State of New Mexico
Energy, Minerals and Natural Resources Department



# 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: 6/11/13
Well information;
Operator WPX, Well Name and Number Chaco 2307-13L 175H

API# 30-039-31192, Section 13, Township 23 (N)/S, Range 7 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
- o Hold C-104 for NSL, NSP, DHC
- o Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- o 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
- o 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
- o 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

Charlie Perrin
NMOCD Approved by Signature

8-13-13
Date

ca

Form 3160-3
(September 2001)

RECEIVED

JUN 11 2013

Farmington Field Office
Bureau of Land Management

FORM APPROVED
OMB No. 1004-0136
Expires January 31, 2004

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

**APPLICATION FOR PERMIT TO DRILL OR REENTER**

| | |
|---|---|
| 5. Lease Serial No. | NMSF-078360 |
| 6. If Indian, Allottee or Tribe Name | |
| 7. If Unit or CA Agreement, Name and No. | |
| 8. Lease Name and Well No. | Chaco 2307-13L #175H |
| 9. API Well No. | 30-039-31192 |
| 10. Field and Pool, or Exploratory | Lybrook Gallup |
| 11. Sec., T., R., M., or Blk. and Survey or Area | Section13, T23N, R7W |
| 12. County or Parish | Rio Arriba County |
| 13. State | NM |
| 16. No. of Acres in lease | 2565.24 |
| 17. Spacing Unit dedicated to this well | 160 acres |
| 19. Proposed Depth | 10,507' MD / 5,475' TVD |
| 20. BLM/BIA Bond No. on file | UTB000178 |
| 21. Elevations (Show whether DF, KDB, RT, GL, etc.) | 6950' GR |
| 22. Approximate date work will start* | July 1, 2013 |
| 23. Estimated duration | 1 month |

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 Production, LLC

3a. Address: P.O. Box 640 Aztec, NM 87410

3b. Phone No. *(include area code)*: (505) 333-1808

4. Location of Well *(Report location clearly and in accordance with any State requirements. *)*
At surface 1494' FSL & 60' FWL, sec 13, T23N, R7W
At proposed prod. zone 380' FSL & 380' FWL, sec 14, T23N, R7W

14. Distance in miles and direction from nearest town or post office*
approximately 2 miles southeast of Lybrook, New Mexico

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 60'

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 7046'

RCVD AUG 8 '13
OIL CONS. DIV.
DIST. 3

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 | Name *(Printed/Typed)* | Date |
|---|---|---|
| Larry Higgins | Larry Higgins | 06/11/1 |

Title: Permit Supervisor.

| Approved by *(Signature)* | Name *(Printed/Typed)* | Date |
|---|---|---|
| /s/ Maryann Maquez | | 8/6/13 |
| Title: AFM | Office: FFO | |

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.

**(Instructions on reverse)*

WPX Energy Production, LLC, proposes to develop the Lybrook Gallup formation at the above described location in accordance with the attached drilling and surface use plans.

The well pad surface is under jurisdiction of the BLM.

This location has been archaeologically surveyed by La Plata Archaeological Consultants. Copies of their report have been submitted directly to the BLM.

572 feet of new access road is needed.

NMOCD

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

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

**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**

APD Certification:

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

Executed this 11th day of June, 2013.

Name Larry Higgins

Position Title Permit Supervisor

Address P.O. Box 640, Aztec, NM 87410

Telephone (505) 333-1808

Field representative (if not above signatory) _____

E-mail larry.higgins@wpxenergy.com

Date: 06/11/2013

Larry Higgins
Permit Suprv.
WPX Energy Production, LLC

District I
1525 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

RECEIVED
JUN 11 2013
Farmington Field Office
Bureau of Land Management

# WELL LOCATION AND ACREAGE DEDICATION PLAT

| 1 API Number | 2 Pool Code | 3 Pool Name |
|---|---|---|
| 30-039-31192 | 42289 | LYBROOK GALLUP |

| 4 Property Code | 5 Property Name | 6 Well Number |
|---|---|---|
| 40069 | CHACO 2307-13L | 175H |

| 7 OGRID No. | 8 Operator Name | 9 Elevation |
|---|---|---|
| 120782 | WPX ENERGY PRODUCTION, LLC | 7046' |

## 10 Surface Location

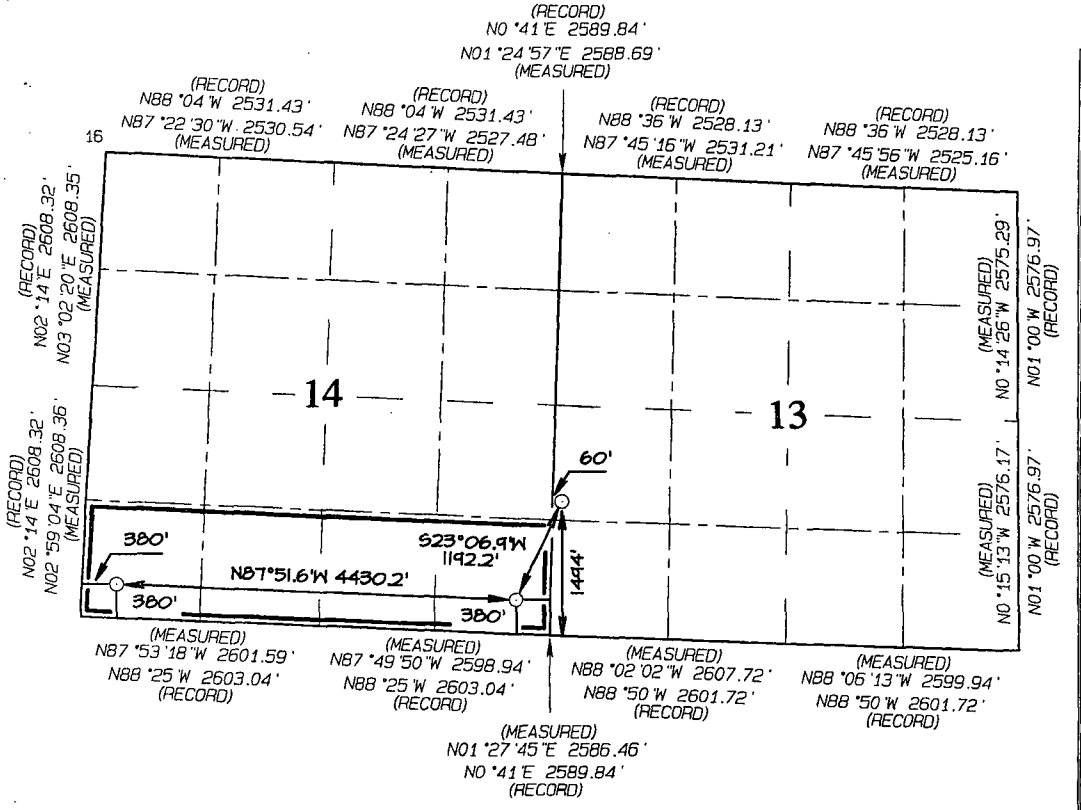
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| L | 13 | 23N | 7W | | 1494 | SOUTH | 60 | WEST | RIO ARRIBA |

## 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 |
|---|---|---|---|---|---|---|---|---|---|
| M | 14 | 23N | 7W | | 380 | SOUTH | 380 | WEST | RIO ARRIBA |

| 12 Dedicated Acres | 13 Joint or Infill | 14 Consolidation Code | 15 Order No. |
|---|---|---|---|
| 160.0 Acres<br>S/2 S/2 - Section 14 | | | |

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




END-OF-LATERAL
380' FSL 380' FWL
SECTION 14, T23N, R7W
LAT: 36.21985 °N
LONG: 107.55181 °W
DATUM: NAD1927

LAT: 36.21986 °N
LONG: 107.55241 °W
DATUM: NAD1983

POINT-OF-ENTRY
380' FSL 380' FEL
SECTION 14, T23N, R7W
LAT: 36.21955 °N
LONG: 107.53679 °W
DATUM: NAD1927

LAT: 36.21957 °N
LONG: 107.53740 °W
DATUM: NAD1983

SURFACE LOCATION
1494' FSL 60' FWL
SECTION 13, T23N, R7W
LAT: 36.22258 °N
LONG: 107.53526 °W
DATUM: NAD1927

LAT: 36.22259 °N
LONG: 107.53586 °W
DATUM: NAD1983

## 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 Date 6/11/13

Larry Higgins
Printed Name

larry.higgins@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 14, 2013
Date of Survey: JULY 5, 2012

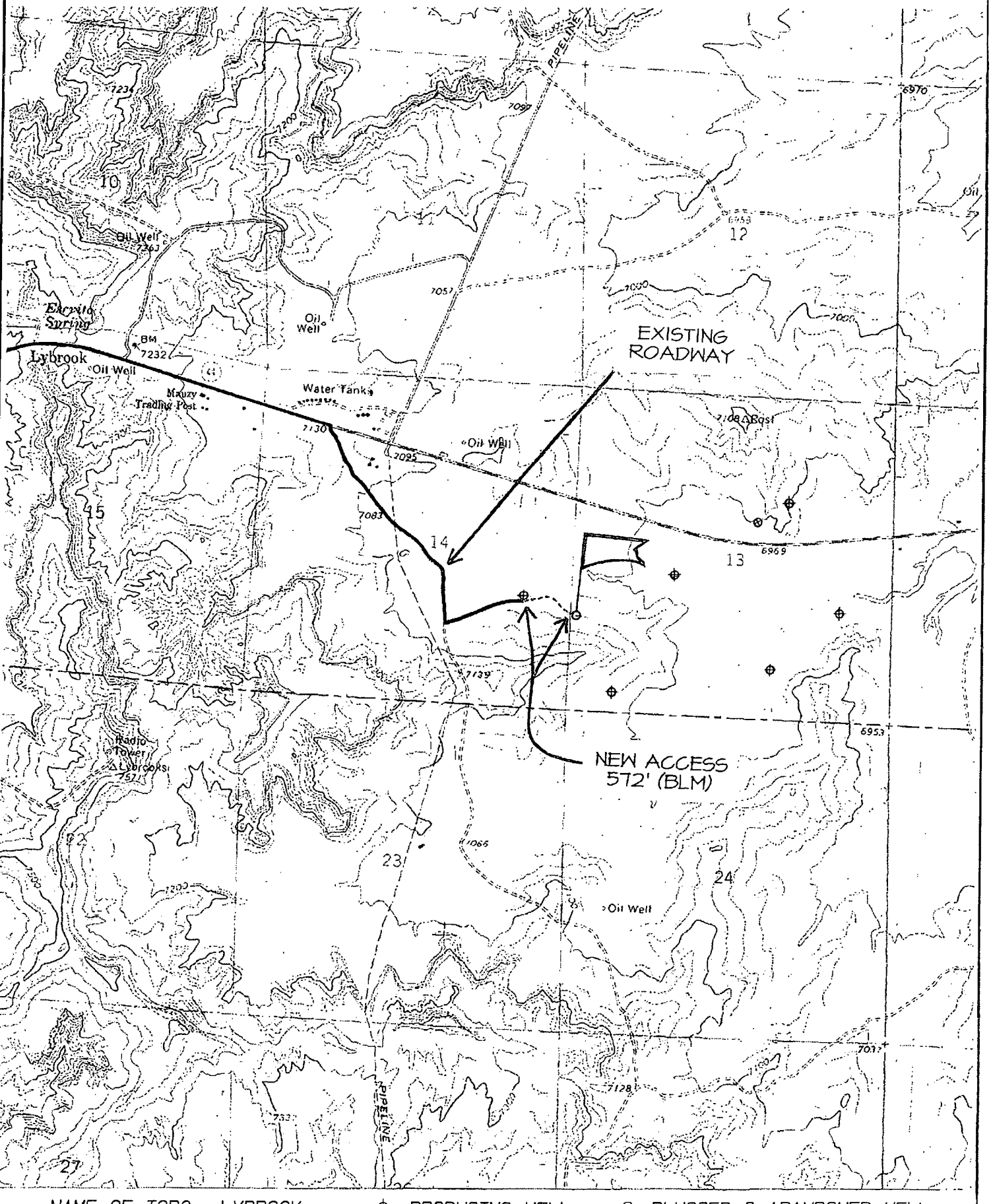
Signature and Seal of Professional Surveyor

JASON C. EDWARDS
NEW MEXICO
15269
REGISTERED PROFESSIONAL SURVEYOR

JASON C. EDWARDS
Certificate Number 15269

# WPX ENERGY PRODUCTION, LLC CHACO 2307-13L #175H

1494' FSL & 60' FWL, SECTION 13, T23N, R7W, N.M.P.M.
RIO ARRIBA COUNTY, NEW MEXICO




NAME OF TOPO : LYBROOK ⊕ PRODUCING WELL ⊗ PLUGGED & ABANDONED WELL

WPXENERGY

# WPX ENERGY

## *Operations Plan*

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

| | | | |
|---|---|---|---|
| **DATE:** | 5/01/2013 | **FIELD:** | Lybrook Gallup |
| **WELL NAME:** | **Chaco 2307-13L #175H** | **SURFACE:** | BLM |
| **SH Location:** | NWSW of Sec 13 T23N R7W | **ELEVATION:** | 7,046' GR |
| **County:** | Rio Arriba Co, NM | | |
| **BH Location:** | SWSW Sec 14-23N-7W | **MINERALS:** | BLM |
| **MEASURED DEPTH:** | **10,507 ft.** | **LEASE #:** | NMSF-078360 |

I. **GEOLOGY:** Surface formation – San Jose

A. **FORMATION TOPS:** ( KB)

| Name | | MD | TVD | | Name | | MD | TVD |
|---|---|---|---|---|---|---|---|---|
| Ojo Alamo | | 1,426 | 1,420 | | Point Lookout | | 4,462 | 4,289 |
| Kirtland | | 1,775 | 1,758 | | Mancos | | 4,707 | 4,532 |
| Pictured Cliffs | | 2,014 | 1,984 | | **Kickoff Point** | | **5,164** | **4,988** |
| Lewis | | 2,281 | 2,234 | | Target Top | | 5,860 | 5,523 |
| Chacra | | 2,444 | 2,386 | | **Landing Point** | | **6,076** | **5,561** |
| Cliff House | | 3,634 | 3,497 | | Target Base | | 6,076 | 5,561 |
| Menefee | | 3,972 | 3,772 | | | | | |
| | | | | | **TD** | | **10,507** | **5,475** |

B. **MUD LOGGING PROGRAM:** Mudlogger on location from surface csg to TD.

C. **LOGGING PROGRAM:** MWD GR for curve and lateral.

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 8 ¾" Directional Intermediate hole. Will use WBM to drill the curve portion of well, and OBM 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 anticipated reservoir is expected to be less than **1300 psi**, so the BOPE will be tested to **250 psi (Low) for 5 minutes** and **1500 psi (High) for 10 minutes**. Pressure test surface casing to **600 psi for 30 minutes** and intermediate casing to **1500 psi for 30 minutes.** Utilize a BOPE Testing Unit with a recording chart and appropriate test plug for testing. The drum brakes will be inspected and tested each tour. **All tests and inspections will be recorded in the tour book as to time and results.**

**NOTE Vertical portion of the well (8-3/4 in.) will be directionally drilled as per attached Directional Plan to +/-5,164' MD. Curve portion of wellbore will be drilled and landed at +/- 90 deg at +/- 6,076' (MD). 7 in. csg will be set at this point. A 6-1/8" Lateral will be drilled as per the attached Directional Plan to +/- 10,507' (MD). Will run 4-1/2 in. Production Casing from surface to TD and cement.**

## III. MATERIALS

### A. CASING PROGRAM:

| CASING TYPE | OH SIZE | DEPTH (MD) | CASING SIZE | WEIGHT | GRADE |
|---|---|---|---|---|---|
| Surface | 12.25" | +/-400' | 9.625" | 36# | J-55 |
| Intermediate | 8.75" | 6,076' | 7" | 23# | K-55 |
| Longstring | 6.125" | 10,507' | 4.5" | 11.6# | N-80 |

### 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 2,700', 2,500', 2,300', 2,000', 1,500', and 1,000'.

3. PRODUCTION CASING: Run 4-1/2" casing with cement nose guide Float Shoe + 1 joint 4-1/2" csg.+ Float Collar. Centralizer program will be determined when Lateral is evaluated by Geoscientists and Reservoir Engineers.

### C. CEMENTING:

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

1. SURFACE: 10 bbl Fr Water Spacer + 190 sx (222.3 cu.ft.) of "Premium Cement" + 2% Calcium Chloride Cement + 0.125# pps of Poly-E-Flake, 15.8 #/gal (1.17 cu ft./sk, Vol 39.58 Bbls.). The 100% excess should circulate cement to the surface. WOC 12 hours. Test csg to 600psi. Total Volume: (222.3 cu-ft/190 sx/39.6 Bbls).

2. INTERMEDIATE: 20 bbl (112 cu-ft) Mud Flush III spacer + Lead: 850 sx Foamed 50/50 Poz Cement. 13.0 ppg (Yield :1.43 cu-ft/ sk. / Vol: 1216 cu-ft) + 0.1% Halad 766 + 0.2% Versaset + 1.5% Chem-Foamer 760 / TOTETANK + TAIL: 100 sx 13.5 #/gal. (Yield: 1.28 cu-ft / sk / Vol: 128 cu-ft) + 0.2% Versaset + 0.15% HALAD-766. + F. Water Displacement (1,511 cu-ft) + 100 sx Top-Out Cement Premium: Yield: (1.17 cu-ft/ sk (Vol: 117 cu-ft). Est TOC: Surface. Test Casing to 1500 PSI for 30 minutes. Total Volume: (2021 cu-ft/1050 sx/260 bbls).

3. PRODUCTION CASING: **STAGE 1**:10 bbl (56.cu-ft) Fr Water Spacer. **STAGE 2**:20 bbl 10 ppg (112.3 cu-ft) Tuned Spacer III + 0.2 gal/bbl Musol + 59.8 ppb Barite. **STAGE 3**: 10 bbl Fr Water Spacer. **STAGE 4: Lead Cement:** Standard Type V + .4% Halad-766 + .3% Halad R-344, Yield 1.19 cu ft/sk, 15.6 #/gal, (60 sx/71.4 cu ft.) **STAGE 5:** Foamed Lead Cement: 248 sx 13.0 ppg (63.28 bbl / 355.3 cu-ft) 50/50 Poz Standard + 0.2% Versaset + 0.2% HALAD-766 + 1.5% Chem-Foamer 760. Yield 1.43 cu-ft/sk. **STAGE 6**: Tail Cement : 150 sx 50/50 Poz Standard + 0.2% Versaset + 0.25% HALAD-766, Weight: 13.5 ppg (Yield 1.29 cu ft/sk. / 193.5 cu ft.) **STAGE 7**: Displace w/176.6 bbl Fr Water. Total Cement (620.2 cu ft / 110.4 bbls). Mix w/ +/- 75,000 SCF Nitrogen. Est. TOC +/- 4,900 ft. Total Volume: (620.2 cu-ft/458 sx/110.4 bbls).

## IV. COMPLETION

### A. CBL

1. Run Cement Bond Log and ensure top of cement is above 7" casing shoe.

### B. PRESSURE TEST

1. Pressure test 4-1/2" casing to 5000 psi max, hold at 1500 psi for 30 minutes.

### C. 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 with Tubing and flowback lateral.

### D. RUNNING TUBING

1. *Production Tubing:* Run 2-3/8", 4.7#, N-80, EUE tubing with a SN (1.91" ID) on top of bottom joint. Land tubing at landing point of curve (~6,000' MD).

WPXENERGY

WPX Energy

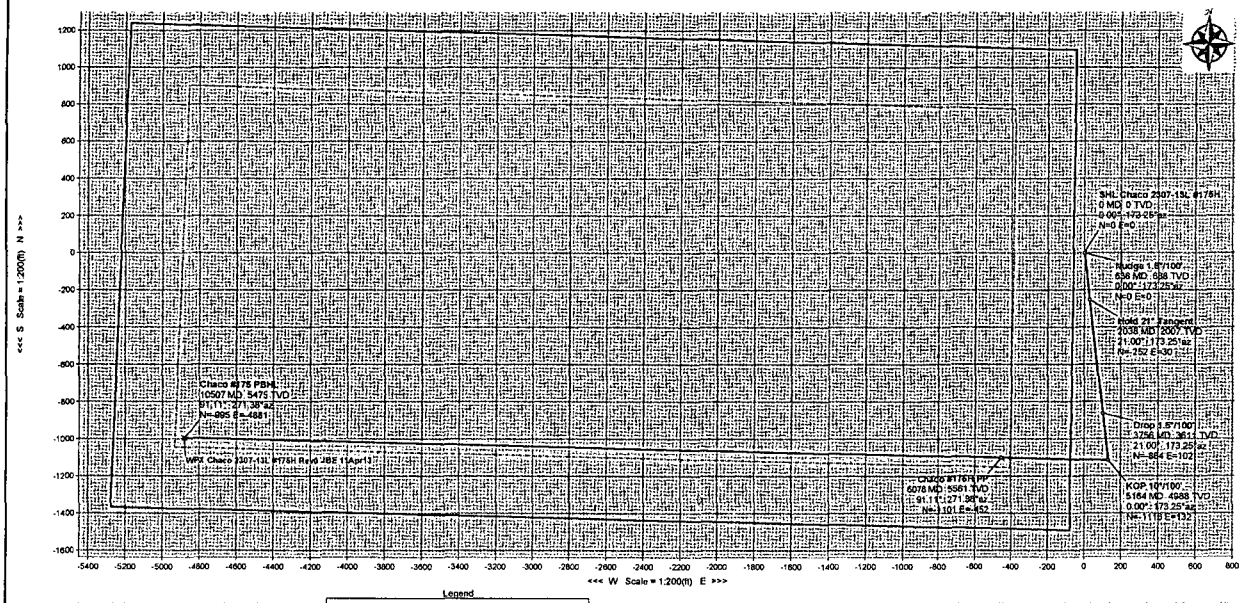
KB: 14'

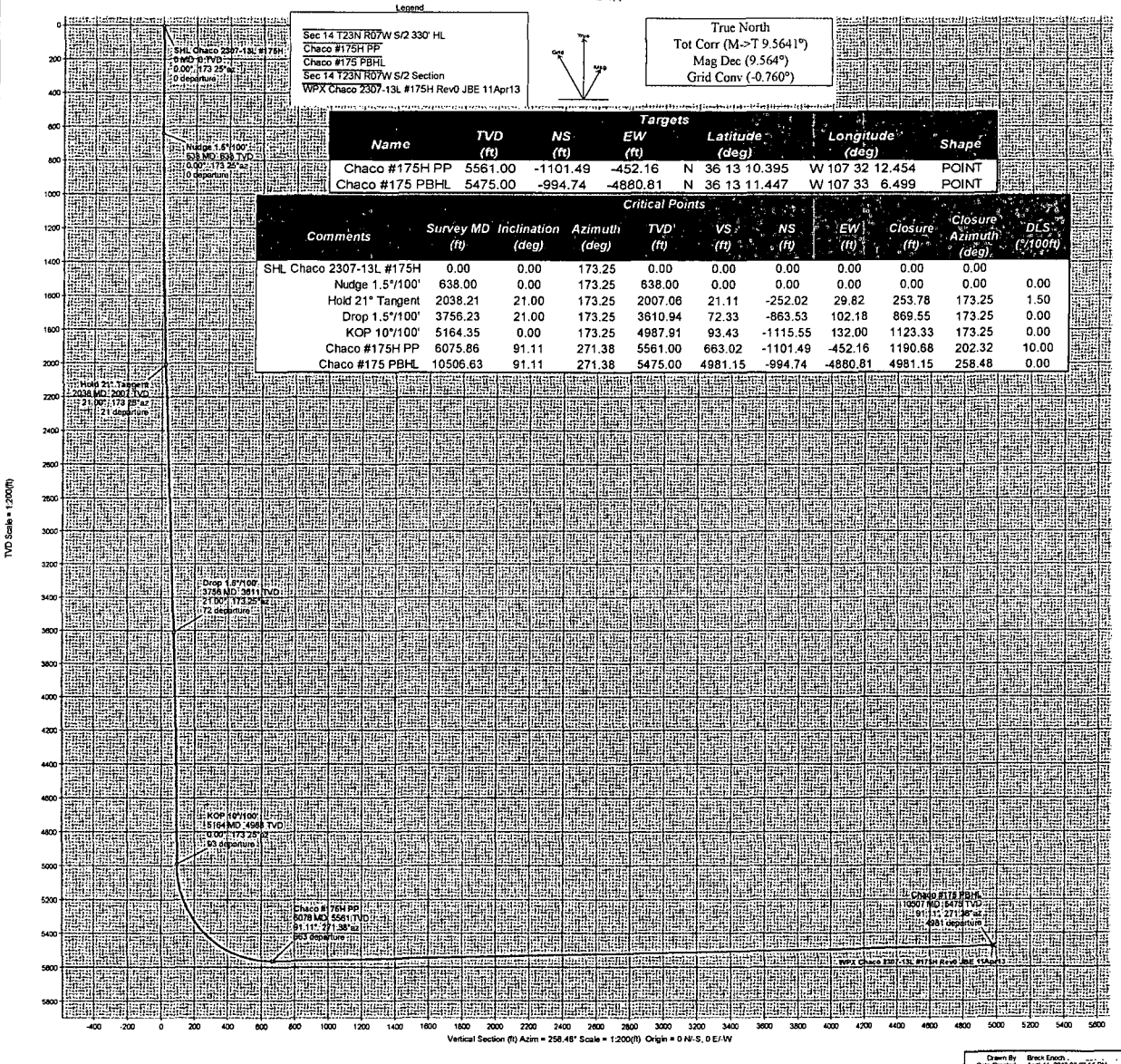
Rev0

PATHFINDER
A Schlumberger Company

| WELL | FIELD | STRUCTURE |
|---|---|---|
| Chaco 2307-13L #175H | NM Rio Arriba County NAD27 | WPX Chaco 2307-13L #175H |

| Magnetic Parameters | | | | Surface Location | | | | NAD27 New Mexico State Plane, Central Zone, US Feet | | | | Miscellaneous | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Model: BGGM 2012 | Dip: 62.994° | Date: April 11, 2013 | Lat: N 36 13 21.288 | Northing: 1902741.97 BUS | Grid Conv: -0.760° | Site: Chaco 2307-13L #175H | TVD Ref: RKB(7060ft above MSL) |
| | Mag Dec: 9.564° | FS: 50218.3nT | Lon: W 107 32 6.936 | Easting: 1270895.05 BUS | Scale Fact: 1.00006446 | Plan: WPX Chaco 2307-13L #175H Rev0(RKB)(11Apr13) 11, 2013 |




**Targets**

| Name | TVD (ft) | NS (ft) | EW (ft) | Latitude (deg) | Longitude (deg) | Shape |
|---|---|---|---|---|---|---|
| Chaco #175H PP | 5561.00 | -1101.49 | -452.16 | N 36 13 10.395 | W 107 32 12.454 | POINT |
| Chaco #175 PBHL | 5475.00 | -994.74 | -4880.81 | N 36 13 11.447 | W 107 33 6.499 | POINT |

**Critical Points**

| Comments | Survey MD (ft) | Inclination (deg) | Azimuth (deg) | TVD (ft) | VS (ft) | NS (ft) | EW (ft) | Closure (ft) | Closure Azimuth (deg) | DLS (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| SHL Chaco 2307-13L #175H | 0.00 | 0.00 | 173.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Nudge 1.5°/100' | 638.00 | 0.00 | 173.25 | 638.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hold 21° Tangent | 2038.21 | 21.00 | 173.25 | 2007.06 | 21.11 | -252.02 | 29.82 | 253.78 | 173.25 | 1.50 |
| Drop 1.5°/100' | 3756.23 | 21.00 | 173.25 | 3610.94 | 72.33 | -863.53 | 102.18 | 869.55 | 173.25 | 0.00 |
| KOP 10°/100' | 5164.35 | 0.00 | 173.25 | 4987.91 | 93.43 | -1115.55 | 132.00 | 1123.33 | 173.25 | 0.00 |
| Chaco #175H PP | 6075.86 | 91.11 | 271.38 | 5561.00 | 663.02 | -1101.49 | -452.16 | 1190.68 | 202.32 | 10.00 |
| Chaco #175 PBHL | 10506.63 | 91.11 | 271.38 | 5475.00 | 4981.15 | -994.74 | -4880.81 | 4981.15 | 258.48 | 0.00 |

| Drawn By | Brock Enoch |
|---|---|
| Date Created | April 11, 2013 03:27:56 PM |
| Checked By | |
| Checked Date | |
| Approved By | |
| Approved Date | |

PATHFINDER
A Schlumberger Company

# WPX Chaco 2307-13L #175H Rev0 JBE 11Apr13 Proposal Geodetic Report

WPXENERGY

**(Non-Def Plan)**

| | | | |
|---|---|---|---|
| **Report Date:** | April 11, 2013 - 03:39 PM | **Survey / DLS Computation:** | Minimum Curvature / Lubinski |
| **Client:** | WPX Energy | **Vertical Section Azimuth:** | 258.481 ° (True North) |
| **Field:** | NM Rio Arriba County NAD27 | **Vertical Section Origin:** | 0.000 ft, 0.000 ft |
| **Structure / Slot:** | WPX Chaco 2307-13L #175H / Chaco 2307-13L #175H | **TVD Reference Datum:** | RKB |
| **Well:** | Chaco 2307-13L #175H | **TVD Reference Elevation:** | 7060.000 ft above MSL |
| **Borehole:** | Original Borehole | **Seabed / Ground Elevation:** | 7046.000 ft above MSL |
| **UWI / API#:** | Unknown / Unknown | **Magnetic Declination:** | 9.564 ° |
| **Survey Name:** | WPX Chaco 2307-13L #175H Rev0 JBE 11Apr13 | **Total Gravity Field Strength:** | 999.1575 mgn (9.8 based) |
| **Survey Date:** | April 11, 2013 | **Total Magnetic Field Strength:** | 50218.265 nT |
| **Tort / AHD / DDI / ERD Ratio:** | 133.122 ° / 6137.600 ft / 6.189 / 1.104 | **Magnetic Dip Angle:** | 62.994 ° |
| **Coordinate Reference System:** | NAD27 New Mexico State Plane, Central Zone, US Feet | **Declination Date:** | April 11, 2013 |
| **Location Lat / Long:** | N 36° 13' 21.28800", W 107° 32' 6.93600" | **Magnetic Declination Model:** | BGGM 2012 |
| **Location Grid N/E Y/X:** | N 1902741.874 ftUS, E 120895.046 ftUS | **North Reference:** | True North |
| **CRS Grid Convergence Angle:** | -0.7596 ° | **Grid Convergence Used:** | 0.0000 ° |
| **Grid Scale Factor:** | 1.00006446 | **Total Corr Mag North->True North:** | 9.5641 ° |
| | | **Local Coord Referenced To:** | Structure Reference Point |

| Comments | MD (ft) | Incl (°) | Azim True (°) | TVD (ft) | VSEC (ft) | NS (ft) | EW (ft) | DLS (°/100ft) | Northing (ftUS) | Easting (ftUS) | Latitude (N/S ° ' ") | Longitude (E/W ° ' ") |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHL Chaco 2307-13L #175H | 0.00 | 0.00 | 173.25 | 0.00 | 0.00 | 0.00 | 0.00 | N/A | 1902741.87 | 120895.05 | N 36 13 21.29 | W 107 32 6.94 |
| Nudge 1.5°/100' | 638.00 | 0.00 | 173.25 | 638.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1902741.87 | 120895.05 | N 36 13 21.29 | W 107 32 6.94 |
| Hold 21° Tangent | 2038.21 | 21.00 | 173.25 | 2007.06 | 21.11 | -252.02 | 29.82 | 1.50 | 1902489.46 | 120921.53 | N 36 13 18.80 | W 107 32 6.57 |
| Drop 1.5°/100' | 3756.23 | 21.00 | 173.25 | 3610.94 | 72.33 | -863.53 | 102.18 | 0.00 | 1901877.01 | 120985.77 | N 36 13 12.75 | W 107 32 5.69 |
| | 5156.44 | 0.00 | 173.25 | 4980.00 | 93.43 | -1115.55 | 132.00 | 1.50 | 1901624.60 | 121012.25 | N 36 13 10.26 | W 107 32 5.33 |
| KOP 10°/100' | 5164.35 | 0.00 | 173.25 | 4987.91 | 93.43 | -1115.55 | 132.00 | 0.00 | 1901624.60 | 121012.25 | N 36 13 10.26 | W 107 32 5.33 |
| Chaco #175H PP | 6075.86 | 91.11 | 271.38 | 5561.00 | 663.02 | -1101.49 | -452.16 | 10.00 | 1901646.41 | 120428.30 | N 36 13 10.40 | W 107 32 12.45 |
| Chaco #175 PBHL | 10506.63 | 91.11 | 271.38 | 5475.00 | 4981.15 | -994.74 | -4880.81 | 0.00 | 1901811.87 | 116001.17 | N 36 13 11.45 | W 107 33 6.50 |

**Survey Type:** Non-Def Plan

**Survey Error Model:** ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma
**Survey Program:**

| Description | MD From (ft) | MD To (ft) | EOU Freq (ft) | Hole Size (in) | Casing Diameter (in) | Survey Tool Type | Borehole / Survey |
|---|---|---|---|---|---|---|---|
| | 0.000 | 14.000 | 1/100.000 | 30.000 | 30.000 | SLB_MWD-STD-Depth Only | Original Borehole / WPX Chaco 2307-13L #175H Rev0 JBE |
| | 14.000 | 10506.635 | 1/100.000 | 30.000 | 30.000 | SLB_MWD-STD | Original Borehole / WPX Chaco 2307-13L #175H Rev0 JBE |

PATHFINDER
A Schlumberger Company

WPXENERGY

# WPX Chaco 2307-13L #175H Rev0 JBE 11Apr13 Proposal Geodetic Report

**(Non-Def Plan)**

| | | | |
|---|---|---|---|
| **Report Date:** | April 11, 2013 - 03:40 PM | **Survey / DLS Computation:** | Minimum Curvature / Lubinski |
| **Client:** | WPX Energy | **Vertical Section Azimuth:** | 258.481 ° (True North) |
| **Field:** | NM Rio Arriba County NAD27 | **Vertical Section Origin:** | 0.000 ft, 0.000 ft |
| **Structure / Slot:** | WPX Chaco 2307-13L #175H / Chaco 2307-13L #175H | **TVD Reference Datum:** | RKB |
| **Well:** | Chaco 2307-13L #175H | **TVD Reference Elevation:** | 7060.000 ft above MSL |
| **Borehole:** | Original Borehole | **Seabed / Ground Elevation:** | 7046.000 ft above MSL |
| **UWI / API#:** | Unknown / Unknown | **Magnetic Declination:** | 9.564 ° |
| **Survey Name:** | WPX Chaco 2307-13L #175H Rev0 JBE 11Apr13 | **Total Gravity Field Strength:** | 999.1575 mgn (9.8 based) |
| **Survey Date:** | April 11, 2013 | **Total Magnetic Field Strength:** | 50218.265 nT |
| **Tort / AHD / DDI / ERD Ratio:** | 133.122 ° / 6137.600 ft / 6.189 / 1.104 | **Magnetic Dip Angle:** | 62.994 ° |
| **Coordinate Reference System:** | NAD27 New Mexico State Plane, Central Zone, US Feet | **Declination Date:** | April 11, 2013 |
| **Location Lat / Long:** | N 36° 13' 21.28800", W 107° 32' 6.93600" | **Magnetic Declination Model:** | BGGM 2012 |
| **Location Grid N/E Y/X:** | N 1902741.874 ftUS, E 120895.046 ftUS | **North Reference:** | True North |
| **CRS Grid Convergence Angle:** | -0.7596 ° | **Grid Convergence Used:** | 0.0000 ° |
| **Grid Scale Factor:** | 1.00006446 | **Total Corr Mag North->True North:** | 9.5641 ° |
| | | **Local Coord Referenced To:** | Structure Reference Point |

| Comments | MD (ft) | Incl (°) | Azim True (°) | TVD (ft) | VSEC (ft) | NS (ft) | EW (ft) | DLS (°/100ft) | Northing (ftUS) | Easting (ftUS) | Latitude (N/S ° ' ") | Longitude (E/W ° ' ") |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHL Chaco 2307-13L #175H | 0.00 | 0.00 | 173.25 | 0.00 | 0.00 | 0.00 | 0.00 | N/A | 1902741.87 | 120895.05 | N 36 13 21.29 | W 107 32 6.94 |
| | 100.00 | 0.00 | 173.25 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1902741.87 | 120895.05 | N 36 13 21.29 | W 107 32 6.94 |
| | 200.00 | 0.00 | 173.25 | 200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1902741.87 | 120895.05 | N 36 13 21.29 | W 107 32 6.94 |
| | 300.00 | 0.00 | 173.25 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1902741.87 | 120895.05 | N 36 13 21.29 | W 107 32 6.94 |
| | 400.00 | 0.00 | 173.25 | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1902741.87 | 120895.05 | N 36 13 21.29 | W 107 32 6.94 |
| | 500.00 | 0.00 | 173.25 | 500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1902741.87 | 120895.05 | N 36 13 21.29 | W 107 32 6.94 |
| | 600.00 | 0.00 | 173.25 | 600.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1902741.87 | 120895.05 | N 36 13 21.29 | W 107 32 6.94 |
| Nudge 1.5°/100' | 638.00 | 0.00 | 173.25 | 638.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1902741.87 | 120895.05 | N 36 13 21.29 | W 107 32 6.94 |
| | 700.00 | 0.93 | 173.25 | 700.00 | 0.04 | -0.50 | 0.06 | 1.50 | 1902741.37 | 120895.10 | N 36 13 21.28 | W 107 32 6.94 |
| | 800.00 | 2.43 | 173.25 | 799.95 | 0.29 | -3.41 | 0.40 | 1.50 | 1902738.46 | 120895.40 | N 36 13 21.25 | W 107 32 6.93 |
| | 900.00 | 3.93 | 173.25 | 899.79 | 0.75 | -8.92 | 1.06 | 1.50 | 1902732.94 | 120895.98 | N 36 13 21.20 | W 107 32 6.92 |
| | 1000.00 | 5.43 | 173.25 | 999.46 | 1.43 | -17.02 | 2.01 | 1.50 | 1902724.83 | 120896.83 | N 36 13 21.12 | W 107 32 6.91 |
| | 1100.00 | 6.93 | 173.25 | 1098.87 | 2.32 | -27.71 | 3.28 | 1.50 | 1902714.12 | 120897.96 | N 36 13 21.01 | W 107 32 6.90 |
| | 1200.00 | 8.43 | 173.25 | 1197.97 | 3.43 | -40.98 | 4.85 | 1.50 | 1902700.83 | 120899.35 | N 36 13 20.88 | W 107 32 6.88 |
| | 1300.00 | 9.93 | 173.25 | 1296.69 | 4.76 | -56.83 | 6.72 | 1.50 | 1902684.96 | 120901.02 | N 36 13 20.73 | W 107 32 6.85 |
| | 1400.00 | 11.43 | 173.25 | 1394.96 | 6.30 | -75.23 | 8.90 | 1.50 | 1902666.53 | 120902.95 | N 36 13 20.54 | W 107 32 6.83 |
| | 1500.00 | 12.93 | 173.25 | 1492.70 | 8.06 | -96.18 | 11.38 | 1.50 | 1902645.54 | 120905.15 | N 36 13 20.34 | W 107 32 6.80 |
| | 1600.00 | 14.43 | 173.25 | 1589.86 | 10.02 | -119.67 | 14.16 | 1.50 | 1902622.02 | 120907.62 | N 36 13 20.10 | W 107 32 6.76 |
| | 1700.00 | 15.93 | 173.25 | 1686.37 | 12.20 | -145.67 | 17.24 | 1.50 | 1902595.98 | 120910.35 | N 36 13 19.85 | W 107 32 6.73 |
| | 1800.00 | 17.43 | 173.25 | 1782.16 | 14.59 | -174.17 | 20.61 | 1.50 | 1902567.43 | 120913.35 | N 36 13 19.57 | W 107 32 6.68 |
| | 1900.00 | 18.93 | 173.25 | 1877.17 | 17.18 | -205.16 | 24.28 | 1.50 | 1902536.40 | 120916.60 | N 36 13 19.26 | W 107 32 6.64 |
| | 2000.00 | 20.43 | 173.25 | 1971.32 | 19.98 | -238.60 | 28.23 | 1.50 | 1902502.91 | 120920.12 | N 36 13 18.93 | W 107 32 6.59 |
| Hold 21° Tangent | 2038.21 | 21.00 | 173.25 | 2007.06 | 21.11 | -252.02 | 29.82 | 1.50 | 1902489.46 | 120921.53 | N 36 13 18.80 | W 107 32 6.57 |
| | 2100.00 | 21.00 | 173.25 | 2064.75 | 22.95 | -274.01 | 32.42 | 0.00 | 1902467.44 | 120923.84 | N 36 13 18.58 | W 107 32 6.54 |
| | 2200.00 | 21.00 | 173.25 | 2158.10 | 25.93 | -309.61 | 36.64 | 0.00 | 1902431.79 | 120927.58 | N 36 13 18.23 | W 107 32 6.49 |
| | 2300.00 | 21.00 | 173.25 | 2251.46 | 28.91 | -345.20 | 40.85 | 0.00 | 1902396.14 | 120931.32 | N 36 13 17.87 | W 107 32 6.44 |
| | 2400.00 | 21.00 | 173.25 | 2344.81 | 31.89 | -380.80 | 45.06 | 0.00 | 1902360.49 | 120935.06 | N 36 13 17.52 | W 107 32 6.39 |
| | 2500.00 | 21.00 | 173.25 | 2438.17 | 34.88 | -416.39 | 49.27 | 0.00 | 1902324.84 | 120938.79 | N 36 13 17.17 | W 107 32 6.33 |
| | 2600.00 | 21.00 | 173.25 | 2531.53 | 37.86 | -451.98 | 53.48 | 0.00 | 1902289.19 | 120942.53 | N 36 13 16.82 | W 107 32 6.28 |

| Comments | MD (ft) | Incl (°) | Azim True (°) | TVD (ft) | VSEC (ft) | NS (ft) | EW (ft) | DLS (°/100ft) | Northing (ftUS) | Easting (ftUS) | Latitude (N/S ° ' ") | Longitude (E/W ° ' ") |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2700.00 | 21.00 | 173.25 | 2624.88 | 40.84 | -487.58 | 57.69 | 0.00 | 1902253.55 | 120946.27 | N 36 13 16.47 | W 107 32 6.23 |
| | 2800.00 | 21.00 | 173.25 | 2718.24 | 43.82 | -523.17 | 61.91 | 0.00 | 1902217.90 | 120950.01 | N 36 13 16.11 | W 107 32 6.18 |
| | 2900.00 | 21.00 | 173.25 | 2811.59 | 46.80 | -558.76 | 66.12 | 0.00 | 1902182.25 | 120953.75 | N 36 13 15.76 | W 107 32 6.13 |
| | 3000.00 | 21.00 | 173.25 | 2904.95 | 49.78 | -594.36 | 70.33 | 0.00 | 1902146.60 | 120957.49 | N 36 13 15.41 | W 107 32 6.08 |
| | 3100.00 | 21.00 | 173.25 | 2998.31 | 52.76 | -629.95 | 74.54 | 0.00 | 1902110.95 | 120961.23 | N 36 13 15.06 | W 107 32 6.03 |
| | 3200.00 | 21.00 | 173.25 | 3091.66 | 55.74 | -665.55 | 78.75 | 0.00 | 1902075.30 | 120964.97 | N 36 13 14.71 | W 107 32 5.97 |
| | 3300.00 | 21.00 | 173.25 | 3185.02 | 58.72 | -701.14 | 82.96 | 0.00 | 1902039.65 | 120968.71 | N 36 13 14.35 | W 107 32 5.92 |
| | 3400.00 | 21.00 | 173.25 | 3278.37 | 61.71 | -736.73 | 87.18 | 0.00 | 1902004.01 | 120972.45 | N 36 13 14.00 | W 107 32 5.87 |
| | 3500.00 | 21.00 | 173.25 | 3371.73 | 64.69 | -772.33 | 91.39 | 0.00 | 1901968.36 | 120976.19 | N 36 13 13.65 | W 107 32 5.82 |
| | 3600.00 | 21.00 | 173.25 | 3465.09 | 67.67 | -807.92 | 95.60 | 0.00 | 1901932.71 | 120979.93 | N 36 13 13.30 | W 107 32 5.77 |
| | 3700.00 | 21.00 | 173.25 | 3558.44 | 70.65 | -843.51 | 99.81 | 0.00 | 1901897.06 | 120983.67 | N 36 13 12.95 | W 107 32 5.72 |
| Drop 1.5°/100' | 3756.23 | 21.00 | 173.25 | 3610.94 | 72.33 | -863.53 | 102.18 | 0.00 | 1901877.01 | 120985.77 | N 36 13 12.75 | W 107 32 5.69 |
| | 3800.00 | 20.35 | 173.25 | 3651.89 | 73.61 | -878.87 | 103.99 | 1.50 | 1901861.64 | 120987.39 | N 36 13 12.60 | W 107 32 5.67 |
| | 3900.00 | 18.85 | 173.25 | 3746.09 | 76.40 | -912.18 | 107.94 | 1.50 | 1901828.29 | 120990.89 | N 36 13 12.27 | W 107 32 5.62 |
| | 4000.00 | 17.35 | 173.25 | 3841.14 | 78.98 | -943.03 | 111.59 | 1.50 | 1901797.39 | 120994.13 | N 36 13 11.96 | W 107 32 5.57 |
| | 4100.00 | 15.85 | 173.25 | 3936.97 | 81.36 | -971.39 | 114.94 | 1.50 | 1901768.98 | 120997.11 | N 36 13 11.68 | W 107 32 5.53 |
| | 4200.00 | 14.35 | 173.25 | 4033.52 | 83.53 | -997.25 | 118.00 | 1.50 | 1901743.08 | 120999.82 | N 36 13 11.43 | W 107 32 5.50 |
| | 4300.00 | 12.85 | 173.25 | 4130.71 | 85.48 | -1020.60 | 120.76 | 1.50 | 1901719.70 | 121002.28 | N 36 13 11.20 | W 107 32 5.46 |
| | 4400.00 | 11.35 | 173.25 | 4228.49 | 87.22 | -1041.41 | 123.23 | 1.50 | 1901698.86 | 121004.46 | N 36 13 10.99 | W 107 32 5.43 |
| | 4500.00 | 9.85 | 173.25 | 4326.78 | 88.75 | -1059.67 | 125.39 | 1.50 | 1901680.57 | 121006.38 | N 36 13 10.81 | W 107 32 5.41 |
| | 4600.00 | 8.35 | 173.25 | 4425.52 | 90.07 | -1075.37 | 127.25 | 1.50 | 1901664.84 | 121008.03 | N 36 13 10.65 | W 107 32 5.38 |
| | 4700.00 | 6.85 | 173.25 | 4524.64 | 91.17 | -1088.50 | 128.80 | 1.50 | 1901651.70 | 121009.41 | N 36 13 10.52 | W 107 32 5.36 |
| | 4800.00 | 5.35 | 173.25 | 4624.07 | 92.05 | -1099.05 | 130.05 | 1.50 | 1901641.13 | 121010.52 | N 36 13 10.42 | W 107 32 5.35 |
| | 4900.00 | 3.85 | 173.25 | 4723.75 | 92.72 | -1107.00 | 130.99 | 1.50 | 1901633.16 | 121011.36 | N 36 13 10.34 | W 107 32 5.34 |
| | 5000.00 | 2.35 | 173.25 | 4823.60 | 93.17 | -1112.37 | 131.62 | 1.50 | 1901627.79 | 121011.92 | N 36 13 10.29 | W 107 32 5.33 |
| | 5100.00 | 0.85 | 173.25 | 4923.56 | 93.40 | -1115.14 | 131.95 | 1.50 | 1901625.02 | 121012.21 | N 36 13 10.26 | W 107 32 5.33 |
| | 5156.44 | 0.00 | 173.25 | 4980.00 | 93.43 | -1115.55 | 132.00 | 1.50 | 1901624.60 | 121012.25 | N 36 13 10.26 | W 107 32 5.33 |
| KOP 10°/100' | 5164.35 | 0.00 | 173.25 | 4987.91 | 93.43 | -1115.55 | 132.00 | 0.00 | 1901624.60 | 121012.25 | N 36 13 10.26 | W 107 32 5.33 |
| | 5200.00 | 3.56 | 271.38 | 5023.53 | 94.51 | -1115.52 | 130.89 | 10.00 | 1901624.64 | 121011.15 | N 36 13 10.26 | W 107 32 5.34 |
| | 5300.00 | 13.56 | 271.38 | 5122.29 | 109.01 | -1115.17 | 116.03 | 10.00 | 1901625.20 | 120996.29 | N 36 13 10.26 | W 107 32 5.52 |
| | 5400.00 | 23.55 | 271.38 | 5216.97 | 139.99 | -1114.40 | 84.25 | 10.00 | 1901626.39 | 120964.52 | N 36 13 10.27 | W 107 32 5.91 |
| | 5500.00 | 33.55 | 271.38 | 5304.70 | 186.52 | -1113.25 | 36.53 | 10.00 | 1901628.17 | 120916.82 | N 36 13 10.28 | W 107 32 6.49 |
| | 5600.00 | 43.55 | 271.38 | 5382.81 | 247.19 | -1111.75 | -25.69 | 10.00 | 1901630.49 | 120854.62 | N 36 13 10.29 | W 107 32 7.25 |
| | 5700.00 | 53.54 | 271.38 | 5448.93 | 320.15 | -1109.95 | -100.52 | 10.00 | 1901633.28 | 120779.81 | N 36 13 10.31 | W 107 32 8.16 |
| | 5800.00 | 63.54 | 271.38 | 5501.05 | 403.20 | -1107.90 | -185.69 | 10.00 | 1901636.46 | 120694.68 | N 36 13 10.33 | W 107 32 9.20 |
| | 5900.00 | 73.53 | 271.38 | 5537.60 | 493.80 | -1105.67 | -278.61 | 10.00 | 1901639.93 | 120601.79 | N 36 13 10.35 | W 107 32 10.34 |
| | 6000.00 | 83.53 | 271.38 | 5557.46 | 589.21 | -1103.31 | -376.46 | 10.00 | 1901643.58 | 120503.97 | N 36 13 10.38 | W 107 32 11.53 |
| Chaco #175H PP | 6075.86 | 91.11 | 271.38 | 5561.00 | 663.02 | -1101.49 | -452.16 | 10.00 | 1901646.41 | 120428.30 | N 36 13 10.40 | W 107 32 12.45 |
| | 6100.00 | 91.11 | 271.38 | 5560.53 | 686.54 | -1100.91 | -476.29 | 0.00 | 1901647.31 | 120404.18 | N 36 13 10.40 | W 107 32 12.75 |
| | 6200.00 | 91.11 | 271.38 | 5558.59 | 784.00 | -1098.50 | -576.24 | 0.00 | 1901651.04 | 120304.26 | N 36 13 10.42 | W 107 32 13.97 |
| | 6300.00 | 91.11 | 271.38 | 5556.65 | 881.46 | -1096.09 | -676.19 | 0.00 | 1901654.77 | 120204.34 | N 36 13 10.45 | W 107 32 15.19 |
| | 6400.00 | 91.11 | 271.38 | 5554.71 | 978.92 | -1093.69 | -776.14 | 0.00 | 1901658.50 | 120104.42 | N 36 13 10.47 | W 107 32 16.41 |
| | 6500.00 | 91.11 | 271.38 | 5552.77 | 1076.38 | -1091.28 | -876.10 | 0.00 | 1901662.24 | 120004.51 | N 36 13 10.50 | W 107 32 17.63 |
| | 6600.00 | 91.11 | 271.38 | 5550.83 | 1173.84 | -1088.87 | -976.05 | 0.00 | 1901665.97 | 119904.59 | N 36 13 10.52 | W 107 32 18.85 |
| | 6700.00 | 91.11 | 271.38 | 5548.89 | 1271.29 | -1086.47 | -1076.00 | 0.00 | 1901669.70 | 119804.67 | N 36 13 10.54 | W 107 32 20.07 |
| | 6800.00 | 91.11 | 271.38 | 5546.94 | 1368.75 | -1084.06 | -1175.95 | 0.00 | 1901673.43 | 119704.75 | N 36 13 10.57 | W 107 32 21.29 |
| | 6900.00 | 91.11 | 271.38 | 5545.00 | 1466.21 | -1081.65 | -1275.90 | 0.00 | 1901677.16 | 119604.83 | N 36 13 10.59 | W 107 32 22.51 |
| | 7000.00 | 91.11 | 271.38 | 5543.06 | 1563.67 | -1079.25 | -1375.86 | 0.00 | 1901680.90 | 119504.92 | N 36 13 10.62 | W 107 32 23.73 |
| | 7100.00 | 91.11 | 271.38 | 5541.12 | 1661.13 | -1076.84 | -1475.81 | 0.00 | 1901684.63 | 119405.00 | N 36 13 10.64 | W 107 32 24.95 |
| | 7200.00 | 91.11 | 271.38 | 5539.18 | 1758.58 | -1074.43 | -1575.76 | 0.00 | 1901688.36 | 119305.08 | N 36 13 10.66 | W 107 32 26.17 |
| | 7300.00 | 91.11 | 271.38 | 5537.24 | 1856.04 | -1072.02 | -1675.71 | 0.00 | 1901692.09 | 119205.16 | N 36 13 10.69 | W 107 32 27.39 |
| | 7400.00 | 91.11 | 271.38 | 5535.30 | 1953.50 | -1069.62 | -1775.67 | 0.00 | 1901695.83 | 119105.25 | N 36 13 10.71 | W 107 32 28.61 |
| | 7500.00 | 91.11 | 271.38 | 5533.36 | 2050.96 | -1067.21 | -1875.62 | 0.00 | 1901699.56 | 119005.33 | N 36 13 10.73 | W 107 32 29.83 |
| | 7600.00 | 91.11 | 271.38 | 5531.42 | 2148.42 | -1064.80 | -1975.57 | 0.00 | 1901703.29 | 118905.41 | N 36 13 10.76 | W 107 32 31.04 |
| | 7700.00 | 91.11 | 271.38 | 5529.48 | 2245.87 | -1062.39 | -2075.52 | 0.00 | 1901707.03 | 118805.49 | N 36 13 10.78 | W 107 32 32.26 |
| | 7800.00 | 91.11 | 271.38 | 5527.53 | 2343.33 | -1059.98 | -2175.47 | 0.00 | 1901710.76 | 118705.58 | N 36 13 10.81 | W 107 32 33.48 |
| | 7900.00 | 91.11 | 271.38 | 5525.59 | 2440.79 | -1057.57 | -2275.43 | 0.00 | 1901714.49 | 118605.66 | N 36 13 10.83 | W 107 32 34.70 |
| | 8000.00 | 91.11 | 271.38 | 5523.65 | 2538.25 | -1055.16 | -2375.38 | 0.00 | 1901718.23 | 118505.74 | N 36 13 10.85 | W 107 32 35.92 |
| | 8100.00 | 91.11 | 271.38 | 5521.71 | 2635.71 | -1052.76 | -2475.33 | 0.00 | 1901721.96 | 118405.82 | N 36 13 10.88 | W 107 32 37.14 |
| | 8200.00 | 91.11 | 271.38 | 5519.77 | 2733.16 | -1050.35 | -2575.28 | 0.00 | 1901725.70 | 118305.90 | N 36 13 10.90 | W 107 32 38.36 |

| Comments | MD (ft) | Incl (°) | Azim True (°) | TVD (ft) | VSEC (ft) | NS (ft) | EW (ft) | DLS (°/100ft) | Northing (ftUS) | Easting (ftUS) | Latitude (N/S ° ' ") | Longitude (E/W ° ' ") |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 8300.00 | 91.11 | 271.38 | 5517.83 | 2830.62 | -1047.94 | -2675.23 | 0.00 | 1901729.43 | 118205.99 | N 36 13 10.92 | W 107 32 39.58 |
| | 8400.00 | 91.11 | 271.38 | 5515.89 | 2928.08 | -1045.53 | -2775.19 | 0.00 | 1901733.17 | 118106.07 | N 36 13 10.95 | W 107 32 40.80 |
| | 8500.00 | 91.11 | 271.38 | 5513.95 | 3025.54 | -1043.12 | -2875.14 | 0.00 | 1901736.90 | 118006.15 | N 36 13 10.97 | W 107 32 42.02 |
| | 8600.00 | 91.11 | 271.38 | 5512.01 | 3122.99 | -1040.71 | -2975.09 | 0.00 | 1901740.63 | 117906.23 | N 36 13 10.99 | W 107 32 43.24 |
| | 8700.00 | 91.11 | 271.38 | 5510.07 | 3220.45 | -1038.30 | -3075.04 | 0.00 | 1901744.37 | 117806.32 | N 36 13 11.02 | W 107 32 44.46 |
| | 8800.00 | 91.11 | 271.38 | 5508.13 | 3317.91 | -1035.89 | -3174.99 | 0.00 | 1901748.10 | 117706.40 | N 36 13 11.04 | W 107 32 45.68 |
| | 8900.00 | 91.11 | 271.38 | 5506.18 | 3415.37 | -1033.48 | -3274.95 | 0.00 | 1901751.84 | 117606.48 | N 36 13 11.07 | W 107 32 46.90 |
| | 9000.00 | 91.11 | 271.38 | 5504.24 | 3512.82 | -1031.07 | -3374.90 | 0.00 | 1901755.58 | 117506.56 | N 36 13 11.09 | W 107 32 48.12 |
| | 9100.00 | 91.11 | 271.38 | 5502.30 | 3610.28 | -1028.66 | -3474.85 | 0.00 | 1901759.31 | 117406.65 | N 36 13 11.11 | W 107 32 49.34 |
| | 9200.00 | 91.11 | 271.38 | 5500.36 | 3707.74 | -1026.25 | -3574.80 | 0.00 | 1901763.05 | 117306.73 | N 36 13 11.14 | W 107 32 50.56 |
| | 9300.00 | 91.11 | 271.38 | 5498.42 | 3805.20 | -1023.84 | -3674.76 | 0.00 | 1901766.78 | 117206.81 | N 36 13 11.16 | W 107 32 51.78 |
| | 9400.00 | 91.11 | 271.38 | 5496.48 | 3902.65 | -1021.43 | -3774.71 | 0.00 | 1901770.52 | 117106.89 | N 36 13 11.18 | W 107 32 53.00 |
| | 9500.00 | 91.11 | 271.38 | 5494.54 | 4000.11 | -1019.01 | -3874.66 | 0.00 | 1901774.25 | 117006.98 | N 36 13 11.21 | W 107 32 54.22 |
| | 9600.00 | 91.11 | 271.38 | 5492.60 | 4097.57 | -1016.60 | -3974.61 | 0.00 | 1901777.99 | 116907.06 | N 36 13 11.23 | W 107 32 55.44 |
| | 9700.00 | 91.11 | 271.38 | 5490.66 | 4195.02 | -1014.19 | -4074.56 | 0.00 | 1901781.73 | 116807.14 | N 36 13 11.26 | W 107 32 56.66 |
| | 9800.00 | 91.11 | 271.38 | 5488.72 | 4292.48 | -1011.78 | -4174.52 | 0.00 | 1901785.46 | 116707.22 | N 36 13 11.28 | W 107 32 57.88 |
| | 9900.00 | 91.11 | 271.38 | 5486.77 | 4389.94 | -1009.37 | -4274.47 | 0.00 | 1901789.20 | 116607.31 | N 36 13 11.30 | W 107 32 59.10 |
| | 10000.00 | 91.11 | 271.38 | 5484.83 | 4487.40 | -1006.96 | -4374.42 | 0.00 | 1901792.94 | 116507.39 | N 36 13 11.33 | W 107 33 0.32 |
| | 10100.00 | 91.11 | 271.38 | 5482.89 | 4584.85 | -1004.55 | -4474.37 | 0.00 | 1901796.67 | 116407.47 | N 36 13 11.35 | W 107 33 1.54 |
| | 10200.00 | 91.11 | 271.38 | 5480.95 | 4682.31 | -1002.13 | -4574.32 | 0.00 | 1901800.41 | 116307.55 | N 36 13 11.37 | W 107 33 2.76 |
| | 10300.00 | 91.11 | 271.38 | 5479.01 | 4779.77 | -999.72 | -4674.28 | 0.00 | 1901804.15 | 116207.64 | N 36 13 11.40 | W 107 33 3.98 |
| | 10400.00 | 91.11 | 271.38 | 5477.07 | 4877.22 | -997.31 | -4774.23 | 0.00 | 1901807.89 | 116107.72 | N 36 13 11.42 | W 107 33 5.20 |
| | 10500.00 | 91.11 | 271.38 | 5475.13 | 4974.68 | -994.90 | -4874.18 | 0.00 | 1901811.62 | 116007.80 | N 36 13 11.45 | W 107 33 6.42 |
| Chaco #175 PBHL | 10506.63 | 91.11 | 271.38 | 5475.00 | 4981.15 | -994.74 | -4880.81 | 0.00 | 1901811.87 | 116001.17 | N 36 13 11.45 | W 107 33 6.50 |

**Survey Type:** Non-Def Plan

**Survey Error Model:** ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma

**Survey Program:**

| Description | MD From (ft) | MD To (ft) | EOU Freq (ft) | | Hole Size (in) | Casing Diameter (in) | Survey Tool Type | Borehole / Survey |
|---|---|---|---|---|---|---|---|---|
| | 0.000 | 14.000 | | 1/100.000 | 30.000 | 30.000 | SLB_MWD-STD-Depth Only | Original Borehole / WPX Chaco 2307-13L #175H Rev0 JBE |
| | 14.000 | 10506.635 | | 1/100.000 | 30.000 | 30.000 | SLB_MWD-STD | Original Borehole / WPX Chaco 2307-13L #175H Rev0 JBE |

# 1. INTRODUCTION

WPX Energy Production, LLC (WPX) is providing this Surface Use Plan of Operations (SUPO) to the Bureau of Land Management – Farmington Field Office (BLM-FFO) as part of their Chaco 2307-13L Number (No.) 175H Application for Permit to Drill (APD), related to Onshore Oil and Gas Order No. 1.

In addition to the best management practices (BMPs) provided below and in the Chaco 2307-13L No. 175H Surface Reclamation Plan (Reclamation Plan; Appendix A), general Conditions of Approval will be followed, if any are attached to the APD.

# 2. PROJECT LOCATION AND EXISTING ROADS

The proposed WPX Chaco 2307-13L No. 175H well is located approximately 50 road miles south-southeast of the town of Bloomfield, New Mexico. To access the proposed well from the town of Bloomfield, head south from the United States (U.S.) Highway 550-U.S. Highway 64 intersection for approximately 48.8 miles, turn right onto an unnamed road for approximately 0.7 mile, and turn left to follow an unnamed, existing road for approximately 0.3 mile until reaching the proposed access road. The access route to the proposed project location from the U.S. Highway 550-unnamed road intersection is depicted on Figure 1 (Appendix B), and on the construction plats provided in the APD permit package.

For existing county roads or roads that are considered collector roads, WPX will defer to the county or Roads Committee, when formed, for maintenance determinations. During the December 18, 2012, pre-disturbance site visit, WPX was not allocated any existing roads for upgrading or maintenance. WPX will upgrade existing non-County Roads leading to the project site, if required by the BLM-FFO. The road(s) will be upgraded following *The Gold Book: Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development* (*Gold Book*) and BLM Handbook 9113.

# 3. NEW OR RECONSTRUCTED ACCESS ROADS

An approximately 572-foot-long access road will be needed to access the proposed well site. There is no pre-existing disturbance within the proposed access road corridor. The proposed access road is depicted on Figures 1 and 2 in Appendix B, and on the construction plats provided in the APD permit package.

The proposed access road (a resource road) will travel east-southeastward from an existing oil and gas well pad (Elm Ridge's Lybrook South No. 003) and will enter the proposed well pad at the western side of the pad. The maximum grade of the proposed access road will be 8 percent. The all-weather driving surface will be 14 feet wide with turnouts, as necessary, and will be crowned with a surface material (sandstone), if economically available. The proposed access road will be built up 18 to 24 inches and designed following the Basic Design Requirements for Constructed Roads from the *Gold Book* and BLM Handbook 9113. Topsoil removed from the proposed access road will be used on cut slopes and bar ditches.

The placement of water diversions, such as culverts and silt traps, along the proposed access road were not determined during the December 18, 2012, pre-disturbance site visit. Although no drainage issues are anticipated along the proposed access road, 24-inch-diameter culverts will be installed beneath the proposed access road, where needed.

WPX will maintain the proposed access road, as outlined in their Road Maintenance Plan (Appendix C).

No construction or routine maintenance activities will be performed during periods when the soil is too wet to adequately support construction equipment. If equipment creates ruts deeper than 6 inches, the soil will be deemed too wet for construction or maintenance.

# 3000 PSI BOP Schematic