State of New Mexico
Energy, Minerals and Natural Resources Department

**Susana Martinez**
Governor

**Ken McQueen**
Cabinet Secretary

**Matthias Sayer**
Deputy Cabinet Secretary

**David R. Catanach, Division Director**
Oil Conservation Division

New Mexico Oil Conservation Division approval and conditions listed below are made in accordance with OCD Rule 19.15.7.11 and are in addition to the actions approved by BLM on the following 3160-3 APD form.

Operator Signature Date: 6-19-17
Well information;
Operator WPX, Well Name and Number S Escavada Unit #361H

API# 30-043-21310, Section 20, Township 22 N/S, Range 6 E/W

Conditions of Approval: (See the below checked and handwritten conditions)

- ☒ Notify Aztec OCD 24hrs prior to casing & cement.
- ☒ Hold C-104 for directional survey & "As Drilled" Plat
- ○ Hold C-104 for NSL, NSP, DHC
- ○ Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- ○ Regarding the use of a pit, closed loop system or below grade tank, the operator must comply with the following as applicable:
  - A pit requires a complete C-144 be submitted and approved prior to the construction or use of the pit, pursuant to 19.15.17.8.A
  - A closed loop system requires notification prior to use, pursuant to 19.15.17.9.A
  - A below grade tank requires a registration be filed prior to the construction or use of the below grade tank, pursuant to 19.15.17.8.C
- ☒ Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
- ☒ Submit Gas Capture Plan form prior to spudding or initiating recompletion operations
- ✓ Regarding Hydraulic Fracturing, review EPA Underground Injection Control Guidance 84
- ✓ Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.
- ✓ Well-bore communication is regulated under 19.15.29 NMAC. This requires well-bore Communication to be reported in accordance with 19.15.29.8.

APD Held for Unit approval - all agencies

Charlie Perrin
NMOCD Approved by Signature

7-20-2018
Date

1220 South St. Francis Drive • Santa Fe, New Mexico 87505
Phone (505) 476-3441 • Fax (505) 476-3462 • www.emnrd.state.nm.us/ocd

OIL CONS. DIV DIST. 3

SEP 15 2017

Form 3160-3
(March 2012)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

# APPLICATION FOR PERMIT TO DRILL OR REENTER

| | |
|---|---|
| 5. Lease Serial No. | NMNM119281 |
| 6. If Indian, Allotee or Tribe Name | |
| 7. If Unit or CA Agreement, Name and No. | |
| 8. Lease Name and Well No. | S ESCAVADA UNIT 361H |
| 9. API Well No. | 30-043-21310 |
| 10. Field and Pool, or Exploratory | ~~BASIN MANCOS / ESCAVADA MANCO~~ Rusty Gallup |
| 11. Sec., T. R. M. or Blk. and Survey or Area | SEC 20 / T22N / R6W / NMP |
| 12. County or Parish | SANDOVAL |
| 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: WPX ENERGY LLC

3a. Address: 720 S Main Aztec NM 87410

3b. Phone No. *(include area code)*: (505)333-1822

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

At surface: O SWSE / 290 FSL / 1613 FEL / LAT 36.117342 / LONG -107.488712

At proposed prod. zone: I NESE / 2311 FSL / 922 FEL / LAT 36.13818 / LONG -107.520857

14. Distance in miles and direction from nearest town or post office*: 53.9 miles

| | | |
|---|---|---|
| 15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any): 20 feet | 16. No. of acres in lease: 640 | 17. Spacing Unit dedicated to this well: 441.26 |
| 18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.: 290 feet | 19. Proposed Depth: 5172 feet / 16353 feet | 20. BLM/BIA Bond No. on file: UT B00178 Federal / 1300157G - BIA |
| 21. Elevations (Show whether DF, KDB, RT, GL, etc.): 7051 feet | 22. Approximate date work will start*: 08/01/2017 | 23. Estimated duration: 30 days |

KP

## 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: (Electronic Submission) | Name *(Printed/Typed)*: Lacey Granillo / Ph: (505)333-1816 | Date: 06/19/2017 |
| Title: Permitting Tech III | | |
| Approved by *(Signature)*: /s/ Monica Kuehling AFM | Name *(Printed/Typed)* | Date: 1/7/17 |
| Title | Office: FARMINGTON | |

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.

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)

This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4

BLM'S APPROVAL OR ACCEPTANCE OF THIS ACTION DOES NOT RELIEVE THE LESSEE AND OPERATOR FROM OBTAINING ANY OTHER AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS

DRILLING OPERATIONS AUTHORIZED ARE SUBJECT TO COMPLIANCE WITH ATTACHED "GENERAL REQUIREMENTS"

NMOCD

District I
1625 N. French Drive, Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First Street, Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Drive, Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

*State of New Mexico*
*Energy, Minerals & Natural Resources Department*

# OIL CONSERVATION DIVISION

*1220 South St. Francis Drive*
*Santa Fe, NM 87505*

Form C-102
Revised August 1, 2011

Submit one copy to Appropriate District Office

☐ AMENDED REPORT

## WELL LOCATION AND ACREAGE DEDICATION PLAT

| 1 API Number | 2 Pool Code | 3 Pool Name |
|---|---|---|
| 30-043-21310 | 528160 | Rusty Gallup oil Pool |

| 4 Property Code | 5 Property Name | 6 Well Number |
|---|---|---|
| 322151 | S ESCAVADA UNIT | 361H |

| 7 OGRID No. | 8 Operator Name | 9 Elevation |
|---|---|---|
| 120782 (372286) | WPX ENERGY PRODUCTION, LLC (Enduring) | 7051' |

### 10 Surface Location

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| O | 20 | 22N | 6W | | 290 | SOUTH | 1613 | EAST | SANDOVAL |

### 11 Bottom Hole Location If Different From Surface

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| I | 13 | 22N | 7W | | 2311 | SOUTH | 922 | EAST | SANDOVAL |

| 12 Dedicated Acres | | 13 Joint or Infill | 14 Consolidation Code | 15 Order No. |
|---|---|---|---|---|
| 441.26 | NE/4 SE/4 - Section 13<br>W/2 SW/4, SE/4 SW/4 - Section 18<br>NE/4 NW/4, W/2 NE/4<br>SE/4 NE/4, NE/4 SE/4 - Section 19<br>W/2 SW/4 - Section 20 | | | R-14347 |

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

### 17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom-hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division

Signature 6/12/17
Date

Lacey Granillo
Printed Name

lacey.granillo@wpxenergy.com
E-mail Address

### 18 SURVEYOR CERTIFICATION

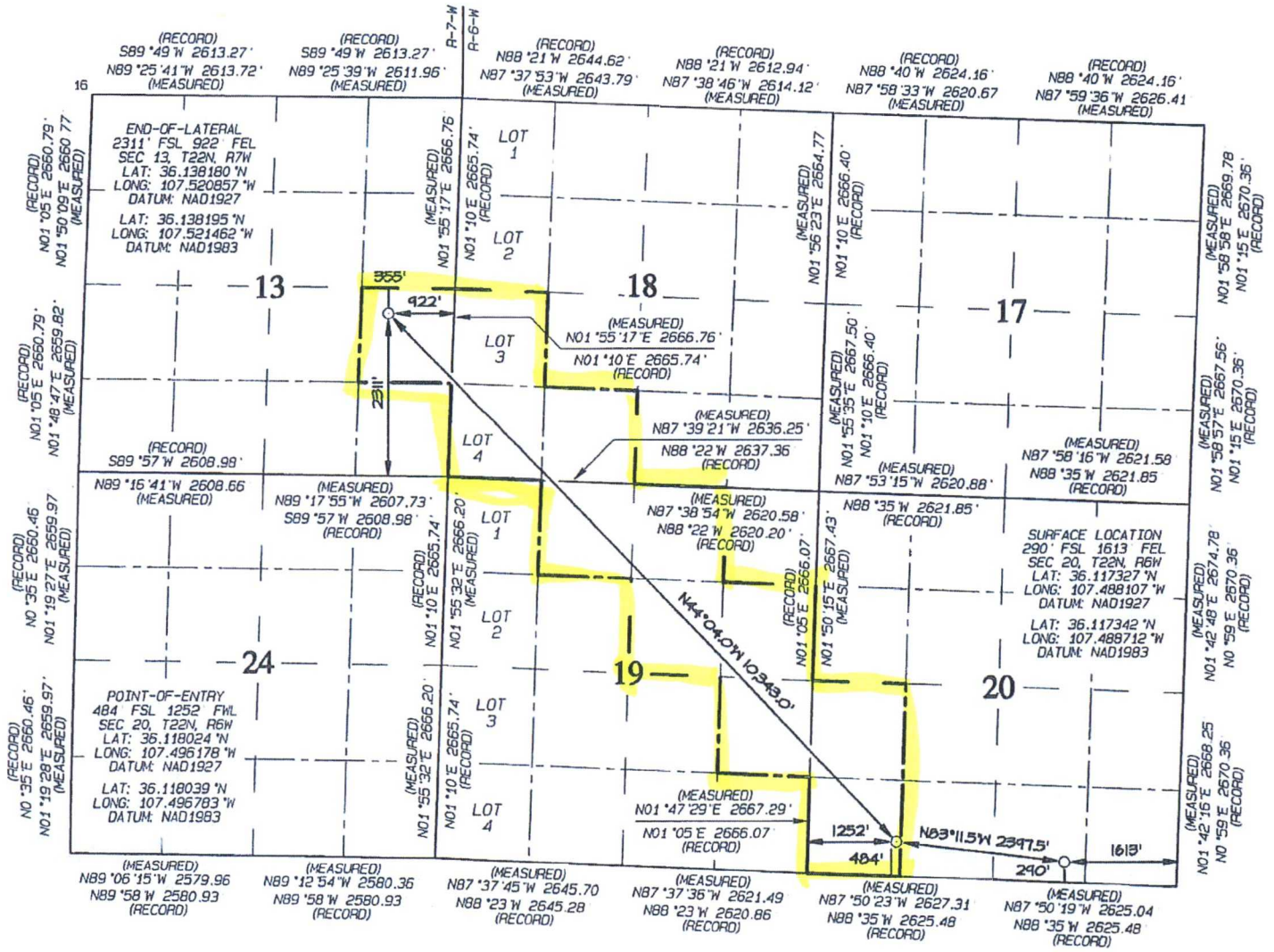
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date Revised: MAY 30, 2017
Date of Survey: MARCH 1, 2017

Signature and Seal of Professional Surveyor

JASON C. EDWARDS
NEW MEXICO
15269
REGISTERED PROFESSIONAL SURVEYOR

JASON C. EDWARDS
Certificate Number 15269




Navajo Surface

# WPX Energy

## Operations Plan

*(Note: This procedure will be adjusted onsite based upon actual conditions)*

| | | | |
|---|---|---|---|
| **Date:** | June 6, 2017 | **Field:** | Escavada S; Mancos |
| **Well Name:** | S Escavada Unit #361H | **Surface:** | BLM |
| **SH Location:** | SWSE Sec 20 22N-06W | **Elevation:** | 7051' GR |
| **BH Location:** | NESE Sec 13 22N-07W | **Minerals:** | FED |

**Measured Depth:** 16352.7'

## I. GEOLOGY

Surface formation - NACIMIENTO

### A. FORMATION TOPS: (KB)

| NAME | MD | TVD | NAME | MD | TVD |
|---|---|---|---|---|---|
| OJO ALAMO | 936.00 | 934.00 | POINT LOOKOUT | 4,139.00 | 3,848.00 |
| KIRTLAND | 1,089.00 | 1,085.00 | MANCOS | 4,333.00 | 4,021.00 |
| PICTURED CLIFFS | 1,522.00 | 1,500.00 | GALLUP | 4,691.00 | 4,341.00 |
| LEWIS | 1,683.00 | 1,650.00 | KICKOFF POINT | 5,048.52 | 4,661.07 |
| CHACRA | 1,971.00 | 1,909.00 | TOP TARGET | 5,700.00 | 5,067.00 |
| CLIFF HOUSE | 3,171.00 | 2,982.00 | LANDING POINT | 6,011.41 | 5,088.22 |
| MENEFEE | 3,212.00 | 3,019.00 | BASE TARGET | 6,011.41 | 5,088.22 |
| | | | TD | 16,352.70 | 5,172.00 |

### B. MUD LOGGING PROGRAM:

Mudlogger on location from surface csg to TD.

### C. LOGGING PROGRAM:

LWD GR from surface casing to TD.

### D. NATURAL GAUGES:

Gauge any noticeable increases in gas flow. Record all gauges in Tour book and on morning reports.

## II. DRILLING

### A. MUD PROGRAM:

LSND mud (WBM) will be used to drill the 12-1/4" Surface hole, the 8 ¾" Directional Vertical hole, and the curve portion of the wellbore. A LSND (WBM) or (OBM) will be used to drill the lateral portion of well. Treat for lost circulation as necessary. Obtain 100% returns prior to cementing. Notify Engineering of any mud losses.

### B. BOP TESTING:

While drill pipe is in use, the pipe rams and the blind rams will be function tested once each trip. The BOPE will be tested to 2,000 psi (High) for 10 minutes and the annular tested to 1,500 psi for 10 minutes. Pressure test surface casing to 1,500 psi for 30 minutes and intermediate casing to 1,500 psi for 30 minutes. Utilize a BOPE Testing Unit with a recording chart and appropriate test plug for testing. All tests and inspections will be recorded in the tour book as to time and results.

## III. MATERIALS

### A. CASING PROGRAM:

| CASING TYPE | OH SIZE (IN) | DEPTH (MD) | CSG SIZE | WEIGHT | GRADE | CONN |
|---|---|---|---|---|---|---|
| SURFACE | 12.25" | 320.00' | 9.625" | 36 LBS | J-55 or equiv | STC |
| INTERMEDIATE | 8.75" | 6011.41' | 7" | 23 LBS | J-55 or equiv | LTC |
| PRODUCTION | 6.125" | 5861.41' - 16352.7' | 4.5" | 11.6 LBS | P-110 or equiv | LTC |
| TIE BACK | 6.125" | Surf. - 5861.41' | 4.5" | 11.6 LBS | P-110 or equiv | LTC |

### B. FLOAT EQUIPMENT:

1. SURFACE CASING:

   9-5/8" notched regular pattern guide shoe. Run (1) standard centralizer on each of the bottom (4) joints of Surface Casing.

2. INTERMEDIATE CASING:

   7" cement nose guide shoe with a self-fill insert float. Place float collar one joint above the shoe. Install (1) centralizer on each of the bottom (3) joints and one standard centralizer every (3) joints to 2,500 ft. Run (1) centralizer at 2,500 ft., 2,300ft., 2,000ft., 1,500 ft., and 1,000 ft. If losses are encountered during the drilling of the intermediate section a DV tool will be utalized and a 2 stage cement job may be planned to ensure cement circ back to surface. The DV tool will be placed 100' above the top of the Chacra formation. If cement is circulated back to surface on the first stage, a cancelation device will be dropped to shift the dv tool closed and the 2nd stage cement job will be aborted at that time, if no cement is seen at surface on the 1st stage the stage tool will be opend and a 2nd stage cement job will be pumped.

3. PRODUCTION LINER:

   Run 4-1/2" Liner with cement nose guide Float Shoe + 2jts. of 4-1/2" casing + Landing Collar + 4-1/2" pup joint + 1 RSI (Sliding Sleeve) positioned inside the 330ft Hard line. Centralizer program will be determined by Wellbore condition and when Lateral is evaluated by Geoscientists and Reservoir Engineers. Set seals on Liner Hanger. Test TOL to 1500 psi for 15 minutes.

### C. CEMENT:

*(Note: Volumes may be adjusted onsite due to actual conditions)*

1. Surface:

   5 bbl Fresh Water Spacer, 100 sx (160 cu.ft.) of 14.5 ppg Type I-II (Neat G) + 20% Fly Ash cement w/ 7.41 gal/sack mix water ratio @ 1.61 cu ft/sx yield. Calculated @ volume + 50% excess. WOC 12 hours. Test csg to 600psi. Total Volume: (160 cu-ft/100 sx/ Bbls).TOC at Surface.

2. Intermediate:

   Spacer #1: 20 bbl (112 cuft) Chemwash. Lead Cement: 118 bbls, 337 sks, (663 cuft), 12.3 ppg @ 1.97 cuft/sk yield. Tail Cement: 59 bbls, 254 sks, (331 cuft), 13.5 ppg @ 1.3 cuft/sk yield. Displacement: Displace w/ +/- 237 bbl Drilling mud or water. Total Cement: 177 bbls, 591 sks, (994 cuft)

Total Cement: 177 bbls, 591 sks, (994 cuft)

3. Prod Liner:

Spacer #1:10 bbl (56.cu-ft) Water Spacer. Spacer #2: 40 bbl 9.5 ppg (224.6 cu-ft) Tuned Spacer III. Spacer #3: 10 bbl Water Spacer. Lead Cement: Extencem ™ System. Yield 1.36 cuft/sk 13.3 ppg (1028 sx /1398 cuft /249 bbls). Tail Spacer: 20 BBL of MMCR. Displacement: Displace w/ +/-224bbl Fr Water. Total Cement (1028 sx /1398bbls).

**D. COMPLETION:**

Run CCL for perforating

A. PRESSURE TEST:

1. Pressure test 4-1/2" casing to 4500 psi max, hold at 1500 psi for 30 minutes. Increase pressure to Open RSI sleeves.

B. STIMULATION:

1. Stimulate with approximately 2,805,000# 20/40 mesh sand and 340,000# 16/30 mesh sand in 619,113 gallons water with 42,696 mscf N2 for 17 stages.
2. Isolate stages with flow through frac plug.
3. Drill out frac plugs and flowback lateral.

C. RUNNING TUBING:

1. *Production Tubing:* Run 2-7/8", 6.5#, J-55, EUE tubing with a SN on top of bottom joint. Land tubing near Top of Liner.

If this horizontal well is drilled past the applicable setbacks, an unorthodox location application is not required because the completed interval in this well, as defined by 19.15.16.7 B(1) NMAC,will be entirely within the applicable setbacks . This approach complies with all applicable rules, including 19.15.16.14 A(3) NMAC, 19.15.16.14 B(2) NMAC, 19.15.16.15 B(2)NMAC, and 19.15.16.15. B(4) NMAC.

---

**NOTES:**

A 4-1/2" 11.6# P-110 Liner will be run to TD and landed +/- 150 ft. into the 7" 23# J-55 Intermediate casing with a Liner Hanger and pack-off assembly then cemented to top of liner hanger.

After cementing and TOL clean up operations are complete, the TOL will be tested to 1500 psi (per BLM).

# WPX Energy

Sandovall County, NM 3003 West
S Escavada Unit 361 Pad
S Escavada Unit #361H
API: ???
Wellbore #1

Plan: Plan #1

# Standard Planning Report

18 May, 2017

Scientific Drilling

www.scientificdrilling.com

| | | | |
|---|---|---|---|
| **Database:** | Grand Junction District | **Local Co-ordinate Reference:** | Well S Escavada Unit #361H |
| **Company:** | WPX Energy | **TVD Reference:** | KB @ 7072.00usft (Cyclone 32) |
| **Project:** | Sandovall County, NM 3003 West | **MD Reference:** | KB @ 7072.00usft (Cyclone 32) |
| **Site:** | S Escavada Unit 361 Pad | **North Reference:** | Grid |
| **Well:** | S Escavada Unit #361H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Plan #1 | | |

| **Project** | Sandovall County, NM 3003 West | | |
|---|---|---|---|
| **Map System:** | US State Plane 1927 (Exact solution) | **System Datum:** | Mean Sea Level |
| **Geo Datum:** | NAD 1927 (NADCON CONUS) | | |
| **Map Zone:** | New Mexico West 3003 | | |

| **Site** | S Escavada Unit 361 Pad | | | | |
|---|---|---|---|---|---|
| **Site Position:** | | **Northing:** | 1,862,128.71 usft | **Latitude:** | 36° 7' 2.377 N |
| **From:** | Map | **Easting:** | 601,964.75 usft | **Longitude:** | 107° 29' 17.185 W |
| **Position Uncertainty:** | 0.00 usft | **Slot Radius:** | 13-3/16 " | **Grid Convergence:** | 0.20 ° |

| **Well** | S Escavada Unit #361H | | | | | |
|---|---|---|---|---|---|---|
| **Well Position** | **+N/-S** | 0.00 usft | **Northing:** | 1,862,128.71 usft | **Latitude:** | 36° 7' 2.377 N |
| | **+E/-W** | 0.00 usft | **Easting:** | 601,964.75 usft | **Longitude:** | 107° 29' 17.185 W |
| **Position Uncertainty** | | 0.00 usft | **Wellhead Elevation:** | 0.00 usft | **Ground Level:** | 7,051.00 usft |

| **Wellbore** | Wellbore #1 | | | |
|---|---|---|---|---|
| **Magnetics** | **Model Name** | **Sample Date** | **Declination (°)** | **Dip Angle (°)** | **Field Strength (nT)** |
| | HDGM | 5/15/2017 | 8.95 | 62.88 | 49,505 |

| **Design** | Plan #1 | | | | |
|---|---|---|---|---|---|
| **Audit Notes:** | | | | | |
| **Version:** | | **Phase:** | PLAN | **Tie On Depth:** | 0.00 |
| **Vertical Section:** | **Depth From (TVD) (usft)** | **+N/-S (usft)** | **+E/-W (usft)** | **Direction (°)** | |
| | 0.00 | 0.00 | 0.00 | 315.00 | |

**Plan Sections**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | TFO (°) | Target |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 500.00 | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,829.05 | 26.58 | 264.29 | 1,781.88 | -30.13 | -301.30 | 2.00 | 2.00 | 0.00 | 264.29 | |
| 5,048.52 | 26.58 | 264.29 | 4,661.07 | -173.49 | -1,734.74 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 5,860.82 | 89.54 | 315.00 | 5,087.00 | 139.23 | -2,278.63 | 9.00 | 7.75 | 6.24 | 53.98 | |
| 6,011.41 | 89.54 | 315.00 | 5,088.22 | 245.71 | -2,385.11 | 0.00 | 0.00 | 0.00 | 0.00 | SEU361H POE |
| 16,352.70 | 89.54 | 315.00 | 5,172.00 | 7,557.86 | -9,697.26 | 0.00 | 0.00 | 0.00 | 0.00 | SEU361H BHL |

| | | | |
|---|---|---|---|
| **Database:** | Grand Junction District | **Local Co-ordinate Reference:** | Well S Escavada Unit #361H |
| **Company:** | WPX Energy | **TVD Reference:** | KB @ 7072.00usft (Cyclone 32) |
| **Project:** | Sandovall County, NM 3003 West | **MD Reference:** | KB @ 7072.00usft (Cyclone 32) |
| **Site:** | S Escavada Unit 361 Pad | **North Reference:** | Grid |
| **Well:** | S Escavada Unit #361H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Plan #1 | | |

**Planned Survey**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 200.00 | 0.00 | 0.00 | 200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 300.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 400.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 500.00 | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Start Build 2.00** | | | | | | | | | |
| 600.00 | 2.00 | 264.29 | 599.98 | -0.17 | -1.74 | 1.11 | 2.00 | 2.00 | 0.00 |
| 700.00 | 4.00 | 264.29 | 699.84 | -0.69 | -6.94 | 4.42 | 2.00 | 2.00 | 0.00 |
| 800.00 | 6.00 | 264.29 | 799.45 | -1.56 | -15.62 | 9.94 | 2.00 | 2.00 | 0.00 |
| 900.00 | 8.00 | 264.29 | 898.70 | -2.77 | -27.74 | 17.65 | 2.00 | 2.00 | 0.00 |
| 935.68 | 8.71 | 264.29 | 934.00 | -3.29 | -32.90 | 20.94 | 2.00 | 2.00 | 0.00 |
| **Ojo Alamo** | | | | | | | | | |
| 1,000.00 | 10.00 | 264.29 | 997.47 | -4.33 | -43.31 | 27.56 | 2.00 | 2.00 | 0.00 |
| 1,089.14 | 11.78 | 264.29 | 1,085.00 | -6.01 | -60.07 | 38.23 | 2.00 | 2.00 | 0.00 |
| **Kirtland** | | | | | | | | | |
| 1,100.00 | 12.00 | 264.29 | 1,095.62 | -6.23 | -62.29 | 39.64 | 2.00 | 2.00 | 0.00 |
| 1,200.00 | 14.00 | 264.29 | 1,193.06 | -8.47 | -84.67 | 53.89 | 2.00 | 2.00 | 0.00 |
| 1,300.00 | 16.00 | 264.29 | 1,289.64 | -11.04 | -110.43 | 70.27 | 2.00 | 2.00 | 0.00 |
| 1,400.00 | 18.00 | 264.29 | 1,385.27 | -13.95 | -139.52 | 88.79 | 2.00 | 2.00 | 0.00 |
| 1,500.00 | 20.00 | 264.29 | 1,479.82 | -17.19 | -171.91 | 109.40 | 2.00 | 2.00 | 0.00 |
| 1,521.51 | 20.43 | 264.29 | 1,500.00 | -17.93 | -179.31 | 114.11 | 2.00 | 2.00 | 0.00 |
| **Picture Cliffs** | | | | | | | | | |
| 1,600.00 | 22.00 | 264.29 | 1,573.17 | -20.76 | -207.57 | 132.09 | 2.00 | 2.00 | 0.00 |
| 1,683.37 | 23.67 | 264.29 | 1,650.00 | -23.98 | -239.76 | 152.58 | 2.00 | 2.00 | 0.00 |
| **Lewis** | | | | | | | | | |
| 1,700.00 | 24.00 | 264.29 | 1,665.21 | -24.65 | -246.44 | 156.83 | 2.00 | 2.00 | 0.00 |
| 1,800.00 | 26.00 | 264.29 | 1,755.84 | -28.85 | -288.49 | 183.59 | 2.00 | 2.00 | 0.00 |
| 1,829.05 | 26.58 | 264.29 | 1,781.88 | -30.13 | -301.30 | 191.74 | 2.00 | 2.00 | 0.00 |
| **Start 3219.47 hold at 1829.05 MD** | | | | | | | | | |
| 1,900.00 | 26.58 | 264.29 | 1,845.34 | -33.29 | -332.89 | 211.85 | 0.00 | 0.00 | 0.00 |
| 1,971.19 | 26.58 | 264.29 | 1,909.00 | -36.46 | -364.58 | 232.02 | 0.00 | 0.00 | 0.00 |
| **Chacra** | | | | | | | | | |
| 2,000.00 | 26.58 | 264.29 | 1,934.77 | -37.75 | -377.41 | 240.18 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 26.58 | 264.29 | 2,024.20 | -42.20 | -421.94 | 268.51 | 0.00 | 0.00 | 0.00 |
| 2,200.00 | 26.58 | 264.29 | 2,113.63 | -46.65 | -466.46 | 296.85 | 0.00 | 0.00 | 0.00 |
| 2,300.00 | 26.58 | 264.29 | 2,203.06 | -51.10 | -510.98 | 325.18 | 0.00 | 0.00 | 0.00 |
| 2,400.00 | 26.58 | 264.29 | 2,292.49 | -55.56 | -555.51 | 353.52 | 0.00 | 0.00 | 0.00 |
| 2,500.00 | 26.58 | 264.29 | 2,381.92 | -60.01 | -600.03 | 381.85 | 0.00 | 0.00 | 0.00 |
| 2,600.00 | 26.58 | 264.29 | 2,471.35 | -64.46 | -644.56 | 410.19 | 0.00 | 0.00 | 0.00 |
| 2,700.00 | 26.58 | 264.29 | 2,560.78 | -68.92 | -689.08 | 438.52 | 0.00 | 0.00 | 0.00 |
| 2,800.00 | 26.58 | 264.29 | 2,650.21 | -73.37 | -733.60 | 466.86 | 0.00 | 0.00 | 0.00 |
| 2,900.00 | 26.58 | 264.29 | 2,739.64 | -77.82 | -778.13 | 495.19 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 26.58 | 264.29 | 2,829.07 | -82.27 | -822.65 | 523.53 | 0.00 | 0.00 | 0.00 |
| 3,100.00 | 26.58 | 264.29 | 2,918.50 | -86.73 | -867.18 | 551.86 | 0.00 | 0.00 | 0.00 |
| 3,171.00 | 26.58 | 264.29 | 2,982.00 | -89.89 | -898.79 | 571.98 | 0.00 | 0.00 | 0.00 |
| **Cliff House** | | | | | | | | | |
| 3,200.00 | 26.58 | 264.29 | 3,007.93 | -91.18 | -911.70 | 580.20 | 0.00 | 0.00 | 0.00 |
| 3,212.38 | 26.58 | 264.29 | 3,019.00 | -91.73 | -917.21 | 583.70 | 0.00 | 0.00 | 0.00 |
| **Menefee** | | | | | | | | | |
| 3,300.00 | 26.58 | 264.29 | 3,097.36 | -95.63 | -956.22 | 608.53 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 26.58 | 264.29 | 3,186.79 | -100.09 | -1,000.75 | 636.86 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 26.58 | 264.29 | 3,276.22 | -104.54 | -1,045.27 | 665.20 | 0.00 | 0.00 | 0.00 |

| | | | |
|---|---|---|---|
| **Database:** | Grand Junction District | **Local Co-ordinate Reference:** | Well S Escavada Unit #361H |
| **Company:** | WPX Energy | **TVD Reference:** | KB @ 7072.00usft (Cyclone 32) |
| **Project:** | Sandovall County, NM 3003 West | **MD Reference:** | KB @ 7072.00usft (Cyclone 32) |
| **Site:** | S Escavada Unit 361 Pad | **North Reference:** | Grid |
| **Well:** | S Escavada Unit #361H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Plan #1 | | |

**Planned Survey**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---|---|---|---|---|---|---|---|---|---|
| 3,600.00 | 26.58 | 264.29 | 3,365.65 | -108.99 | -1,089.80 | 693.53 | 0.00 | 0.00 | 0.00 |
| 3,700.00 | 26.58 | 264.29 | 3,455.08 | -113.44 | -1,134.32 | 721.87 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 26.58 | 264.29 | 3,544.51 | -117.90 | -1,178.84 | 750.20 | 0.00 | 0.00 | 0.00 |
| 3,900.00 | 26.58 | 264.29 | 3,633.94 | -122.35 | -1,223.37 | 778.54 | 0.00 | 0.00 | 0.00 |
| 4,000.00 | 26.58 | 264.29 | 3,723.37 | -126.80 | -1,267.89 | 806.87 | 0.00 | 0.00 | 0.00 |
| 4,100.00 | 26.58 | 264.29 | 3,812.80 | -131.26 | -1,312.42 | 835.21 | 0.00 | 0.00 | 0.00 |
| 4,139.36 | 26.58 | 264.29 | 3,848.00 | -133.01 | -1,329.94 | 846.36 | 0.00 | 0.00 | 0.00 |
| **Point Lookout** | | | | | | | | | |
| 4,200.00 | 26.58 | 264.29 | 3,902.23 | -135.71 | -1,356.94 | 863.54 | 0.00 | 0.00 | 0.00 |
| 4,300.00 | 26.58 | 264.29 | 3,991.66 | -140.16 | -1,401.46 | 891.88 | 0.00 | 0.00 | 0.00 |
| 4,332.80 | 26.58 | 264.29 | 4,021.00 | -141.62 | -1,416.07 | 901.17 | 0.00 | 0.00 | 0.00 |
| **Mancos** | | | | | | | | | |
| 4,400.00 | 26.58 | 264.29 | 4,081.09 | -144.61 | -1,445.99 | 920.21 | 0.00 | 0.00 | 0.00 |
| 4,500.00 | 26.58 | 264.29 | 4,170.53 | -149.07 | -1,490.51 | 948.55 | 0.00 | 0.00 | 0.00 |
| 4,600.00 | 26.58 | 264.29 | 4,259.96 | -153.52 | -1,535.04 | 976.88 | 0.00 | 0.00 | 0.00 |
| 4,690.62 | 26.58 | 264.29 | 4,341.00 | -157.56 | -1,575.39 | 1,002.56 | 0.00 | 0.00 | 0.00 |
| **Gallup** | | | | | | | | | |
| 4,700.00 | 26.58 | 264.29 | 4,349.39 | -157.97 | -1,579.56 | 1,005.21 | 0.00 | 0.00 | 0.00 |
| 4,800.00 | 26.58 | 264.29 | 4,438.82 | -162.43 | -1,624.08 | 1,033.55 | 0.00 | 0.00 | 0.00 |
| 4,900.00 | 26.58 | 264.29 | 4,528.25 | -166.88 | -1,668.61 | 1,061.88 | 0.00 | 0.00 | 0.00 |
| 4,945.57 | 26.58 | 264.29 | 4,569.00 | -168.91 | -1,688.90 | 1,074.80 | 0.00 | 0.00 | 0.00 |
| **Gallup Upper** | | | | | | | | | |
| 5,000.00 | 26.58 | 264.29 | 4,617.68 | -171.33 | -1,713.13 | 1,090.22 | 0.00 | 0.00 | 0.00 |
| 5,048.52 | 26.58 | 264.29 | 4,661.07 | -173.49 | -1,734.74 | 1,103.97 | 0.00 | 0.00 | 0.00 |
| **Start DLS 9.00 TFO 53.98** | | | | | | | | | |
| 5,050.00 | 26.66 | 264.53 | 4,662.39 | -173.56 | -1,735.40 | 1,104.39 | 9.00 | 5.31 | 16.22 |
| 5,100.00 | 29.53 | 271.91 | 4,706.51 | -174.22 | -1,758.89 | 1,120.53 | 9.00 | 5.73 | 14.76 |
| 5,150.00 | 32.73 | 278.02 | 4,749.31 | -171.92 | -1,784.60 | 1,140.34 | 9.00 | 6.41 | 12.23 |
| 5,200.00 | 36.19 | 283.13 | 4,790.54 | -166.68 | -1,812.38 | 1,163.69 | 9.00 | 6.91 | 10.21 |
| 5,250.00 | 39.83 | 287.43 | 4,829.94 | -158.52 | -1,842.04 | 1,190.43 | 9.00 | 7.28 | 8.61 |
| 5,281.89 | 42.22 | 289.85 | 4,854.00 | -151.82 | -1,861.87 | 1,209.18 | 9.00 | 7.51 | 7.57 |
| **Mancos Lwr** | | | | | | | | | |
| 5,300.00 | 43.60 | 291.12 | 4,867.26 | -147.51 | -1,873.42 | 1,220.40 | 9.00 | 7.62 | 7.03 |
| 5,307.96 | 44.21 | 291.66 | 4,873.00 | -145.49 | -1,878.56 | 1,225.46 | 9.00 | 7.68 | 6.77 |
| **El Vado** | | | | | | | | | |
| 5,350.00 | 47.48 | 294.32 | 4,902.28 | -133.70 | -1,906.31 | 1,253.42 | 9.00 | 7.77 | 6.34 |
| 5,400.00 | 51.43 | 297.15 | 4,934.78 | -117.18 | -1,940.51 | 1,289.28 | 9.00 | 7.91 | 5.65 |
| 5,450.00 | 55.45 | 299.67 | 4,964.56 | -98.06 | -1,975.81 | 1,327.77 | 9.00 | 8.03 | 5.05 |
| 5,461.49 | 56.38 | 300.22 | 4,971.00 | -93.31 | -1,984.05 | 1,336.95 | 9.00 | 8.10 | 4.75 |
| **Frac Barrier - Mancos Unc** | | | | | | | | | |
| 5,500.00 | 59.51 | 301.97 | 4,991.44 | -76.45 | -2,011.99 | 1,368.64 | 9.00 | 8.14 | 4.54 |
| 5,550.00 | 63.61 | 304.08 | 5,015.24 | -52.48 | -2,048.84 | 1,411.64 | 9.00 | 8.20 | 4.22 |
| 5,600.00 | 67.74 | 306.04 | 5,035.83 | -26.31 | -2,086.12 | 1,456.50 | 9.00 | 8.26 | 3.93 |
| 5,631.22 | 70.33 | 307.20 | 5,047.00 | -8.92 | -2,109.51 | 1,485.34 | 9.00 | 8.30 | 3.74 |
| **PS 3** | | | | | | | | | |
| 5,650.00 | 71.90 | 307.89 | 5,053.08 | 1.91 | -2,123.60 | 1,502.96 | 9.00 | 8.32 | 3.64 |
| 5,700.00 | 76.06 | 309.65 | 5,066.88 | 32.00 | -2,161.06 | 1,550.73 | 9.00 | 8.34 | 3.53 |
| 5,700.52 | 76.11 | 309.67 | 5,067.00 | 32.32 | -2,161.44 | 1,551.22 | 9.00 | 8.35 | 3.46 |
| **PS2** | | | | | | | | | |
| 5,750.00 | 80.25 | 311.35 | 5,077.14 | 63.78 | -2,198.25 | 1,599.50 | 9.00 | 8.36 | 3.40 |
| 5,800.00 | 84.43 | 313.01 | 5,083.80 | 97.05 | -2,234.96 | 1,648.98 | 9.00 | 8.38 | 3.32 |
| 5,850.00 | 88.63 | 314.65 | 5,086.83 | 131.60 | -2,270.95 | 1,698.86 | 9.00 | 8.39 | 3.27 |

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|---|---|---|---|
| **Database:** | Grand Junction District | **Local Co-ordinate Reference:** | Well S Escavada Unit #361H |
| **Company:** | WPX Energy | **TVD Reference:** | KB @ 7072.00usft (Cyclone 32) |
| **Project:** | Sandovall County, NM 3003 West | **MD Reference:** | KB @ 7072.00usft (Cyclone 32) |
| **Site:** | S Escavada Unit 361 Pad | **North Reference:** | Grid |
| **Well:** | S Escavada Unit #361H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Plan #1 | | |

**Planned Survey**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---|---|---|---|---|---|---|---|---|---|
| 5,860.82 | 89.54 | 315.00 | 5,087.00 | 139.23 | -2,278.63 | 1,709.69 | 9.00 | 8.39 | 3.26 |
| **Start 150.59 hold at 5860.82 MD** | | | | | | | | | |
| 5,900.00 | 89.54 | 315.00 | 5,087.32 | 166.93 | -2,306.33 | 1,748.86 | 0.00 | 0.00 | 0.00 |
| 6,000.00 | 89.54 | 315.00 | 5,088.13 | 237.64 | -2,377.04 | 1,848.86 | 0.00 | 0.00 | 0.00 |
| 6,011.41 | 89.54 | 315.00 | 5,088.22 | 245.71 | -2,385.11 | 1,860.27 | 0.00 | 0.00 | 0.00 |
| **Start 10341.28 hold at 6011.41 MD - 7"** | | | | | | | | | |
| 6,100.00 | 89.54 | 315.00 | 5,088.94 | 308.35 | -2,447.75 | 1,948.85 | 0.00 | 0.00 | 0.00 |
| 6,200.00 | 89.54 | 315.00 | 5,089.75 | 379.06 | -2,518.45 | 2,048.85 | 0.00 | 0.00 | 0.00 |
| 6,300.00 | 89.54 | 315.00 | 5,090.56 | 449.77 | -2,589.16 | 2,148.85 | 0.00 | 0.00 | 0.00 |
| 6,400.00 | 89.54 | 315.00 | 5,091.37 | 520.48 | -2,659.87 | 2,248.84 | 0.00 | 0.00 | 0.00 |
| 6,500.00 | 89.54 | 315.00 | 5,092.18 | 591.18 | -2,730.58 | 2,348.84 | 0.00 | 0.00 | 0.00 |
| 6,600.00 | 89.54 | 315.00 | 5,092.99 | 661.89 | -2,801.29 | 2,448.84 | 0.00 | 0.00 | 0.00 |
| 6,700.00 | 89.54 | 315.00 | 5,093.80 | 732.60 | -2,872.00 | 2,548.83 | 0.00 | 0.00 | 0.00 |
| 6,800.00 | 89.54 | 315.00 | 5,094.61 | 803.31 | -2,942.71 | 2,648.83 | 0.00 | 0.00 | 0.00 |
| 6,900.00 | 89.54 | 315.00 | 5,095.42 | 874.02 | -3,013.41 | 2,748.83 | 0.00 | 0.00 | 0.00 |
| 7,000.00 | 89.54 | 315.00 | 5,096.23 | 944.73 | -3,084.12 | 2,848.83 | 0.00 | 0.00 | 0.00 |
| 7,100.00 | 89.54 | 315.00 | 5,097.04 | 1,015.43 | -3,154.83 | 2,948.82 | 0.00 | 0.00 | 0.00 |
| 7,200.00 | 89.54 | 315.00 | 5,097.85 | 1,086.14 | -3,225.54 | 3,048.82 | 0.00 | 0.00 | 0.00 |
| 7,300.00 | 89.54 | 315.00 | 5,098.66 | 1,156.85 | -3,296.25 | 3,148.82 | 0.00 | 0.00 | 0.00 |
| 7,400.00 | 89.54 | 315.00 | 5,099.47 | 1,227.56 | -3,366.96 | 3,248.81 | 0.00 | 0.00 | 0.00 |
| 7,500.00 | 89.54 | 315.00 | 5,100.28 | 1,298.27 | -3,437.66 | 3,348.81 | 0.00 | 0.00 | 0.00 |
| 7,600.00 | 89.54 | 315.00 | 5,101.09 | 1,368.98 | -3,508.37 | 3,448.81 | 0.00 | 0.00 | 0.00 |
| 7,700.00 | 89.54 | 315.00 | 5,101.90 | 1,439.68 | -3,579.08 | 3,548.80 | 0.00 | 0.00 | 0.00 |
| 7,800.00 | 89.54 | 315.00 | 5,102.71 | 1,510.39 | -3,649.79 | 3,648.80 | 0.00 | 0.00 | 0.00 |
| 7,900.00 | 89.54 | 315.00 | 5,103.52 | 1,581.10 | -3,720.50 | 3,748.80 | 0.00 | 0.00 | 0.00 |
| 8,000.00 | 89.54 | 315.00 | 5,104.33 | 1,651.81 | -3,791.21 | 3,848.79 | 0.00 | 0.00 | 0.00 |
| 8,100.00 | 89.54 | 315.00 | 5,105.14 | 1,722.52 | -3,861.91 | 3,948.79 | 0.00 | 0.00 | 0.00 |
| 8,200.00 | 89.54 | 315.00 | 5,105.95 | 1,793.23 | -3,932.62 | 4,048.79 | 0.00 | 0.00 | 0.00 |
| 8,300.00 | 89.54 | 315.00 | 5,106.76 | 1,863.93 | -4,003.33 | 4,148.78 | 0.00 | 0.00 | 0.00 |
| 8,400.00 | 89.54 | 315.00 | 5,107.57 | 1,934.64 | -4,074.04 | 4,248.78 | 0.00 | 0.00 | 0.00 |
| 8,500.00 | 89.54 | 315.00 | 5,108.38 | 2,005.35 | -4,144.75 | 4,348.78 | 0.00 | 0.00 | 0.00 |
| 8,600.00 | 89.54 | 315.00 | 5,109.19 | 2,076.06 | -4,215.46 | 4,448.77 | 0.00 | 0.00 | 0.00 |
| 8,700.00 | 89.54 | 315.00 | 5,110.00 | 2,146.77 | -4,286.16 | 4,548.77 | 0.00 | 0.00 | 0.00 |
| 8,800.00 | 89.54 | 315.00 | 5,110.81 | 2,217.48 | -4,356.87 | 4,648.77 | 0.00 | 0.00 | 0.00 |
| 8,900.00 | 89.54 | 315.00 | 5,111.62 | 2,288.18 | -4,427.58 | 4,748.76 | 0.00 | 0.00 | 0.00 |
| 9,000.00 | 89.54 | 315.00 | 5,112.43 | 2,358.89 | -4,498.29 | 4,848.76 | 0.00 | 0.00 | 0.00 |
| 9,100.00 | 89.54 | 315.00 | 5,113.24 | 2,429.60 | -4,569.00 | 4,948.76 | 0.00 | 0.00 | 0.00 |
| 9,200.00 | 89.54 | 315.00 | 5,114.05 | 2,500.31 | -4,639.71 | 5,048.75 | 0.00 | 0.00 | 0.00 |
| 9,300.00 | 89.54 | 315.00 | 5,114.86 | 2,571.02 | -4,710.41 | 5,148.75 | 0.00 | 0.00 | 0.00 |
| 9,400.00 | 89.54 | 315.00 | 5,115.67 | 2,641.73 | -4,781.12 | 5,248.75 | 0.00 | 0.00 | 0.00 |
| 9,500.00 | 89.54 | 315.00 | 5,116.48 | 2,712.43 | -4,851.83 | 5,348.74 | 0.00 | 0.00 | 0.00 |
| 9,600.00 | 89.54 | 315.00 | 5,117.29 | 2,783.14 | -4,922.54 | 5,448.74 | 0.00 | 0.00 | 0.00 |
| 9,700.00 | 89.54 | 315.00 | 5,118.10 | 2,853.85 | -4,993.25 | 5,548.74 | 0.00 | 0.00 | 0.00 |
| 9,800.00 | 89.54 | 315.00 | 5,118.91 | 2,924.56 | -5,063.96 | 5,648.73 | 0.00 | 0.00 | 0.00 |
| 9,900.00 | 89.54 | 315.00 | 5,119.72 | 2,995.27 | -5,134.66 | 5,748.73 | 0.00 | 0.00 | 0.00 |
| 10,000.00 | 89.54 | 315.00 | 5,120.53 | 3,065.98 | -5,205.37 | 5,848.73 | 0.00 | 0.00 | 0.00 |
| 10,100.00 | 89.54 | 315.00 | 5,121.34 | 3,136.68 | -5,276.08 | 5,948.72 | 0.00 | 0.00 | 0.00 |
| 10,200.00 | 89.54 | 315.00 | 5,122.15 | 3,207.39 | -5,346.79 | 6,048.72 | 0.00 | 0.00 | 0.00 |
| 10,300.00 | 89.54 | 315.00 | 5,122.96 | 3,278.10 | -5,417.50 | 6,148.72 | 0.00 | 0.00 | 0.00 |
| 10,400.00 | 89.54 | 315.00 | 5,123.77 | 3,348.81 | -5,488.21 | 6,248.71 | 0.00 | 0.00 | 0.00 |
| 10,500.00 | 89.54 | 315.00 | 5,124.58 | 3,419.52 | -5,558.91 | 6,348.71 | 0.00 | 0.00 | 0.00 |
| 10,600.00 | 89.54 | 315.00 | 5,125.39 | 3,490.23 | -5,629.62 | 6,448.71 | 0.00 | 0.00 | 0.00 |
| 10,700.00 | 89.54 | 315.00 | 5,126.20 | 3,560.93 | -5,700.33 | 6,548.70 | 0.00 | 0.00 | 0.00 |
| 10,800.00 | 89.54 | 315.00 | 5,127.01 | 3,631.64 | -5,771.04 | 6,648.70 | 0.00 | 0.00 | 0.00 |

| | | | |
|---|---|---|---|
| **Database:** | Grand Junction District | **Local Co-ordinate Reference:** | Well S Escavada Unit #361H |
| **Company:** | WPX Energy | **TVD Reference:** | KB @ 7072.00usft (Cyclone 32) |
| **Project:** | Sandovall County, NM 3003 West | **MD Reference:** | KB @ 7072.00usft (Cyclone 32) |
| **Site:** | S Escavada Unit 361 Pad | **North Reference:** | Grid |
| **Well:** | S Escavada Unit #361H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Plan #1 | | |

**Planned Survey**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---|---|---|---|---|---|---|---|---|---|
| 10,900.00 | 89.54 | 315.00 | 5,127.83 | 3,702.35 | -5,841.75 | 6,748.70 | 0.00 | 0.00 | 0.00 |
| 11,000.00 | 89.54 | 315.00 | 5,128.64 | 3,773.06 | -5,912.46 | 6,848.69 | 0.00 | 0.00 | 0.00 |
| 11,100.00 | 89.54 | 315.00 | 5,129.45 | 3,843.77 | -5,983.16 | 6,948.69 | 0.00 | 0.00 | 0.00 |
| 11,200.00 | 89.54 | 315.00 | 5,130.26 | 3,914.48 | -6,053.87 | 7,048.69 | 0.00 | 0.00 | 0.00 |
| 11,300.00 | 89.54 | 315.00 | 5,131.07 | 3,985.18 | -6,124.58 | 7,148.68 | 0.00 | 0.00 | 0.00 |
| 11,400.00 | 89.54 | 315.00 | 5,131.88 | 4,055.89 | -6,195.29 | 7,248.68 | 0.00 | 0.00 | 0.00 |
| 11,500.00 | 89.54 | 315.00 | 5,132.69 | 4,126.60 | -6,266.00 | 7,348.68 | 0.00 | 0.00 | 0.00 |
| 11,600.00 | 89.54 | 315.00 | 5,133.50 | 4,197.31 | -6,336.71 | 7,448.67 | 0.00 | 0.00 | 0.00 |
| 11,700.00 | 89.54 | 315.00 | 5,134.31 | 4,268.02 | -6,407.41 | 7,548.67 | 0.00 | 0.00 | 0.00 |
| 11,800.00 | 89.54 | 315.00 | 5,135.12 | 4,338.73 | -6,478.12 | 7,648.67 | 0.00 | 0.00 | 0.00 |
| 11,900.00 | 89.54 | 315.00 | 5,135.93 | 4,409.43 | -6,548.83 | 7,748.66 | 0.00 | 0.00 | 0.00 |
| 12,000.00 | 89.54 | 315.00 | 5,136.74 | 4,480.14 | -6,619.54 | 7,848.66 | 0.00 | 0.00 | 0.00 |
| 12,100.00 | 89.54 | 315.00 | 5,137.55 | 4,550.85 | -6,690.25 | 7,948.66 | 0.00 | 0.00 | 0.00 |
| 12,200.00 | 89.54 | 315.00 | 5,138.36 | 4,621.56 | -6,760.96 | 8,048.65 | 0.00 | 0.00 | 0.00 |
| 12,300.00 | 89.54 | 315.00 | 5,139.17 | 4,692.27 | -6,831.66 | 8,148.65 | 0.00 | 0.00 | 0.00 |
| 12,400.00 | 89.54 | 315.00 | 5,139.98 | 4,762.98 | -6,902.37 | 8,248.65 | 0.00 | 0.00 | 0.00 |
| 12,500.00 | 89.54 | 315.00 | 5,140.79 | 4,833.68 | -6,973.08 | 8,348.64 | 0.00 | 0.00 | 0.00 |
| 12,600.00 | 89.54 | 315.00 | 5,141.60 | 4,904.39 | -7,043.79 | 8,448.64 | 0.00 | 0.00 | 0.00 |
| 12,700.00 | 89.54 | 315.00 | 5,142.41 | 4,975.10 | -7,114.50 | 8,548.64 | 0.00 | 0.00 | 0.00 |
| 12,800.00 | 89.54 | 315.00 | 5,143.22 | 5,045.81 | -7,185.21 | 8,648.63 | 0.00 | 0.00 | 0.00 |
| 12,900.00 | 89.54 | 315.00 | 5,144.03 | 5,116.52 | -7,255.92 | 8,748.63 | 0.00 | 0.00 | 0.00 |
| 13,000.00 | 89.54 | 315.00 | 5,144.84 | 5,187.23 | -7,326.62 | 8,848.63 | 0.00 | 0.00 | 0.00 |
| 13,100.00 | 89.54 | 315.00 | 5,145.65 | 5,257.94 | -7,397.33 | 8,948.63 | 0.00 | 0.00 | 0.00 |
| 13,200.00 | 89.54 | 315.00 | 5,146.46 | 5,328.64 | -7,468.04 | 9,048.62 | 0.00 | 0.00 | 0.00 |
| 13,300.00 | 89.54 | 315.00 | 5,147.27 | 5,399.35 | -7,538.75 | 9,148.62 | 0.00 | 0.00 | 0.00 |
| 13,400.00 | 89.54 | 315.00 | 5,148.08 | 5,470.06 | -7,609.46 | 9,248.62 | 0.00 | 0.00 | 0.00 |
| 13,500.00 | 89.54 | 315.00 | 5,148.89 | 5,540.77 | -7,680.17 | 9,348.61 | 0.00 | 0.00 | 0.00 |
| 13,600.00 | 89.54 | 315.00 | 5,149.70 | 5,611.48 | -7,750.87 | 9,448.61 | 0.00 | 0.00 | 0.00 |
| 13,700.00 | 89.54 | 315.00 | 5,150.51 | 5,682.19 | -7,821.58 | 9,548.61 | 0.00 | 0.00 | 0.00 |
| 13,800.00 | 89.54 | 315.00 | 5,151.32 | 5,752.89 | -7,892.29 | 9,648.60 | 0.00 | 0.00 | 0.00 |
| 13,900.00 | 89.54 | 315.00 | 5,152.13 | 5,823.60 | -7,963.00 | 9,748.60 | 0.00 | 0.00 | 0.00 |
| 14,000.00 | 89.54 | 315.00 | 5,152.94 | 5,894.31 | -8,033.71 | 9,848.60 | 0.00 | 0.00 | 0.00 |
| 14,100.00 | 89.54 | 315.00 | 5,153.75 | 5,965.02 | -8,104.42 | 9,948.59 | 0.00 | 0.00 | 0.00 |
| 14,200.00 | 89.54 | 315.00 | 5,154.56 | 6,035.73 | -8,175.12 | 10,048.59 | 0.00 | 0.00 | 0.00 |
| 14,300.00 | 89.54 | 315.00 | 5,155.37 | 6,106.44 | -8,245.83 | 10,148.59 | 0.00 | 0.00 | 0.00 |
| 14,400.00 | 89.54 | 315.00 | 5,156.18 | 6,177.14 | -8,316.54 | 10,248.58 | 0.00 | 0.00 | 0.00 |
| 14,500.00 | 89.54 | 315.00 | 5,156.99 | 6,247.85 | -8,387.25 | 10,348.58 | 0.00 | 0.00 | 0.00 |
| 14,600.00 | 89.54 | 315.00 | 5,157.80 | 6,318.56 | -8,457.96 | 10,448.58 | 0.00 | 0.00 | 0.00 |
| 14,700.00 | 89.54 | 315.00 | 5,158.61 | 6,389.27 | -8,528.67 | 10,548.57 | 0.00 | 0.00 | 0.00 |
| 14,800.00 | 89.54 | 315.00 | 5,159.42 | 6,459.98 | -8,599.37 | 10,648.57 | 0.00 | 0.00 | 0.00 |
| 14,900.00 | 89.54 | 315.00 | 5,160.23 | 6,530.69 | -8,670.08 | 10,748.57 | 0.00 | 0.00 | 0.00 |
| 15,000.00 | 89.54 | 315.00 | 5,161.04 | 6,601.39 | -8,740.79 | 10,848.56 | 0.00 | 0.00 | 0.00 |
| 15,100.00 | 89.54 | 315.00 | 5,161.85 | 6,672.10 | -8,811.50 | 10,948.56 | 0.00 | 0.00 | 0.00 |
| 15,200.00 | 89.54 | 315.00 | 5,162.66 | 6,742.81 | -8,882.21 | 11,048.56 | 0.00 | 0.00 | 0.00 |
| 15,300.00 | 89.54 | 315.00 | 5,163.47 | 6,813.52 | -8,952.92 | 11,148.55 | 0.00 | 0.00 | 0.00 |
| 15,400.00 | 89.54 | 315.00 | 5,164.28 | 6,884.23 | -9,023.62 | 11,248.55 | 0.00 | 0.00 | 0.00 |
| 15,500.00 | 89.54 | 315.00 | 5,165.09 | 6,954.94 | -9,094.33 | 11,348.55 | 0.00 | 0.00 | 0.00 |
| 15,600.00 | 89.54 | 315.00 | 5,165.90 | 7,025.64 | -9,165.04 | 11,448.54 | 0.00 | 0.00 | 0.00 |
| 15,700.00 | 89.54 | 315.00 | 5,166.71 | 7,096.35 | -9,235.75 | 11,548.54 | 0.00 | 0.00 | 0.00 |
| 15,800.00 | 89.54 | 315.00 | 5,167.52 | 7,167.06 | -9,306.46 | 11,648.54 | 0.00 | 0.00 | 0.00 |
| 15,900.00 | 89.54 | 315.00 | 5,168.33 | 7,237.77 | -9,377.17 | 11,748.53 | 0.00 | 0.00 | 0.00 |
| 16,000.00 | 89.54 | 315.00 | 5,169.14 | 7,308.48 | -9,447.87 | 11,848.53 | 0.00 | 0.00 | 0.00 |
| 16,100.00 | 89.54 | 315.00 | 5,169.95 | 7,379.19 | -9,518.58 | 11,948.53 | 0.00 | 0.00 | 0.00 |
| 16,200.00 | 89.54 | 315.00 | 5,170.76 | 7,449.89 | -9,589.29 | 12,048.52 | 0.00 | 0.00 | 0.00 |

| | | | |
|---|---|---|---|
| **Database:** | Grand Junction District | **Local Co-ordinate Reference:** | Well S Escavada Unit #361H |
| **Company:** | WPX Energy | **TVD Reference:** | KB @ 7072.00usft (Cyclone 32) |
| **Project:** | Sandovall County, NM 3003 West | **MD Reference:** | KB @ 7072.00usft (Cyclone 32) |
| **Site:** | S Escavada Unit 361 Pad | **North Reference:** | Grid |
| **Well:** | S Escavada Unit #361H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Plan #1 | | |

**Planned Survey**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---|---|---|---|---|---|---|---|---|---|
| 16,300.00 | 89.54 | 315.00 | 5,171.57 | 7,520.60 | -9,660.00 | 12,148.52 | 0.00 | 0.00 | 0.00 |
| 16,352.70 | 89.54 | 315.00 | 5,172.00 | 7,557.86 | -9,697.26 | 12,201.21 | 0.00 | 0.00 | 0.00 |
| **TD at 16352.70** | | | | | | | | | |

**Design Targets**

| Target Name - hit/miss target - Shape | Dip Angle (°) | Dip Dir. (°) | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Northing (usft) | Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| SEU361H POE<br>- plan misses target center by 0.01usft at 6010.82usft MD (5088.22 TVD, 245.29 N, -2384.69 E)<br>- Point | 0.00 | 0.00 | 5,088.22 | 245.29 | -2,384.69 | 1,862,374.00 | 599,580.06 | 36° 7' 4.886 N | 107° 29' 46.241 W |
| SEU361H BHL<br>- plan hits target center<br>- Point | 0.00 | 0.00 | 5,172.00 | 7,557.86 | -9,697.26 | 1,869,686.57 | 592,267.49 | 36° 8' 17.447 N | 107° 31' 15.084 W |

**Casing Points**

| Measured Depth (usft) | Vertical Depth (usft) | Name | Casing Diameter (") | Hole Diameter (") |
|---|---|---|---|---|
| 6,011.41 | 5,088.22 | 7" | 7 | 8-3/4 |

**Formations**

| Measured Depth (usft) | Vertical Depth (usft) | Name | Lithology | Dip (°) | Dip Direction (°) |
|---|---|---|---|---|---|
| 935.68 | 579.00 | Ojo Alamo | | | |
| 1,089.14 | 730.00 | Kirtland | | | |
| 1,521.51 | 1,145.00 | Picture Cliffs | | | |
| 1,683.37 | 1,295.00 | Lewis | | | |
| 1,971.19 | 1,554.00 | Chacra | | | |
| 3,171.00 | 2,627.00 | Cliff House | | | |
| 3,212.38 | 2,664.00 | Menefee | | | |
| 4,139.36 | 3,493.00 | Point Lookout | | | |
| 4,332.80 | 3,666.00 | Mancos | | | |
| 4,690.62 | 3,986.00 | Gallup | | | |
| 4,945.57 | 4,214.00 | Gallup Upper | | | |
| 5,281.89 | 4,499.00 | Mancos Lwr | | | |
| 5,307.96 | 4,518.00 | El Vado | | | |
| 5,461.49 | 4,616.00 | Frac Barrier | | | |
| 5,461.49 | 4,616.00 | Mancos Unc | | | |
| 5,631.22 | 4,692.00 | PS 3 | | | |
| 5,700.52 | 4,712.00 | PS2 | | | |

| | | | |
|---|---|---|---|
| **Database:** | Grand Junction District | **Local Co-ordinate Reference:** | Well S Escavada Unit #361H |
| **Company:** | WPX Energy | **TVD Reference:** | KB @ 7072.00usft (Cyclone 32) |
| **Project:** | Sandovall County, NM 3003 West | **MD Reference:** | KB @ 7072.00usft (Cyclone 32) |
| **Site:** | S Escavada Unit 361 Pad | **North Reference:** | Grid |
| **Well:** | S Escavada Unit #361H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Plan #1 | | |

**Plan Annotations**

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates +N/-S (usft) | Local Coordinates +E/-W (usft) | Comment |
|---|---|---|---|---|
| 500.00 | 500.00 | 0.00 | 0.00 | Start Build 2.00 |
| 1,829.05 | 1,781.88 | -30.13 | -301.30 | Start 3219.47 hold at 1829.05 MD |
| 5,048.52 | 4,661.07 | -173.49 | -1,734.74 | Start DLS 9.00 TFO 53.98 |
| 5,860.82 | 5,087.00 | 139.23 | -2,278.63 | Start 150.59 hold at 5860.82 MD |
| 6,011.41 | 5,088.22 | 245.71 | -2,385.11 | Start 10341.28 hold at 6011.41 MD |
| 16,352.70 | 5,172.00 | 7,557.86 | -9,697.26 | TD at 16352.70 |

# SEU 361-361H
## Sandovall County, NM 3003 West
**Northing: 1862128.71**
**Easting: 601964.74**
**Plan #1**

Scientific Drilling

KB @ 7072.00usft (Cyclone 32)
7051.00

G T M Azimuths to Grid North
True North: -0.20°
Magnetic North: 8.75°

Magnetic Field
Strength: 49504.8snT
Dip Angle: 62.88°
Date: 5/15/2017
Model: HDGM

**WELL DETAILS** SEU 361-361H

Ground Level: 7051.00

| +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
|---|---|---|---|---|---|
| 0.00 | 0.00 | 1862128.71 | 601964.74 | 36° 7' 2.377 N | 107° 29' 17.185 W |

**SECTION DETAILS**

| MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | TFace | VSect | Target |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 500.00 | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1829.05 | 26.58 | 264.29 | 1781.88 | -30.13 | -301.30 | 2.00 | 264.29 | 191.74 | |
| 5048.52 | 26.58 | 264.29 | 4661.07 | -173.49 | -1734.74 | 0.00 | 0.00 | 1103.97 | |
| 5860.82 | 89.54 | 315.00 | 5087.00 | 139.23 | -2278.63 | 9.00 | 53.98 | 1709.68 | |
| 6011.41 | 89.54 | 315.00 | 5088.22 | 245.71 | -2385.11 | 0.00 | 0.00 | 1860.27 | SEU361H POE |
| 16352.70 | 89.54 | 315.00 | 5172.00 | 7557.86 | -9697.26 | 0.00 | 0.00 | 12201.21 | SEU361H BHL |

**SITE DETAILS:** SEU 361 Pad

Site Centre Northing: 1862128.71
Easting: 601964.74

Positional Uncertainity: 0.00
Convergence: 0.20
Local North: Grid

**PROJECT DETAILS:** Sandovall County, NM 3003 West

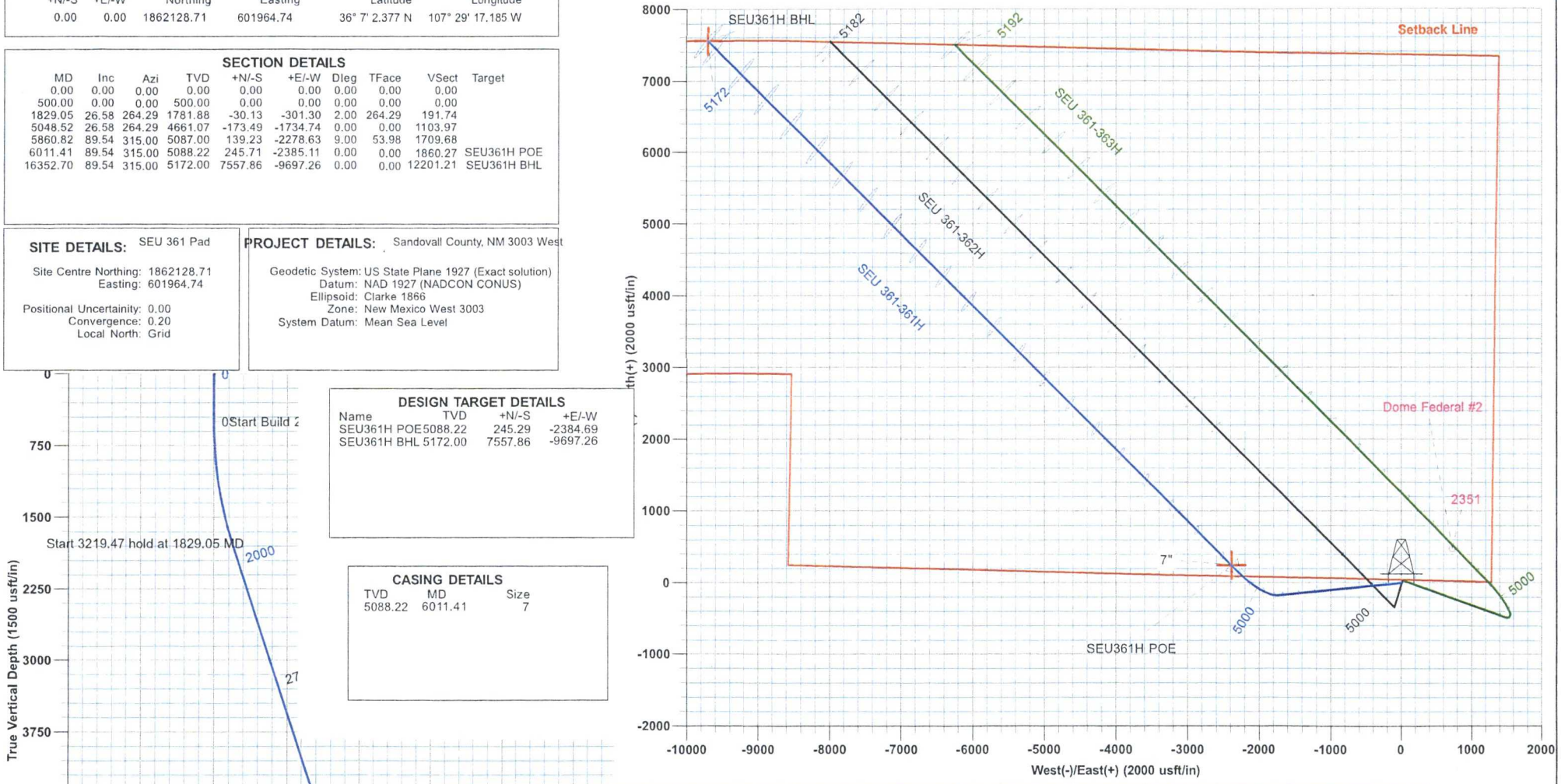
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico West 3003
System Datum: Mean Sea Level

**DESIGN TARGET DETAILS**

| Name | TVD | +N/-S | +E/-W |
|---|---|---|---|
| SEU361H POE | 5088.22 | 245.29 | -2384.69 |
| SEU361H BHL | 5172.00 | 7557.86 | -9697.26 |

**CASING DETAILS**

| TVD | MD | Size |
|---|---|---|
| 5088.22 | 6011.41 | 7 |







Bailey Fellows
12:08, May 17 2017
Scientific Drilling
325 S Faudree Rd
Odessa, TX 79765

### 6.3. Vessilla – Menefee – Orlie complex

This soil is found along the northern portion of the pipeline corridor (30.4 percent of the project area). As such, excavated soils during construction of the well connect pipelines would consist of native borrow and subsoils from the soil map unit. A brief description of this soil can be found below.

> The Vessilla-Menefee-Orlie soil association is composed of 45 percent Vessilla and similar soils, 25 percent Menefee and similar soils, 20 percent Orlie and similar soils, and 10 percent of other minor components. This soil map unit is considered a well-drained soil, with the depth to water table and depth to restrictive layer being more than 80 inches. This soil association has a moderate to high potential for water erosion and low to moderate potential for wind erosion. The Vessilla-Menefee-Orlie association is typically found ranging in elevation from 6,000 to 7,460 feet in elevation, along gravelly, woodland, loamy (1- to 30-percent slopes) and within loamy, sandy and salt flat ecological sites (USDA/NRCS 2015).

### 6.4. Orlie-Sparham association, 0 to 5 percent slopes

This soil is found on the northern end of the pipeline intermixed with the Vessilla-Menefee-Orlie association and is within approximately 7 percent of the total project area. As such, excavated soils during construction of the well connect pipelines would consist of native borrow and subsoils from the soil map unit. A brief description of this soil can be found below

> The Orlie-Sparham association is composed of 45 percent Orlie and similar soils, 35 percent Sparham and similar soils and 20 percent minor components. Orlie-Sparham association soils are found on valley sides, mesas, cuestas, hills, alluvial fans and floodplains ranging from 5,000 feet to 8,000 feet in elevation. Orlie soils occur on slopes of 1 to 5 percent, are well drained, and have a moderately high water permeability. Sparham soils occur on slopes of 0 to 2 percent, are well drained, and have moderately low to moderately high water permeability. This soil association is not prime farmland and salinity ranges from very slightly saline to strongly saline (USDA/NRCS 2015).

# 7. METHODS FOR HANDLING WASTE

A. Cuttings

1. Drilling operations will utilize a closed-loop system. Drilling of the horizontal laterals will be accomplished with water-based mud. All cuttings will be placed in roll-off bins and hauled to a commercial disposal facility or land farm. WPX will follow Onshore Oil and Gas Order No. 1 regarding the placement, operation, and removal of closed-loop systems. No blow pit will be used.
2. Closed-loop tanks will be adequately sized for containment of all fluids.

B. Drilling Fluids

1. Drilling fluids will be stored onsite in above-ground storage tanks. Upon termination of drilling operations, the drilling fluids will be recycled and transferred to other permitted closed-loop systems or returned to the vendor for reuse, as practical. All residual fluids will be hauled to a commercial disposal facility.

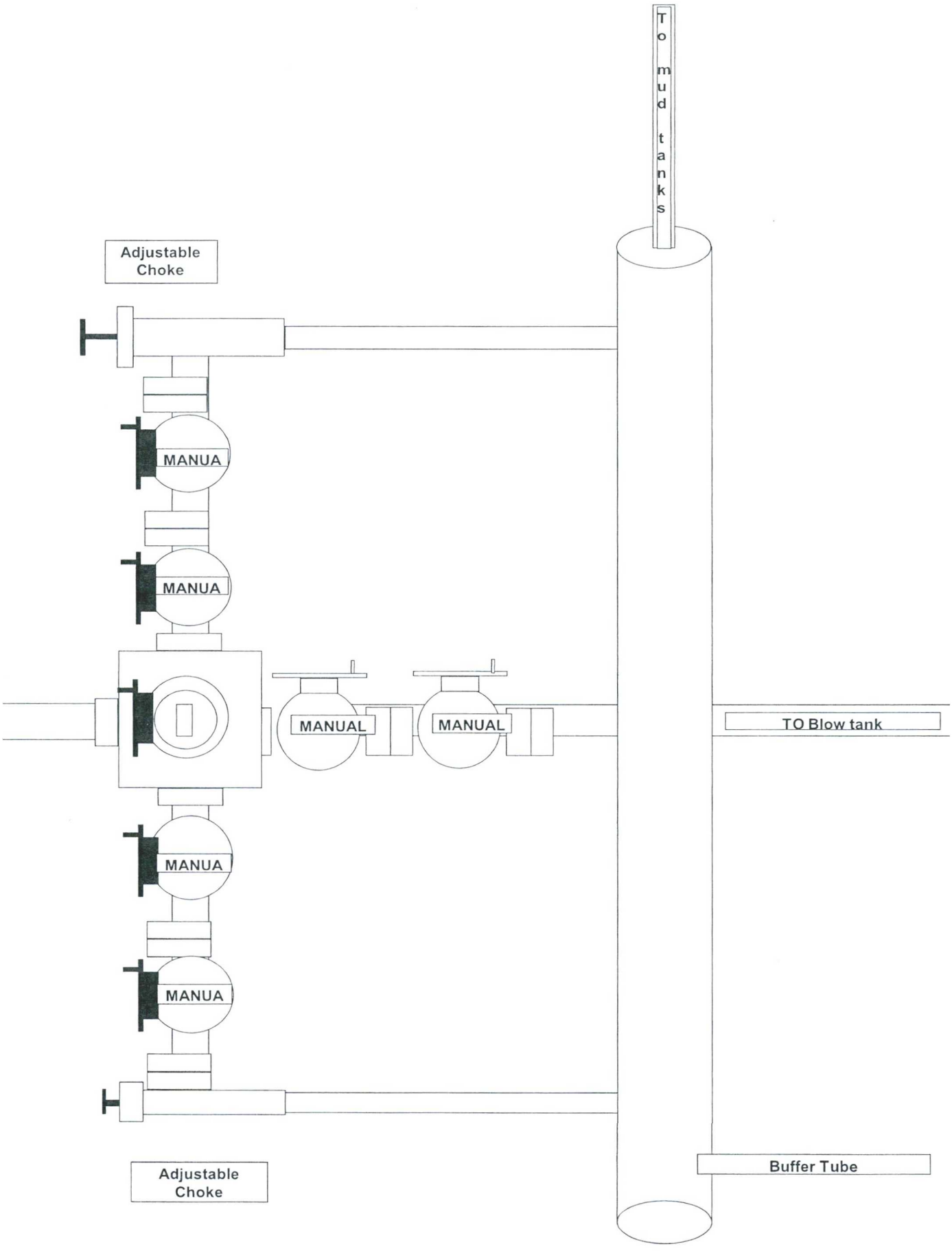
C. Spills

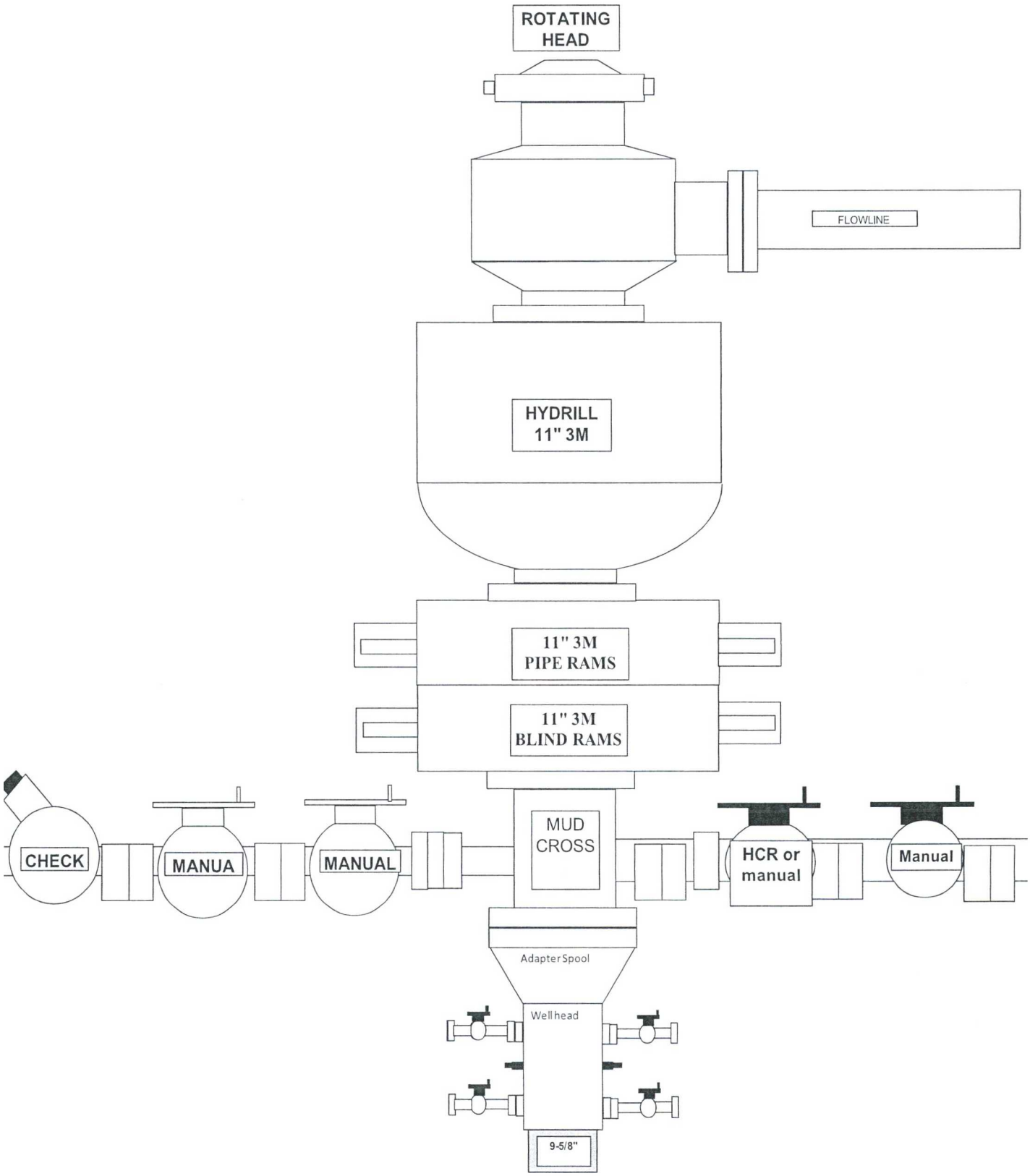
1. Any spills of non-freshwater fluids will be immediately cleaned up and removed to an approved disposal site.

D. Sewage

1. Portable toilets will be provided and maintained during construction, as needed (see Figures 2 & 3 in Appendix B for the location of toilets).

E. Garbage and other waste material


To mud tanks
Adjustable Choke
MANUA
MANUA
MANUAL
MANUAL
TO Blow tank
MANUA
MANUA
Adjustable Choke
Buffer Tube


ROTATING HEAD
FLOWLINE
HYDRILL 11" 3M
11" 3M PIPE RAMS
11" 3M BLIND RAMS
CHECK
MANUA
MANUAL
MUD CROSS
HCR or manual
Manual
Adapter Spool
Wellhead
9-5/8"

**Directions from the Intersection of US Hwy 550 & US Hwy 64**

**in Bloomfield, NM to WPX Energy Production, LLC S Escavada Unit #361H**

**290' FSL & 1613' FEL, Section 20, T22N, R6W, N.M.P.M., Sandoval County, NM**

**Latitude: 36.117342°N  Longitude: 107.488712°W  Datum: NAD1983**

From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM, travel Southerly on US Hwy 550 for 53.6 miles to Mile Marker 97.7;

Go Right (Southerly) on Indian Service Route #474 for 3.6 miles to fork in roadway:

Go Right (Southerly) which is straight continuing on Indian Service Route #474 for 1.0 miles to fork in roadway;

Go Left (Southerly) continuing on Indian Service Route #474 for 0.2 miles to fork in roadway;

Go Right (Southerly) which is straight exiting Indian Service Route #474 entering Indian Service Route #46 for 3.2 miles to new access on right-hand side of roadway which continues for 324.7' to staked WPX S Escavada Unit #361H location.