

State of New Mexico  
Energy, Minerals and Natural Resources Department

Susana Martinez  
Governor

David Martin  
Cabinet Secretary

Brett F. Woods, Ph.D.  
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: 2-4-15

Well information;

Operator WPX, Well Name and Number Chaco 2308 08A #285H

API# 30-045-35643, Section 8, Township 23 N/S, Range 08 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
- ☒ 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.

Charles P.  
NMOCD Approved by Signature

3-6-15  
Date kc

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FEB 04 2015

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No. N0-G-1401-1868
6. If Indian, Allottee or Tribe Name Indian Allotment
7. If Unit or CA Agreement, Name and No.
8. Lease Name and Well No. Chaco 2308-08A #285H
9. API Well No. 30-045-35643
10. Field and Pool, or Exploratory Nageezi Gallup / Basin Mancos
11. Sec., T., R., M., or Blk. and Survey or Area SHL: Section 8, T23N, R8W BHL: Section 5, T23N, R8W
12. County or Parish San Juan County
13. State NM

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> 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) 333-1849	
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface: 328' FNL & 334' FEL, sec 8, T23N, R8W At proposed prod. zone: 380' FSL & 230' FWL, sec 5, T23N, R8W		
14. Distance in miles and direction from nearest town or post office* approximately 4 miles east of Lybrook, New Mexico		
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 328'	16. No. of Acres in lease 160	17. Spacing Unit dedicated to this well 160 acres
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 20'	19. Proposed Depth 10,458 MD / 5,143 TVD	20. BLM/BIA Bond No. on file B001576
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6846' GR	22. Approximate date work will start* March 15, 2015	23. Estimated duration 1 month
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.  | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).    |
| 2. A Drilling Plan.   | 5. Operator certification.   |
| 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). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature 	Name (Printed/Typed) Andrea Felix	Date 2-4-15
Title Regulatory Specialist Senior		
Approved by (Signature) 	Name (Printed/Typed) AFM	Date 2/25/15
Title 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 Nageezi Gallup / Basin Mancos pool at the above described location in accordance with the attached drilling and surface use plans.

The well pad surface is on lease under jurisdiction of BLM FFO and is co-located with the existing Warner-Caldwell #1A.

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

No new access is needed.

A Sundry has been submitted to add an additional 2 inch steel pipeline and 4 inch steel pipeline within the existing well connect corridor and a request to amend existing ROW # NMNM130583 has also been submitted. No new surface disturbance will be within original footprint.

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

**ACTION DOES NOT RELIEVE THE LESSEE AND  
OPERATOR FROM OBTAINING ANY OTHER  
AUTHORIZATION REQUIRED FOR OPERATIONS  
ON FEDERAL AND INDIAN LANDS**

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

NMOCDA

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

Form C-102  
Revised August 1, 2011

Submit one copy to  
Appropriate District Office

OIL CONSERVATION DIVISION

1220 South St. Francis Drive  
Santa Fe, NM 87505

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number <b>30.045.35643</b>		*Pool Code 47540 / 97232	*Pool Name NAGEEZI GALLUP / BASIN MANCOS
*Property Code <b>314228</b>	*Property Name CHACO 230B-08A		*Well Number 285H
*GRID No. 120782	*Operator Name WPX ENERGY PRODUCTION, LLC		*Elevation 6846'

<sup>10</sup> Surface Location

UL or lot no.	Section	Township	Range	Lot 10n	Feet from the	North/South line	Feet from the	East/West line	County
A	8	23N	8W		328	NORTH	334	EAST	SAN JUAN

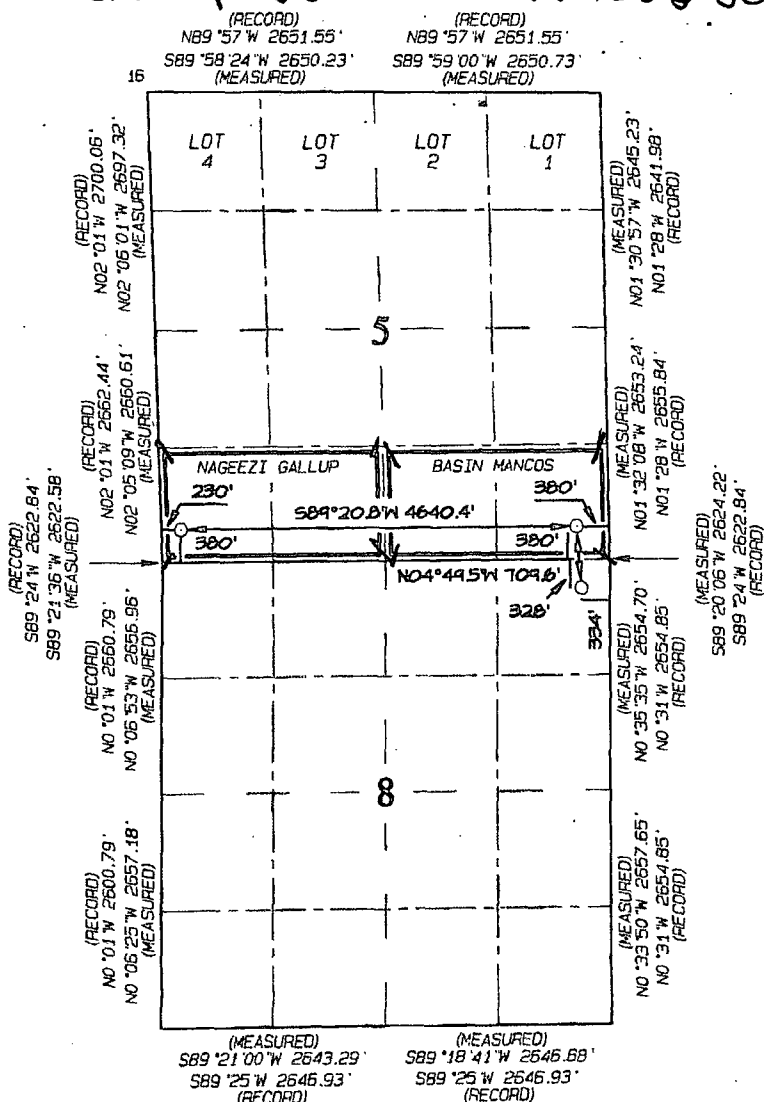
<sup>11</sup> Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot 10n	Feet from the	North/South line	Feet from the	East/West line	County
M	5	23N	8W		380	SOUTH	230	WEST	SAN JUAN

<sup>12</sup> Dedicated Acres 160.00 Acres S/2 S/2 - Section 5	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.
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Gallup 80 acres Mancos 80 acres

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 230' FWL  
SECTION 5, T23N, R8W  
LAT: 36.249932°N  
LONG: 107.712216°W  
DATUM: NAD1927

LAT: 36.249945°N  
LONG: 107.712829°W  
DATUM: NAD1983

RSI TOOL  
380' FSL 331' FWL  
SECTION 5, T23N, R8W  
LAT: 36.249935°N  
LONG: 107.711874°W  
DATUM: NAD1927

LAT: 36.249947°N  
LONG: 107.712486°W  
DATUM: NAD1983

POINT-OF-ENTRY  
380' FSL 380' FEL  
SECTION 5, T23N, R8W  
LAT: 36.250050°N  
LONG: 107.695480°W  
DATUM: NAD1927

LAT: 36.250073°N  
LONG: 107.697091°W  
DATUM: NAD1983

SURFACE LOCATION  
328' FSL 334' FEL  
SECTION 8, T23N, R8W  
LAT: 36.248117°N  
LONG: 107.696281°W  
DATUM: NAD1927

LAT: 36.248130°N  
LONG: 107.696892°W  
DATUM: NAD1983

<sup>17</sup> 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: *Andrea Felix* Date: 2-4-2015

Printed Name: Andrea Felix  
andrea.felix@wpxenenergy.com

E-mail Address

<sup>18</sup> 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: JANUARY 7, 2015  
Survey Date: DECEMBER 4, 2014

Signature and Seal of Professional Surveyor



JASON C. EDWARDS

Certificate Number 15269

# WPXENERGY.

## WPX ENERGY

### Operations Plan

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

**DATE:** **FIELD:** Nageezi Gallup / Basin Mancos  
**WELL NAME:** Chaco 2308-08A 285H **SURFACE:** BLM  
**SH Location:** NENE Section 8 T23N R8W. **ELEVATION:** 6846' GR  
**BH Location:** SWSW Section 5 T23N R8W  
San Juan Co., NM **MINERALS:** BLM

**MEASURED DEPTH:** 10,458'

I. **GEOLOGY:** Surface formation – Nacimiento

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

Name	MD	TVD	Name	MD	TVD
Ojo Alamo	1007	1005	Point Lookout	4078	3955
Kirtland	1195	1190	Mancos	4274	4147
Picture Cliffs	1589	1569	Kickoff Point	4738	4608
Lewis	1709	1684	Top Target	5495	5202
Chacra	1980	1943	Landing Point	5816	5275
Cliff House	3111	3027	Base Target	5816	5275
Menefee	3164	3077			
			TD	10458	5143

- 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 3/4" 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 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.**

**III. MATERIALS****A. CASING PROGRAM:**

CASING TYPE	OH SIZE (IN)	DEPTH (MD) (FT)	CASING SIZE (IN)	WEIGHT(LB)	GRADE
Surface	12.25"	400'+	9.625"	36#	J-55
Intermediate	8.75"	5,816	7"	23#	K-55
Prod. Liner	6.125"	5666' - 10458'	4-1/2"	11.6#	N-80
Tie-Back String	N/A	Surf. - 5666'	4-1/2"	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 ft., 2,500 ft., 2,300ft., 2,000ft., 1,500 ft., and 1,000 ft.
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.
4. TIE-BACK CASING: None

**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). TOC at Surface.
2. INTERMEDIATE: 20 bbl (112 cu-ft) Mud Flush III spacer + Lead: +/- 700 sx Foamed 50/50 Poz Cement. 13.0 ppg + 0.1% Halad 766 + 0.2% Versaset + 1.5% Chem-Foamer 760 (Yield :1.43 cu-ft/ sk. / Vol: 1216 cu-ft / 216.5 Bbls.) + TAIL: 100 sx 13.5 #/gal. + 0.2% Versaset + 0.15% HALAD-766 (Yield: 1.28 cu-ft / sk / Vol: 128 cu-ft / 22.8 Bbls.). + Fresh Water Displacement (1,362 cu-ft / +/- 242 Bbls) + 100 sx Top-Out Cement Premium: Yield: (1.17 cu-ft/ sk / (Vol: 117 cu-ft / 20.8 Bbls). WOC 12 hrs. Test Casing to 1500 PSI for 30 minutes. Total Cement Volume: (900 sx / 1461 cu-ft / 260 bbls). Mix with +/- 84,000 SCF Nitrogen. TOC at surface.
3. PRODUCTION LINER: **STAGE 1**: 10 bbl (56 cu-ft) Fr Water Spacer. **STAGE 2**: 40 bbl 9.5 ppg (224.6 cu-ft) Tuned Spacer III + 0.5 gal/bbl Musol + 38.75 ppb Barite + 0.5 gal/bbl SEM-7. **STAGE 3**: 10 bbl Fr Water Spacer. **STAGE 4: Lead Cement**: 50 / 50 Poz Premium + 0.2% Versaset + 0.2% Halad -766, Yield 1.43 cu ft/sk, 13.0 ppg, (10 sx / 14.3 cu ft. / 2.5 bbls). **STAGE 5**: 200 sx: Foamed Lead Cement: 50 / 50 Poz Standard + 0.2% Versaset + 0.2% HALAD-766 + 1.5% Chem-Foamer 760. Yield 1.97 cu-ft/sk. 13.0 ppg (200 sx / 394 cu-ft. / 70.2 bbls.). **STAGE 6**: Tail Cement : 100 sx. 50/50 Poz Standard + 0.2% Versaset + 0.05% HALAD-766 + .05% SA-1015, Weight: 13.5 ppg ( 100 sx / Yield 1.28 cu ft/sk. / 128 cu ft. / 22.8 bbls) **STAGE 7**: Displace w/ +/- 137 bbl Fr Water. Total Cement ( 563.3 cu ft / 95.5 bbls). Mix Foamed Cement w/ +/- 75,000 SCF Nitrogen. Est. TOC +/- 5,644 ft.

#### IV. COMPLETION

##### A. CBL

1. Run CCL for perforating.

##### B. 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.

##### 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 and flowback lateral.

##### D. 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.-

- Although this horizontal well will be 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.

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#### NOTE:

Installation of RSI sleeves at Toe of Lateral.

#### **Proposed Operations:**

A 4-1/2" 11.6# N-80 Liner will be run to TD and landed +/- 150 ft. into the 7" 23# K-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).

The Drilling Rig will be rigged down at this point and Completion operations will begin.

A 4-1/2" 11.6# N-80 tie-back string with seal assembly will be run and stung into the PBR of the liner hanger, tested to 1500 PSI and hung off at the surface. After Stimulation and Testing operations are complete the 4-1/2" tie-back string will be removed from the well.



## **SAN JUAN BASIN**

**SJ 08-23N-08W**

**Chaco 2308-08A**

**Chaco 2308-08A #285H**

**Wellbore #1**

**Plan: Design #1 16Dec14 kjs**

## **Standard Planning Report - Geographic**

**17 December, 2014**

**Planning Report - Geographic**

<b>Database:</b>	COMPASS-SANJUAN	<b>Local Co-ordinate Reference:</b>	Well Chaco 2308-08A #285H
<b>Company:</b>	SAN JUAN BASIN	<b>TVD Reference:</b>	WELL @ 6860.00usft (Original Well Elev)
<b>Project:</b>	SJ 08-23N-08W	<b>MD Reference:</b>	WELL @ 6860.00usft (Original Well Elev)
<b>Site:</b>	Chaco 2308-08A	<b>North Reference:</b>	True
<b>Well:</b>	Chaco 2308-08A #285H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 16Dec14 kjs		

<b>Project</b>	SJ 08-23N-08W, San Juan County, NM		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	New Mexico West 3003		

<b>Site</b>	Chaco 2308-08A		
<b>Site Position:</b>	<b>Northing:</b>	1,909,585.05 usft	<b>Latitude:</b> 36.2481170
<b>From:</b> Map	<b>Easting:</b>	540,411.96 usft	<b>Longitude:</b> -107.6962811
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b> 13.200 in	<b>Grid Convergence:</b> 0.08 °

<b>Well</b>	Chaco 2308-08A #285H		
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b> 1,909,585.05 usft
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b> 540,411.96 usft
			<b>Latitude:</b> 36.2481170
			<b>Longitude:</b> -107.6962811
<b>Position Uncertainty</b>	0.00 usft	<b>Wellhead Elevation:</b> 0.00 usft	<b>Ground Level:</b> 6,846.00 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	12/16/2014	9.38	62.97	50,112

<b>Design</b>	Design #1 16Dec14 kjs			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	269.43

<b>Plan Sections</b>										
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	
550.00	0.00	0.00	550.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,384.14	16.68	42.21	1,372.41	89.31	81.01	2.00	2.00	0.00	42.21	
3,904.04	16.68	42.21	3,786.24	625.12	567.04	0.00	0.00	0.00	0.00	
4,738.18	0.00	0.00	4,608.64	714.43	648.05	2.00	-2.00	0.00	180.00	
5,404.85	60.00	269.43	5,159.97	711.26	329.76	9.00	9.00	0.00	269.43	
5,464.85	60.00	269.43	5,189.97	710.75	277.80	0.00	0.00	0.00	0.00	
5,816.28	91.63	269.43	5,275.00	707.40	-58.60	9.00	9.00	0.00	0.00	
10,458.43	91.63	269.43	5,143.00	661.14	-4,698.64	0.00	0.00	0.00	0.00	TD / PBHL Chaco 285



## Planning Report - Geographic

Database: COMPASS-SANJUAN  
 Company: SAN JUAN BASIN  
 Project: SJ 08-23N-08W  
 Site: Chaco 2308-08A  
 Well: Chaco 2308-08A #285H  
 Wellbore: Wellbore #1  
 Design: Design #1 16Dec14 kjs

Local Co-ordinate Reference: Well Chaco 2308-08A #285H  
 TVD Reference: WELL @ 6860.00usft (Original Well Elev)  
 MD Reference: WELL @ 6860.00usft (Original Well Elev)  
 North Reference: True  
 Survey Calculation Method: Minimum Curvature

### Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	1,909,585.05	540,411.96	36.2481170	-107.6962811
200.00	0.00	0.00	200.00	0.00	0.00	1,909,585.05	540,411.96	36.2481170	-107.6962811
400.00	0.00	0.00	400.00	0.00	0.00	1,909,585.05	540,411.96	36.2481170	-107.6962811
550.00	0.00	0.00	550.00	0.00	0.00	1,909,585.05	540,411.96	36.2481170	-107.6962811
<b>Start Build 2.00</b>									
600.00	1.00	42.21	600.00	0.32	0.29	1,909,585.38	540,412.25	36.2481179	-107.6962801
800.00	5.00	42.21	799.68	8.07	7.32	1,909,593.14	540,419.27	36.2481392	-107.6962562
1,000.00	9.00	42.21	998.15	26.12	23.70	1,909,611.21	540,435.62	36.2481888	-107.6962007
1,200.00	13.00	42.21	1,194.44	54.38	49.33	1,909,639.51	540,461.22	36.2482664	-107.6961138
1,384.14	16.68	42.21	1,372.41	89.31	81.01	1,909,674.48	540,492.85	36.2483623	-107.6960063
<b>Hold 16.68° Inc, 42.21° Az</b>									
1,400.00	16.68	42.21	1,387.60	92.69	84.07	1,909,677.86	540,495.90	36.2483716	-107.6959959
1,600.00	16.68	42.21	1,579.18	135.21	122.65	1,909,720.44	540,534.42	36.2484884	-107.6958651
1,800.00	16.68	42.21	1,770.76	177.74	161.22	1,909,763.02	540,572.93	36.2486053	-107.6957343
2,000.00	16.68	42.21	1,962.34	220.26	199.80	1,909,805.60	540,611.45	36.2487221	-107.6956035
2,200.00	16.68	42.21	2,153.92	262.79	238.37	1,909,848.18	540,649.96	36.2488389	-107.6954726
2,400.00	16.68	42.21	2,345.50	305.31	276.95	1,909,890.76	540,688.48	36.2489557	-107.6953418
2,600.00	16.68	42.21	2,537.09	347.84	315.52	1,909,933.34	540,726.99	36.2490725	-107.6952110
2,800.00	16.68	42.21	2,728.67	390.37	354.10	1,909,975.92	540,765.51	36.2491894	-107.6950802
3,000.00	16.68	42.21	2,920.25	432.89	392.67	1,910,018.50	540,804.02	36.2493062	-107.6949493
3,200.00	16.68	42.21	3,111.83	475.42	431.25	1,910,061.08	540,842.53	36.2494230	-107.6948185
3,400.00	16.68	42.21	3,303.41	517.94	469.82	1,910,103.66	540,881.05	36.2495398	-107.6946877
3,600.00	16.68	42.21	3,494.99	560.47	508.39	1,910,146.24	540,919.56	36.2496567	-107.6945569
3,800.00	16.68	42.21	3,686.58	603.00	546.97	1,910,188.82	540,958.08	36.2497735	-107.6944260
3,904.04	16.68	42.21	3,786.24	625.12	567.04	1,910,210.97	540,978.11	36.2498343	-107.6943580
<b>Start Drop -2.00</b>									
4,000.00	14.76	42.21	3,878.60	644.38	584.51	1,910,230.26	540,995.56	36.2498872	-107.6942987
4,200.00	10.76	42.21	4,073.62	677.10	614.19	1,910,263.02	541,025.19	36.2499771	-107.6941981
4,400.00	6.76	42.21	4,271.25	699.66	634.65	1,910,285.61	541,045.63	36.2500390	-107.6941286
4,600.00	2.76	42.21	4,470.51	711.96	645.81	1,910,297.93	541,056.77	36.2500728	-107.6940908
4,738.18	0.00	0.00	4,608.64	714.43	648.05	1,910,300.40	541,059.00	36.2500796	-107.6940832
<b>KOP 9°/100</b>									
4,800.00	5.56	269.43	4,670.36	714.40	645.05	1,910,300.36	541,056.00	36.2500795	-107.6940934
5,000.00	23.56	269.43	4,863.14	713.90	594.97	1,910,299.80	541,005.92	36.2500782	-107.6942632
5,200.00	41.56	269.43	5,031.01	712.84	487.77	1,910,298.58	540,898.72	36.2500752	-107.6946268
5,400.00	59.56	269.43	5,157.53	711.31	333.94	1,910,296.83	540,744.90	36.2500710	-107.6951485
5,404.85	60.00	269.43	5,159.97	711.26	329.76	1,910,296.78	540,740.71	36.2500709	-107.6951627
<b>Hold 60° Inc for 60°</b>									
5,464.85	60.00	269.43	5,189.97	710.75	277.80	1,910,296.19	540,688.75	36.2500695	-107.6953389
<b>Begin 9°/100</b>									
5,600.00	72.16	269.43	5,244.66	709.52	154.49	1,910,294.79	540,565.45	36.2500661	-107.6957571
5,800.00	90.16	269.43	5,275.26	707.56	-42.32	1,910,292.55	540,368.64	36.2500608	-107.6964246
5,816.28	91.63	269.43	5,275.00	707.40	-58.60	1,910,292.37	540,352.36	36.2500603	-107.6964798
<b>Landing Pt 91.63° Inc, 269.43° Az</b>									
6,000.00	91.63	269.43	5,269.78	705.57	-242.23	1,910,290.27	540,168.73	36.2500553	-107.6971026
6,200.00	91.63	269.43	5,264.09	703.57	-442.14	1,910,288.00	539,968.83	36.2500498	-107.6977806
6,400.00	91.63	269.43	5,258.40	701.58	-642.05	1,910,285.72	539,768.92	36.2500443	-107.6984585
6,600.00	91.63	269.43	5,252.72	699.59	-841.96	1,910,283.45	539,569.01	36.2500388	-107.6991365
6,800.00	91.63	269.43	5,247.03	697.59	-1,041.87	1,910,281.17	539,369.11	36.2500333	-107.6998145
7,000.00	91.63	269.43	5,241.34	695.60	-1,241.78	1,910,278.90	539,169.20	36.2500278	-107.7004925
7,200.00	91.63	269.43	5,235.66	693.61	-1,441.69	1,910,276.62	538,969.30	36.2500223	-107.7011705
7,400.00	91.63	269.43	5,229.97	691.61	-1,641.60	1,910,274.34	538,769.39	36.2500168	-107.7018485
7,600.00	91.63	269.43	5,224.28	689.62	-1,841.50	1,910,272.07	538,569.48	36.2500113	-107.7025264
7,800.00	91.63	269.43	5,218.59	687.63	-2,041.41	1,910,269.79	538,369.58	36.2500058	-107.7032044

**Planning Report - Geographic**

**Database:** COMPASS-SANJUAN  
**Company:** SAN JUAN BASIN  
**Project:** SJ 08-23N-08W  
**Site:** Chaco 2308-08A  
**Well:** Chaco 2308-08A #285H  
**Wellbore:** Wellbore #1  
**Design:** Design #1 16Dec14 kjs

**Local Co-ordinate Reference:** Well Chaco 2308-08A #285H  
**TVD Reference:** WELL @ 6860.00usft (Original Well Elev)  
**MD Reference:** WELL @ 6860.00usft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

**Planned Survey**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
8,000.00	91.63	269.43	5,212.91	685.64	-2,241.32	1,910,267.52	538,169.67	36.2500003	-107.7038824
8,200.00	91.63	269.43	5,207.22	683.64	-2,441.23	1,910,265.24	537,969.77	36.2499948	-107.7045604
8,400.00	91.63	269.43	5,201.53	681.65	-2,641.14	1,910,262.97	537,769.86	36.2499892	-107.7052384
8,600.00	91.63	269.43	5,195.85	679.66	-2,841.05	1,910,260.69	537,569.95	36.2499837	-107.7059164
8,800.00	91.63	269.43	5,190.16	677.66	-3,040.96	1,910,258.41	537,370.05	36.2499782	-107.7065943
9,000.00	91.63	269.43	5,184.47	675.67	-3,240.87	1,910,256.14	537,170.14	36.2499726	-107.7072723
9,200.00	91.63	269.43	5,178.78	673.68	-3,440.78	1,910,253.86	536,970.23	36.2499671	-107.7079503
9,400.00	91.63	269.43	5,173.10	671.68	-3,640.69	1,910,251.59	536,770.33	36.2499616	-107.7086283
9,600.00	91.63	269.43	5,167.41	669.69	-3,840.60	1,910,249.31	536,570.42	36.2499560	-107.7093063
9,800.00	91.63	269.43	5,161.72	667.70	-4,040.51	1,910,247.03	536,370.52	36.2499505	-107.7099842
10,000.00	91.63	269.43	5,156.04	665.70	-4,240.42	1,910,244.76	536,170.61	36.2499449	-107.7106622
10,200.00	91.63	269.43	5,150.35	663.71	-4,440.32	1,910,242.48	535,970.70	36.2499394	-107.7113402
10,400.00	91.63	269.43	5,144.66	661.72	-4,640.23	1,910,240.21	535,770.80	36.2499338	-107.7120182
10,458.43	91.63	269.43	5,143.00	661.14	-4,698.64	1,910,239.54	535,712.39	36.2499322	-107.7122163
TD at 10458.43									

**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
TD / PBHL Chaco 285 - plan hits target center - Point	0.00	0.00	5,143.00	661.14	-4,698.64	1,910,239.54	535,712.39	36.2499322	-107.7122163
POE Chaco 285 - plan misses target center by 0.01usft at 5816.28usft MD (5275.00 TVD, 707.40 N, -58.60 E) - Point	0.00	0.00	5,275.00	707.40	-58.60	1,910,292.37	540,352.36	36.2500603	-107.6964798

**Plan Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
550.00	550.00	0.00	0.00	Start Build 2.00
1,384.14	1,372.41	89.31	81.01	Hold 16.68° Inc, 42.21° Az
3,904.04	3,786.24	625.12	567.04	Start Drop -2.00
4,738.18	4,608.64	714.43	648.05	KOP 9°/100
5,404.85	5,159.97	711.26	329.76	Hold 60° Inc for 60'
5,464.85	5,189.97	710.75	277.80	Begin 9°/100
5,816.28	5,275.00	707.40	-58.60	Landing Pt 91.63° Inc, 269.43° Az
10,458.43	5,143.00	661.14	-4,698.64	TD at 10458.43

D. Cathodic Protection

1. To install the anode bed a vertical bore is drilled and casing of the specified size and amount is set. Casing is a minimum of 20 feet in length. Upon encountering ground water, drilling shall cease and depth to ground water (DTGW) recorded using a conductive tape technique (Wellsounder) before commencing to the desired bore depth. This information is recorded on the supplied groundwater depth log form. The bore will be completed to a desired vertical bore depth of approximately 300 feet. Given a 240 foot anode length and varying lengths of surface casing, the overall bore shall be allowed to vary by no more than  $\pm 60$  feet from the standard 300 feet. Once the bore is completed and cased, the anode is installed in accordance with the manufacturer's specifications. The bore is then backfilled with Conducrete using a tremie tube technique starting from TD of the bore. The casing will be cut and capped 12 inches below the surface. The specified flush grade valve box is then installed directly over the bed. The bed location (Lat/Long) is recorded and full drill log report is completed and filed with WPX. The bed will not be energized for a minimum of 45 days.

## 7.0 Methods for Handling Waste

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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 Figure 4 in Appendix B for the location of toilets).

E. Garbage and other water material

1. All garbage and trash will be placed in a metal trash basket. The trash and garbage will be hauled off site and dumped in an approved landfill, as needed.

F. Hazardous Waste

1. No chemicals subject to reporting under Superfund Amendments and Reauthorization Act Title III in an amount equal to or greater than 10,000 pounds will be used, produced, stored, transported, or disposed of annually in association with the drilling, testing, or completing of these wells.

**Directions from the Intersection of US Hwy 550 & US Hwy 64**  
**in Bloomfield, NM to WPX Energy Production, LLC Chaco 2308-08A #285H**  
**328' FNL & 334' FEL, Section 8, T23N, R8W, N.M.P.M., San Juan County, NM**

**Latitude: 36.248130°N Longitude: 107.696892°W Datum: NAD1983**

From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM, travel Southerly on US Hwy 550 for 38.7 miles to Mile Marker 112.5 at Red Mesa store on left-hand side;

Go Left (Northerly) thru Red Mesa store parking lot from which an existing well access road running parallel to US Highway #550 (North-easterly) for 0.2 miles to fork in road;

Go Right (North-easterly) which is straight for 0.5 miles to staked WPX Chaco 2308-08A #285H which overlaps existing WPX Warner Caldwell #1A location.

