

11-1063

Form 3160-3
(April 2004)

RECEIVED

JAN 13 2012

NMCOO ARTESIA

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R-111-POTASH

UNITED STATES

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED
OMB No. 1004-0137
Expires March 31, 2007

5. Lease Serial No.
NMNM045236

6. If Indian, Allottee or Tribe Name

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

8. Lease Name and Well No.
Sterling Silver 33 Federal #1H

9. API Well No.
30-015-

10. Field and Pool, or Exploratory

Sand Dunes; Delaware West

Sec 33 T23S R31E

12. County or Parish
Eddy

13. State
NM

1a. Type of work: ☒ DRILL ☐ REENTER

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

2. Name of Operator
OXY USA Inc.

3a. Address P.O. Box 50250 Midland, TX 79710

3b. Phone No. (include area code)
432-685-5717

4. Location of Well (Report location clearly and in accordance with any State requirements.)

At surface 360 FSL 590 FEL SESE(P)

At proposed prod. zone 330 FSL 590 FEL NENE(A)

14. Distance in miles and direction from nearest town or post office*
18 miles east from Loving, NM

15. Distance from proposed*
location to nearest
property or lease line, ft.
(Also to nearest drig. unit line, if any) 330'

16. No. of acres in lease
640

17. Spacing Unit dedicated to this well
160

18. Distance from proposed location*
to nearest well, drilling, completed,
applied for, on this lease, ft. 401'

19. Proposed Depth
PH-10550' M, 8770' V
Lat - 13/16 M

20. BLM/BIA Bond No. on file

ES0136 ESB 000226 JA

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3419.3' GL

22. Approximate date work will start*
12/01/2011

23. Estimated duration
45 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, shall 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 shall 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
authorized officer.

25. Signature

David Stewart

Name (Printed/Typed)

David Stewart

Date

8/9/11

Title

Regulatory Advisor

Approved by (Signature)

/s/ Tony J. Herrell

Name (Printed/Typed)

/s/ Tony J. Herrell

Date

JAN 6 2012

FOR

ACTING STATE DIRECTOR

Office

NM STATE 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.

*(Instructions on page 2)

CARLSEAD CONTROLLED WATER BASIN

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised October 12, 2005
Submit to Appropriate District Office
State Lease- 4 Copies
Fee Lease- 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

| | | |
|-----------------------------------|--|--|
| API Number 30-015-39831 | Pool Code 53815 | Pool Name SAND DONES; Delaware, West |
| Property Code 304972 | Property Name STERLING SILVER 33 Federal | Well Number 1H |
| OGRID No. 16696 | Operator Name OXY USA INC. | Elevation 3419.3' |

Surface Location

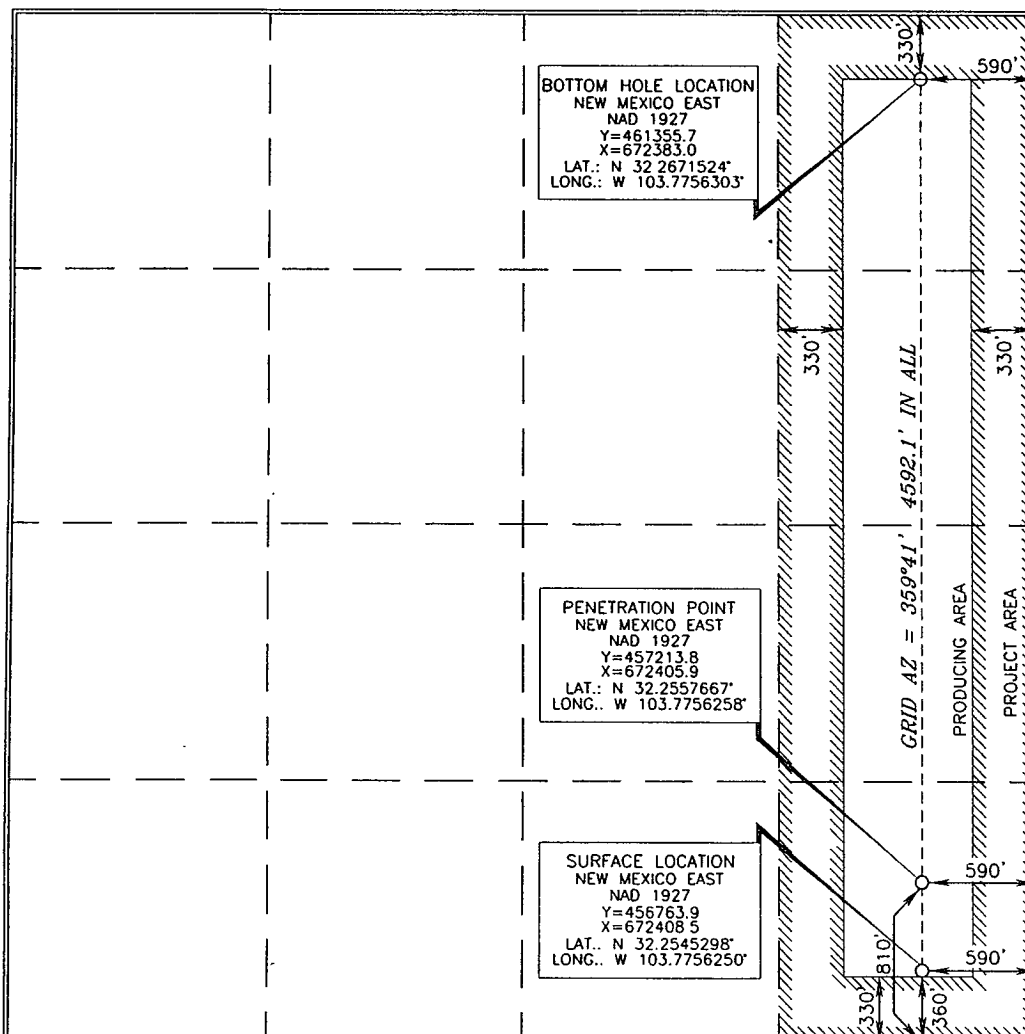
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|-----------|-----------------|--------------------------|---------|---------------|------------------|---------------|----------------|-------------|
| P | 33 | 23 SOUTH | 31 EAST, N.M.P.M. | | 360' | SOUTH | 590' | 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 |
|---------------|-----------|-----------------|--------------------------|---------|---------------|------------------|---------------|----------------|-------------|
| A | 33 | 23 SOUTH | 31 EAST, N.M.P.M. | | 330' | NORTH | 590' | EAST | EDDY |

| Dedicated Acres | Joint or Infill | Consolidation Code | Order No. |
|-----------------|-----------------|--------------------|-----------|
| 160 | N | | |

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.



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.

David Stewart 9/9/11
Signature Date

David Stewart
Printed Name

SURVEYOR CERTIFICATION

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

15079
DECEMBER 30, 2010
Date of Survey

Terry J. Abel 4/5/2011
Signature and Seal of Professional Surveyor
Certificate Number 15079

WO# 101230WL-a (KA)

United States Department of the Interior
Bureau of Land Management
Carlsbad Field Office
620 East Greene Street
Carlsbad, New Mexico 88220

Attention: Linda Denniston

RE: Sterling Silver 33 Fed^{eral} #1H
Eddy County, New Mexico

9/26 per operator

STATEMENT ACCEPTING RESPONSIBILITY FOR OPERATIONS

OPERATOR NAME: OXY USA Inc.
ADDRESS: P.O. Box 4294
Houston, Texas 77210-4294

The undersigned accepts all applicable terms, conditions, stipulations, and restrictions concerning operations conducted on the leased land or portion thereof, as described below:

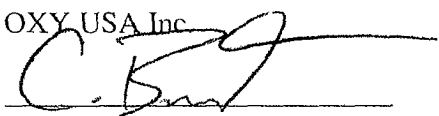
LEASE NO.: NMNM 45236

LEGAL DESCRIPTION: SL: 360' FSL & 590' FEL_SESE (P)
PBHL: 330' FNL & 950' FEL_NENE (A)
Section 33 T23S R31E *540*
Eddy County, New Mexico

FORMATIONS: Bone Springs

BOND COVERAGE: Nationwide

BLM BOND FILE NO.: ~~ES 0136~~ *ESB000226*

AUTHORIZED SIGNATURE: 
Colin D. Barnett

TITLE: Landman

DATE: July 12, 2011

cc: David Stewart

DRILLING PROGRAM

| | | |
|-----------------------|--|------------------------------|
| Operator Name/Number: | OXY USA Inc. | 16696 |
| Lease Name/Number: | Sterling Silver 33 Federal #1H | Federal Lease No. NMNM045236 |
| Pool Name/Number: | Ingle Wells Bone Spring | 33740 |
| Surface Location: | 360 FSL 590 FEL SESE(P) Sec 33 T23S R31E | |
| Bottom Hole Location: | 330 FSL 590 FEL NENE(A) Sec 33 T23S R31E | |

| | | | | | | | | |
|----------------------|-------------------|--------|-----|--------------------|-------------|-----|------------|-----|
| Proposed TD: | Pilot Hole | 10550' | TVD | Horizontal Lateral | 8770' | TVD | 13116' | TMD |
| SL - Lat: 32.2545298 | Long: 103.7756250 | | | X= 672408.5 | Y= 456763.9 | | NAD - 1927 | |
| BH - Lat: 32.2671524 | Long: 103.7756303 | | | X= 672383.0 | Y= 461355.7 | | NAD - 1927 | |
| Elevation: | 3419.3' GL | | | | | | | |

1. Geologic Name of Surface Formation:

a. Permian

2. Estimated Tops of Geological Markers & Depths of Anticipated Fresh Water, Oil or Gas:

| <u>Geological Marker</u> | <u>Depth</u> | <u>Type</u> |
|--------------------------|--------------|-------------|
| a. Rustler Anhydrite | 494' | Formation |
| b. Top Salt | 809' | Formation |
| c. Bottom Salt | 3982' | Formation |
| d. Delaware | 4290' | Oil/Gas |
| e. Cherry Canyon | 5210' | Oil/Gas |
| f. Brushy Canyon | 6490' | Oil/Gas |
| g. Bone Spring | 8120' | Oil/Gas |
| h. 1st Bone Spring | 9150' | Oil/Gas |
| i. 2nd Bone Spring | 9570' | Oil/Gas |
| j. 3rd Bone Spring | 10250' | Oil/Gas |

3. Casing Program:

| <u>Hole Size</u> | <u>Interval</u> | <u>OD Csg</u> | <u>Weight</u> | <u>Collar</u> | <u>Grade</u> | <u>Condition</u> | <u>Collapse Design Factor</u> | <u>Burst Design Factor</u> | <u>Tension Design Factor</u> |
|----------------------------|---------------------|---------------|---------------|---------------------------|--------------|------------------|-------------------------------|----------------------------|------------------------------|
| 17-1/2" | 535' 610 | 13-3/8" | 48 | ST&C | H-40 | New | 1.98 | 4.62 | 2.38 |
| | | | | Hole filled with 8.4# Mud | | | 770# | 1730# | |
| 12-1/4" | 4290' | 9-5/8" | 40 | LT&C | J-55 | New | 1.16 | 1.21 | 2.12 |
| | | | | Hole filled with 10# Mud | | | 2570# | 3950# | |
| 8-1/2" | 13116' M | 5-1/2" | 17 | LT&C | N-80 | New | 1.6 | 2.69 | 1.89 |
| DVT @ 7000' - POST @ 4340' | | | | Hole filled with 9.2# Mud | | | 6280# | 7740# | |

Collapse and burst loads calculated using Stress Check with anticipated loads

4. Cement Program

- a. 13-3/8" Surface Circulate cement to surface w/ 360sx PP cmt w/ 4% Bentonite + .25#/sx Poly-E-Flake + 2% CaCl₂, 13.5ppg 1.75 yield 985# 24hr CS 165% Excess followed by 300sx PP cmt w/ 2% CaCl₂, 14.8ppg 1.35 yield 1750# 24hr CS 165% Excess
- b. 9-5/8" Intermediate Circulate cement to surface w/ 1380sx HES light PP cmt w/ 5% Salt + .125#/sx Poly-E-Flake + 5#/sx Gilsonite + .5% Halad-344 + 1% CaCl₂, 12.9ppg 1.89 yield 840# 24hr CS 125% Excess followed by 200sx PP cmt w/ .5% WellLife-734, 14.8ppg 1.33 yield 1343# 24hr CS 125% Excess

- c. 5-1/2" Production Cement 1st stage w/ 1610sx Super H w/ .5% Halad-344 + .4% CFR-3 + 3#/sx Gilsonite + .3% HR-601 + 1#/sx Salt, 13.2ppg 1.62 yield 1817# 24hr CS 85% Excess, Calc TOC-6995'
Cement 2nd stage w/ 850sx Super H w/ .5% Halad-344 + .4% CFR-3 + 3#/sx Gilsonite + .3% HR-601 + 1#/sx Salt, 13.2ppg 1.61 yield 1536# 24hr CS 125% Excess, Calc TOC-4335'
Cement 3rd stage w/ 650sx HES Light PP cmt w/ 3#/sx Salt, 12.4ppg 2.08 yield 560# 24hr CS 35% Excess followed by 150sx PP cmt w/ 2% CaCl₂, 14.8ppg 1.35 yield 1750# 24hr CS 35% Excess, Circ Surface
- d. Pilot Hole Plug Cement w/ 140sx CL H cmt w/ 3% KCl + .75% CFR-3 + .2% HR-800, 16ppg 1.16 yield 1918# 24hr CS 35% excess from 10550' to +/- 10250' followed by 280sx PP cmt w/ 3% KCl + .75% CFR-3 + .2% HR-800, 17.5ppg .97 yield 4594# 24hr CS 35% Excess from 8550 to +/- 8000'

The above cement volumes could be revised pending the caliper measurement.

5. Pressure Control Equipment:

Surface None

Production 13-5/8" 10M two ram stack w/ 5M annular preventer, 10M Choke Manifold

The 13 5/8" 10M blowout prevention equipment will be installed and operational after setting the 13 3/8" surface casing and the 5K conventional wellhead. Respectfully request that BOPE be treated as a 5M stack and tested as such.

All BOP's and associated equipment will be tested in accordance with Onshore Order #2 (250/5000 psi on rams for 10 minutes each and 250/3500 for 10 minutes for annular preventer, equal to 70% of working pressure) with a third party BOP testing service before drilling out the 13-3/8" casing shoe. Wellhead pressure rating will support this test and 13-3/8" casing will be protected from high pressure. Since the wellhead system is a multibowl design, this initial test will cover the requirements prior to drilling out the 9-5/8" casing shoe.

Pipe Rams will be operated and checked each 24-hour period and each time the drill pipe is out of the hole. These functional tests will be documented on the daily driller's log. A 2" kill line and 3" choke line will be accommodated on the drilling spool below the ram-type BOP. Other accessory BOP equipment will include a Kelly cock, floor safety valve, choke lines and choke manifold having a 5000 psi WP rating. OXY requests that the entire system be tested as a 5000psi WP rating.

OXY also requests a variance to connect the BOP outlet to the choke manifold using a co-flex hose that is manufactured by Contitech Rubber Industrial KFT. It is a 3" ID X 35' flexible hose rated to 10000psi working pressure. It has been tested to 15000psi and is built to API Spec 16C. Once the flex line is installed, it will be tied down with safety clamps, see attached for certifications.

6. Proposed Mud Circulation System

| <u>Depth</u> | <u>Mud Wt.</u> <u>ppg</u> | <u>Visc</u> <u>sec</u> | <u>Fluid</u> <u>Loss</u> | <u>Type System</u> |
|-------------------------------|------------------------------|---------------------------|-----------------------------|----------------------|
| 0 - 535' <i>610</i> | 8.4-9.2 | 32-34 | NC | Fresh Water/Spud Mud |
| 535 - 4290' | 9.8-10.0 | 28-29 | NC | Brine Water |
| 4290 - 8200' | 8.6-8.8 | 28-29 | NC | Fresh Water |
| 8200 - 10550' (Pilot) | 9.0-9.4 | 34-36 | 8-10 | Cut Brine Gel/LSND |
| 8200 - 13116' (Curve/Lateral) | 9.0-9.2 | 50-50 | 8-15 | Cut Brine Gel/LSND |

Pump high viscosity sweeps as needed for hole cleaning. The mud system will be monitored visually/manually as well as with an electronic PVT. The necessary mud products for additional weight and fluid loss control will be on location at all times.

7. Auxiliary Well Control and Monitoring Equipment:

- a. A Kelly cock will be in the drill string at all times.
- b. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.
- c. Hydrogen Sulfide detection equipment will be in operation after drilling out the surface casing shoe until the production casing is cemented. Breathing equipment will be on location upon drilling the surface casing shoe until total depth is reached. If Hydrogen Sulfide is encountered, measured amounts and formations will be reported to the BLM.

8. Logging, Coring and Testing Program:

See COA

- a. Drill stem tests are not anticipated but if done will be based on geological sample shows.
- b. The open hole electrical logging program will consist of GR/RES/DES/NEU in Production Section (4290-TD of Pilot).
- c. No coring program is planned but if done will be sidewall rotary cores.
- d. Mud logging program will be initiated from 4290' to TD.

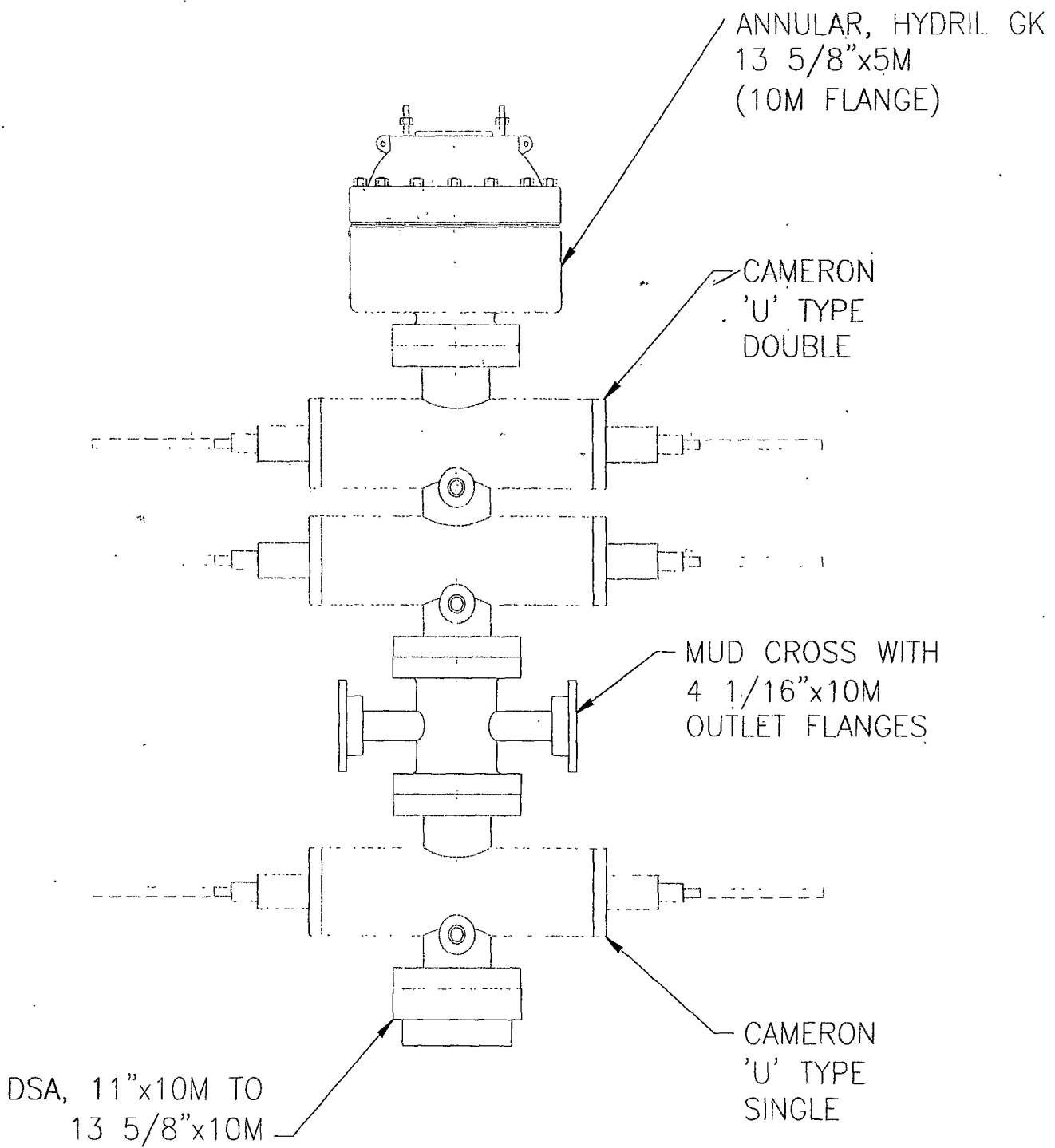
9. Potential Hazards:

No abnormal pressures, temperatures or H₂S gas are expected. The highest anticipated pressure gradient would be 0.47 psi/ft which would be 4100psi @ 8770' TVD Lateral and 4930psi @ 10550' TVD for the pilot hole. If H₂S is encountered the operator will comply with the provisions of Onshore Oil & Gas Order No.6. No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Adequate flare lines will be installed off the mud/gas separator where gas may be flared safely.

10. Anticipated Starting Date and Duration of Operations:

Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon as possible after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 45 days. If production casing is run, then an additional 30 days will be needed to complete the well and construct surface facilities and/or lay flow lines in order to place well on production.

BOP Diagram



BOP STACK



Weatherford International Ltd.

WFT Plan Report - X & Y's

**Weatherford®**

Company: Occidental Permian Ltd Date: 6/23/2011 Time: 15:13:14 Page: 1
Field: Eddy Co, NM (Nad 27) Co-ordinate(NE) Reference: Well: #1H, Grid:North
Site: Sterling Silver 33 Com #1H Vertical (TVD) Reference: SITE:3443.0
Well: #1H Section (VS) Reference: Well (0.00N;0.00E;359.68Azi)
Wellpath: Pilot Survey Calculation Method: Minimum Curvature Db: Sybase

Plan: Plan 1 Date Composed: 6/23/2011
Principal: Yes Version: 1
Tied-to: From Surface

Field: Eddy Co, NM (Nad 27)

Map System: US State Plane Coordinate System 1927 Map Zone: New Mexico, Eastern Zone
Geo Datum: NAD27 (Clarke 1866) Coordinate System: Well Centre
Sys Datum: Mean Sea Level Geomagnetic Model: IGRF2010

Site: Sterling Silver 33 Com #1H

Site Position: Northing: 456763.90 ft Latitude: 32 15 16.308 N
From: Map Easting: 672408.50 ft Longitude: 103 46 32.250 W
Position Uncertainty: 0.00 ft North Reference: Grid
Ground Level: 3419.00 ft Grid Convergence: 0.30 deg

Well: #1H Slot Name:
Well Position: +N/-S 0.00 ft Northing: 456763.90 ft Latitude: 32 15 16.308 N
+E/-W 0.00 ft Easting: 672408.50 ft Longitude: 103 46 32.250 W
Position Uncertainty: 0.00 ft

Wellpath: Pilot Drilled From: Lateral
Current Datum: SITE Height 3443.00 ft Tie-on Depth: 0.00 ft
Magnetic Data: 10/15/2011 Above System Datum: Mean Sea Level
Field Strength: 48604 nT Declination: 7.64 deg
Vertical Section: Depth From (TVD) +N/-S Mag Dip Angle: 60 17 deg
ft ft +E/-W Direction
deg
0.00 0.00 0.00 359.68

Plan Section Information

| MD | Incl | Azim | TVD | +N/-S | +E/-W | DLS | Build | Turn | TFO | Target |
|----------|------|------|----------|-------|-------|-----------|-----------|-----------|------|--------|
| ft | deg | deg | ft | ft | ft | deg/100ft | deg/100ft | deg/100ft | deg | ft |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 10550.00 | 0.00 | 0.00 | 10550.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |

Survey

| MD | Incl | Azim | TVD | N/S | E/W | VS | DLS | MapN | MapE | Comment |
|---------|------|------|---------|------|------|------|-----------|-----------|-----------|-----------|
| ft | deg | deg | ft | ft | ft | ft | deg/100ft | ft | ft | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 100.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 200.00 | 0.00 | 0.00 | 200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 300.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 400.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 500.00 | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 510.00 | 0.00 | 0.00 | 510.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | T Rustler |
| 600.00 | 0.00 | 0.00 | 600.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 700.00 | 0.00 | 0.00 | 700.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 800.00 | 0.00 | 0.00 | 800.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 900.00 | 0.00 | 0.00 | 900.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 1000.00 | 0.00 | 0.00 | 1000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 1100.00 | 0.00 | 0.00 | 1100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 1200.00 | 0.00 | 0.00 | 1200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 1300.00 | 0.00 | 0.00 | 1300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 1400.00 | 0.00 | 0.00 | 1400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 1500.00 | 0.00 | 0.00 | 1500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 1600.00 | 0.00 | 0.00 | 1600.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 1700.00 | 0.00 | 0.00 | 1700.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |



Weatherford International Ltd.

WFT Plan Report - X & Y's

**Weatherford**

Company: Occidental Permian Ltd
Field: Eddy Co, NM (Nad 27)
Site: Sterling Silver 33 Com #1H
Well: #1H
Wellpath: Pilot

Date: 6/23/2011
Co-ordinate(NE) Reference: Well: #1H; Grid North
Vertical (TVD) Reference: SITE 3443 0
Section (VS) Reference: Well (0.00N,0.00E,359.68Azi)
Survey Calculation Method: Minimum Curvature

Page: 2
Db: Sybase

Survey

| MD ft | Incl deg | Azim deg | TVD ft | N/S ft | E/W ft | VS ft | DLS deg/100ft | MapN ft | MapE ft | Comment |
|----------|-------------|-------------|-----------|-----------|-----------|----------|------------------|------------|------------|-----------------|
| 1800.00 | 0.00 | 0.00 | 1800.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 1900.00 | 0.00 | 0.00 | 1900.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 2000.00 | 0.00 | 0.00 | 2000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 2100.00 | 0.00 | 0.00 | 2100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 2200.00 | 0.00 | 0.00 | 2200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 2300.00 | 0.00 | 0.00 | 2300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 2400.00 | 0.00 | 0.00 | 2400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 2500.00 | 0.00 | 0.00 | 2500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 2600.00 | 0.00 | 0.00 | 2600.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 2700.00 | 0.00 | 0.00 | 2700.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 2800.00 | 0.00 | 0.00 | 2800.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 2900.00 | 0.00 | 0.00 | 2900.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 3000.00 | 0.00 | 0.00 | 3000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 3100.00 | 0.00 | 0.00 | 3100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 3200.00 | 0.00 | 0.00 | 3200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 3300.00 | 0.00 | 0.00 | 3300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 3400.00 | 0.00 | 0.00 | 3400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 3500.00 | 0.00 | 0.00 | 3500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 3600.00 | 0.00 | 0.00 | 3600.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 3700.00 | 0.00 | 0.00 | 3700.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 3800.00 | 0.00 | 0.00 | 3800.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 3900.00 | 0.00 | 0.00 | 3900.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 4000.00 | 0.00 | 0.00 | 4000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 4100.00 | 0.00 | 0.00 | 4100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 4200.00 | 0.00 | 0.00 | 4200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 4270.00 | 0.00 | 0.00 | 4270.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | Base Slat |
| 4290.00 | 0.00 | 0.00 | 4290.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | T Delaware |
| 4300.00 | 0.00 | 0.00 | 4300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 4400.00 | 0.00 | 0.00 | 4400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 4500.00 | 0.00 | 0.00 | 4500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 4600.00 | 0.00 | 0.00 | 4600.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 4700.00 | 0.00 | 0.00 | 4700.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 4800.00 | 0.00 | 0.00 | 4800.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 4900.00 | 0.00 | 0.00 | 4900.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 5000.00 | 0.00 | 0.00 | 5000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 5100.00 | 0.00 | 0.00 | 5100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 5200.00 | 0.00 | 0.00 | 5200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 5210.00 | 0.00 | 0.00 | 5210.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | T Cherry Canyon |
| 5300.00 | 0.00 | 0.00 | 5300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 5400.00 | 0.00 | 0.00 | 5400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 5500.00 | 0.00 | 0.00 | 5500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 5600.00 | 0.00 | 0.00 | 5600.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 5700.00 | 0.00 | 0.00 | 5700.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 5800.00 | 0.00 | 0.00 | 5800.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 5900.00 | 0.00 | 0.00 | 5900.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 6000.00 | 0.00 | 0.00 | 6000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 6100.00 | 0.00 | 0.00 | 6100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 6200.00 | 0.00 | 0.00 | 6200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 6300.00 | 0.00 | 0.00 | 6300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 6400.00 | 0.00 | 0.00 | 6400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 6490.00 | 0.00 | 0.00 | 6490.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | T Brushy Canton |
| 6500.00 | 0.00 | 0.00 | 6500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |



Weatherford International Ltd.

WFT Plan Report - X & Y's

**Weatherford**

Company: Occidental Permian Ltd. Date: 6/23/2011 Time: 15:13:14 Page: 3
Field: Eddy Co. NM (Nad.27) Co-ordinate(NE) Reference: Well #1H, Grid North
Site: Sterling Silver 33 Corn #1H Vertical (TVD) Reference: SITE 3443.0
Well: #1H Section (VS) Reference: Well (0.00N,0.00E,359.68Azi)
Wellpath: Pilot Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

| MD ft | Incl deg | Azim deg | TVD ft | N/S ft | E/W ft | VS ft | DLS deg/100ft | MapN ft | MapE ft | Comment |
|----------|-------------|-------------|-----------|-----------|-----------|----------|------------------|------------|------------|--------------------|
| 6600.00 | 0.00 | 0.00 | 6600.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 6700.00 | 0.00 | 0.00 | 6700.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 6800.00 | 0.00 | 0.00 | 6800.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 6900.00 | 0.00 | 0.00 | 6900.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 7000.00 | 0.00 | 0.00 | 7000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 7100.00 | 0.00 | 0.00 | 7100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 7200.00 | 0.00 | 0.00 | 7200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 7300.00 | 0.00 | 0.00 | 7300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 7400.00 | 0.00 | 0.00 | 7400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 7500.00 | 0.00 | 0.00 | 7500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 7600.00 | 0.00 | 0.00 | 7600.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 7700.00 | 0.00 | 0.00 | 7700.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 7800.00 | 0.00 | 0.00 | 7800.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 7900.00 | 0.00 | 0.00 | 7900.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 8000.00 | 0.00 | 0.00 | 8000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 8100.00 | 0.00 | 0.00 | 8100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 8120.00 | 0.00 | 0.00 | 8120.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | T Bone Spring Line |
| 8200.00 | 0.00 | 0.00 | 8200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 8300.00 | 0.00 | 0.00 | 8300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 8400.00 | 0.00 | 0.00 | 8400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 8500.00 | 0.00 | 0.00 | 8500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | T Upper Avalon Sha |
| 8600.00 | 0.00 | 0.00 | 8600.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 8670.00 | 0.00 | 0.00 | 8670.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | T Lower Avalon Sha |
| 8700.00 | 0.00 | 0.00 | 8700.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 8770.00 | 0.00 | 0.00 | 8770.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | Target Lower Avalo |
| 8800.00 | 0.00 | 0.00 | 8800.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 8880.00 | 0.00 | 0.00 | 8880.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | T First Bone Sprin |
| 8900.00 | 0.00 | 0.00 | 8900.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 9000.00 | 0.00 | 0.00 | 9000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 9100.00 | 0.00 | 0.00 | 9100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 9150.00 | 0.00 | 0.00 | 9150.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | T 1st Bone Spring |
| 9200.00 | 0.00 | 0.00 | 9200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 9300.00 | 0.00 | 0.00 | 9300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 9400.00 | 0.00 | 0.00 | 9400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 9500.00 | 0.00 | 0.00 | 9500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 9570.00 | 0.00 | 0.00 | 9570.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | T 2nd Bone Spring |
| 9600.00 | 0.00 | 0.00 | 9600.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 9700.00 | 0.00 | 0.00 | 9700.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 9760.00 | 0.00 | 0.00 | 9760.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | T 2nd Bone Spring |
| 9800.00 | 0.00 | 0.00 | 9800.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 9900.00 | 0.00 | 0.00 | 9900.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 10000.00 | 0.00 | 0.00 | 10000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 10100.00 | 0.00 | 0.00 | 10100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 10200.00 | 0.00 | 0.00 | 10200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 10250.00 | 0.00 | 0.00 | 10250.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | T 3rd Bone Spring |
| 10300.00 | 0.00 | 0.00 | 10300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 10400.00 | 0.00 | 0.00 | 10400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 10500.00 | 0.00 | 0.00 | 10500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |
| 10550.00 | 0.00 | 0.00 | 10550.00 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | |



Weatherford International Ltd.

WFT Plan Report - X & Y's



Weatherford

| | | | | | | | |
|-----------|----------------------------|----------------------------|------------------------------|-------|----------|-------|---|
| Company: | Occidental Permian Ltd | Date: | 6/23/2011 | Time: | 15:13:14 | Page: | 4 |
| Field: | Eddy Co, NM (Nad 27) | Co-ordinate(NE) Reference: | Well: #1H, Grid North | | | | |
| Site: | Sterling Silver 33 Com #1H | Vertical (TVD) Reference: | SITE 3443.0 | | | | |
| Well: | #1H | Section (VS) Reference: | Well (0.00N,0.00E,359.68Azi) | | | | |
| Wellpath: | Pilot | Survey Calculation Method: | Minimum Curvature | Db: | Sybase | | |

Targets

| Name | Description | TVD | +N/-S | +E/-W | Map Northing | Map Easting | Latitude Deg Min Sec | Longitude Deg Min Sec |
|------|-------------|-----|-------|-------|--------------|-------------|-------------------------|--------------------------|
| Dip | Dir | | | | | | | |

Casing Points

| MD | TVD | Diameter | Hole Size | Name |
|----|-----|----------|-----------|------|
|----|-----|----------|-----------|------|

Annotation

| MD | TVD |
|----|-----|
|----|-----|

Formations

| MD ft | TVD ft | Formations | Lithology | Dip Angle deg | Dip Direction deg |
|----------|-----------|---------------------------|-----------|------------------|----------------------|
| 510.00 | 510.00 | T Rustler | | 0.00 | 0.00 |
| 4270.00 | 4270.00 | Base Slat | | 0.00 | 0.00 |
| 4290.00 | 4290.00 | T Delaware | | 0.00 | 0.00 |
| 5210.00 | 5210.00 | T Cherry Canyon | | 0.00 | 0.00 |
| 6490.00 | 6490.00 | T Brushy Canton | | 0.00 | 0.00 |
| 8120.00 | 8120.00 | T Bone Spring Limestone | | 0.00 | 0.00 |
| 8500.00 | 8500.00 | T Upper Avalon Shale | | 0.00 | 0.00 |
| 8670.00 | 8670.00 | T Lower Avalon Shale | | 0.00 | 0.00 |
| 8770.00 | 8770.00 | Target Lower Avalon Shale | | 0.00 | 0.00 |
| 8880.00 | 8880.00 | T First Bone Spring | | 0.00 | 0.00 |
| 9150.00 | 9150.00 | T 1st Bone Spring Sand | | 0.00 | 0.00 |
| 9570.00 | 9570.00 | T 2nd Bone Spring Lime | | 0.00 | 0.00 |
| 9760.00 | 9760.00 | T 2nd Bone Spring Sand | | 0.00 | 0.00 |
| 10250.00 | 10250.00 | T 3rd Bone Spring Lime | | 0.00 | 0.00 |



Sterling Silver 33 Com #1H Pilot
Eddy Co, New Mexico

9/26
Redford per Operator

SECTION DETAILS

| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | DLeg | TFace | VSec | Target |
|-----|----------|------|------|----------|-------|-------|------|-------|------|--------|
| 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 10550.00 | 0.00 | 0.00 | 10550.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |



Weatherford

WELL DETAILS

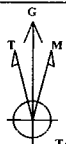
| Name | +N/-S | +E/-W | Northing | Eastng | Latitude | Longitude | Slot |
|------|-------|-------|-----------|-----------|---------------|----------------|------|
| #1H | 0.00 | 0.00 | 456763.90 | 672408.50 | 32°15'16.308N | 103°46'32.250W | N/A |

SITE DETAILS

Sterling Silver 33 Com #1H
Site Centre Northing: 456763.90
Eastng: 672408.50
Ground Level: 3419.00
Positional Uncertainty: 0.00
Convergence: 0.30

FIELD DETAILS

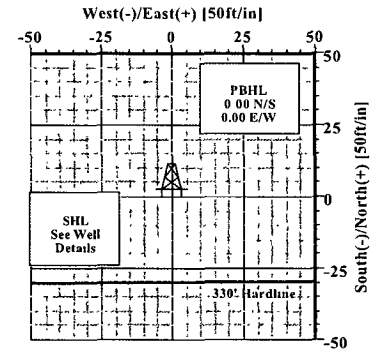
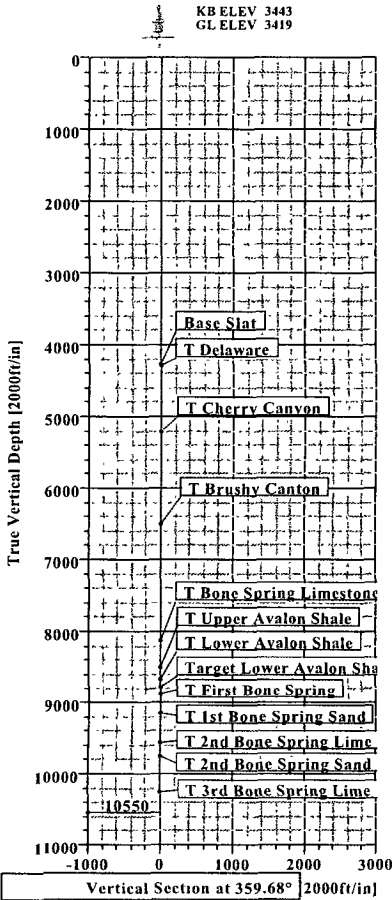
Eddy Co, NM (Nad 27)
Geodetic System: US State Plane Coordinate System 1927
Ellipsoid: NAD27 (Clarke 1866)
Zone: New Mexico, Eastern Zone
Magnetic Model: IGRF2010
System Datum: Mean Sea Level
Local North: Grid North



Azimuths to Grid North
True North: -0.30°
Magnetic North: 7.34°
Magnetic Field
Strength: 48604uT
Dip Angle: 60.17°
Date: 10/15/2011
Model: IGRF2010
Total Correction to Grid North: 7.34°

LEGEND

Pilot
Plan 1



Plan: Plan 1 (#1H/Pilot)

Created By: Keith Noack

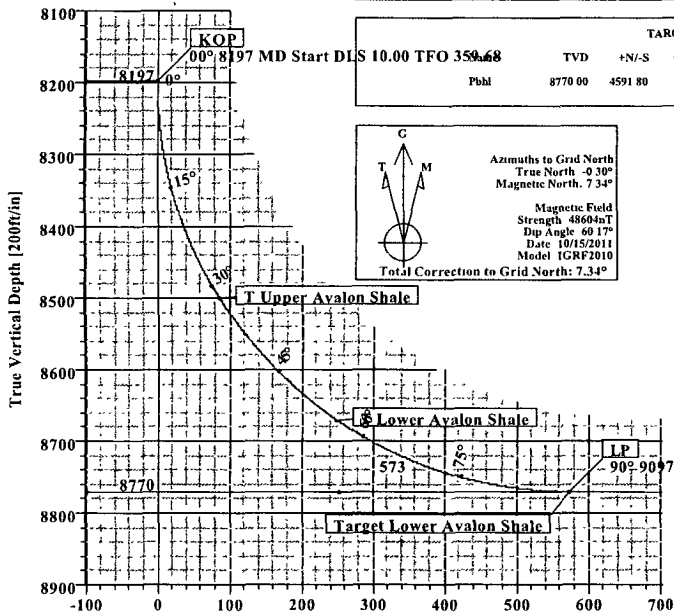
Date: 6/23/2011



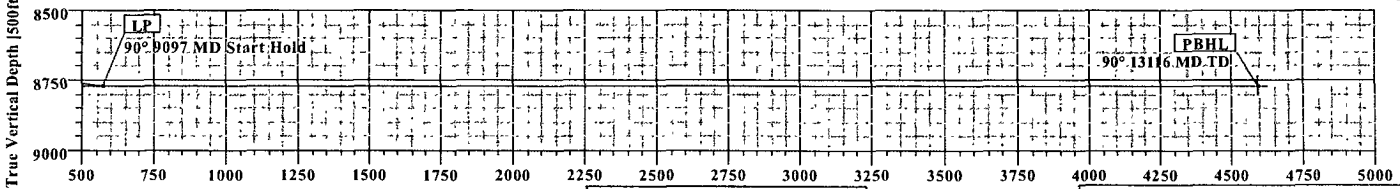
Sterling Silver 33 Com #1H Lateral
Eddy Co, NM

Federal 9/24

KB ELEV: 3443
GL ELEV: 3419



Vertical Section at 359.68° [200ft/in]



Vertical Section at 359.68° [500ft/in]

SECTION DETAILS

| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | DLeg | TFace | VSec | Target |
|-----|----------|-------|--------|---------|---------|--------|-------|--------|---------|--------|
| 1 | 8197.04 | 0.00 | 0.00 | 8197.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 2 | 9097.04 | 90.00 | 359.68 | 8770.00 | 572.95 | -3.18 | 10.00 | 359.68 | 572.96 | |
| 3 | 13115.95 | 90.00 | 359.68 | 8770.00 | 4591.80 | -25.50 | 0.00 | 0.00 | 4591.87 | Pbhl |

WELL DETAILS

| Name | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude | Slot |
|------|-------|-------|-----------|-----------|---------------|----------------|------|
| #1H | 0.00 | 0.00 | 456763.90 | 672408.50 | 32°15'16.308N | 103°46'32.250W | N/A |

TARGET DETAILS

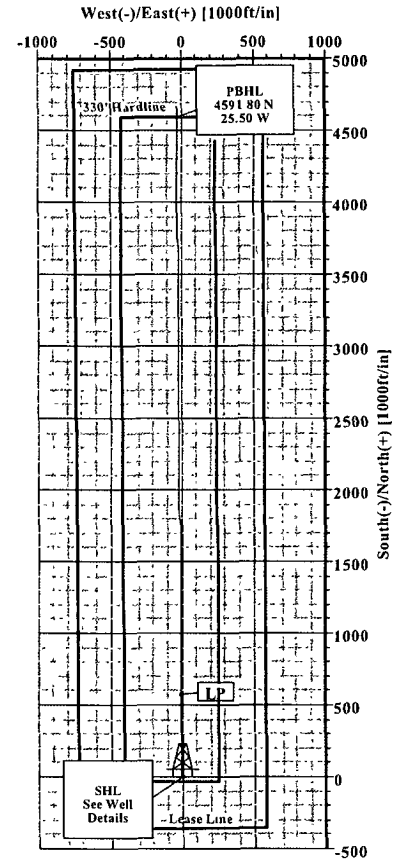
| Name | +N/-S | +E/-W | Northing | Easting | Shape |
|------|---------|---------|----------|-----------|-------|
| Pbhl | 8770.00 | 4591.80 | -25.50 | 461355.70 | Point |

SITE DETAILS

Sterling Silver 33 Com #1H
Site Centre Northing: 456763.90
Easting: 672408.50
Ground Level: 3419.00
Positional Uncertainty: 0.00
Convergence: 0.30

FIELD DETAILS

Eddy Co, NM (Nad 27)
Geodetic System: US State Plane Coordinate System 1927
Ellipsoid: NAD27 (Clarke 1866)
Zone: New Mexico, Eastern Zone
Magnetic Model: IGRF2010
System Datum: Mean Sea Level
Local North: Grid North



Plan: Plan #2 (#1H/Lateral)

Created By: Russell W Joyner

Date: 6/23/2011



Weatherford International Ltd.

WFT Plan Report - X & Y's

**Weatherford**

| | | | | | | | |
|-----------|----------------------------|----------------------------|------------------------------|-------|----------|-------|---|
| Company: | Occidental Permian Ltd. | Date: | 6/23/2011 | Time: | 13:42:54 | Page: | 1 |
| Field: | Eddy Co, NM (Nad 27) | Co-ordinate(NE) Reference: | Well: #1H, Grid North | | | | |
| Site: | Sterling Silver 33 Com #1H | Vertical (TVD) Reference: | SITE 3443 0 | | | | |
| Well: | #1H | Section (VS) Reference: | Well (0.00N,0.00E,359.68Azi) | | | | |
| Wellpath: | Lateral | Survey Calculation Method: | Minimum Curvature | Db: | Sybase | | |

| | | | |
|------------|---------|----------------|--------------|
| Plan: | Plan #2 | Date Composed: | 6/23/2011 |
| Principal: | Yes | Version: | 1 |
| | | Tied-to: | User Defined |

| | | | |
|-------------|---------------------------------------|--------------------|--------------------------|
| Field: | Eddy Co, NM (Nad 27) | | |
| Map System: | US State Plane Coordinate System 1927 | Map Zone: | New Mexico, Eastern Zone |
| Geo Datum: | NAD27 (Clarke 1866) | Coordinate System: | Well Centre |
| Sys Datum: | Mean Sea Level | Geomagnetic Model: | IGRF2010 |

| | | | | | | |
|-----------------------|----------------------------|-----------|--------------|-------------------|-----------------|--|
| Site: | Sterling Silver 33 Com #1H | | | | | |
| Site Position: | | Northing: | 456763.90 ft | Latitude: | 32 15 16.308 N | |
| From: | Map | Easting: | 672408.50 ft | Longitude: | 103 46 32 250 W | |
| Position Uncertainty: | 0.00 ft | | | North Reference: | Grid | |
| Ground Level: | 3419.00 ft | | | Grid Convergence: | 0.30 deg | |

| | | | | | | | |
|-----------------------|-------|------------|-----------|--------------|------------|-----------------|--|
| Well: #1H | | Slot Name: | | | | | |
| Well Position: | +N/-S | 0.00 ft | Northing: | 456763.90 ft | Latitude: | 32 15 16.308 N | |
| | +E/-W | 0.00 ft | Easting : | 672408.50 ft | Longitude: | 103 46 32.250 W | |
| Position Uncertainty: | | 0.00 ft | | | | | |

| | | | |
|------------------------------------|-------------------|---------------------|----------------|
| Wellpath: Lateral | | Drilled From: Pilot | |
| Current Datum: SITE | Height 3443 00 ft | Tie-on Depth: | 8197.04 ft |
| Magnetic Data: 10/15/2011 | | Above System Datum: | Mean Sea Level |
| Field Strength: 48604 nT | | Declination: | 7 64 deg |
| Vertical Section: Depth From (TVD) | +N/-S | Mag Dip Angle: | 60 17 deg |
| ft | ft | +E/-W | Direction |
| | ft | ft | deg |
| 0.00 | 0.00 | 0.00 | 359 68 |

Plan Section Information

| MD | Incl | Azim | TVD | +N/-S | +E/-W | DLS | Build | Turn | TFO | Target |
|----------|-------|--------|---------|---------|--------|-----------|-----------|-----------|--------|--------|
| ft | deg | deg | ft | ft | ft | deg/100ft | deg/100ft | deg/100ft | deg | |
| 8197.04 | 0.00 | 0.00 | 8197.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 9097.04 | 90.00 | 359.68 | 8770.00 | 572.95 | -3.18 | 10.00 | 10.00 | -0.04 | 359.68 | |
| 13115.95 | 90.00 | 359.68 | 8770.00 | 4591.80 | -25.50 | 0.00 | 0.00 | 0.00 | 0.00 | Pbhl |

Survey

| MD | Incl | Azim | TVD | N/S | E/W | VS | DLS | MapN | MapE | Comment |
|---------|-------|--------|---------|--------|-------|--------|-----------|-----------|-----------|---------------------|
| ft | deg | deg | ft | ft | ft | ft | deg/100ft | ft | ft | |
| 8197.04 | 0.00 | 0.00 | 8197.04 | 0.00 | 0.00 | 0.00 | 0.00 | 456763.90 | 672408.50 | KOP |
| 8200.00 | 0.30 | 359.68 | 8200.00 | 0.01 | 0.00 | 0.01 | 10.00 | 456763.91 | 672408.50 | |
| 8300.00 | 10.30 | 359.68 | 8299.45 | 9.23 | -0.05 | 9.23 | 10.00 | 456773.13 | 672408.45 | |
| 8400.00 | 20.30 | 359.68 | 8395.78 | 35.57 | -0.20 | 35.57 | 10.00 | 456799.47 | 672408.30 | |
| 8500.00 | 30.30 | 359.68 | 8486.08 | 78.25 | -0.43 | 78.25 | 10.00 | 456842.15 | 672408.07 | |
| 8516.26 | 31.92 | 359.68 | 8500.00 | 86.65 | -0.48 | 86.65 | 10.00 | 456850.55 | 672408.02 | T Upper Avalon Sha |
| 8600.00 | 40.30 | 359.68 | 8567.59 | 135.95 | -0.75 | 135.96 | 10.00 | 456899.85 | 672407.75 | |
| 8700.00 | 50.30 | 359.68 | 8637.85 | 206.94 | -1.15 | 206.94 | 10.00 | 456970.84 | 672407.35 | |
| 8753.40 | 55.64 | 359.68 | 8670.00 | 249.55 | -1.39 | 249.55 | 10.00 | 457013.45 | 672407.11 | T Lower Avalon Sha |
| 8800.00 | 60.30 | 359.68 | 8694.71 | 289.04 | -1.61 | 289.05 | 10.00 | 457052.94 | 672406.89 | |
| 8900.00 | 70.30 | 359.68 | 8736.45 | 379.77 | -2.11 | 379.78 | 10.00 | 457143.67 | 672406.39 | |
| 9000.00 | 80.30 | 359.68 | 8761.80 | 476.37 | -2.65 | 476.38 | 10.00 | 457240.27 | 672405.85 | |
| 9097.04 | 90.00 | 359.68 | 8770.00 | 572.95 | -3.18 | 572.96 | 10.00 | 457336.85 | 672405.32 | LP |
| 9097.83 | 90.00 | 359.68 | 8770.00 | 573.74 | -3.19 | 573.75 | 0.00 | 457337.64 | 672405.31 | Target Lower Avalon |
| 9100.00 | 90.00 | 359.68 | 8770.00 | 575.91 | -3.20 | 575.92 | 0.00 | 457339.81 | 672405.30 | |
| 9200.00 | 90.00 | 359.68 | 8770.00 | 675.91 | -3.75 | 675.92 | 0.00 | 457439.81 | 672404.75 | |
| 9300.00 | 90.00 | 359.68 | 8770.00 | 775.91 | -4.31 | 775.92 | 0.00 | 457539.81 | 672404.19 | |
| 9400.00 | 90.00 | 359.68 | 8770.00 | 875.90 | -4.86 | 875.92 | 0.00 | 457639.80 | 672403.64 | |



Weatherford International Ltd.

WFT Plan Report - X & Y's

**Weatherford**

Company: Occidental Permian Ltd Date: 6/23/2011 Time: 13:42:54 Page: 2
Field: Eddy Co, NM (Nad 27) Co-ordinate(NE) Reference: Well #1H, Grid North
Site: Sterling Silver 33 Corn #1H Vertical (TVD) Reference: SITE 3443.0
Well: #1H Section (VS) Reference: Well (0.00N, 0.00E, 359.68Azi)
Wellpath: Lateral Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

| MD ft | Incl deg | Azim deg | TVD ft | N/S ft | E/W ft | VS ft | DLS deg/100ft | MapN ft | MapE ft | Comment |
|----------|-------------|-------------|-----------|-----------|-----------|----------|------------------|------------|------------|---------|
| 9500.00 | 90.00 | 359.68 | 8770.00 | 975.90 | -5.42 | 975.92 | 0.00 | 457739.80 | 672403.08 | |
| 9600.00 | 90.00 | 359.68 | 8770.00 | 1075.90 | -5.97 | 1075.92 | 0.00 | 457839.80 | 672402.53 | |
| 9700.00 | 90.00 | 359.68 | 8770.00 | 1175.90 | -6.53 | 1175.92 | 0.00 | 457939.80 | 672401.97 | |
| 9800.00 | 90.00 | 359.68 | 8770.00 | 1275.90 | -7.09 | 1275.92 | 0.00 | 458039.80 | 672401.41 | |
| 9900.00 | 90.00 | 359.68 | 8770.00 | 1375.90 | -7.64 | 1375.92 | 0.00 | 458139.80 | 672400.86 | |
| 10000.00 | 90.00 | 359.68 | 8770.00 | 1475.90 | -8.20 | 1475.92 | 0.00 | 458239.80 | 672400.30 | |
| 10100.00 | 90.00 | 359.68 | 8770.00 | 1575.89 | -8.75 | 1575.92 | 0.00 | 458339.79 | 672399.75 | |
| 10200.00 | 90.00 | 359.68 | 8770.00 | 1675.89 | -9.31 | 1675.92 | 0.00 | 458439.79 | 672399.19 | |
| 10300.00 | 90.00 | 359.68 | 8770.00 | 1775.89 | -9.86 | 1775.92 | 0.00 | 458539.79 | 672398.64 | |
| 10400.00 | 90.00 | 359.68 | 8770.00 | 1875.89 | -10.42 | 1875.92 | 0.00 | 458639.79 | 672398.08 | |
| 10500.00 | 90.00 | 359.68 | 8770.00 | 1975.89 | -10.97 | 1975.92 | 0.00 | 458739.79 | 672397.53 | |
| 10600.00 | 90.00 | 359.68 | 8770.00 | 2075.89 | -11.53 | 2075.92 | 0.00 | 458839.79 | 672396.97 | |
| 10700.00 | 90.00 | 359.68 | 8770.00 | 2175.88 | -12.08 | 2175.92 | 0.00 | 458939.78 | 672396.42 | |
| 10800.00 | 90.00 | 359.68 | 8770.00 | 2275.88 | -12.64 | 2275.92 | 0.00 | 459039.78 | 672395.86 | |
| 10900.00 | 90.00 | 359.68 | 8770.00 | 2375.88 | -13.19 | 2375.92 | 0.00 | 459139.78 | 672395.31 | |
| 11000.00 | 90.00 | 359.68 | 8770.00 | 2475.88 | -13.75 | 2475.92 | 0.00 | 459239.78 | 672394.75 | |
| 11100.00 | 90.00 | 359.68 | 8770.00 | 2575.88 | -14.30 | 2575.92 | 0.00 | 459339.78 | 672394.20 | |
| 11200.00 | 90.00 | 359.68 | 8770.00 | 2675.88 | -14.86 | 2675.92 | 0.00 | 459439.78 | 672393.64 | |
| 11300.00 | 90.00 | 359.68 | 8770.00 | 2775.87 | -15.42 | 2775.92 | 0.00 | 459539.77 | 672393.08 | |
| 11400.00 | 90.00 | 359.68 | 8770.00 | 2875.87 | -15.97 | 2875.92 | 0.00 | 459639.77 | 672392.53 | |
| 11500.00 | 90.00 | 359.68 | 8770.00 | 2975.87 | -16.53 | 2975.92 | 0.00 | 459739.77 | 672391.97 | |
| 11600.00 | 90.00 | 359.68 | 8770.00 | 3075.87 | -17.08 | 3075.92 | 0.00 | 459839.77 | 672391.42 | |
| 11700.00 | 90.00 | 359.68 | 8770.00 | 3175.87 | -17.64 | 3175.92 | 0.00 | 459939.77 | 672390.86 | |
| 11800.00 | 90.00 | 359.68 | 8770.00 | 3275.87 | -18.19 | 3275.92 | 0.00 | 460039.77 | 672390.31 | |
| 11900.00 | 90.00 | 359.68 | 8770.00 | 3375.87 | -18.75 | 3375.92 | 0.00 | 460139.77 | 672389.75 | |
| 12000.00 | 90.00 | 359.68 | 8770.00 | 3475.86 | -19.30 | 3475.92 | 0.00 | 460239.76 | 672389.20 | |
| 12100.00 | 90.00 | 359.68 | 8770.00 | 3575.86 | -19.86 | 3575.92 | 0.00 | 460339.76 | 672388.64 | |
| 12200.00 | 90.00 | 359.68 | 8770.00 | 3675.86 | -20.41 | 3675.92 | 0.00 | 460439.76 | 672388.09 | |
| 12300.00 | 90.00 | 359.68 | 8770.00 | 3775.86 | -20.97 | 3775.92 | 0.00 | 460539.76 | 672387.53 | |
| 12400.00 | 90.00 | 359.68 | 8770.00 | 3875.86 | -21.52 | 3875.92 | 0.00 | 460639.76 | 672386.98 | |
| 12500.00 | 90.00 | 359.68 | 8770.00 | 3975.86 | -22.08 | 3975.92 | 0.00 | 460739.76 | 672386.42 | |
| 12600.00 | 90.00 | 359.68 | 8770.00 | 4075.85 | -22.63 | 4075.92 | 0.00 | 460839.75 | 672385.87 | |
| 12700.00 | 90.00 | 359.68 | 8770.00 | 4175.85 | -23.19 | 4175.92 | 0.00 | 460939.75 | 672385.31 | |
| 12800.00 | 90.00 | 359.68 | 8770.00 | 4275.85 | -23.75 | 4275.92 | 0.00 | 461039.75 | 672384.75 | |
| 12900.00 | 90.00 | 359.68 | 8770.00 | 4375.85 | -24.30 | 4375.92 | 0.00 | 461139.75 | 672384.20 | |
| 13000.00 | 90.00 | 359.68 | 8770.00 | 4475.85 | -24.86 | 4475.92 | 0.00 | 461239.75 | 672383.64 | |
| 13100.00 | 90.00 | 359.68 | 8770.00 | 4575.85 | -25.41 | 4575.92 | 0.00 | 461339.75 | 672383.09 | |
| 13115.95 | 90.00 | 359.68 | 8770.00 | 4591.80 | -25.50 | 4591.87 | 0.00 | 461355.70 | 672383.00 | Pbhl |

Targets

| Name | Description | TVD | +N/-S | +E/-W | Map Northing | Map Easting | Latitude Deg Min Sec | Longitude Deg Min Sec |
|------|-------------|---------|---------|--------|-----------------|----------------|-------------------------|--------------------------|
| Pbhl | | 8770.00 | 4591.80 | -25.50 | 461355.70 | 672383.00 | 32 16 1.749 N | 103 46 32.269 W |

Casing Points

| MD | TVD | Diameter | Hole Size | Name |
|----|-----|----------|-----------|------|
| | | | | |



Weatherford International Ltd.

WFT Plan Report - X & Y's



Weatherford

| | | | |
|-----------------------------------|--|----------------|---------|
| Company: Occidental Permian Ltd. | Date: 6/23/2011 | Time: 13:42:54 | Page: 3 |
| Field: Eddy Co. NM (Nad 27) | Co-ordinate(NE) Reference: Well: #1H, Grid: North | | |
| Site: Sterling Silver 33' Com #1H | Vertical (TVD) Reference: SITE 3443.0 | | |
| Well: #1H | Section (VS) Reference: Well (0.00N, 0.00E, 359.68Azi) | | |
| Wellpath: Lateral | Survey Calculation Method: Minimum Curvature | Db: Sybase | |

Annotation

| MD ft | TVD ft | |
|----------|-----------|------|
| 8197.04 | 8197.04 | KOP |
| 9097.04 | 8770.00 | LP |
| 13115.95 | 8770.00 | PBHL |

Formations

| MD ft | TVD ft | Formations | Lithology | Dip Angle deg | Dip Direction deg |
|----------|-----------|---------------------------|-----------|------------------|----------------------|
| 8516.26 | 8500.00 | T Upper Avalon Shale | | 0.00 | 0.00 |
| 8753.40 | 8670.00 | T Lower Avalon Shale | | 0.00 | 0.00 |
| 9097.83 | 8770.00 | Target Lower Avalon Shale | | 0.00 | 0.00 |

PECOS DISTRICT

CONDITIONS OF APPROVAL

| | |
|-----------------------|--------------------------------------|
| OPERATOR'S NAME: | OXY USA Inc. |
| LEASE NO.: | NM-45236 |
| WELL NAME & NO.: | Sterling Silver 33 Federal 1H |
| SURFACE HOLE FOOTAGE: | 360' FSL & 590' FEL |
| BOTTOM HOLE FOOTAGE: | 330' FNL & 590' FEL |
| LOCATION: | Section 33, T. 23 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.

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- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
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 - Ground-level Abandoned Well Marker
- ☐ **Construction**
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 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
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- ☒ **Drilling**
 - R-111-P Potash
 - H2S
 - Waste Material and Fluids
 - Logging Requirements
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 - Pipelines
 - Electric Lines
- ☒ **Interim Reclamation**
- ☒ **Final Abandonment & Reclamation**

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 installation details, contact the Carlsbad Field Office at 575-234-5972.

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) 234-5972 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 stockpile the topsoil in a low profile manner in order to prevent wind/water erosion of the topsoil. The topsoil to be stripped is approximately 4 inches in depth. The topsoil will be used 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. 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 (20) 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.

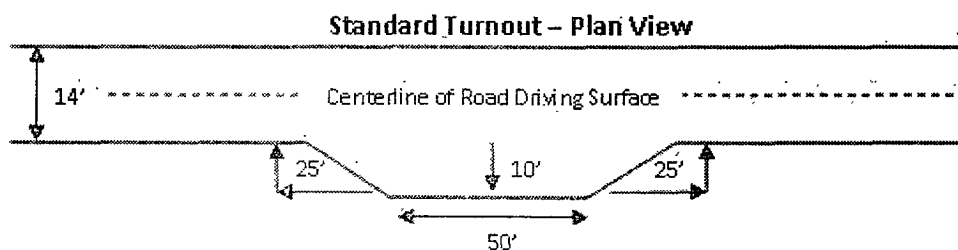
The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing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

Turnouts

Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:

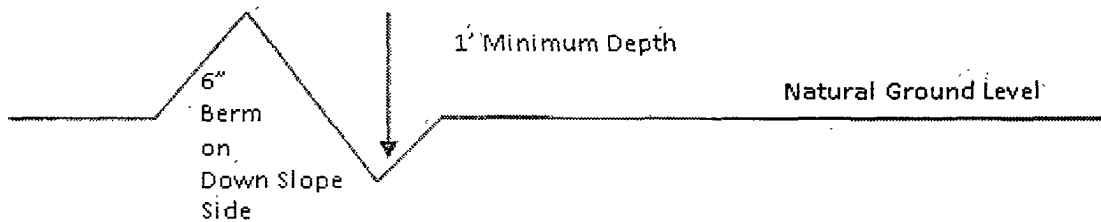


Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outslowing 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:

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

Culvert Installations

Appropriately sized culvert(s) shall be installed at the deep waterway channel flow crossing.

Cattleguards

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s).

Any existing cattleguard(s) on the access road 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 cattleguard(s) that are in place and are utilized during lease operations.

A gate shall be constructed and fastened securely to H-braces.

Fence Requirement

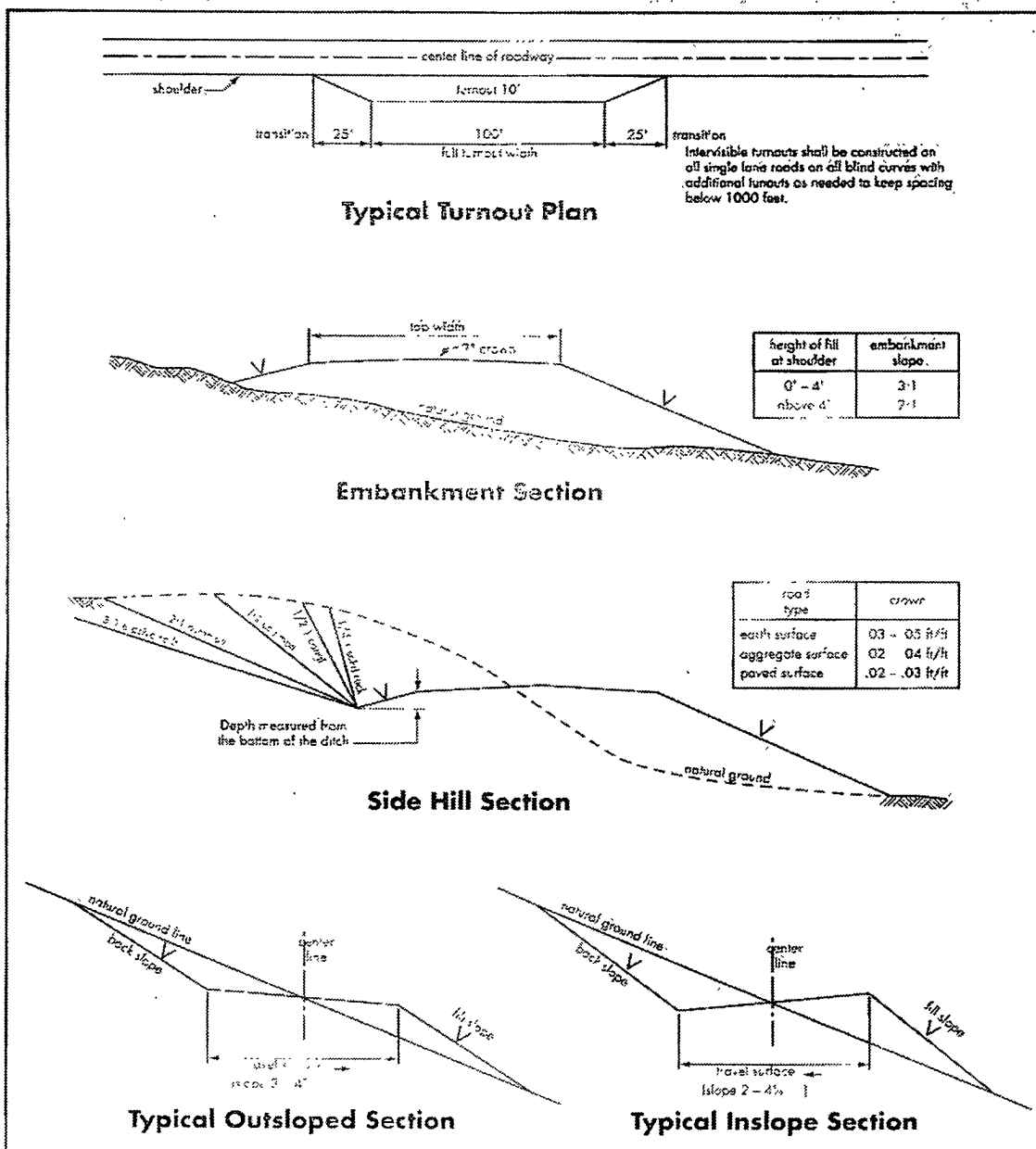
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

Public Access

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

Figure 1 – Cross Sections and Plans For Typical Road Sections



VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

- a. Spudding well
- b. Setting and/or Cementing of all casing strings
- c. BOPE tests

☒ **Eddy County**

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

1. **Due to recent H₂S encounters in the salt formation, it is recommended that monitoring equipment be onsite for potential Hydrogen Sulfide prior to drilling out the surface shoe. If Hydrogen Sulfide is encountered, please report measurements 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 and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.

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

Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.

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

R-111-P Potash

Possible water flows in the Salado, Castile, Delaware and Bone Spring.

Possible lost circulation in the Delaware and Bone Spring.

1. The 13-3/8 inch surface casing shall be set at approximately **610 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt)** and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. **Wait on cement (WOC) time for a primary cement job 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.

Formation below the 13-3/8" shoe to be tested according to Onshore Order

2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe and the mud weight for the bottom of the hole. Report results to BLM office.

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

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

Formation below the 9-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

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

Pilot hole is required to have a plug at the bottom of the hole. If two plugs are set, the BLM is to be contacted (575-361-2822) prior to tag of bottom plug, which must be a minimum of 210' in length. Operator can set one plug from bottom of pilot hole to kick-off point and save the WOC time for tagging the first plug.

3. The minimum required fill of cement behind the 5-1/2 inch production casing is:
 - 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 circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with third stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.
 - c. Third stage above DV tool:
 - ☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office.
4. 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.
5. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. **Variance approved to use flex line with Serial #52754, 52755, 52776, 52777, 52778, 52782 from BOP to choke manifold. Check condition of 3" 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. Anchor requirements to be onsite for review. 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. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M) psi. 5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.**
4. 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**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
 - c. The results of the test shall be reported to the appropriate BLM office.
 - d. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**

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

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.

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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.

Containment Structures

The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

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, Munsell Soil Color Chart # 5Y 4/2

B. PIPELINES (not applied for in APD)

C. ELECTRIC LINES (not applied for in APD)

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 for LPC Sand/Shinnery Sites

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

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

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

| <u>Species</u> | <u>lb/acre</u> |
|---------------------|----------------|
| Plains Bristlegrass | 5lbs/A |
| Sand Bluestem | 5lbs/A |
| Little Bluestem | 3lbs/A |
| Big Bluestem | 6lbs/A |
| Plains Coreopsis | 2lbs/A |
| Sand Dropseed | 1lbs/A |

*Pounds of pure live seed:

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