D"

RIG LAYOUT SCHEMATIC

INCLUSIVE OF CLOSED-LOOP DESIGN PLAN

SOLIDS CONTROL EQUIPMENT LEGEND

1) ROLL OFF BIN
2) STEEL TANK
3) MUD CLEANER
4) SHAKER
5) CENTRIFUGE
6) DEWATERING UNIT
7) CATCH TANK
8) CHOKE MANIFOLD
A) BLEED LINE FROM CHOKE MANIFOLD




# BIG EDDY UNIT DI4 266H

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SCALE: NONE

W.O. Number: JMS 30835

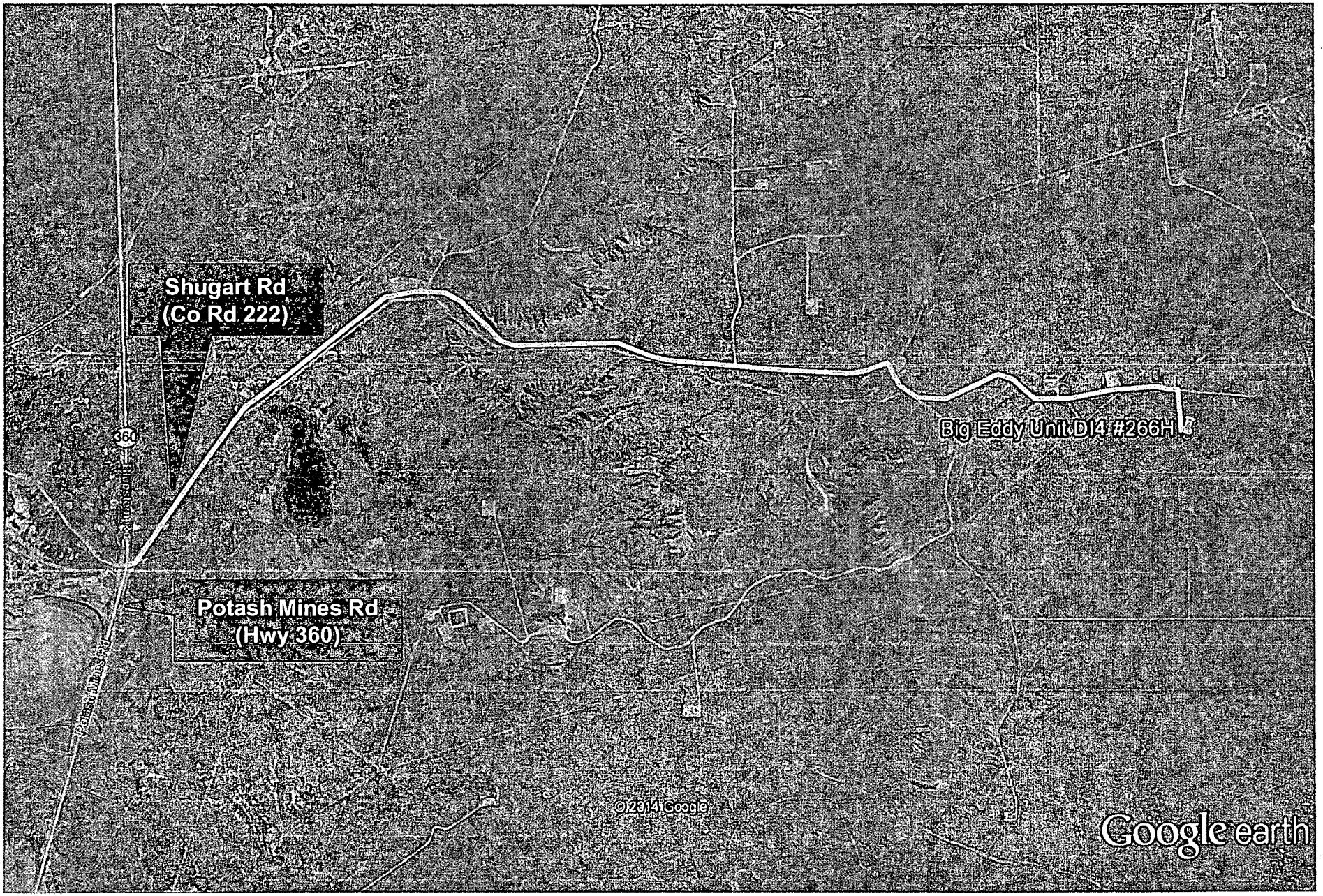
Survey Date: 09-08-2014

N

BOPCO, L.P.

# Flowline Route Diagram 4

# Access Road Diagram



## BOPCO, L.P., Big Eddy Unit DI4 #266H

### 1. Geologic Formations

| | | | |
|---|---|---|---|
| TVD of target | 9005 | Pilot hole depth | NA |
| MD at TD: | 14232 | Deepest expected fresh water: | 135 |

The Surface hole location is nonstandard, and inside the Big Eddy Unit.

**Basin**

| Formation | Depth (TVD) from KB | Water/Mineral Bearing/ Target Zone? | Hazards* |
|---|---|---|---|
| Quaternary Fill | Surface | Water | |
| Rustler | 618 | Water | |
| Top of Salado | 874 | Salt | |
| Base of Salt | 2382 | Salt | |
| Top of Yates | 2580 | Oil/Gas | |
| Top Capitan Reef | 2844 | Water | Loss of circulation |
| Top Delaware Mountain Group | 4084 | Oil/Gas | |
| Top Bone Spring Lime | 6894 | Oil/Gas | |
| Top 1st BS Sand | 8143 | Oil/Gas | |
| Top 2nd BS "A" Sand | 8954 | Oil/Gas | |
| Top 2nd BS "B" Sand | 8970 | Target Zone | |
| Top Wolfcamp | 10300 | Oil/Gas | |

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

### 2. Casing Program

See COA

| Hole Size | Casing Interval From | To | Csg. Size | Weight (lbs) | Grade | Conn. | SF Collapse | SF Burst | SF Tension |
|---|---|---|---|---|---|---|---|---|---|
| 18.125" | 0 | 830 | 16" | 84 | J55 | BTC | 3.5 | 1.94 | 22.13 |
| 14.75" | 0 | ~~2794~~ 2650' | 13.375" | 68 | HCL80 Ultra Flush Joint | STC | 1.89 | 3.22 | 9.70 |
| 12.25" | 0 | 4104 | 9.625" | 40 | J55 | LTC | 1.20 | 1.72 | 4.45 |
| 8.75" | 0 | 9255 | 7" | 26 | HCP110 | LTC | 1.60 | 1.99 | 3.45 |
| 6.25" | ~~9205~~ 9155 (100' minimum tie back) | 14232 | 4.5" | 11.6 | HCP110 | LTC | 1.71 | 2.13 | 3.10 |
| | | | | | BLM Minimum Safety Factor | | 1.125 | 1 | 1.6 Dry 1.8 Wet |

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

Must have table for contingency casing

| | Y or N |
|---|---|
| Is casing new? If used, attach certification as required in Onshore Order #1 | Y |
| 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? | N |
| Is well located within Capitan Reef? | Y |
| If yes, does production casing cement tie back a minimum of 50' above the Reef? | Y |
| Is well within the designated 4 string boundary. | Y |
| Is well located in SOPA but not in R-111-P? | N |
| If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing? | N |
| Is well located in R-111-P and SOPA? | N |
| If yes, are the first three strings cemented to surface? | N |
| Is 2nd string set 100' to 600' below the base of salt? | N |
| Is well located in high Cave/Karst? | N |
| If yes, are there two strings cemented to surface? | N |
| (For 2 string wells) If yes, is there a contingency casing if lost circulation occurs? | N |
| Is well located in critical Cave/Karst? | N |
| If yes, are there three strings cemented to surface? | N |

## 3. Cementing Program

| Casing | # Sks | Wt. lb/ gal | Yld ft3/ sack | $H_20$ gal/sk | 500# Comp. Strength (hours) | Slurry Description |
|---|---|---|---|---|---|---|
| Surf. | 250 | 13.5 | 1.75 | 8.69 | 14 | Lead: Class C +2% CACL + 4% Bentonite + 0.25 LB/SK Cello Flake + 3 lb/sk LCM-1 |
| | 220 | 14.8 | 1.35 | 6.35 | 8 | Tail: Class C + 2% CACL + 0.25 LB/Sk CF + 3 LB/Sk LCM-1 |
| Inter. | 460 | 12.9 | 1.85 | 9.32 | 14 | Lead: EconoCEM HLC + 5% CaCl + 5#/sk Gilsonite |
| | 220 | 14.8 | 1.33 | 6.34 | 6 | Tail: Class C neat |
| 2nd Inter. | 370 | 13.5 | 1.75 | 8.69 | 14 | 1st primary: HalCem C 4% bentonite + 0.6% Halad(R)-9 **DV Tool and ECP @ 2844'** |
| 2nd Inter. | 560<br>180 | 12.9<br>14.8 | 1.85<br>1.33 | 9.83<br>6.34 | 14<br>6 | 2nd Lead: EconoCem HLC + NaCL<br>2nd Tail: Class C neat |
| Prod. | 90 | 11 | 2.64 | 14.87 | 11 | 1st Lead: Tuned Light + 0.125 pps Poly – E- Flake |
| | 390 | 12 | 2.03 | 11.41 | 14 | 1st Tail: Class H + 0.5% Halad-344 + 0.25% CFR-3 + 0.5% Econolite |

| | | | | | | |
|---|---|---|---|---|---|---|
| | DV Tool 5000' | | | | | |
| | 190 | 11 | 2.35 | 11.7 | 11 | 2nd stage Primary: Tuned Light + 0.125 pps Poly – E-Flake |
| Liner | 640 | 14.5 | 1.23 | 5.49 | 25 | Primary: Class H + 0.5% Lap-1 + 0.3% CFR-3 + 0.5 lb/sk D-Air-5000 + 0.125 lb/sk Poly-E-Flake + 0.1% FWCA + 0.1% HR-601 |

DV tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe.

| Casing String | TOC | % Excess |
|---|---|---|
| Surface | 0' | 100% |
| Intermediate | 0' | 30% |
| 2nd Intermediate | 0' | 50% |
| Production | ~~2794~~' | 50% |
| Liner | 9205' | 50% |

50' above Capitan Reef + 500' tie back. which ever is greater tie back

**4. Pressure Control Equipment**

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

| BOP installed and tested before drilling which hole? | Size? | System Rated WP | Type | ✓ | Tested to: |
|---|---|---|---|---|---|
| 14-3/4" | 13-5/8" | 3M | Annular | x | 50% of working pressure |
| | | | Blind Ram | x | 3000 |
| | | | Pipe Ram | x | |
| | | | Double Ram | | |
| | | | Other* | | |
| 12-1/4" | 13-5/8" | 3M | Annular | x | 50% of working pressure |
| | | | Blind Ram | x | 3000 |
| | | | Pipe Ram | x | |
| | | | Double Ram | | |
| | | | Other* | | |
| 8-3/4" | 13-5/8" | 3M | Annular | x | 50% of working pressure |
| | | | Blind Ram | x | 3000 |
| | | | Pipe Ram | x | |
| | | | Double Ram | | |
| | | | Other* | | |

*Specify if additional ram is utilized.

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

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

| | |
|---|---|
| | 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. |
| X | 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? |
| NO | 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>See attached schematic. |

**5. Mud Program**

| Depth | | Type | Weight (ppg) | Viscosity | Water Loss |
|---|---|---|---|---|---|
| From | To | | | | |
| 0 | Surf. shoe | FW Gel | 8 -9.2 | 38-70 | N/C |
| Surf csg | Int shoe | Saturated Brine | 9.8-10.2 | 28-30 | N/C |
| Int. shoe | Prod. Shoe | FW/Gel | 8.7-9.0 | 28-36 | N/C |
| Prod. casing shoe | TD | FW/Gel/Starch | 8.7-9.0 | 28-36 | <100 |

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/Visual Monitoring |

**6. Logging and Testing Procedures**

| Logging, Coring and Testing. | |
|---|---|
| | Will run GR/CNL fromTD to surface (horizontal well – vertical portion of hole). Stated |

| | |
|---|---|
| | logs run will be in the Completion Report and submitted to the BLM. |
| X | 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 |
|---|---|---|
| | Resistivity | Int. shoe to KOP |
| | Density | Int. shoe to KOP |
| | CBL | Production casing |
| | Mud log | Intermediate shoe to TD |
| | PEX | |

## 7. Drilling Conditions

| Condition | Specify what type and where? |
|---|---|
| BH Pressure at deepest TVD | 4214 psi |
| Abnormal Temperature | No |

Mitigation measure for abnormal conditions. Describe. Standard LCM will be on location to use when needed.

| 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

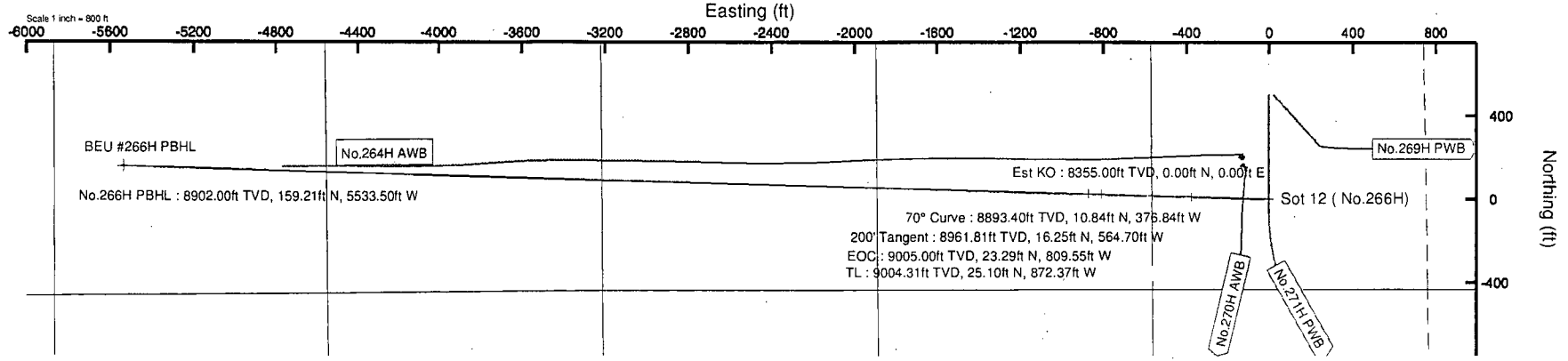
Is this a walking operation? No
Will be pre-setting casing? No

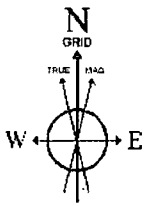
Attachments
_X_ Directional Plan
___ Other, describe

# WTD - West Texas Division

Location: Eddy County, NM
Field: Big Eddy Unit
Facility: Drilling Island 4
Slot: Sot 12 ( No.266H)
Well: No.266H
Wellbore: No.266H PWB

**BOPCO, L.P.**



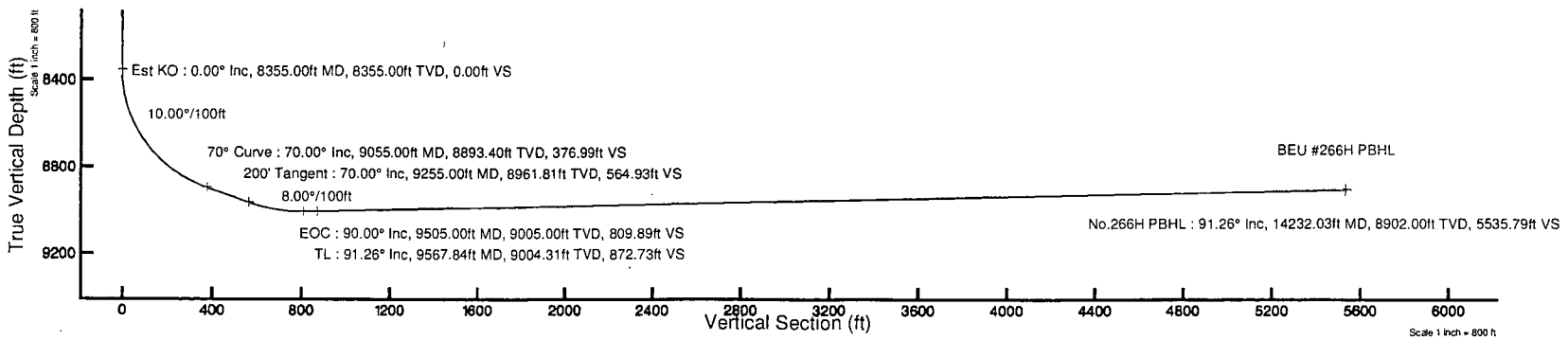




IGRF-11 (1900.0 thru 2014.0) Dip: 60.41° Field: 48487.9 nT
Magnetic North is 7.36 degrees East of True North (at 9/12/2014)
Grid North is 0.24 degrees East of True North
To correct azimuth from True to Grid subtract 0.24 degrees
To correct azimuth from Magnetic to Grid add 7.12 degrees

**Well Profile Data**

| Design Comment | MD (ft) | Inc (°) | Az (°) | TVD (ft) | Local N (ft) | Local E (ft) | DLS (°/100ft) | VS (ft) |
|---|---|---|---|---|---|---|---|---|
| Tie On | 26.00 | 0.000 | 271.648 | 26.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Est KO | 8355.00 | 0.000 | 271.648 | 8355.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 70° Curve | 9055.00 | 70.000 | 271.648 | 8893.40 | 10.84 | -376.84 | 10.00 | 376.99 |
| 200' Tangent | 9255.00 | 70.000 | 271.648 | 8961.81 | 16.25 | -564.70 | 0.00 | 564.93 |
| EOC | 9505.00 | 90.000 | 271.648 | 9005.00 | 23.29 | -809.55 | 8.00 | 809.89 |
| TL | 9567.84 | 91.257 | 271.648 | 9004.31 | 25.10 | -872.37 | 2.00 | 872.73 |
| No.266H PBHL | 14232.03 | 91.257 | 271.648 | 8902.00 | 159.21 | -5533.50 | 0.00 | 5535.79 |

| | |
|---|---|
| Plot reference wellpath is B-1 | |
| True vertical depths are referenced to Rig on Sot 12 ( No.266H) (KB) | Grid System: NAD27 / TM New Mexico SP, Eastern Zone (3001), US feet |
| Measured depths are referenced to Rig on Sot 12 ( No.266H) (KB) | North Reference: Grid north |
| Rig on Sot 12 ( No.266H) (KB) to Mean Sea Level: 3492 feet | Scale: True distance |
| Mean Sea Level to Mud line (At Slot: Sot 12 ( No.266H)): 0 feet | Depths are in feet |
| Coordinates are in feet referenced to Slot | Created by: BWGentry on 9/12/2014 |




Azimuth 271.65° with reference 0.00 N, 0.00 E

# Planned Wellpath Report

**B-1**



**BOPCO, L.P.**

| REFERENCE WELLPATH IDENTIFICATION | | | |
|---|---|---|---|
| Operator | **WTD - West Texas Division** | Slot | **Sot 12 ( No.266H)** |
| Area | **Eddy County, NM** | Well | **No.266H** |
| Field | **Big Eddy Unit** | Wellbore | **No.266H PWB** |
| Facility | **Drilling Island 4** | | |

| REPORT SETUP INFORMATION | | | |
|---|---|---|---|
| Projection System | **NAD27 / TM New Mexico SP, Eastern Zone (3001), US feet** | Software System | **WellArchitect® 4.0.1** |
| North Reference | **Grid** | User | **BWGentry** |
| Scale | **0.999931** | Report Generated | **9/12/2014** at **1:48:24 PM** |
| Convergence at slot | **0.24° East** | Database/Source file | **WellArchitectDB/No.266H_PWB.xml** |

| WELLPATH LOCATION | Local coordinates | | Grid coordinates | | Geographic coordinates | |
|---|---|---|---|---|---|---|
| | **North[ft]** | **East[ft]** | **Easting[US ft]** | **Northing[US ft]** | **Latitude** | **Longitude** |
| Slot Location | -159.01 | 135.01 | **636782.40** | **584868.70** | 32°36'25.644"N | 103°53'20.913"W |
| Facility Reference Pt | | | **636647.40** | **585027.70** | 32°36'27.223"N | 103°53'22.483"W |
| Field Reference Pt | | | **640125.10** | **530502.80** | 32°27'27.522"N | 103°52'44.545"W |

| WELLPATH DATUM | | | |
|---|---|---|---|
| Calculation method | **Minimum curvature** | Rig on Sot 12 ( No.266H) (KB) to Facility Vertical Datum | **3492.00ft** |
| Horizontal Reference Pt | **Slot** | Rig on Sot 12 ( No.266H) (KB) to Mean Sea Level | **3492.00ft** |
| Vertical Reference Pt | **Rig on Sot 12 ( No.266H) (KB)** | Rig on Sot 12 ( No.266H) (KB) to Mud Line at Slot (Sot 12 ( No.266H)) | **3492.00ft** |
| MD Reference Pt | **Rig on Sot 12 ( No.266H) (KB)** | Section Origin | **N 0.00, E 0.00 ft** |
| Field Vertical Reference | **Mean Sea Level** | Section Azimuth | **271.65°** |

# Planned Wellpath Report

**B-1**



**BOPCO, L.P.**

| REFERENCE WELLPATH IDENTIFICATION | | | |
|---|---|---|---|
| Operator | WTD - West Texas Division | Slot | Sot 12 ( No.266H) |
| Area | Eddy County, NM | Well | No.266H |
| Field | Big Eddy Unit | Wellbore | No.266H PWB |
| Facility | Drilling Island 4 | | |

**WELLPATH DATA (162 stations)** † = interpolated/extrapolated station

| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Grid East [US ft] | Grid North [US ft] | Latitude | Longitude | DLS [°/100ft] | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00† | 0.000 | 271.648 | 0.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 26.00 | 0.000 | 271.648 | 26.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | Tie On |
| 126.00† | 0.000 | 271.648 | 126.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 226.00† | 0.000 | 271.648 | 226.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 326.00† | 0.000 | 271.648 | 326.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 426.00† | 0.000 | 271.648 | 426.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 526.00† | 0.000 | 271.648 | 526.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 618.00† | 0.000 | 271.648 | 618.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | Rustler |
| 626.00† | 0.000 | 271.648 | 626.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 726.00† | 0.000 | 271.648 | 726.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 826.00† | 0.000 | 271.648 | 826.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 874.00† | 0.000 | 271.648 | 874.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | Top of Salado |
| 926.00† | 0.000 | 271.648 | 926.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 1026.00† | 0.000 | 271.648 | 1026.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 1126.00† | 0.000 | 271.648 | 1126.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 1226.00† | 0.000 | 271.648 | 1226.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 1326.00† | 0.000 | 271.648 | 1326.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 1426.00† | 0.000 | 271.648 | 1426.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 1526.00† | 0.000 | 271.648 | 1526.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 1626.00† | 0.000 | 271.648 | 1626.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 1726.00† | 0.000 | 271.648 | 1726.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 1826.00† | 0.000 | 271.648 | 1826.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 1926.00† | 0.000 | 271.648 | 1926.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 2026.00† | 0.000 | 271.648 | 2026.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 2126.00† | 0.000 | 271.648 | 2126.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 2226.00† | 0.000 | 271.648 | 2226.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 2326.00† | 0.000 | 271.648 | 2326.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 2382.00† | 0.000 | 271.648 | 2382.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | Base of Salt |
| 2426.00† | 0.000 | 271.648 | 2426.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 2526.00† | 0.000 | 271.648 | 2526.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 2580.00† | 0.000 | 271.648 | 2580.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | Top of Yates |
| 2626.00† | 0.000 | 271.648 | 2626.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 2726.00† | 0.000 | 271.648 | 2726.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 2826.00† | 0.000 | 271.648 | 2826.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 2844.00† | 0.000 | 271.648 | 2844.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | Top Capitan Reef |
| 2926.00† | 0.000 | 271.648 | 2926.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 3026.00† | 0.000 | 271.648 | 3026.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 3126.00† | 0.000 | 271.648 | 3126.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 3226.00† | 0.000 | 271.648 | 3226.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 3326.00† | 0.000 | 271.648 | 3326.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 3426.00† | 0.000 | 271.648 | 3426.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 3526.00† | 0.000 | 271.648 | 3526.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 3626.00† | 0.000 | 271.648 | 3626.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 3726.00† | 0.000 | 271.648 | 3726.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 3826.00† | 0.000 | 271.648 | 3826.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |

# Planned Wellpath Report

B-1



**BOPCO, L.P.**

| REFERENCE WELLPATH IDENTIFICATION | | | |
|---|---|---|---|
| Operator | WTD - West Texas Division | Slot | Sot 12 ( No.266H) |
| Area | Eddy County, NM | Well | No.266H |
| Field | Big Eddy Unit | Wellbore | No.266H PWB |
| Facility | Drilling Island 4 | | |

**WELLPATH DATA (162 stations)** † = interpolated/extrapolated station

| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Grid East [US ft] | Grid North [US ft] | Latitude | Longitude | DLS [°/100ft] | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3926.00† | 0.000 | 271.648 | 3926.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 4026.00† | 0.000 | 271.648 | 4026.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 4084.00† | 0.000 | 271.648 | 4084.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | Top Delaware Mountain Group |
| 4126.00† | 0.000 | 271.648 | 4126.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 4226.00† | 0.000 | 271.648 | 4226.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 4326.00† | 0.000 | 271.648 | 4326.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 4426.00† | 0.000 | 271.648 | 4426.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 4526.00† | 0.000 | 271.648 | 4526.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 4626.00† | 0.000 | 271.648 | 4626.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 4726.00† | 0.000 | 271.648 | 4726.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 4826.00† | 0.000 | 271.648 | 4826.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 4926.00† | 0.000 | 271.648 | 4926.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 5026.00† | 0.000 | 271.648 | 5026.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 5126.00† | 0.000 | 271.648 | 5126.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 5226.00† | 0.000 | 271.648 | 5226.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 5326.00† | 0.000 | 271.648 | 5326.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 5426.00† | 0.000 | 271.648 | 5426.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 5526.00† | 0.000 | 271.648 | 5526.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 5626.00† | 0.000 | 271.648 | 5626.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 5726.00† | 0.000 | 271.648 | 5726.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 5826.00† | 0.000 | 271.648 | 5826.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 5926.00† | 0.000 | 271.648 | 5926.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 6026.00† | 0.000 | 271.648 | 6026.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 6126.00† | 0.000 | 271.648 | 6126.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 6226.00† | 0.000 | 271.648 | 6226.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 6326.00† | 0.000 | 271.648 | 6326.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 6426.00† | 0.000 | 271.648 | 6426.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 6526.00† | 0.000 | 271.648 | 6526.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 6626.00† | 0.000 | 271.648 | 6626.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 6726.00† | 0.000 | 271.648 | 6726.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 6826.00† | 0.000 | 271.648 | 6826.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 6894.00† | 0.000 | 271.648 | 6894.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | Top Bone Spring Lime |
| 6926.00† | 0.000 | 271.648 | 6926.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 7026.00† | 0.000 | 271.648 | 7026.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 7126.00† | 0.000 | 271.648 | 7126.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 7226.00† | 0.000 | 271.648 | 7226.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 7326.00† | 0.000 | 271.648 | 7326.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 7426.00† | 0.000 | 271.648 | 7426.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 7526.00† | 0.000 | 271.648 | 7526.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 7626.00† | 0.000 | 271.648 | 7626.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 7726.00† | 0.000 | 271.648 | 7726.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 7826.00† | 0.000 | 271.648 | 7826.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 7926.00† | 0.000 | 271.648 | 7926.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 8026.00† | 0.000 | 271.648 | 8026.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 8126.00† | 0.000 | 271.648 | 8126.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |

# Planned Wellpath Report

**B-1**



**BOPCO, L.P.**

| REFERENCE WELLPATH IDENTIFICATION | | | |
|---|---|---|---|
| Operator | WTD - West Texas Division | Slot | Sot 12 ( No.266H) |
| Area | Eddy County, NM | Well | No.266H |
| Field | Big Eddy Unit | Wellbore | No.266H PWB |
| Facility | Drilling Island 4 | | |

**WELLPATH DATA (162 stations)** † = interpolated/extrapolated station

| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Grid East [US ft] | Grid North [US ft] | Latitude | Longitude | DLS [°/100ft] | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8143.00† | 0.000 | 271.648 | 8143.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | Top 1st BS Sand |
| 8226.00† | 0.000 | 271.648 | 8226.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 8326.00† | 0.000 | 271.648 | 8326.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | |
| 8355.00 | 0.000 | 271.648 | 8355.00 | 0.00 | 0.00 | 0.00 | 636782.40 | 584868.70 | 32°36'25.644"N | 103°53'20.913"W | 0.00 | Est KO |
| 8426.00† | 7.100 | 271.648 | 8425.82 | 4.39 | 0.13 | -4.39 | 636778.01 | 584868.83 | 32°36'25.645"N | 103°53'20.964"W | 10.00 | |
| 8526.00† | 17.100 | 271.648 | 8523.47 | 25.33 | 0.73 | -25.32 | 636757.08 | 584869.43 | 32°36'25.652"N | 103°53'21.209"W | 10.00 | |
| 8626.00† | 27.100 | 271.648 | 8616.01 | 62.90 | 1.81 | -62.88 | 636719.53 | 584870.51 | 32°36'25.664"N | 103°53'21.648"W | 10.00 | |
| 8726.00† | 37.100 | 271.648 | 8700.61 | 115.98 | 3.34 | -115.93 | 636666.48 | 584872.04 | 32°36'25.682"N | 103°53'22.268"W | 10.00 | |
| 8826.00† | 47.100 | 271.648 | 8774.72 | 182.93 | 5.26 | -182.86 | 636599.56 | 584873.96 | 32°36'25.703"N | 103°53'23.050"W | 10.00 | |
| 8926.00† | 57.100 | 271.648 | 8836.07 | 261.74 | 7.53 | -261.63 | 636520.79 | 584876.23 | 32°36'25.729"N | 103°53'23.971"W | 10.00 | |
| 9026.00† | 67.100 | 271.648 | 8882.80 | 350.01 | 10.07 | -349.86 | 636432.56 | 584878.77 | 32°36'25.758"N | 103°53'25.002"W | 10.00 | |
| 9055.00 | 70.000 | 271.648 | 8893.40 | 376.99 | 10.84 | -376.84 | 636405.59 | 584879.54 | 32°36'25.767"N | 103°53'25.317"W | 10.00 | 70° Curve |
| 9126.00† | 70.000 | 271.648 | 8917.69 | 443.71 | 12.76 | -443.53 | 636338.90 | 584881.46 | 32°36'25.788"N | 103°53'26.097"W | 0.00 | |
| 9226.00† | 70.000 | 271.648 | 8951.89 | 537.68 | 15.46 | -537.46 | 636244.98 | 584884.16 | 32°36'25.819"N | 103°53'27.195"W | 0.00 | |
| 9232.17† | 70.000 | 271.648 | 8954.00 | 543.48 | 15.63 | -543.26 | 636239.18 | 584884.33 | 32°36'25.821"N | 103°53'27.262"W | 0.00 | Top 2nd BS "A" Sand |
| 9255.00 | 70.000 | 271.648 | 8961.81 | 564.93 | 16.25 | -564.70 | 636217.74 | 584884.95 | 32°36'25.828"N | 103°53'27.513"W | 0.00 | 200' Tangent |
| 9280.17† | 72.014 | 271.648 | 8970.00 | 588.73 | 16.93 | -588.49 | 636193.95 | 584885.63 | 32°36'25.836"N | 103°53'27.791"W | 8.00 | Top 2nd BS "B" Sand |
| 9326.00† | 75.680 | 271.648 | 8982.75 | 632.74 | 18.20 | -632.48 | 636149.96 | 584886.90 | 32°36'25.850"N | 103°53'28.305"W | 8.00 | |
| 9426.00† | 83.680 | 271.648 | 9000.65 | 731.05 | 21.02 | -730.74 | 636051.71 | 584889.72 | 32°36'25.882"N | 103°53'29.454"W | 8.00 | |
| 9505.00 | 90.000 | 271.648 | 9005.00 | 809.89 | 23.29 | -809.55 | 635972.91 | 584891.99 | 32°36'25.908"N | 103°53'30.375"W | 8.00 | EOC |
| 9526.00† | 90.420 | 271.648 | 9004.92 | 830.89 | 23.90 | -830.54 | 635951.92 | 584892.59 | 32°36'25.914"N | 103°53'30.620"W | 2.00 | |
| 9567.84 | 91.257 | 271.648 | 9004.31 | 872.73 | 25.10 | -872.37 | 635910.10 | 584893.80 | 32°36'25.928"N | 103°53'31.109"W | 2.00 | TL |
| 9626.00† | 91.257 | 271.648 | 9003.04 | 930.87 | 26.77 | -930.48 | 635851.98 | 584895.47 | 32°36'25.947"N | 103°53'31.788"W | 0.00 | |
| 9726.00† | 91.257 | 271.648 | 9000.84 | 1030.84 | 29.65 | -1030.42 | 635752.06 | 584898.34 | 32°36'25.980"N | 103°53'32.956"W | 0.00 | |
| 9826.00† | 91.257 | 271.648 | 8998.65 | 1130.82 | 32.52 | -1130.35 | 635652.13 | 584901.22 | 32°36'26.012"N | 103°53'34.124"W | 0.00 | |
| 9926.00† | 91.257 | 271.648 | 8996.45 | 1230.80 | 35.40 | -1230.29 | 635552.20 | 584904.09 | 32°36'26.045"N | 103°53'35.292"W | 0.00 | |
| 10026.00† | 91.257 | 271.648 | 8994.26 | 1330.77 | 38.27 | -1330.22 | 635452.27 | 584906.97 | 32°36'26.077"N | 103°53'36.461"W | 0.00 | |
| 10126.00† | 91.257 | 271.648 | 8992.07 | 1430.75 | 41.15 | -1430.16 | 635352.35 | 584909.84 | 32°36'26.110"N | 103°53'37.629"W | 0.00 | |
| 10226.00† | 91.257 | 271.648 | 8989.87 | 1530.72 | 44.02 | -1530.09 | 635252.42 | 584912.72 | 32°36'26.142"N | 103°53'38.797"W | 0.00 | |
| 10326.00† | 91.257 | 271.648 | 8987.68 | 1630.70 | 46.90 | -1630.03 | 635152.49 | 584915.60 | 32°36'26.175"N | 103°53'39.965"W | 0.00 | |
| 10426.00† | 91.257 | 271.648 | 8985.49 | 1730.68 | 49.77 | -1729.96 | 635052.56 | 584918.47 | 32°36'26.207"N | 103°53'41.133"W | 0.00 | |
| 10526.00† | 91.257 | 271.648 | 8983.29 | 1830.65 | 52.65 | -1829.89 | 634952.64 | 584921.35 | 32°36'26.240"N | 103°53'42.301"W | 0.00 | |
| 10626.00† | 91.257 | 271.648 | 8981.10 | 1930.63 | 55.52 | -1929.83 | 634852.71 | 584924.22 | 32°36'26.272"N | 103°53'43.469"W | 0.00 | |
| 10726.00† | 91.257 | 271.648 | 8978.91 | 2030.60 | 58.40 | -2029.76 | 634752.78 | 584927.10 | 32°36'26.305"N | 103°53'44.637"W | 0.00 | |
| 10826.00† | 91.257 | 271.648 | 8976.71 | 2130.58 | 61.28 | -2129.70 | 634652.85 | 584929.97 | 32°36'26.337"N | 103°53'45.805"W | 0.00 | |
| 10926.00† | 91.257 | 271.648 | 8974.52 | 2230.56 | 64.15 | -2229.63 | 634552.93 | 584932.85 | 32°36'26.370"N | 103°53'46.973"W | 0.00 | |
| 11026.00† | 91.257 | 271.648 | 8972.33 | 2330.53 | 67.03 | -2329.57 | 634453.00 | 584935.72 | 32°36'26.402"N | 103°53'48.141"W | 0.00 | |
| 11126.00† | 91.257 | 271.648 | 8970.13 | 2430.51 | 69.90 | -2429.50 | 634353.07 | 584938.60 | 32°36'26.435"N | 103°53'49.309"W | 0.00 | |
| 11132.01† | 91.257 | 271.648 | 8970.00 | 2436.52 | 70.07 | -2435.51 | 634347.06 | 584938.77 | 32°36'26.437"N | 103°53'49.379"W | 0.00 | Top 2nd BS "B" Sand |
| 11226.00† | 91.257 | 271.648 | 8967.94 | 2530.48 | 72.78 | -2529.44 | 634253.14 | 584941.47 | 32°36'26.468"N | 103°53'50.477"W | 0.00 | |
| 11326.00† | 91.257 | 271.648 | 8965.74 | 2630.46 | 75.65 | -2629.37 | 634153.22 | 584944.35 | 32°36'26.500"N | 103°53'51.645"W | 0.00 | |
| 11426.00† | 91.257 | 271.648 | 8963.55 | 2730.43 | 78.53 | -2729.31 | 634053.29 | 584947.22 | 32°36'26.533"N | 103°53'52.813"W | 0.00 | |
| 11526.00† | 91.257 | 271.648 | 8961.36 | 2830.41 | 81.40 | -2829.24 | 633953.36 | 584950.10 | 32°36'26.565"N | 103°53'53.981"W | 0.00 | |
| 11626.00† | 91.257 | 271.648 | 8959.16 | 2930.39 | 84.28 | -2929.17 | 633853.43 | 584952.97 | 32°36'26.598"N | 103°53'55.150"W | 0.00 | |
| 11726.00† | 91.257 | 271.648 | 8956.97 | 3030.36 | 87.15 | -3029.11 | 633753.51 | 584955.85 | 32°36'26.630"N | 103°53'56.318"W | 0.00 | |

# Planned Wellpath Report

**B-1**



**BOPCO, L.P.**

| REFERENCE WELLPATH IDENTIFICATION | | | |
|---|---|---|---|
| Operator | **WTD - West Texas Division** | Slot | **Sot 12 ( No.266H)** |
| Area | **Eddy County, NM** | Well | **No.266H** |
| Field | **Big Eddy Unit** | Wellbore | **No.266H PWB** |
| Facility | **Drilling Island 4** | | |

**WELLPATH DATA (162 stations)** † = interpolated/extrapolated station

| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Grid East [US ft] | Grid North [US ft] | Latitude | Longitude | DLS [°/100ft] | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11826.00† | 91.257 | 271.648 | 8954.78 | 3130.34 | 90.03 | -3129.04 | 633653.58 | 584958.72 | 32°36'26.662"N | 103°53'57.486"W | 0.00 | |
| 11861.43† | 91.257 | 271.648 | 8954.00 | 3165.76 | 91.05 | -3164.45 | 633618.18 | 584959.74 | 32°36'26.674"N | 103°53'57.899"W | 0.00 | Top 2nd BS "A" Sand |
| 11926.00† | 91.257 | 271.648 | 8952.58 | 3230.31 | 92.90 | -3228.98 | 633553.65 | 584961.60 | 32°36'26.695"N | 103°53'58.654"W | 0.00 | |
| 12026.00† | 91.257 | 271.648 | 8950.39 | 3330.29 | 95.78 | -3328.91 | 633453.72 | 584964.47 | 32°36'26.727"N | 103°53'59.822"W | 0.00 | |
| 12126.00† | 91.257 | 271.648 | 8948.20 | 3430.27 | 98.66 | -3428.85 | 633353.80 | 584967.35 | 32°36'26.760"N | 103°54'00.990"W | 0.00 | |
| 12226.00† | 91.257 | 271.648 | 8946.00 | 3530.24 | 101.53 | -3528.78 | 633253.87 | 584970.22 | 32°36'26.792"N | 103°54'02.158"W | 0.00 | |
| 12326.00† | 91.257 | 271.648 | 8943.81 | 3630.22 | 104.41 | -3628.72 | 633153.94 | 584973.10 | 32°36'26.825"N | 103°54'03.326"W | 0.00 | |
| 12426.00† | 91.257 | 271.648 | 8941.62 | 3730.19 | 107.28 | -3728.65 | 633054.02 | 584975.97 | 32°36'26.857"N | 103°54'04.494"W | 0.00 | |
| 12526.00† | 91.257 | 271.648 | 8939.42 | 3830.17 | 110.16 | -3828.59 | 632954.09 | 584978.85 | 32°36'26.890"N | 103°54'05.662"W | 0.00 | |
| 12626.00† | 91.257 | 271.648 | 8937.23 | 3930.15 | 113.03 | -3928.52 | 632854.16 | 584981.72 | 32°36'26.922"N | 103°54'06.830"W | 0.00 | |
| 12726.00† | 91.257 | 271.648 | 8935.04 | 4030.12 | 115.91 | -4028.46 | 632754.23 | 584984.60 | 32°36'26.955"N | 103°54'07.998"W | 0.00 | |
| 12826.00† | 91.257 | 271.648 | 8932.84 | 4130.10 | 118.78 | -4128.39 | 632654.31 | 584987.47 | 32°36'26.987"N | 103°54'09.166"W | 0.00 | |
| 12926.00† | 91.257 | 271.648 | 8930.65 | 4230.07 | 121.66 | -4228.32 | 632554.38 | 584990.35 | 32°36'27.020"N | 103°54'10.334"W | 0.00 | |
| 13026.00† | 91.257 | 271.648 | 8928.45 | 4330.05 | 124.53 | -4328.26 | 632454.45 | 584993.22 | 32°36'27.052"N | 103°54'11.502"W | 0.00 | |
| 13126.00† | 91.257 | 271.648 | 8926.26 | 4430.03 | 127.41 | -4428.19 | 632354.52 | 584996.10 | 32°36'27.085"N | 103°54'12.670"W | 0.00 | |
| 13226.00† | 91.257 | 271.648 | 8924.07 | 4530.00 | 130.28 | -4528.13 | 632254.60 | 584998.98 | 32°36'27.117"N | 103°54'13.839"W | 0.00 | |
| 13326.00† | 91.257 | 271.648 | 8921.87 | 4629.98 | 133.16 | -4628.06 | 632154.67 | 585001.85 | 32°36'27.149"N | 103°54'15.007"W | 0.00 | |
| 13426.00† | 91.257 | 271.648 | 8919.68 | 4729.95 | 136.04 | -4728.00 | 632054.74 | 585004.73 | 32°36'27.182"N | 103°54'16.175"W | 0.00 | |
| 13526.00† | 91.257 | 271.648 | 8917.49 | 4829.93 | 138.91 | -4827.93 | 631954.81 | 585007.60 | 32°36'27.214"N | 103°54'17.343"W | 0.00 | |
| 13626.00† | 91.257 | 271.648 | 8915.29 | 4929.91 | 141.79 | -4927.87 | 631854.89 | 585010.48 | 32°36'27.247"N | 103°54'18.511"W | 0.00 | |
| 13726.00† | 91.257 | 271.648 | 8913.10 | 5029.88 | 144.66 | -5027.80 | 631754.96 | 585013.35 | 32°36'27.279"N | 103°54'19.679"W | 0.00 | |
| 13826.00† | 91.257 | 271.648 | 8910.91 | 5129.86 | 147.54 | -5127.74 | 631655.03 | 585016.23 | 32°36'27.312"N | 103°54'20.847"W | 0.00 | |
| 13926.00† | 91.257 | 271.648 | 8908.71 | 5229.83 | 150.41 | -5227.67 | 631555.10 | 585019.10 | 32°36'27.344"N | 103°54'22.015"W | 0.00 | |
| 14026.00† | 91.257 | 271.648 | 8906.52 | 5329.81 | 153.29 | -5327.60 | 631455.18 | 585021.98 | 32°36'27.376"N | 103°54'23.183"W | 0.00 | |
| 14126.00† | 91.257 | 271.648 | 8904.33 | 5429.79 | 156.16 | -5427.54 | 631355.25 | 585024.85 | 32°36'27.409"N | 103°54'24.351"W | 0.00 | |
| 14226.00† | 91.257 | 271.648 | 8902.13 | 5529.76 | 159.04 | -5527.47 | 631255.32 | 585027.73 | 32°36'27.441"N | 103°54'25.519"W | 0.00 | |
| 14232.03 | 91.257 | 271.648 | 8902.00[1] | 5535.79 | 159.21 | -5533.50 | 631249.30 | 585027.90 | 32°36'27.443"N | 103°54'25.590"W | 0.00 | No.266H PBHL |

# Planned Wellpath Report

B-1



BOPCO, L.P.

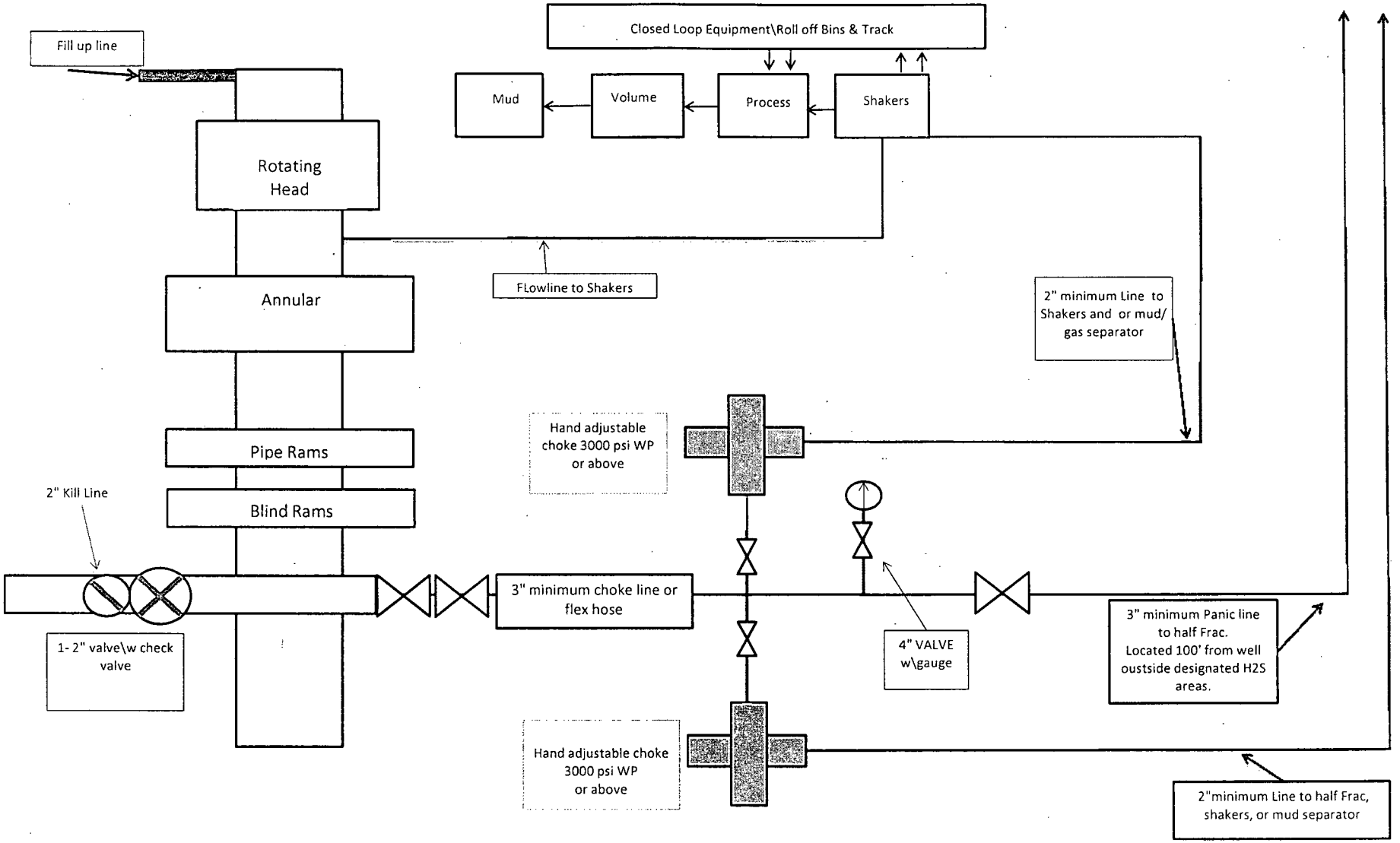
| REFERENCE WELLPATH IDENTIFICATION | | | |
|---|---|---|---|
| Operator | WTD - West Texas Division | Slot | Sot 12 ( No.266H) |
| Area | Eddy County, NM | Well | No.266H |
| Field | Big Eddy Unit | Wellbore | No.266H PWB |
| Facility | Drilling Island 4 | | |

**TARGETS**

| Name | MD [ft] | TVD [ft] | North [ft] | East [ft] | Grid East [US ft] | Grid North [US ft] | Latitude | Longitude | Shape |
|---|---|---|---|---|---|---|---|---|---|
| 1) BEU #266H PBHL | 14232.03 | 8902.00 | 159.21 | -5533.50 | 631249.30 | 585027.90 | 32°36'27.443"N | 103°54'25.590"W | point |

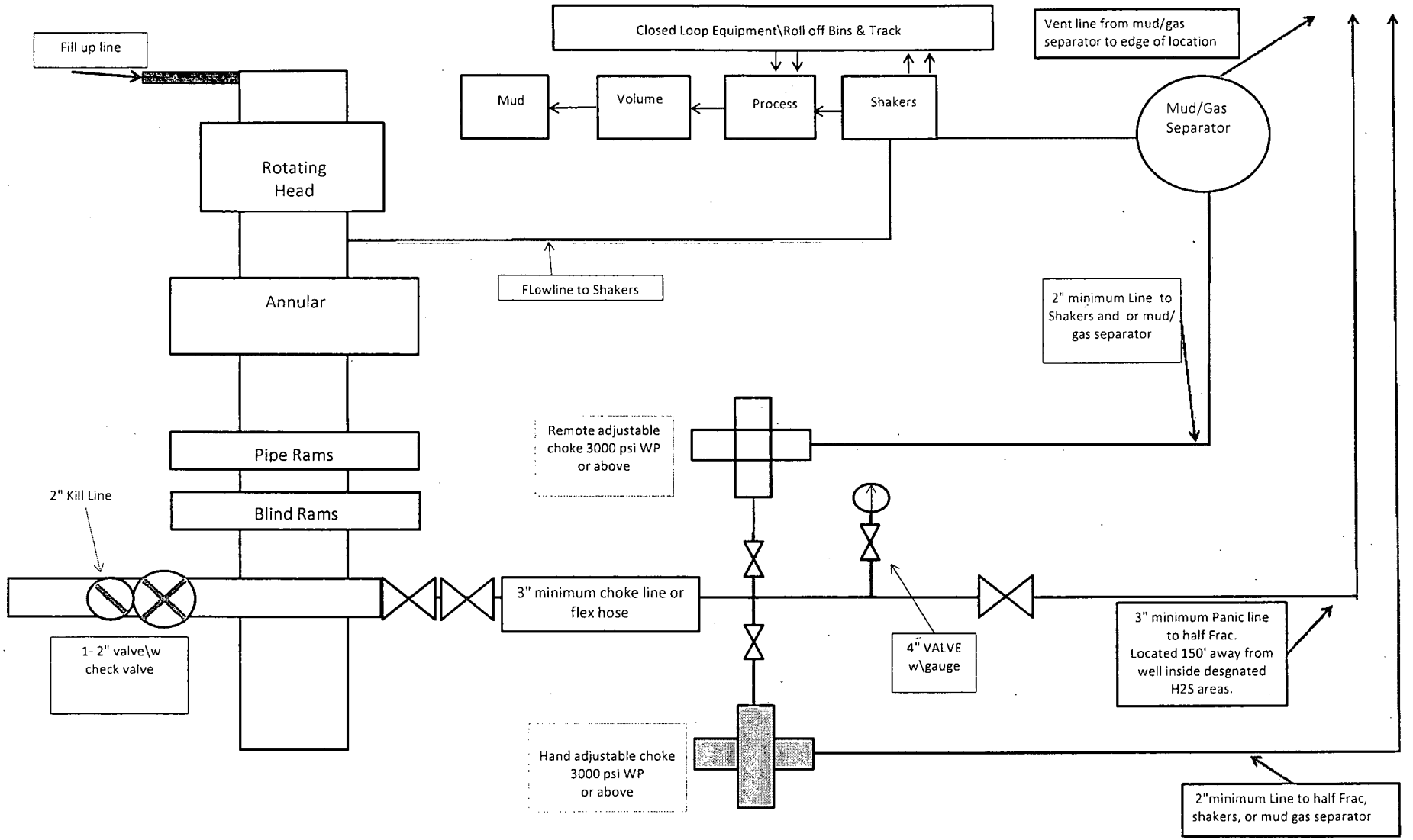
**SURVEY PROGRAM - Ref Wellbore: No.266H PWB Ref Wellpath: B-1**

| Start MD [ft] | End MD [ft] | Positional Uncertainty Model | Log Name/Comment | Wellbore |
|---|---|---|---|---|
| 26.00 | 500.00 | Generic gyro - northseeking (Standard) | | No.266H PWB |
| 500.00 | 14232.03 | NaviTrak (Standard) | | No.266H PWB |



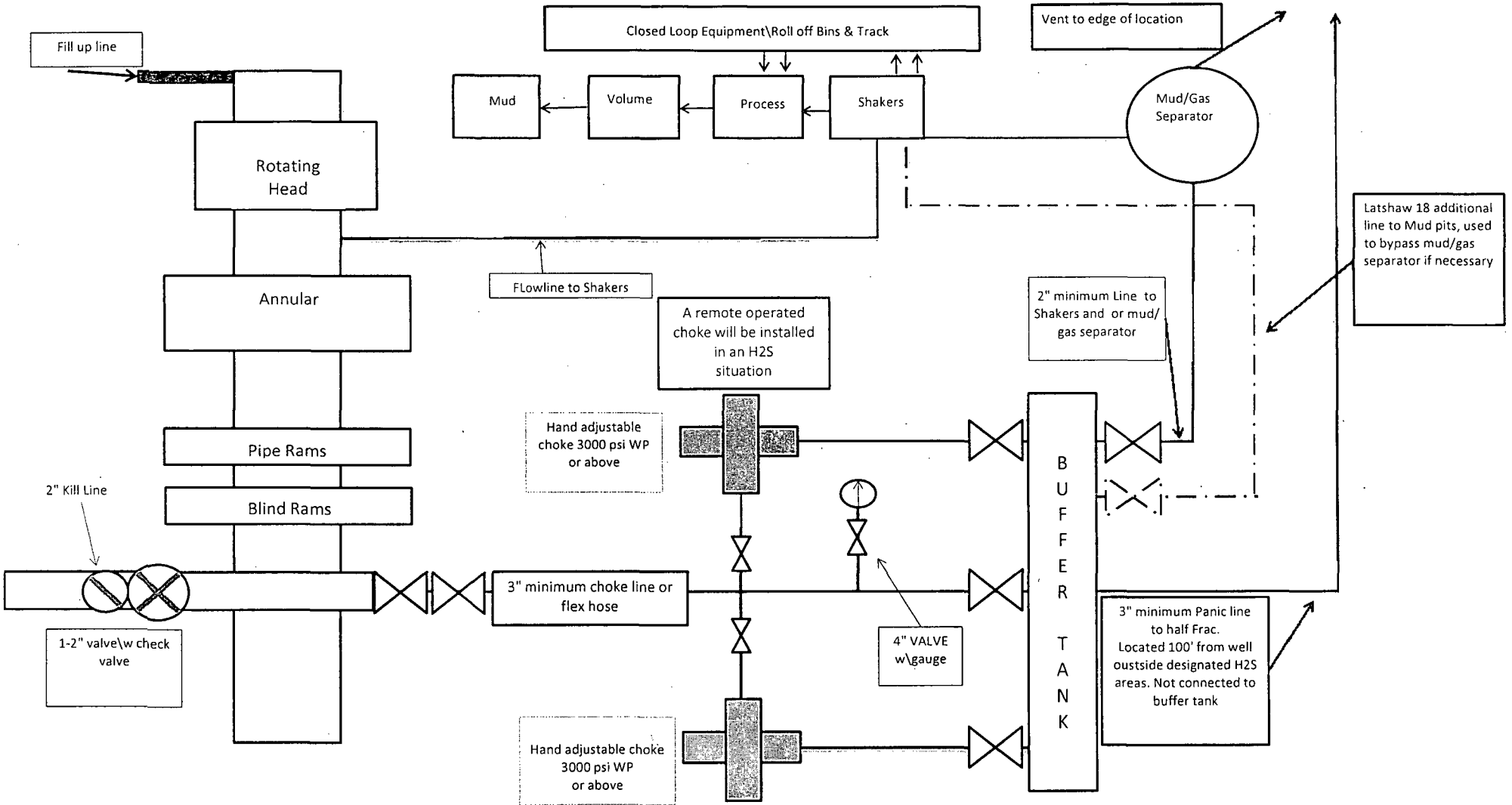

**13-5/8" X 3-M BOPE (2 Rams and Rotating Head) & Closed Loop System Equipment Schematic**
**Diagram A**

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




**13-5/8" X 3-M BOPE (2 Rams and Rotating Head) & Closed Loop System Equipment Schematic**
**H2S contingency**
**Diagram B**

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

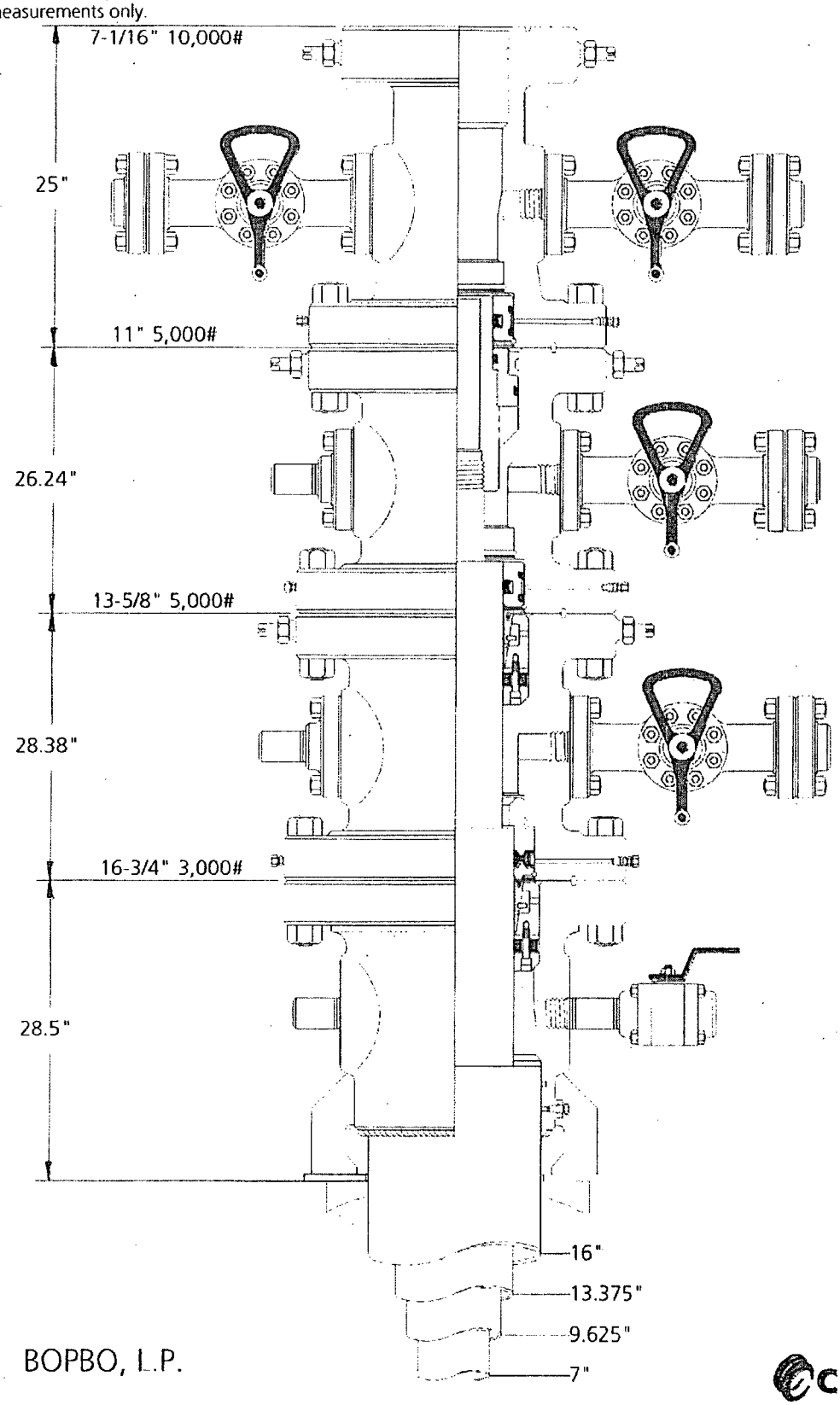



Latshaw 4 closed loop system, with Latshaw 18 addition "clouded."

**Latshaw 13-5/8" X 3-M BOPE (2 Rams and Rotating Head) & Closed Loop System Equipment Schematic Diagram C**

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

Note: Dimensional information reflected on this drawing are estimated measurements only.




BOPBO, L.P.

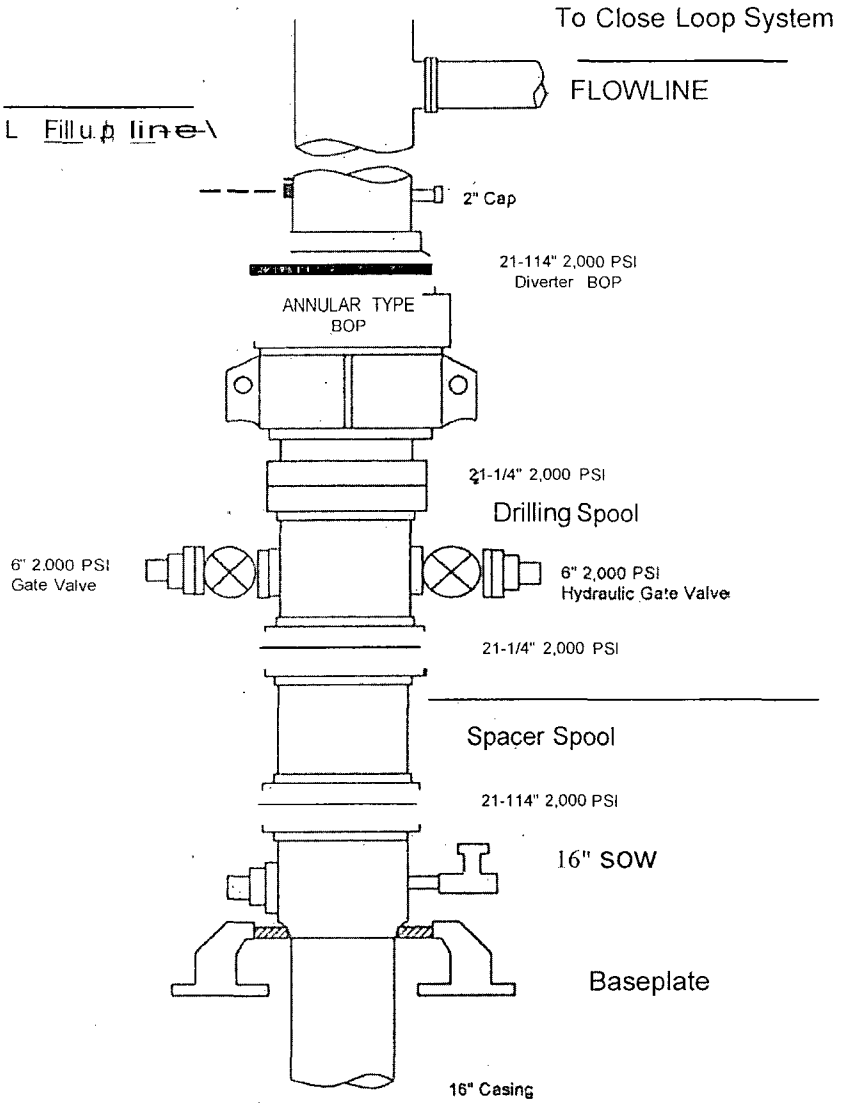
CAMERON

| Casing Design: 16" x 13.375" x 9.625" x 7" | Jeanette | 3-26-13 | # J-8968 |
|---|---|---|---|

# BOPCO, L. P

## 20" 2,000 PSI Diverter

## Diagram D




Note: Actual lengths of casing heads may vary. Always measure items prior to installing in order to ensure proper spacing.

Midwest Hose & Specialty, Inc.

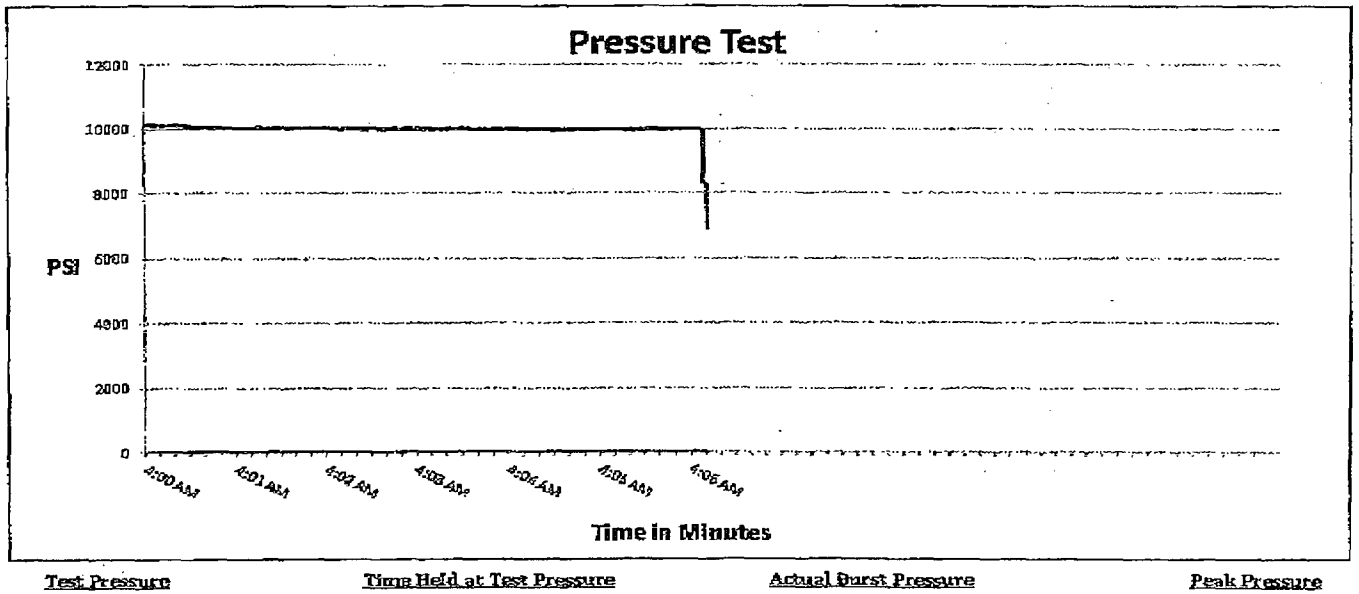
# Internal Hydrostatic Test Graph

April 4, 2012

**Customer:** Latshaw

**Pick Ticket #:** 81610

| Hose Specifications | | Verification | |
|---|---|---|---|
| **Hose Type** | **Length** | **Type of Fitting** | **Coupling Method** |
| D | 30' | 41/16 5K | Swage |
| **I.D.** | **O.D.** | **Die Size** | **Final O.D.** |
| 3" | 4 15/32 | 5.12" | 5.16" |
| **Working Pressure** | **Burst Pressure** | **Hose Serial #** | **Hose Assembly Serial #** |
| 5000 PSI | Standard Safety Multiplier Applies | 6884 | 81610 |




| Test Pressure | Time Held at Test Pressure | Actual Burst Pressure | Peak Pressure |
|---|---|---|---|
| 10000 PSI | 6 1/4 Minutes | | 10195 PSI |

**Comments:** Hose assembly pressure tested with water at ambient temperature.

**Tested By:** *Donnie Mclemore*

**Approved By:** *Bobby Fink*

# MIDWEST

## HOSE AND SPECIALTY INC.

| INTERNAL HYDROSTATIC TEST REPORT | | |
|---|---|---|
| **Customer:** LATSHAW DRILLING | | **P.O. Number:** RIG#4 |
| **HOSE SPECIFICATIONS** | | |
| **Type:** CHOKE LINE | | **Length:** 30' |
| **I.D.** 3" *INCHES* | | **O.D.** 6" *INCHES* |
| **WORKING PRESSURE** 5,000 *PSI* | **TEST PRESSURE** 10,000 *PSI* | **BURST PRESSURE** *PSI* |
| **COUPLINGS** | | |
| **Type of End Fitting** 4 1/16 5K FLANGE | | |
| **Type of Coupling:** SWEDGED | | **MANUFACTURED BY** MIDWEST HOSE & SPECIALTY |
| **PROCEDURE** | | |
| *Hose assembly pressure tested with water at ambient temperature.* | | |
| TIME HELD AT TEST PRESSURE 1 *MIN.* | | ACTUAL BURST PRESSURE: 0 *PSI* |
| **COMMENTS:** SO#81610 Hose is covered with stainless steel armour cover and wraped with fire resistant vermiculite coated fiberglass insulation rated for 1500 degrees complete with lifting eyes | | |
| Date: 3/2/2011 | Tested By: BOBBY FINK | Approved: MENDI JACKSON |

*TABLE OF CONTENTS*

## $H_2S$ CONTINGENCY PLAN SECTION

**Scope:**

This contingency plan provides an organized plan of action for alerting and protecting the public within an area of exposure prior to an intentional release, or following the accidental release of a potentially hazardous volume of hydrogen sulfide. The plan establishes guidelines for all personnel whose work activity may involve exposure to Hydrogen Sulfide Gas ($H_2S$).

**Objective:**

Prevent any and all accidents, and prevent the uncontrolled release of $H_2S$ into the atmosphere.

Provide proper evacuation procedures to cope with emergencies.

Provide immediate and adequate medical attention should an injury occur.

**Discussion of Plan:**

***Suspected Problem Zones:***

***Implementation:*** This plan, with all details, is to be fully implemented 500' above or three days prior to drilling into the first known sour zone

***Emergency Response and Public Protection Procedure:*** This section outlines the conditions and denotes steps to be taken in the event of an emergency.

***Emergency Equipment and Procedure:*** This section outlines the safety and emergency equipment that will be required for the drilling of this well.

***Training Provisions:*** This section outlines the training provisions that must be adhered to 500 feet above or three days prior to drilling into the first known sour zone.

***Emergency call lists:*** Included are the telephone numbers of all persons that would need to be contacted should an $H_2S$ emergency occur.

***Briefing:*** This section deals with the briefing of all persons involved with the drilling of this well.

***Public Safety:*** Public Safety Personnel will be made aware of the drilling of this well.

## EMERGENCY PROCEDURES AND PUBLIC PROTECTION SECTION

I. In the event of any evidence of $H_2S$ levels above 10 ppm, take the following steps immediately:

A. Secure breathing apparatus.

B. Order non-essential personnel out of the danger zone.

C. Take steps to determine if the $H_2S$ level can be corrected or suppressed, and if so, proceed with normal operations.

II. If uncontrollable conditions occur, proceed with the following:

A. Take steps to protect and/or remove any public downwind of the rig, including partial evacuation or isolation. Notify necessary public safety personnel and the New Mexico Oil & Gas of the situation.

B. Isolate area and prevent entry by unauthorized persons into the 100 ppm ROE.

C. Remove all personnel to the Safe Briefing Area.

D. Notify public safety personnel for help with maintaining roadblocks and implementing evacuation. Phone number list attached.

E. Determine and proceed with the best possible plan to regain control of the well. Maintain tight security and safety measures.

III. Responsibility:

A. The Company Approved Supervisor shall be responsible for the total implementation of the plan.

B. The Company Approved Supervisor shall be in complete command during any emergency.

C. The Company Approved Supervisor shall designate a back up Supervisor in the event that he/she is not available.

## *EMERGENCY PROCEDURE IMPLEMENTATION*

### I. Drilling or Tripping

A. All Personnel

1. When alarm sounds, don escape unit and report to upwind Safe Briefing Area.
2. Check status of other personnel (buddy system).
3. Secure breathing apparatus.
4. Wait for orders from supervisor.

B. Drilling Foreman

1. Report to the upwind Safe Briefing Area.
2. Don Breathing Apparatus and return to the point of release with the Tool Pusher or Driller (buddy system).
3. Determine the concentration of $H_2S$.
4. Assess the situation and take appropriate control measures.

C. Tool Pusher

1. Report to the upwind Safe Briefing Area.
2. Don breathing apparatus and return to the point of release with the Drilling Foreman or the Driller (buddy system).
3. Determine the concentration.
4. Assess the situation and take appropriate control measures.

D. Driller

1. Check the status of other personnel (in a rescue attempt, always use the buddy system).
2. Assign the least essential person to notify the Drilling Foreman and Tool Pusher, in the event of their absence.

3. Assume the responsibility of the Drilling Foreman and the Tool Pusher until they arrive, in the event of their absence.

E. Derrick Man and Floor Hands

1. Remain in the upwind Safe Briefing Area until otherwise instructed by a supervisor.

F. Mud Engineer

1. Report to the upwind Safe Briefing Area.

2. When instructed, begin check of mud for pH level and $H_2S$ level.

G. On-site Safety Personnel

1. Don Breathing Apparatus.

2. Check status of all personnel.

3. Wait for instructions from Drilling Foreman or Tool Pusher.

## II. Taking a Kick

A. All personnel report to the upwind Safe Briefing Area.

B. Follow standard BOP procedures.

## III. Open Hole Logging

A. All unnecessary personnel should leave the rig floor.

B. Drilling Foreman and Safety Personnel should monitor the conditions and make necessary safety equipment recommendations.

## IV. Running Casing or Plugging

A. Follow "Drilling or Tripping" procedures.

B. Assure that all personnel have access to protective equipment.

## *SIMULATED BLOWOUT CONTROL DRILLS*

All drills will be initiated by activating alarm devices (air horn). Use one long blast on the air horn for ACTUAL and SIMULATED Blowout Control Drills. This operation will be performed by the Drilling Foreman or Tool Pusher at least one time per week for each of the following conditions, with each crew:

Drill # 1 Bottom Drilling

Drill # 2 Tripping Drill Pipe

In each of these drills, the initial reaction time to shutting in the well shall be timed as well as the total time for the crew to complete its entire pit drill assignment. The times must be recorded on the IADC Driller's Log as "Blowout Control Drill".

| | | |
|---|---|---|
| Drill No.: | | |
| Reaction Time to Shut-In: | minutes, | seconds. |
| Total Time to Complete Assignment: | minutes, | seconds. |

### I. Drill Overviews

A. Drill No. 1- Bottom Drilling

1. Sound the alarm immediately.
2. Stop the rotary and hoist kelly joint above the rotary table.
3. Stop the circulatory pump.
4. Close the drill pipe rams.
5. Record casing and drill pipe shut-in pressures and pit volume increases.

B. Drill No. 2 – Tripping Drill Pipe

1. Sound the alarm immediately.
2. Position the upper tool joint just above the rotary table and set the slips.

3. Install a full opening valve or inside blowout preventor tool in order to close the drill pipe.

4. Close the drill pipe rams.

5. Record the shut-in annular pressure.

## II. Crew Assignments

### A. Drill No. 1 – Bottom Drilling

1. Driller

   a) Stop the rotary and hoist kelly joint above the rotary table.

   b) Stop the circulatory pump.

   c) Check flow.

   d) If flowing, sound the alarm immediately.

   e) Record the shut-in drill pipe pressure.

   f) Determine the mud weight increase needed or other courses of action.

2. Derrickman

   a) Open choke line valve at BOP.

   b) Signal Floor Man # 1 at accumulator that choke line is open.

   c) Close choke and upstream valve after pipe tams have been closed.

   d) Read the shut-in annular pressure and report readings to Driller.

3. Floor Man # 1

   a) Close the pipe rams after receiving the signal from the Derrickman.

   b) Report to Driller for further instructions.

4. Floor Man # 2

   a) Notify the Tool Pusher and Operator Representative of the $H_2S$ alarms.

   b) Check for open fires and, if safe to do so, extinguish them.

   c) Stop all welding operations.

   d) Turn-off all non-explosion proof lights and instruments.

   e) Report to Driller for further instructions.

5. Tool Pusher

   a) Report to the rig floor.

   b) Have a meeting with all crews.

   c) Compile and summarize all information.

   d) Calculate the proper kill weight.

   e) Ensure that proper well procedures are put into action.

6. Operator Representative

   a) Notify the Drilling Superintendent.

   b) Determine if an emergency exists and if so, activate the contingency plan.

**B. Drill No. 2 – Tripping Pipe**

1. Driller

   a) Sound the alarm immediately when mud volume increase has been detected.

   b) Position the upper tool joint just above the rotary table and set slips.

   c) Install a full opening valve or inside blowout preventor tool to close the drill pipe.

   d) Check flow.

e) Record all data reported by the crew.

f) Determine the course of action.

2. Derrickman

a) Come down out of derrick.

b) Notify Tool Pusher and Operator Representative.

c) Check for open fires and, if safe to do so, extinguish them.

d) Stop all welding operations.

e) Report to Driller for further instructions.

3. Floor Man # 1

a) Pick up full opening valve or inside blowout preventor tool and stab into tool joint above rotary table (with Floor Man # 2).

b) Tighten valve with back-up tongs.

c) Close pipe rams after signal from Floor Man # 2.

d) Read accumulator pressure and check for possible high pressure fluid leaks in valves or piping.

e) Report to Driller for further instructions.

4. Floor Man # 2

a) Pick-up full opening valve or inside blowout preventor tool and stab into tool joint above rotary table (with Floor Man # 1).

b) Position back-up tongs on drill pipe.

c) Open choke line valve at BOP.

d) Signal Floor Man # 1 at accumulator that choke line is open.

e) Close choke and upstream valve after pipe rams have been closed.

f) Check for leaks on BOP stack and choke manifold.

g) Read annular pressure.

h) Report readings to the Driller.

5. Tool Pusher

a) Report to the rig floor.

b) Have a meeting with all of the crews.

c) Compile and summarize all information.

d) See that proper well kill procedures are put into action.

6. Operator Representative

a) Notify Drilling Superintendent

b) Determine if an emergency exists, and if so, activate the contingency plan.

## IGNITION PROCEDURES

**Responsibility:**

The decision to ignite the well is the responsibility of the DRILLING FOREMAN in concurrence with the STATE POLICE. The State Police shall be the Incident Command on the scene of any major release. Intentional ignition must be coordinated with the NMOCD and local officials. In the event the Drilling Foreman is incapacitated, it becomes the responsibility of the RIG TOOL PUSHER. This decision should be made only as a last resort and in a situation where it is clear that:

1. Human life and property are endangered.

2. There is no hope of controlling the blowout under the prevailing conditions.

*If time permits, notify the main office, but do not delay if human life is in danger.* Initiate the first phase of the evacuation plan.

**Instructions for Igniting the Well:**

1. Two people are required for the actual igniting operation. Both men must wear self-contained breathing apparatus and must use a full body harness and attach a retrievable safety line to the D-Ring in the back. One man must monitor the atmosphere for explosive gases with the LEL monitor, while the Drilling Foreman is responsible for igniting the well.

2. The primary method to ignite is a 25mm flare gun with a range of approximately 500 feet.

3. Ignite from upwind and do not approach any closer than is warranted.

4. Select the ignition site best suited for protection and which offers an easy escape route.

5. Before igniting, check for the presence of combustible gases.

6. After igniting, continue emergency actions and procedures as before.

7. *All unassigned personnel will limit their actions to those directed by the* Drilling Foreman.

**NOTE:** After the well is ignited, burning Hydrogen Sulfide will convert to Sulfur Dioxide ($SO_2$), which is also highly toxic. Do not assume the area is safe after the well is ignited.

## TRAINING REQUIREMENTS

When working in an area where Hydrogen Sulfide ($H_2S$) might be encountered, definite training requirements must be carried out. The Company Supervisor will ensure that all personnel at the well site, whether regularly assigned, contracted, or employed on an unscheduled basis, have had adequate training by a qualified instructor in the following:

1. Hazards and Characteristics of Hydrogen Sulfide and Sulfur Dioxide.
2. Physicals effects of Hydrogen Sulfide on the human body.
3. Toxicity of Hydrogen Sulfide and Sulfur Dioxide.
4. $H_2S$ detection, emergency alarm and sensor location.
5. Emergency rescue.
6. First aid and artificial resuscitation.
7. The effects of Hydrogen Sulfide on metals.
8. Location safety.

In addition, Supervisory Personnel will be trained in the following areas:

1. If high tensile tubular are to be used, personnel will be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well as well as blowout prevention and well control procedures.
3. The contents and requirements of the $H_2S$ Drilling Operations Contingency Plan and the Public Protection Plan.

Service company personnel and visiting personnel must be notified if the zone contains $H_2S$, and each service company must provide adequate training and equipment for their employees before they arrive at the well site.

## EMERGENCY EQUIPMENT

As stated in the BLM Onshore Order 6, for wells located in a known $H_2S$ areas, $H_2S$ equipment will be rigged up after setting surface casing. For wells located inside known $H_2S$ areas, the flare pit will be located 150' from the location and for wells located outside known $H_2S$ areas, the flare pit will be located 100' away from the location. (See page 6 of Survey plat package and diagram B or C.)

**It is not anticipated that any $H_2S$ is in the area, however in the event that $H_2S$ is encountered, the attached $H_2S$ Contingency Plan will be implemented**. (Please refer to diagrams B or C for choke manifold and closed loop system layout.) See $H_2S$ location layout diagram for location of all $H_2S$ equipment on location.

All $H_2S$ safety equipment and systems will be installed, tested and be operational when drilling reaches a depth of 500' above, or three days prior to penetrating a known formation containing $H_2S$.

**Lease Entrance Sign:**

Caution signs should be located at all roads providing direct access to the location. Signs shall have a yellow background with black lettering and contain the words "CAUTION" and "POISON GAS" that is legible from a distance of at least 50 feet.

**LEASE NAME**
**CAUTION – POTENTIAL POISON GAS**
**HYDROGEN SULFIDE**
**NO ADMITTANCE WITHOUT AUTHORIZATION**

**Windsocks or Wind Streamers:**

- A minimum of two 10" windsocks located at strategic locations so that they may be seen from any point on location.
- Wind streamers (if preferred) should be placed at various locations on the well site to ensure wind consciousness at all times. (Corners of location)

**Hydrogen Sulfide Detector and Alarms:**

- $H_2S$ monitors with alarms will be located on the rig floor, at the cellar, and at the mud pits. These monitors will be set to alarm at 10 PPM with a red light and to alarm at 15 PPM with a red light and audible alarm.

**Well Condition Flags:**

The Well Condition flags should be located at all roads providing direct access to the location. It should have three (3) color coded flags (green, yellow and red) that will be used to denote the following location conditions:

GREEN – Normal Operating Conditions
YELLOW – Potential Danger
RED – Danger, $H_2S$ Gas Present

**Respiratory Equipment:**

- Fresh air breathing equipment should be placed at the company supervision trailer and the safe briefing areas and should include the following:
  - A minimum of two SCBA's at each briefing area and the supervisor company supervision trailer.
  - Enough air line units to operate safely, anytime the $H_2S$ concentration reaches the IDLH level (100 PPM).
  - Cascade system with enough breathing air hose and manifolds to reach the rig floor, the derrickman and the other operation areas.

**Fire Extinguishers:**

Adequate fire extinguishers shall be located at strategic locations.

**Mud Program:**

The mud program has been designed to minimize the volume of $H_2S$ circulated to the surface. Proper mud weight, safe drilling practices and the use of $H_2S$ scavengers will minimize hazards when penetrating $H_2S$ bearing zones.

**Metallurgy:**

All drill strings, casing, tubing, wellhead; blowout preventer, drilling spools, kill lines, choke manifold and lines, and valves shall be suitable for $H_2S$ service.

**Well Control Equipment:**

- Flare Line (See page 6 of survey plat package for flare line reference).
- Choke manifold (See diagram B or C and refer to H2S location diagram for location of important H2S safety items ).
- Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing units.
- Auxiliary equipment may include, if applicable, annular preventer & rotating head.

**Communication Equipment:**

- Proper communication equipment such as cell phones or 2 – way radios should be available for communication between the company man's trailer, rig floor and tool pusher's trailer.

**Well Testing:**

- There will be no drill stem testing.

**Evacuation Plan:**

- Evacuation routes should be established prior to spudding the well.
- Should be discussed with all rig personnel.

**Designated Areas:**

***Parking and Visitor area:***

- All vehicles are to be parked at a pre-determined safe distance from the wellhead.
- A smoking area will be designated at a pre-determined safe distance from the wellhead and any other possible flammable areas.

***Safe Briefing Areas:***

- Two Safe Briefing Areas shall be designated on either side of the location at the maximum allowable distance from the well bore so they offset prevailing winds or they are at a 180 degree angle if wind directions tend to shift in the area.

- Personal protective equipment should be stored at both briefing areas or if a moveable cascade trailer is used, it should be kept upwind of existing winds. When wind is from the prevailing direction, both briefing areas should be accessible.

***NOTE:***

- Additional equipment will be available at Indian Fire and Safety in Hobbs, NM or at Total Safety in Hobbs, NM.

## EVACUATION PLAN

### General Plan

The direct lines of action to protect the public from hazardous gas situations are as follows:

1. When the company approved supervisor (Drilling Foremen, Tool Pusher or Driller) determine that Hydrogen Sulfide gas cannot be limited to the well location, and the public will be involved, he will activate the evacuation plan. Escape routes are noted on the Area Map.

2. Company safety personnel or designee will notify the appropriate local government agency that a hazardous condition exists and evacuation needs to be implemented.

3. Company approved safety personnel that have been trained in the use of the proper emergency equipment will be utilized.

4. Law enforcement personnel (State Police, Local Police Department, Fire Department, and the Sheriff's Department) will be called to aid in setting up and maintaining road blocks. Also, they will aid in evacuation of the public if necessary.

NOTE: Law enforcement personnel will not be asked to come into a contaminated area. Their assistance will be limited to uncontaminated areas. Constant radio contact will be maintained with them.

5. After the discharge of gas has been controlled, Company approved safety personnel will determine when the area is safe for re-entry.

**See Emergency Action Plan**

### Contacting Authorities

BOPCO L.P. personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available including directions to site. The following call list of essential and potential responders has been prepared for use during a release. (Operator Name)'s response must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMER).

# $H_2S$ CONTINGENCY PLAN EMERGENCY CONTACTS

BOPCO L.P. Midland Office 432-683-2277

Key Personnel

| Name | Title | Cell Phone Number |
|---|---|---|
| Stephen Martinez | Drilling & Completions Manager | 432-556-0262 |
| Charles Warne | Division Engineer | 432-312-4431 |
| Don Wood | Division Drilling Specialist | 432-266-2674 |
| Leo Bojorquez | Area Drilling Superintendent | 702-280-4424 |
| Chris Giese | Engineer | 432-661-7328 |
| Chris Volek | Engineer | 785-979-2643 |
| Brian Braun | Engineer | 210-683-9849 |
| Jeremy Braden | Engineering Assistant | 432-312-1113 |

Artesia

| | |
|---|---|
| Ambulance | 911 |
| State Police | 575-746-2703 |
| City Police | 575-746-2703 |
| Sheriff's Office | 575-746-9888 |
| Fire Department | 575-746-2701 |
| Local Emergency Planning Committee | 575-746-2122 |
| New Mexico Oil Conservation Division | 575-748-1283 |

Carlsbad

| | |
|---|---|
| Ambulance | 911 |
| State Police | 575-885-3137 |
| City Police | 575-885-2111 |
| Sheriff's Office | 575-887-7551 |
| Fire Department | 575-887-3798 |
| Local Emergency Planning Committee | 575-887-6544 |
| US Bureau of Land Management | 575-887-6544 |

| | |
|---|---|
| New Mexico Emergency Response Commission (Santa Fe) | 505-476-9600 |
| 24 Hour | 505-827-9126 |
| New Mexico State Emergency Operations Center | 505-476-9635 |
| National Emergency Response Center (Washington, DC) | 800-424-8802 |

Other

| | |
|---|---|
| Wild Well Control | 432-550-6202 (Permian Basin) |
| Cudd PressureControl | 432-580-3544 or 432-570-5300 (Permian Basin) |
| Flight For Life – 4000 24th St. Lubbock, Texas | 806-743-9911 |
| Aerocare – R3, Box 49F, Lubbock, Texas | 806-747-8923 |
| Med Flight Air Amb – 2301 Yale Blvd SE #D3, Albuq., NM | 505-842-4433 |
| S B Air Med Service – 2505 Clark Carr Loop SE, Albuq., NM | 505-842-4949 |
| Indian Fire and Safety – 3317 NW Cnty Rd, Hobbs, NM | 575-393-3093 |

Total Safety – 3229 Industrial Dr., Hobbs, NM_____575-392-2973

## TOXIC EFFECTS OF HYDROGEN SULFIDE

Hydrogen Sulfide is extremely toxic. The acceptable ceiling concentration for eight-hour exposure is 10 PPM, which is .001% by volume. Hydrogen Sulfide is heavier than air (specific gravity = 1.192) and colorless. It forms an explosive mixture with air between 4.3 and 46.0 percent by volume. Hydrogen sulfide is almost as toxic as hydrogen cyanide and is between five and six times more toxic than carbon monoxide. Toxicity data for hydrogen sulfide and various other gases are compared in Table I. Physical effects at various Hydrogen Sulfide exposure levels are shown in Table II.

### Table I - TOXICITY OF VARIOUS GASES

| Common Name | Chemical Formula | Specific Gravity (SC=1) | Threshold Limit (1) | Hazardous Limit (2) | Lethal Concentration (3) |
|---|---|---|---|---|---|
| Hydrogen Cyanide | HCN | 0.94 | 10 PPM | 150 PPM/HR | 300 PPM |
| Hydrogen Sulfide | H2S | 1.18 | 10 PPM | 250 PPM/HR | 600 PPM |
| Sulfur Dioxide | SO2 | 2.21 | 5 PPM | -- | 1000 PPM |
| Chlorine | CL2 | 2.45 | 1 PPM | 4 PPM/HR | 1000 PPM |
| Carbon Monoxide | CO | 0.97 | 50 PPM | 400 PPM/HR | 1000 PPM |
| Carbon Dioxide | CO2 | 1.52 | 5000 PPM | 5% | 10% |
| Methane | CH4 | 0.55 | 90,000 PPM | Combustible in air | Above 5% |

1) **Threshold Limit – Concentration at which it is believed that all worker may be repeatedly exposed day after day without adverse effects.**

2) **Hazardous Limit – Concentration that will cause death with short-term exposure.**

3) **Lethal Concentration – Concentration that will cause death with short-term exposure.**

## Table II – PHYSICAL EFFECTS OF HYDROGEN SULFIDE

| Percent (%) | PPM | Concentration Grains 100 STD. FT3* | Physical Effects |
|---|---|---|---|
| 0.001 | < 10 | 00.65 | Obvious & unpleasant odor. |
| 0.002 | 10 | 01.30 | Safe for 8 hours of exposure. |
| 0.010 | 100 | 06.48 | Kills smell in 3-15 minutes. May sting eyes & throat. |
| 0.020 | 200 | 12.96 | Kills smell shortly; stings eyes & throat. |
| 0.050 | 500 | 32.96 | Dizziness; Breathing ceases in a few minutes. Needs prompt artificial respiration. |
| 0.070 | 700 | 45.36 | Unconscious quickly; Death will result if not rescued promptly. |
| 0.100 | 1000 | 64.30 | Unconscious at once; Followed by death within minutes. |

- At 15.00 PSIA and 60° F.

## USE OF SELF-CONTAINED BREATHING APPARATUS

1. Anyone who uses an SCBA shall: Be approved by a physician or licensed health care practitioner; Pass a fit test; Be trained in donning and doffing, proper use, including how to ensure a proper face seal, conducting an inspection of the SCBA, and conduct proper maintenance.

2. Such items as facial hair (beard or sideburns) and eyeglasses will not allow a proper face mask seal.

3. Anyone reasonably expected to wear SCBA's shall have these items removed before entering a toxic atmosphere.

4. A special mask with a mount for prescription glasses must be obtained for anyone who must wear eyeglasses in order to see while using an SCBA.

5. SCBA's should be worn in $H_2S$ concentrations above 10 PPM.

## RESCUE & FIRST AID FOR $H_2S$ POISONING

DO NOT PANIC – REMAIN CALM – THINK

1. Hold your breath – do not inhale first.

2. Put on SCBA.

3. Remove victim(s) to fresh air as quickly as possible. Go upwind from source or at right angle to the wind. Do not go downwind.

4. Briefly apply chest pressure – using arm lift method of artificial respiration to clean victim's lungs and to avoid inhaling any toxic gas directly from victim's lungs.

5. Provide artificial respiration if needed.

6. Provide for prompt transportation to the hospital and continue giving artificial respiration if needed.

7. Inform hospital/medical facilities of the possibility of H2S gas poisoning before they treat.

Besides basic first aid, everyone on location should have a good working knowledge of artificial respiration and CPR, as well as first aid for eyes and skin contact with liquid $H_2S$.

# Proposed H2S Safety Schematic

1) Location of windsocks.

2) Location of H2S alarms

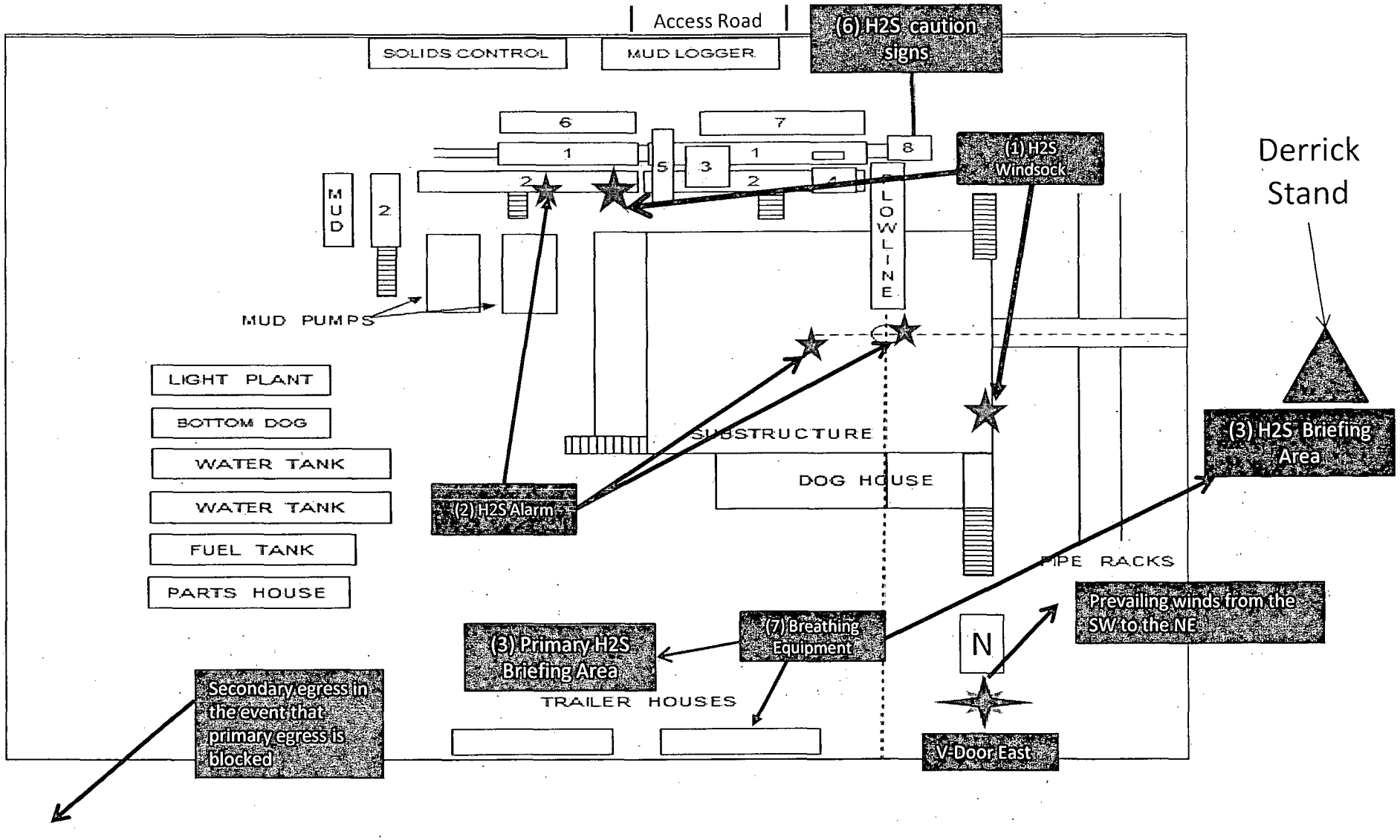
3) Location of briefing areas.

4) Terrain of surrounding area (Please refer to page 2 of survey plat package also see point 11 of multi-surface use plan)

5) Location of flare line(s) and pit(s) (Please refer to diagram 2 choke manifold diagram and or page six of survey plat packet)

6) Location of caution and/or danger signs.

(7) Location of Breathing Equipment



# Location On-Site Notes

On July 29, 2014 an onsite was conducted by Todd Carpenter- BOPCO, L.P., Amanda Lynch- BLM, John Sherman- State Biologist, Jay Summers- Biology tech and Chris Freeman- CEHM. The onsite included an approved pad extension for the Big Eddy Unit DI4. The approved area is 300' x 300' on the northwest corner of the drilling island. Location layout is as follows: v-door will face the east, frac pad extension to the north/northwest, access road will enter from the north, top soil will be stock piled on the west side of location.

# MULTI-POINT SURFACE USE PLAN

**NAME OF WELL: Big Eddy Unit DI4 #266H**

LEGAL DESCRIPTION
SURFACE: 860' FNL, 2,088' FEL, Section 5, T20S, R31E, Eddy County, NM.
BHL: 660' FNL, 2,320' FEL, Section 6, T20S, R31E, Eddy County, NM.

## POINT 1: EXISTING ROADS

A) Proposed Well Site Location:

See Form C-102 (Survey Plat).

B) Existing Roads:

From hwy 360 and Co Rd 222, go east of shugart for 4 miles turning southwest for 1.4 miles to the existing lease road. The proposed location is to the south.

C) Existing Road Maintenance or Improvement Plan:

Existing roads will be maintained and kept in the same or better condition than before operations began. See the Well Pad Layout and Topo Map of the survey plat (Sheet 1 and 2 of plat package)

## POINT 2: NEW PLANNED ACCESS ROUTE

A) Route Location:

There will be no new road built. (See the Well Pad Layout of the survey plat (Sheet 1 of plat package).

B) Width

14' wide

C) Maximum Grade

Grade to match existing topography or as per BLM requirements.

D) Turnout Ditches

As required by BLM stipulations.

E) Culverts, Cattle Guards, and Surfacing Equipment

If required, culverts and cattle guards will be set per BLM Specs.

## POINT 3: LOCATION OF EXISTING WELLS

The following wells are located within a one-mile radius of the location site. See the One-Mile Radius Map (Sheet 5 of the plat package).

Existing wells.....3 (Three)
Water wells..... 1 (One)

## POINT 4: LOCATION OF EXISTING OR PROPOSED FACILITIES

A) Existing facilities operated by BOPCO, L.P. are located within one mile of the Big Eddy Unit DI4 #266H.

B) New Facilities the Event of Production:

Big Eddy Unit DI4 #266H will pipe production to the BEU Drilling Island "DI" #4 Battery, built on the same pad north of the proposed well located within Sec 5, T20S, R31E. A new 2-7/8" or 3-1/2" diameter steel flowline is to be run above ground. The flowline is expected to carry oil, water and gas. In the event that the power is not accessible or insufficient, power will be supplied by a generator until adequate power can be supplied from the utility company.

C) Rehabilitation of Disturbed Areas Unnecessary for Production:

Following the construction, those access areas required for continued production will be graded to provide drainage and minimize erosion. The areas unnecessary for use will be graded to blend in with the surrounding topography (see Point 10).

## POINT 5: LOCATION AND TYPE OF WATER SUPPLY

A) Location and Type of Water Supply

Fresh water will be hauled from Johnson Station 50 miles east of Carlsbad, New Mexico or other commercial facilities. Brine water will be hauled from commercial facilities.

B) Water Transportation System

Water hauling to the location will be over the existing and proposed roads.

## POINT 6: SOURCE OF CONSTRUCTION MATERIALS

A) Materials

On-site caliche will be used. If this is not sufficient, caliche will be hauled from a BLM approved pit.

B) Land Ownership
Federally Owned

C) Materials Foreign to the Site

No construction materials foreign to this area are anticipated for this drill site.

D) Access Roads

See the Well Pad Layout and Aerial Map of the survey plat (Sheet 1 and 4 of plat package).

## POINT 7: METHODS FOR HANDLING WASTE MATERIAL

A) Cuttings

Cuttings will be contained in the roll off bins and disposed at R360 Environmental located in Lea County, NM.

B) Drilling Fluids

Drilling fluids will be contained in the steel pits, frac tanks and disposed at licensed disposal sites.

C) Produced Fluids

Water production will be contained in the steel pits.

Hydrocarbon fluid or other fluids that may be produced during testing will be retained in test tanks. Prior to cleanup operations, any hydrocarbon material in the reserve pit will be removed by skimming or burning as the situation would dictate.

D) Sewage

Current laws and regulations pertaining to the disposal of human waste will be complied with.

E) Garbage

Portable containers will be utilized for garbage disposal during the drilling of this well.

F) Cleanup of Well Site

Upon release of the drilling rig, the surface of the drilling pad will be graded to accommodate a completion rig if electric log analysis indicate potential productive zones. Reasonable cleanup will be performed prior to the final restoration of the site.

**POINT 8: ANCILLARY FACILITIES**

None required.

**POINT 9: WELL SITE LAYOUT**

A) Rig Orientation and Layout

The "Rig Layout Schematic" (Sheet 6 of plat package) shows the dimensions of the well pad, closed loop system, and the location of major rig components. Only minor leveling of the well site will be required. No significant cuts or fills will be necessary. **The top soil will be stockpiled on the west side of the location.**

B) Locations of Access Road

See the Well Pad Layout, Topo Map, and Vicinity Map of the survey plat (Sheet 1, 2, and 3 of plat package).

C) Lining of the Pits

No reserve pits - closed loop system.

**POINT 10: PLANS FOR RESTORATION OF THE SURFACE**

A) Reserve Pit Cleanup - Not applicable. Closed loop drilling fluid system will be used

B) Restoration Plans - Production Developed

BOPCO, L.P. has no plans for interim reclamation to allow for additional wells to be drilled on this pad

C) Restoration Plans - No Production Developed

BOPCO, L.P. has no plans for interim reclamation to allow for additional wells to be drilled on this pad

## POINT 11: OTHER INFORMATION

A) On-Site

On July 29, 2014 an onsite was conducted by Todd Carpenter- BOPCO, L.P., Amanda Lynch- BLM, John Sherman- State Biologist, Jay Summers- Biology tech and Chris Freeman- CEHM. The onsite included an approved pad extension for the Big Eddy Unit DI4. The approved area is 300' x 300' on the northwest corner of the drilling island. Location layout is as follows: v-door will face the east, frac pad extension to the north/northwest, access road will enter from the north, top soil will be stock piled on the west side of location.

B) Soil

Caliche and sand.

C) Vegetation

Sparse, primarily grasses and mesquite with very little grass.

D) Surface Use

Primarily grazing.

E) Surface Water

There are no ponds, lakes, streams or rivers within several miles of the wellsite.

F) Water Wells

There is one water well located within a 1 mile radius of the proposed location.

G) Residences and Buildings

None in the immediate vicinity.

H) Historical Sites

None observed.

I) Archeological Resources

No independent archeological survey has been done. This well location is located in the area covered by Memorandum of Agreement – Permian Basin. A Payment of $1,507.00 fee was sent in with the pad extension request for this project. Any location or construction conflicts will be resolved before construction begins. Please see diagram 4 for flowline route.

J) Surface Ownership

The well site is on federally owned land. There will be no new road required for this location.

K) Well signs will be posted at the drilling site.

L) Open Pits

No open pits will be used for drilling or production. Any open top tanks will be netted.

M) Terrain

Slightly rolling hills.

**POINT 12: OPERATOR'S FIELD REPRESENTATIVE**

(Field personnel responsible for compliance with development plan for surface use).

DRILLING
Stephen Martinez
Box 2760
Midland, Texas 79702
(432) 683-2277

PRODUCTION
Gary Fletcher
3104 East Green Street
Carlsbad, New Mexico 88220
(575) 887-7329

Fritz Schoch
Box 2760
Midland, Texas 79702
(432) 683-2277

WBM

**Form NM 8140-9**
(March 2008)

**United States Department of the Interior**
**Bureau of Land Management**
**New Mexico State Office**

**Permian Basin Cultural Resource Mitigation Fund**

The company shown below has agreed to contribute funding to the Permian Basin Cultural Resource Fund in lieu of being required to conduct a Class III survey for cultural resources associated with their project. This form verifies that the company has elected to have the Bureau of Land Management (BLM) follow the procedures specified within the Memorandum of Agreement (MOA) concerning improved strategies for managing historic properties within the Permian Basin, New Mexico, for the undertaking rather than the Protocol to meet the agency's Section 106 obligations.

Company Name: BOPCO, L.P.

Address: P. O. Box 2760

Midland, Texas 79702

Project description: Big Eddy Unit DI4 266H. A payment of $1,552.00 was sent in with the pad extension request.

T, 20S, R 31E, Section 5 NMPM, Eddy County, New Mexico

Amount of contribution: $ 0.00

# PECOS DISTRICT
# CONDITIONS OF APPROVAL

| | |
|---|---|
| **OPERATOR'S NAME:** | **BOPCO, L.P.** |
| **LEASE NO.:** | **NMLC-068408** |
| **WELL NAME & NO.:** | **Big Eddy Unit DI4 266H** |
| **SURFACE HOLE FOOTAGE:** | **0860' FNL & 2088' FEL** |
| **BOTTOM HOLE FOOTAGE** | **0660' FNL & 2320' FEL Sec. 06, T. 20 S., R 31 E.** |
| **LOCATION:** | **Section 05, T. 20 S., R 31 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)

**Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken**: Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

**Ground-level Abandoned Well Marker to avoid raptor perching**: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.installation details, contact the Carlsbad Field Office at 575-234-5972.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials

**Hackberry OHV Area:** Pipelines shall be buried a minimum of 24 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. Power poles and associated ground structures (poles, guy wires) will not be placed within 20 feet of recreation trails. Guy wires must be equipped with a sleeve, tape or other industry approved apparatus that is highly visible during the day and reflective at night. Appropriate safety signage will be in place during all phases of the project. Upon completion of construction, the road shall be returned to pre-construction condition with no bumps or dips. All vehicle and equipment operators will observe speed limits and practice responsible defensive driving habits.

## Potash Mineral

1. Drilling within the Designated Potash Area. It is the intent of the Department of the Interior to administer oil and gas operations throughout the Designated Potash Area in a manner which promotes safe, orderly co-development of oil, gas, and potash resources. It is the policy of the Department of the Interior to deny approval of most applications for permits to drill oil and gas wells from surface locations within the Designated Potash Area. Three exceptions to this policy will be permitted if the drilling will occur under the following conditions from:

a. A Drilling Island associated with a Development Area established under this Order or a Drilling Island established under a prior Order;

b. A Barren Area and the Authorized Officer determines that such operations will not adversely affect active or planned potash mining operations in the immediate vicinity of the proposed drill-site; or

c. A Drilling Island, not covered by (a) above or single well site established under this Order by the approval and in the sole discretion of the Authorized Officer, provided that such site was jointly recommended to the Authorized Officer by the oil and gas lessee(s) and the nearest potash lessee(s).

2. Development Areas

a. When processing an application for permit to drill (APD) an oil or gas well in the Designated Potash Area that complies with regulatory requirements, the Authorized Officer will determine whether to establish a Development Area in connection with the application, and if so, will determine the boundaries of the Development Area and the location within the Development Area of one or more Drilling Islands from which drilling will be permitted. The BLM may also designate a Development Area outside of the APD process based on information in its possession, and may modify the boundaries of a Development Area. Existing wells may be included within the boundaries of a Development Area. A Development Area may include Federal oil and gas leases and other Federal and non-Federal lands.

b. After designating or modifying a Development Area, the BLM will issue a Notice to Lessees, consistent with its authorities under 43 CFR Subpart 3105 and part 3180, information lessees that future drilling on lands under an oil and gas lease within that Development Area will:

i. occur, under most circumstances, from a Barren Area or A Drilling Island within the Development Area; and

ii. be managed under a unit or communitization agreement, generally by a single operator, consistent with BLM regulations and this Order. Unit and communitization agreements will be negotiated among lessees. The BLM will consider whether a specific plan of development is necessary or advisable for a particular Drilling Island.

c. The Authorized Officer reserves the right to approve an operator or successor operator of a Development Area and/or a Drilling Island, if applicable, to ensure that the operator has the resources to operate and extract the oil and gas resources consistent with the requirements of this Order and all applicable laws and regulations, and has provided financial assurance in the amount required by the Authorized Officer.

d. The Authorized Officer will determine the appropriate designation of a Development Area in terms of location, shape and size. In most cases, a single Drilling Island will be established for each Development Area. In establishing the location, shape and size of a Development Area and an associated Drilling Island, the Authorized Officer will consider:

i. the appropriate location, shape, and size of a Development Area and associated Drillings Island to allow effective extraction of oil and gas resources while managing the impact on potash resources;

ii. the application of available oil and gas drilling and production technology in the Permian Basin;

iii. the applicable geology of the Designated Potash Area and optimal locations to minimize loss of potash ore while considering co-development of both resources;

iv. any long term exploration and/or mining plans provided by the potash industry;

v. whether a Barren Area may be the most appropriate area for a Drilling Island;

vi. the requirements of this Order; and

vii. any other relevant factors

e. As the Authorized Officer establishes a Development Area, the Authorized Officer will more strictly apply the factors listed in Section 6.e.(2)(d), especially the appropriate application of the available oil and gas drilling and production technology in the Permian Basin, when closer to current traditional (non-solution) potash mining operations. Greater flexibility in the application of the factors listed in Section 6.e(2)(d) will be applied further from current and near-term traditional (non-solution)potash mining operations. No Drilling Islands will be established within one mile of any area where approved potash mining operations will be conducted within 3 years consistent with the 3-year mine plan referenced above (Section 6.d.(8)) without the consent of the affected potash lessee(s).

f. The Authorized Officer may establish a Development Area associated with a well or wells drilled from a Barren Area as appropriate and necessary.

g. As part of the consideration for establishing Development Areas and Drilling Islands, the BLM will consider input from the potash lessees and the oil and gas lessees or mineral right owner who would be potentially subject to a unitization agreement supporting the Development Are, provided that the input is given timely.

3. Buffer Zones. Buffer Zones of ¼ mile for oil wells and ½ mile for gas wells are hereby established. These Buffer Zones will stay in effect until such time as revised distances are adopted by the BLM Director or other BLM official, as delegated. However, the Authorized Officer may adjust the Buffer Zones in an individual case, when the facts and circumstances demonstrate that such adjustment would enhance conservation and would not compromise safety. The Director will base revised Buffer Zones on science, engineering, and new technology and will consider comments and reports from the Joint Industry Technical Committee and other interested parties in adopting any revisions.

4. Unitization and Communitization. To more properly conserve the potash, oil and gas resources in the Designated Potash Area and to adequately protect the rights of all parties in interest, including the United States, it is the policy of the Department of the Interior that all Federal oil and gas leases within a Development Area should be unitized or subject to an approved communitization agreement unless there is a compelling reason for another operating system. The Authorized Officer will make full use of his/her authorities wherever necessary or advisable to require unitization and/or communitization pursuant to the regulations in 43 CFR Subparts 3105 and 3180. The Authorized Officer will use his/her discretion to the fullest extent possible to assure that any communitization

agreement and any unit plan of operations hereafter approved or prescribed within the Designated Potash Area will adhere to the provisions of this Order. The Authorized Officer will work with Federal lessees, and with the State Of New Mexico as provided below, to include non-Federal mineral rights owners in unit or communitization agreements to the extent possible.

5. Coordination with the State of New Mexico.

    a. If the effective operation of any Development Area requires that the New Mexico Oil Conservation Division (NMOCD) revise the State's mandatory well spacing requirements, the BLM will participate as needed in such a process. The BLM may adopt the NMOCD spacing requirements and require lessees to enter into communitization agreements based on those requirements.

    b. The BLM will cooperate with the NMOCD in the implementation of that agency's rules and regulations.

    c. In taking any action under Section 6.e. of this Order, the Authorized Officer will take into consideration the applicable rules and regulations of the NMOCD.

To minimize impacts to potash resources, the proposed well is confined within the boundaries of the established Big Eddy Unit Drill Island 4. (See Potash Memo and Map in attached file for Drill Island description).

## Recreation

Pipelines shall be buried a minimum of 24 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. Power poles and associated ground structures (poles, guy wires) will not be placed within 20 feet of recreation trails. Guy wires must be equipped with a sleeve, tape or other industry approved apparatus that is highly visible during the day and reflective at night. Appropriate safety signage will be in place during all phases of the project. Upon completion of construction, the road shall be returned to pre-construction condition with no bumps or dips. All vehicle and equipment operators will observe speed limits and practice responsible defensive driving habits.

### Commercial Well Determination

A commercial well determination shall be submitted after production has been established for at least six months.

### Unit Wells

The well sign for a unit well shall include the unit number in addition to the surface and bottom hole lease numbers. This also applies to participating area numbers. If a participating area has not been established, the operator can use the general unit designation, but will replace the unit number with the participating area number when the sign is replaced.

# 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.

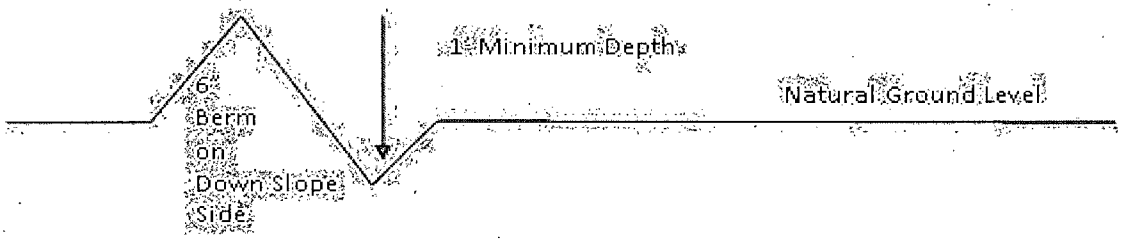
**Turnouts**
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

**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.

**Fence Requirement**

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

**Public Access**

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

**Construction Steps**

1. Salvage topsoil
2. Construct road
3. Redistribute topsoil
4. Revegetate slopes

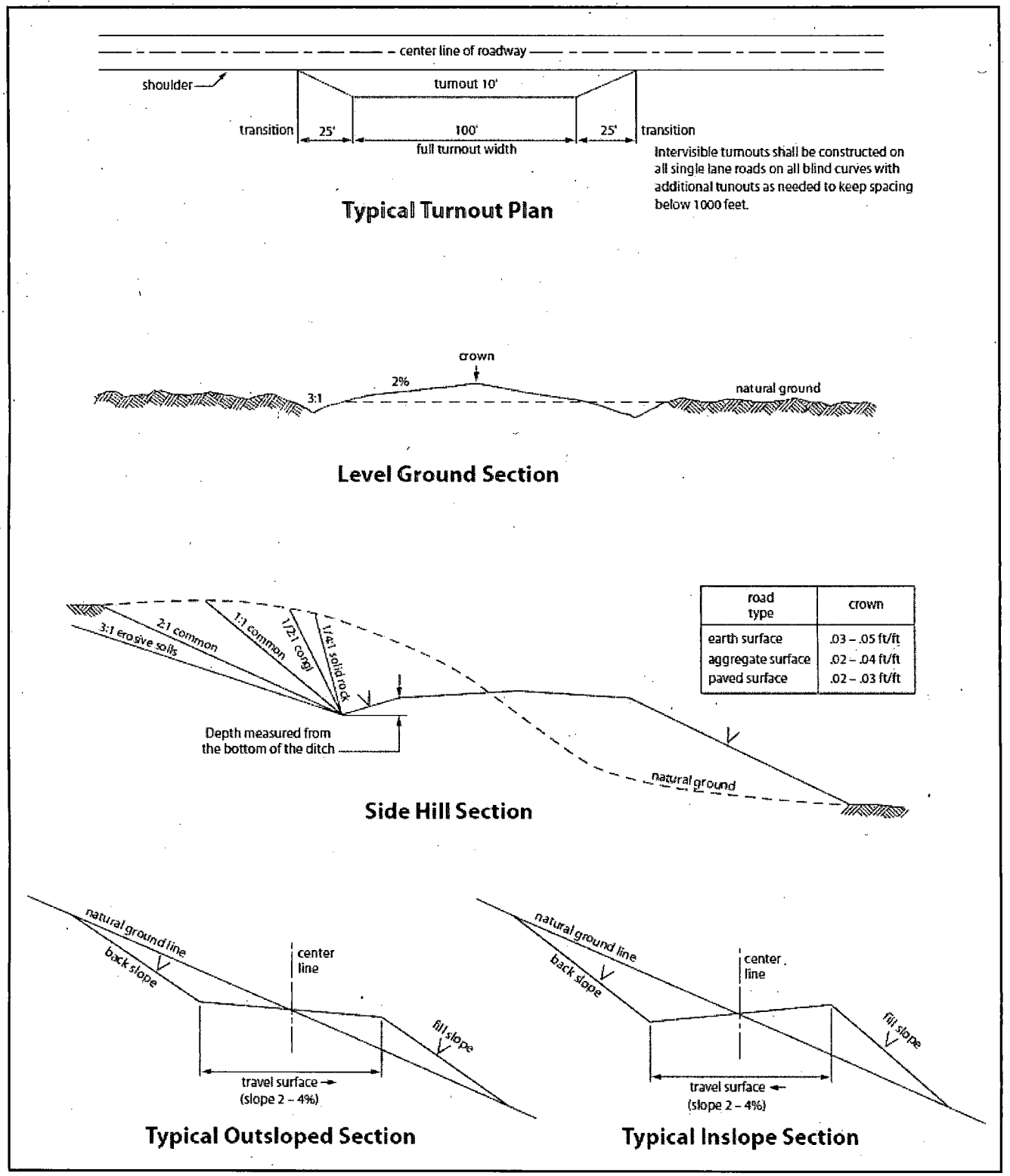



Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

# VII. DRILLING

## A. DRILLING OPERATIONS REQUIREMENTS

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

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

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

1. **Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.**

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) 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.**

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

**Secretary's Potash**
**Capitan Reef**
**Possibility of water flows in the Artesia Group, Salado, and Capitan Reef.**
**Possibility of lost circulation in the Artesia Group, Rustler, Capitan Reef, and Delaware.**

1. The **16** inch surface casing shall be set at approximately **830** 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.

**Special Capitan Reef requirements:**

**If lost circulation (50% or greater) occurs below the Base of the Salt, the operator shall do the following:**

- **Switch to fresh water mud to protect the Capitan Reef and use fresh water mud until setting the intermediate casing. The appropriate BLM office is to be notified for a PET to witness the switch to fresh water.**

- **Daily drilling reports from the Base of the Salt to the setting of the intermediate casing are to be submitted to the BLM CFO engineering staff via e-mail by 0800 hours each morning. Any lost circulation encountered is to be recorded on these drilling reports. The daily drilling report should show mud volume per shift/tour. Failure to submit these reports will result in an Incidence of Non-Compliance being issued for failure to comply with the Conditions of Approval. If not already planned, the operator shall run a caliper survey for the intermediate well bore and submit to the appropriate BLM office.**

2. The minimum required fill of cement behind the **13-3/8** inch 1st intermediate casing, which shall be set at approximately **2650** feet (**Seven Rivers formation**), 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 potash.**

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

**Operator has proposed DV tool at depth of 2844', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.**

   a. First stage to DV tool:

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

b. Second stage above DV tool:

☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to Capitan Reef and potash.**

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

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

**Operator has proposed DV tool at depth of 5000', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range.**

a. First stage to DV tool:

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

b. Second stage above DV tool:

☒ Cement should tie-back at least **50 feet above the Capitan Reef** (Top of Capitan Reef estimated at 2814'). Operator shall provide method of verification. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to potash.**

**NOTE: Liner to tie back 100' into production casing:**

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

☒ Cement as proposed by operator. Operator shall provide method of verification.

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

## C. PRESSURE CONTROL

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

2. Variance approved to use flex line from BOP to choke manifold. 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.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).

3. **A variance is granted for the use of a diverter on the 16" surface casing.**

4. 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 **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 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.

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

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

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

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

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

## D. DRILL STEM TEST

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

## E. WASTE MATERIAL AND FLUIDS

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

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

**JAM 072115**

# VIII. 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).

## IX. 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).
Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

**SEED MIXTURE LPC (SAND/SHINNERY LOCATIONS)**

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 months prior to purchase. Commercial seed will be certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

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 Seed will be planted using a drill equipped with a 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 (smaller/heavier seeds have a tendency to drop to 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 double the amounts listed below. 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 (note: if broadcasting seed, amounts are to be doubled):

| **Species** | **Pound/acre** |
|---|---|
| Plains Bristlegrass (*Setaria macrostachya)* | 5 |
| Sand Bluestem (*Andropogon hallii)* | 5 |
| Little Bluestem (*Schizachyrium scoparium)* | 3 |
| Big Bluestem (*Andropogon gerardii)* | 6 |
| Plains Coreopsis (*Coreopsis tinctoria)* | 2 |
| Sand Dropseed (*Sporobolus cryptandrus)* | 1 |
| Four-winged Saltbush** (*Atriplex canescens*) | 5 |

** Four-winged Saltbush can be used around well pads and other areas where caliche cannot be removed

* Pounds of pure live seed = (Pounds of seed) x (Percent purity) x (Percent germination)