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: 12-22-14
Well information;
Operator WPX, Well Name and Number Chaco 2308-04L #459H

API# 30-045-35627, Section 4, Township 23 (N/S), Range 8 (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 Perrin
NMOCD Approved by Signature

1-13-2015
Date

1220 South St. Francis Drive • Santa Fe, New Mexico 87505
Phone (505) 476-3460 • Fax (505) 476-3462 • www.emnrd.state.nm.us/ocd

OIL CONS. DIV DIST. 3

JAN 06 2015

RECEIVED

DEC 22 2014

Farmington Field Office
Bureau of Land Management

Form 3160-3
(September 2001)

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.	NO-G-1401-1868
6. If Indian, Allottee or Tribe Name	Indian Allottment
7. If Unit or CA Agreement, Name and No.	Pending
8. Lease Name and Well No.	Chaco 2308-04L #459H
9. API Well No.	30-045-35627
10. Field and Pool, or Exploratory	Nageezi Gallup / Basin Mancos
11. Sec., T., R., M., or Blk. and Survey or Area	SHL: Section 4, T23N, R8W BHL: Section 5, T23N, R8W
12. County or Parish	San Juan County
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 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: 2431' FSL & 427' FWL, sec 4, T23N, R8W

At proposed prod. zone: 1274' 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)	16. No. of Acres in lease	17. Spacing Unit dedicated to this well
427'	160.00	160.00 acres
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	**19. Proposed Depth**	**20. BLM/BIA Bond No. on file**
22'	10,544' MD / 5,189' TVD	B001576
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	**22. Approximate date work will start***	**23. Estimated duration**
6868' GR	February 1, 2015	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.
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
	Andrea Felix	12-22-2014

Title: Regulatory Specialist

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
/s/ Stephen Mason AFM		1/5/15
Title	**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 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 under jurisdiction of BLM FFO and is co-located with the approved Chaco 2308-04L #283/284H well pad which is currently under construction.

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 road is needed.

There will be no new pipeline.

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

NMOCD

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

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

RECEIVED
DEC 22 2014
Farmington Field Office
Bureau of Land Management

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-045-35627	47540 / 97232	NAGEEZI GALLUP / BASIN MANCOS

[4] Property Code	[5] Property Name	[6] Well Number
313898	CHACO 2308-04L	459H

[7] OGRID No.	[8] Operator Name	[9] Elevation
120782	WPX ENERGY PRODUCTION, LLC	6868'

[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	4	23N	8W		2431	SOUTH	427	WEST	SAN JUAN

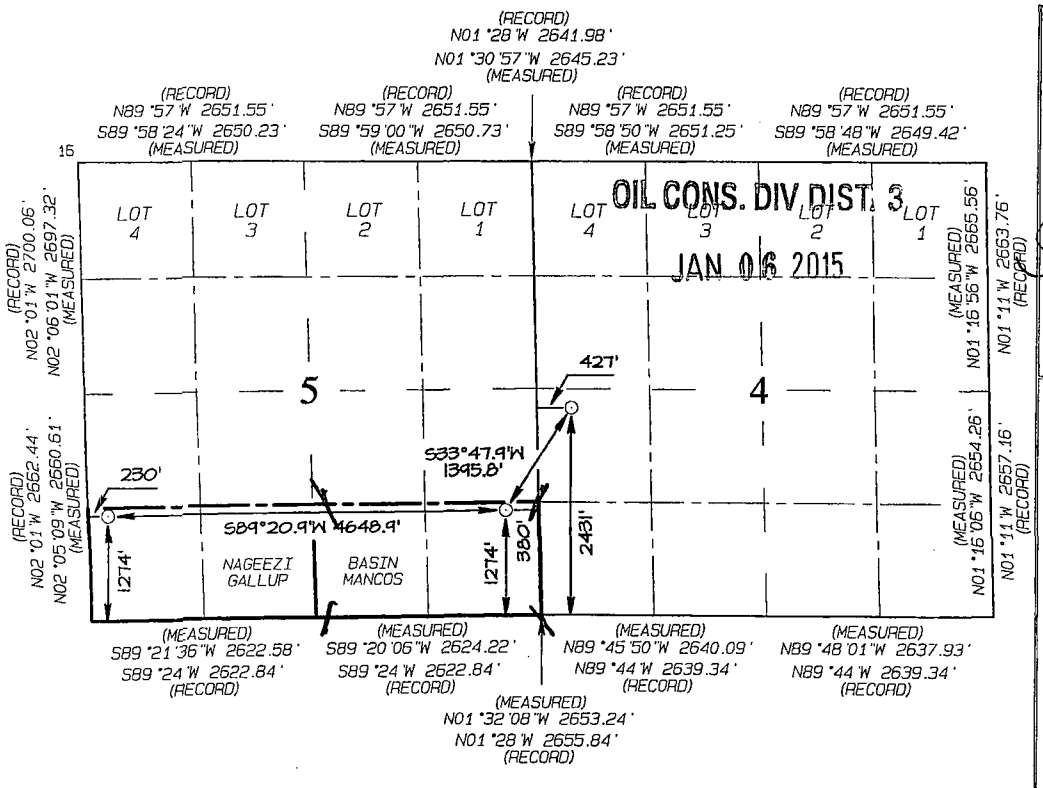
[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	5	23N	8W		1274	SOUTH	230	WEST	SAN JUAN

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
160.0 Acres S/2 S/2 - Section 5			

SW80 Nageezi SE80 Basin Mancos

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
1274' FSL 230' FWL
SECTION 5, T23N, R8W
LAT: 36.252387 °N
LONG: 107.712323 °W
DATUM: NAD1927

LAT: 36.252400 °N
LONG: 107.712935 °W
DATUM: NAD1983

POINT-OF-ENTRY
1274' FSL 380' FEL
SECTION 5, T23N, R8W
LAT: 36.252516 °N
LONG: 107.696557 °W
DATUM: NAD1927

LAT: 36.252529 °N
LONG: 107.697169 °W
DATUM: NAD1983

SURFACE LOCATION
2431' FSL 427' FWL
SECTION 4, T23N, R8W
LAT: 36.255699 °N
LONG: 107.693918 °W
DATUM: NAD1927

LAT: 36.255712 °N
LONG: 107.694529 °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 12-22-14
Date

Andrea Felix
Printed Name

andrea.felix@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: NOVEMBER 14, 2014
Date of Survey: MAY 12, 2014

Signature and Seal of Professional Surveyor

JASON C. EDWARDS
NEW MEXICO
15269
REGISTERED 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:	12/8/14	**FIELD:**	Nageezi Gallup & Basin Mancos
WELL NAME:	**Chaco 2308-04L #459H**	**SURFACE:**	BLM
SH Location:	NWSW Sec 4 -23N -08W	**ELEVATION:**	6868' GR
BH Location:	SWSW Sec 5 -23N -08W San Juan Co., NM	**MINERALS:**	BLM

MEASURED DEPTH: **10,544'**

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

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

Name	MD	TVD	Name	MD	TVD
Ojo Alamo	1062	1059	Point Lookout	4125	4010
Kirtland	1259	1252	Mancos	4346	4223
Picture Cliffs	1664	1642	**Kickoff Point**	**4814**	4673
Lewis	1771	1745	Top Target	5560	5250
Chacra	2055	2018	**Landing Point**	**5895**	5327
Cliff House	3165	3086	Base Target	5895	5327
Menefee	3222	3141			
			TD	10544	5189

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 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 +/- 4,814' (MD) / 4,673' (TVD). Curve portion of wellbore will be drilled and landed at +/- 90 deg. at +/- 5,895' (MD) / 5,327' (TVD). 7 in. csg will be set at this point. A 6-1/8" Lateral will be drilled as per the attached Directional Plan to +/- 10,544' (MD) / 5,189' (TVD). Will run 4-1/2 in. Production Liner from +/- 5,745 ft. to TD and cemented. Liner will be tied back to surface w / 4-1/2" Casing for stimulation / testing, then removed from the well.

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"	5,895	7"	23#	K-55
Prod. Liner	6.125"	5,745' - 10,544'	4-1/2"	11.6#	N-80
Tie-Back String	N/A	Surf. - 5,745'	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 point of curve (~5,800' MD).

- 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.

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 (set at 6,094 ft. MD) with a Liner Hanger and pack-off assembly then cemented to +/- 300 ft above the liner hanger. TOL will be +/- 5,944 ft. (MD) +/- 78 degree angle. TOC: +/- 5,644 ft. (MD).

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.

Note: Changes to formation tops, casing landing points, well TD and Directional Plan.

WPXENERGY SM

SAN JUAN BASIN

SJ 04-23N-08W
Chaco 2308-04L
Chaco 2308-04L #459H

Wellbore #1

Plan: Design #1 03Nov14 kjs

Standard Planning Report - Geographic

03 December, 2014

Database:	COMPASS-SANJUAN	**Local Co-ordinate Reference:**	Well Chaco 2308-04L #459H
Company:	SAN JUAN BASIN	**TVD Reference:**	WELL @ 6883.00usft (Original Well Elev)
Project:	SJ 04-23N-08W	**MD Reference:**	WELL @ 6883.00usft (Original Well Elev)
Site:	Chaco 2308-04L	**North Reference:**	True
Well:	Chaco 2308-04L #459H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 03Nov14 kjs		

Project	SJ 04-23N-08W, San Juan County, NM		
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	Chaco 2308-04L				
Site Position:		**Northing:**	1,912,345.31 usft	**Latitude:**	36.2556972
From:	Lat/Long	**Easting:**	541,082.86 usft	**Longitude:**	-107.6939923
Position Uncertainty:	0.00 usft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.08 °

Well	Chaco 2308-04L #459H					
Well Position	**+N/-S**	0.00 usft	**Northing:**	1,912,346.00 usft	**Latitude:**	36.2556990
	+E/-W	0.00 usft	**Easting:**	541,104.76 usft	**Longitude:**	-107.6939180
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	0.00 usft	**Ground Level:**	6,868.00 usft

Wellbore	Wellbore #1				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	11/3/2014	9.40	62.98	50,128

Design	Design #1 03Nov14 kjs				
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	269.43	

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	
550.00	0.00	0.00	550.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,339.44	15.79	183.46	1,329.49	-107.89	-6.52	2.00	2.00	0.00	183.46	
4,813.92	15.79	183.46	4,672.88	-1,051.54	-63.57	0.00	0.00	0.00	0.00	
5,482.28	60.00	269.43	5,211.99	-1,154.85	-388.90	9.00	6.61	12.86	95.13	
5,542.28	60.00	269.43	5,241.99	-1,155.37	-440.86	0.00	0.00	0.00	0.00	
5,894.50	91.70	269.43	5,327.00	-1,158.72	-778.04	9.00	9.00	0.00	0.00	
10,545.37	91.70	269.43	5,189.00	-1,204.97	-5,426.63	0.00	0.00	0.00	0.00	TD / PBHL #459H

Database:	COMPASS-SANJUAN	**Local Co-ordinate Reference:**	Well Chaco 2308-04L #459H
Company:	SAN JUAN BASIN	**TVD Reference:**	WELL @ 6883.00usft (Original Well Elev)
Project:	SJ 04-23N-08W	**MD Reference:**	WELL @ 6883.00usft (Original Well Elev)
Site:	Chaco 2308-04L	**North Reference:**	True
Well:	Chaco 2308-04L #459H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 03Nov14 kjs		

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	1,912,346.00	541,104.76	36.2556990	-107.6939180
200.00	0.00	0.00	200.00	0.00	0.00	1,912,346.00	541,104.76	36.2556990	-107.6939180
400.00	0.00	0.00	400.00	0.00	0.00	1,912,346.00	541,104.76	36.2556990	-107.6939180
550.00	0.00	0.00	550.00	0.00	0.00	1,912,346.00	541,104.76	36.2556990	-107.6939180
Start Build 2.00									
600.00	1.00	183.46	600.00	-0.44	-0.03	1,912,345.57	541,104.74	36.2556978	-107.6939181
800.00	5.00	183.46	799.68	-10.88	-0.66	1,912,335.12	541,104.12	36.2556691	-107.6939203
1,000.00	9.00	183.46	998.15	-35.21	-2.13	1,912,310.79	541,102.68	36.2556023	-107.6939253
1,200.00	13.00	183.46	1,194.44	-73.29	-4.43	1,912,272.71	541,100.44	36.2554976	-107.6939331
1,339.44	15.79	183.46	1,329.49	-107.89	-6.52	1,912,238.11	541,098.39	36.2554026	-107.6939402
Hold 15.79 Inc, 183.46 Az									
1,400.00	15.79	183.46	1,387.76	-124.34	-7.52	1,912,221.66	541,097.42	36.2553574	-107.6939435
1,600.00	15.79	183.46	1,580.22	-178.66	-10.80	1,912,167.33	541,094.22	36.2552082	-107.6939547
1,800.00	15.79	183.46	1,772.67	-232.97	-14.09	1,912,113.01	541,091.01	36.2550590	-107.6939658
2,000.00	15.79	183.46	1,965.12	-287.29	-17.37	1,912,058.68	541,087.81	36.2549098	-107.6939769
2,200.00	15.79	183.46	2,157.58	-341.61	-20.65	1,912,004.36	541,084.60	36.2547605	-107.6939881
2,400.00	15.79	183.46	2,350.03	-395.93	-23.94	1,911,950.04	541,081.39	36.2546113	-107.6939992
2,600.00	15.79	183.46	2,542.49	-450.25	-27.22	1,911,895.71	541,078.19	36.2544621	-107.6940104
2,800.00	15.79	183.46	2,734.94	-504.57	-30.51	1,911,841.39	541,074.98	36.2543129	-107.6940215
3,000.00	15.79	183.46	2,927.40	-558.89	-33.79	1,911,787.07	541,071.78	36.2541636	-107.6940326
3,200.00	15.79	183.46	3,119.85	-613.21	-37.07	1,911,732.74	541,068.57	36.2540144	-107.6940438
3,400.00	15.79	183.46	3,312.30	-667.53	-40.36	1,911,678.42	541,065.37	36.2538652	-107.6940549
3,600.00	15.79	183.46	3,504.76	-721.85	-43.64	1,911,624.09	541,062.16	36.2537160	-107.6940661
3,800.00	15.79	183.46	3,697.21	-776.17	-46.93	1,911,569.77	541,058.95	36.2535667	-107.6940772
4,000.00	15.79	183.46	3,889.67	-830.48	-50.21	1,911,515.45	541,055.75	36.2534175	-107.6940883
4,200.00	15.79	183.46	4,082.12	-884.80	-53.49	1,911,461.12	541,052.54	36.2532683	-107.6940995
4,400.00	15.79	183.46	4,274.58	-939.12	-56.78	1,911,406.80	541,049.34	36.2531191	-107.6941106
4,600.00	15.79	183.46	4,467.03	-993.44	-60.06	1,911,352.48	541,046.13	36.2529699	-107.6941217
4,800.00	15.79	183.46	4,659.48	-1,047.76	-63.35	1,911,298.15	541,042.92	36.2528206	-107.6941329
4,813.92	15.79	183.46	4,672.88	-1,051.54	-63.57	1,911,294.37	541,042.70	36.2528103	-107.6941337
KOP 9/100 Build & Turn									
5,000.00	21.80	234.06	4,850.06	-1,097.42	-93.29	1,911,248.45	541,013.05	36.2526842	-107.6942344
5,200.00	36.44	256.37	5,024.79	-1,133.52	-181.81	1,911,212.22	540,924.58	36.2525850	-107.6945347
5,400.00	53.00	266.54	5,166.60	-1,152.51	-320.39	1,911,193.04	540,786.04	36.2525329	-107.6950046
5,482.28	60.00	269.43	5,211.99	-1,154.85	-388.90	1,911,190.59	540,717.52	36.2525264	-107.6952370
Hold 60° for 60'									
5,542.28	60.00	269.43	5,241.99	-1,155.37	-440.86	1,911,190.00	540,665.57	36.2525250	-107.6954132
Begin 9/100 Build									
5,600.00	65.20	269.43	5,268.55	-1,155.88	-492.08	1,911,189.42	540,614.34	36.2525236	-107.6955870
5,800.00	83.20	269.43	5,322.80	-1,157.78	-683.72	1,911,187.24	540,422.70	36.2525184	-107.6962369
5,894.50	91.70	269.43	5,327.00	-1,158.72	-778.04	1,911,186.16	540,328.39	36.2525158	-107.6965568
Landing Pt./ Hold 91.7 Inc, 269.43 Az									
6,000.00	91.70	269.43	5,323.87	-1,159.77	-883.49	1,911,184.96	540,222.94	36.2525129	-107.6969144
6,200.00	91.70	269.43	5,317.94	-1,161.76	-1,083.39	1,911,182.69	540,023.05	36.2525074	-107.6975924
6,400.00	91.70	269.43	5,312.00	-1,163.75	-1,283.29	1,911,180.41	539,823.15	36.2525019	-107.6982704
6,600.00	91.70	269.43	5,306.07	-1,165.74	-1,483.19	1,911,178.13	539,623.25	36.2524964	-107.6989484
6,800.00	91.70	269.43	5,300.13	-1,167.73	-1,683.10	1,911,175.86	539,423.35	36.2524909	-107.6996264
7,000.00	91.70	269.43	5,294.20	-1,169.72	-1,883.00	1,911,173.58	539,223.45	36.2524854	-107.7003043
7,200.00	91.70	269.43	5,288.26	-1,171.70	-2,082.90	1,911,171.30	539,023.55	36.2524799	-107.7009823
7,400.00	91.70	269.43	5,282.33	-1,173.69	-2,282.80	1,911,169.03	538,823.65	36.2524744	-107.7016603
7,600.00	91.70	269.43	5,276.40	-1,175.68	-2,482.70	1,911,166.75	538,623.75	36.2524689	-107.7023383
7,800.00	91.70	269.43	5,270.46	-1,177.67	-2,682.61	1,911,164.47	538,423.85	36.2524634	-107.7030163
8,000.00	91.70	269.43	5,264.53	-1,179.66	-2,882.51	1,911,162.20	538,223.95	36.2524579	-107.7036942
8,200.00	91.70	269.43	5,258.59	-1,181.65	-3,082.41	1,911,159.92	538,024.06	36.2524524	-107.7043722

Database:	COMPASS-SANJUAN	**Local Co-ordinate Reference:**	Well Chaco 2308-04L #459H
Company:	SAN JUAN BASIN	**TVD Reference:**	WELL @ 6883.00usft (Original Well Elev)
Project:	SJ 04-23N-08W	**MD Reference:**	WELL @ 6883.00usft (Original Well Elev)
Site:	Chaco 2308-04L	**North Reference:**	True
Well:	Chaco 2308-04L #459H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 03Nov14 kjs		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
8,400.00	91.70	269.43	5,252.66	-1,183.64	-3,282.31	1,911,157.64	537,824.16	36.2524468	-107.7050502
8,600.00	91.70	269.43	5,246.72	-1,185.63	-3,482.21	1,911,155.37	537,624.26	36.2524413	-107.7057282
8,800.00	91.70	269.43	5,240.79	-1,187.62	-3,682.12	1,911,153.09	537,424.36	36.2524358	-107.7064062
9,000.00	91.70	269.43	5,234.85	-1,189.60	-3,882.02	1,911,150.81	537,224.46	36.2524302	-107.7070841
9,200.00	91.70	269.43	5,228.92	-1,191.59	-4,081.92	1,911,148.54	537,024.56	36.2524247	-107.7077621
9,400.00	91.70	269.43	5,222.99	-1,193.58	-4,281.82	1,911,146.26	536,824.66	36.2524192	-107.7084401
9,600.00	91.70	269.43	5,217.05	-1,195.57	-4,481.72	1,911,143.98	536,624.76	36.2524136	-107.7091181
9,800.00	91.70	269.43	5,211.12	-1,197.56	-4,681.63	1,911,141.71	536,424.86	36.2524081	-107.7097961
10,000.00	91.70	269.43	5,205.18	-1,199.55	-4,881.53	1,911,139.43	536,224.97	36.2524025	-107.7104740
10,200.00	91.70	269.43	5,199.25	-1,201.54	-5,081.43	1,911,137.15	536,025.07	36.2523969	-107.7111520
10,400.00	91.70	269.43	5,193.31	-1,203.53	-5,281.33	1,911,134.88	535,825.17	36.2523914	-107.7118300
10,545.37	91.70	269.43	5,189.00	-1,204.97	-5,426.63	1,911,133.22	535,679.87	36.2523873	-107.7123228
TD at 10545.37									

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 #459H - plan hits target center - Point	0.00	0.00	5,189.00	-1,204.97	-5,426.63	1,911,133.22	535,679.87	36.2523873	-107.7123228
POE #459H - plan hits target center - Point	0.00	0.00	5,327.00	-1,158.72	-778.04	1,911,186.16	540,328.39	36.2525158	-107.6965568

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
550.00	550.00	0.00	0.00	Start Build 2.00
1,339.44	1,329.49	-107.89	-6.52	Hold 15.79 Inc, 183.46 Az
4,813.92	4,672.88	-1,051.54	-63.57	KOP 9/100 Build & Turn
5,482.28	5,211.99	-1,154.85	-388.90	Hold 60° for 60'
5,542.28	5,241.99	-1,155.37	-440.86	Begin 9/100 Build
5,894.50	5,327.00	-1,158.72	-778.04	Landing Pt./ Hold 91.7 Inc, 269.43 Az
10,545.37	5,189.00	-1,204.97	-5,426.63	TD at 10545.37

WPXENERGY

Well Name: Chaco 2308-04L #459H
Surface Location: Chaco 2308-04L
NAD 1927 (NADCON CONUS) , US State Plane 1927 (Exact solution) New Mexico West 3003
Ground Elevation: 6868.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1912346.00	541104.76	36.2556990	-107.6939180	

WELL @ 6883.00usft (Original Well Elev)

Azimuths to True North
Magnetic North: 9.39°
Magnetic Field
Strength: 50128.3snT
Dip Angle: 62.98°
Date: 11/3/2014
Model: IGRF2010

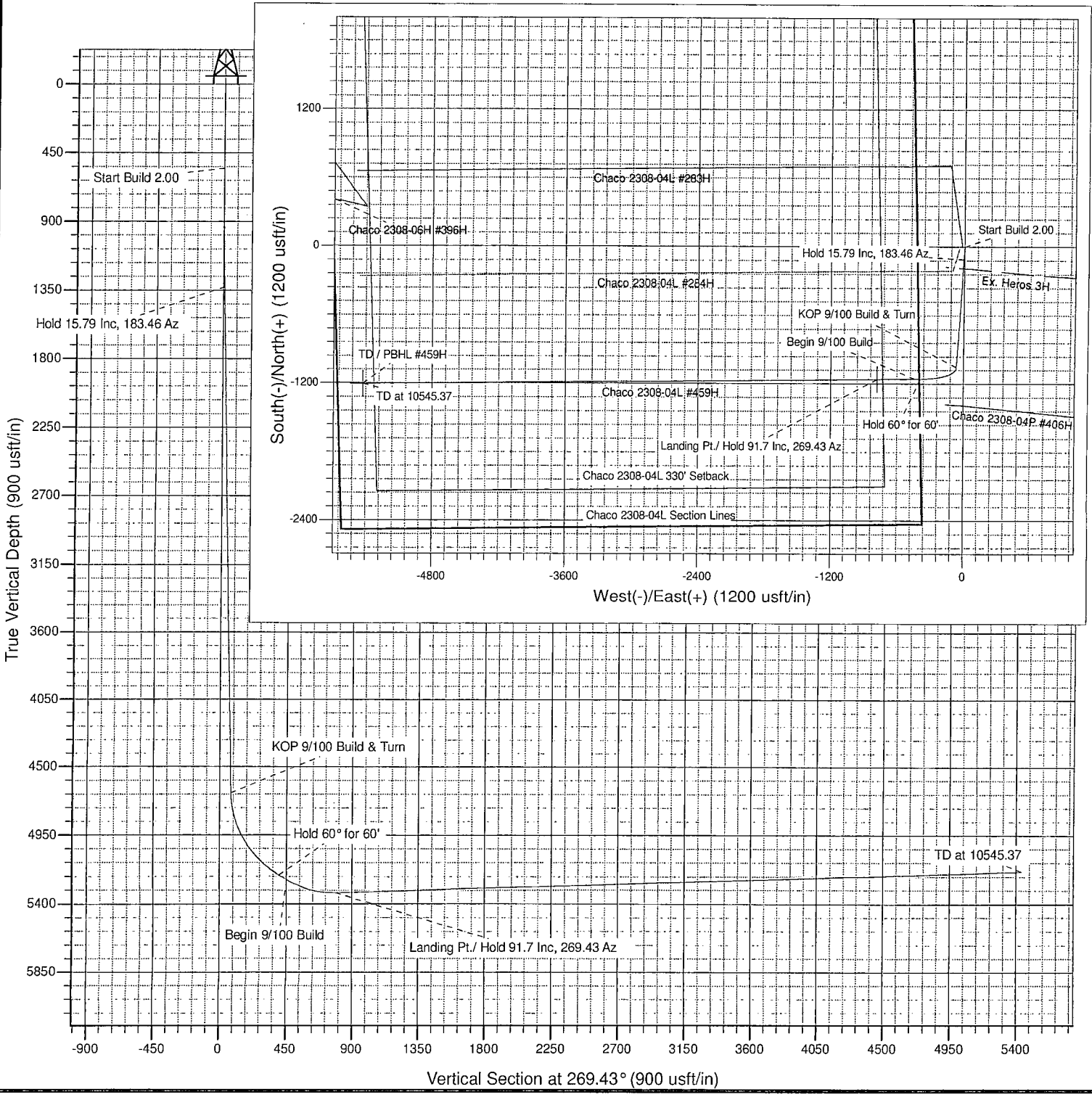
Project: SJ 04-23N-08W
Site: Chaco 2308-04L
Well: Chaco 2308-04L #459H
Design #1 03Nov14 kjs

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Departure	Annotation
550.00	550.00	0.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
1329.49	1339.44	15.79	183.46	-107.89	-6.52	7.60	108.08	Hold 15.79 Inc, 183.46 Az
4672.88	4813.92	15.79	183.46	-1051.54	-63.57	74.03	1053.46	KOP 9/100 Build & Turn
5211.99	5482.28	60.00	269.43	-1154.85	-388.90	400.37	1415.06	Hold 60° for 60'
5241.99	5542.28	60.00	269.43	-1155.37	-440.86	452.33	1467.02	Begin 9/100 Build
5327.00	5894.50	91.70	269.43	-1158.72	-778.04	789.53	1804.22	Landing Pt./ Hold 91.7 Inc, 269.43 Az
5189.03	10544.37	91.70	269.43	-1204.96	-5425.63	5437.35	6452.04	TD at 10545.37

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
TD / PBHL #459H	5189.00	-1204.97	-5426.63	1911133.22	535679.87	36.2523874	-107.7123227
POE #459H	5327.00	-1158.72	-778.04	1911186.16	540328.39	36.2525158	-107.6965568



5. All project activities will be confined to permitted areas only.
6. Construction equipment may include chain saws, a brush hog, scraper, maintainer, excavator, and a dozer.
7. If drilling has not been initiated on the well pad within 120 days of the well pad being constructed, the operator will consult with the BLM to address a site-stabilization plan.

D. Production Facilities
1. As practical, access will be a teardrop-shaped road through the production area so that the center may be revegetated.
2. Within 90 days of installation, production facilities would be painted Juniper Green to blend with the natural color of the landscape and would be located, to the extent practical, to reasonably minimize visual impact.
3. Berms will be constructed around all storage facilities sufficient in size to contain the storage capacity of tanks. Berm walls will be compacted with appropriate equipment to assure containment.

After the completion phases and pipeline installation, portions of the project area not needed for operation will be reclaimed. When the well is plugged, final reclamation will occur within the remainder of the project area. Reclamation is described in detail in the Reclamation Plan (Appendix A).

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

E. Garbage and other water material
1. Garbage, trash, and other waste materials will be collected in a portable, self-contained, and fully enclosed trash container during drilling and completion operations. The

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

in Bloomfield, NM to WPX Energy Production, LLC Chaco 2308-04L #459H

2431' FSL & 427' FWL, Section 4, T23N, R8W, N.M.P.M., San Juan County, NM

Latitude: 36.255712°N Longitude: 107.694529°W Datum: NAD1983

From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM, travel Southerly on US Hwy 550 for 39.5 miles to Mile Marker 111.7 to existing highway access approach from which new access continues for 4029.0' to staked WPX Chaco 2308-04L #459H location.

3000 PSI BOP Schematic