

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

Jami Bailey, 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 3160-4 or 3160-5 form.

Operator Signature Date: 10/03/2014

Well information: Name Change to Chaco 2308-11A #407H

API WELL #	Well Name	Well #	Operator Name	Type	Stat	County	Surf. Owner
30-045-35564-00-00	SARAH B	001H	WPX ENERGY PRODUCTION, LLC	O	N	San Juan	F

Application Type:

- ☐ P&A ☒ Name Change, Drilling/Casing Change ☐ Location Change
- ☐ Recomplete/DHC (For hydraulic fracturing operations review EPA Underground injection control Guidance #84)
- ☐ Other:

Conditions of Approval:

Notify NMOCD 24hrs prior to beginning operations, casing & cement

Hold C-104 for NSL NSP DHC & directional survey & "As Drilled" Plat

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.

CONTINUED ON PAGE 2

November 6, 2014

Page 2

Sundry states to correct spacing from 160 to 320, C-102 Plat shows total acres 640 all of section 12. WPX will need to file an amended C102 if the spacing is 320.

Charlie T. Lerrin

NMOCD Approved by Signature

10/24/14

Date

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on page 2

5. Lease Serial No.
NMNM 109397

6. If Indian, Allottee or Tribe Name
RCUD OCT 14 '14

7. If Unit of CA/Agreement, Name and/or No.
OIL CONS. DIV.

8. Well Name and No.
Chaco 2308-11A #407H

9. API Well No.
30-045-35564 DIST. 3

10. Field and Pool or Exploratory Area
Basin Mancos

11. Country or Parish, State
San Juan, NM

1. Type of Well
☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator
WPX Energy Production, LLC

3a. Address
PO Box 640 Aztec, NM 87410

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

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Sur: 335' FNL & 1047' FEL, sec 11, T23N, R8W - BHL: 1265' FNL & 230' FEL, sec 12, T23N, R8W

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other Name Change Lateral change
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

WPX Energy request to change the name of this well from the Sarah B #1H to the Chaco 2308-11A #407H. We also request to change the lateral alignment of this well per attached C-102, operation plan and directional plan. Finally, we would like to correct the spacing from 160 acres to 320 acres as shown on attached C-102.

14. I hereby certify that the foregoing is true and correct.
Name (Printed/Typed)
Heather Riley

Title Regulatory Manager

Signature *Heather Riley* Date 10/03/14

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by *Christopher Marquez*

Title Land Law Enforcement Date 10-9-14

Office FFO

Conditions of approval, if any, are attached. Approval of this notice 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.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

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 30-045-35564	*Pool Code 97232	*Pool Name BASIN MANCOS
*Property Code 3138063	*Property Name CHACO 2308-11A	*Well Number 407H
*GRID No. 120782	*Operator Name WPX ENERGY PRODUCTION, LLC	*Elevation 7011'

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
A	11	23N	8W		335	NORTH	1047	EAST	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
A	12	23N	8W		1265	NORTH	230	EAST	SAN JUAN

12 Dedicated Acres 640	ALL	- Section 12	13 Joint or Infill	14 Consolidation Code	15 Order No.
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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

SURFACE LOCATION
335' FNL 1047' FEL
SECTION 11, T23N, R8W
LAT: 36.247948°N
LONG: 107.645090°W
DATUM: NAD1927

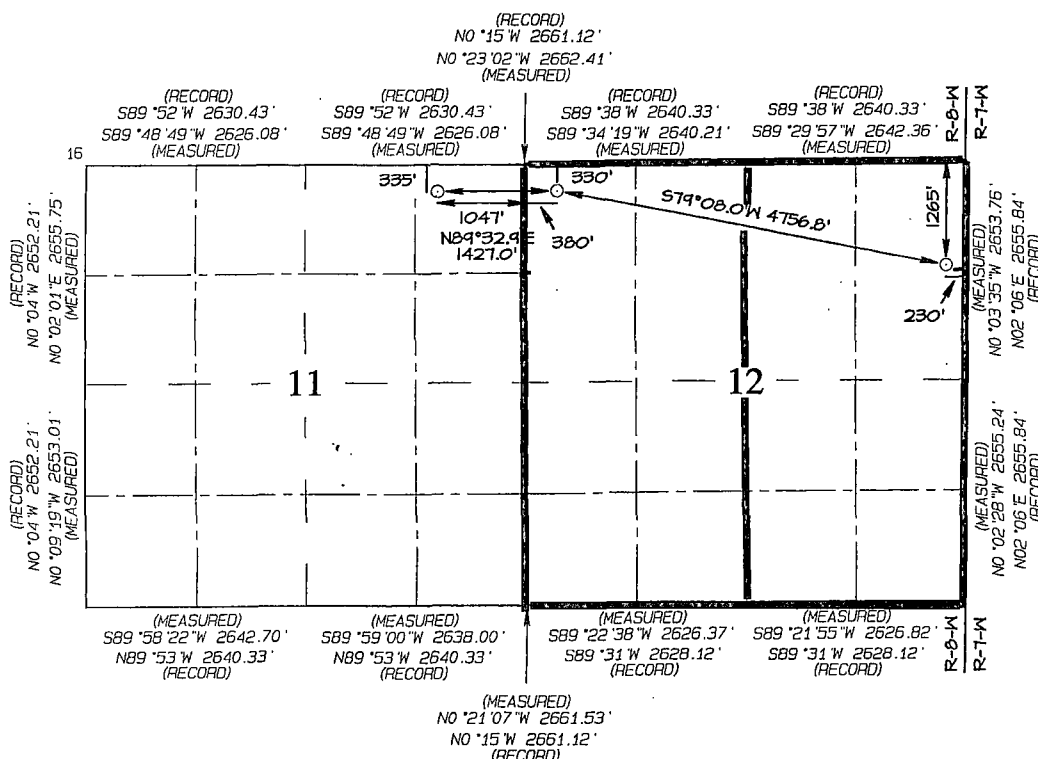
POINT-OF-ENTRY
330' FNL 380' FWL
SECTION 12, T23N, R8W
LAT: 36.247971°N
LONG: 107.640250°W
DATUM: NAD1927

END-OF-LATERAL
1265' FNL 230' FEL
SECTION 12, T23N, R8W
LAT: 36.245481°N
LONG: 107.624414°W
DATUM: NAD1927

LAT: 36.247961°N
LONG: 107.645700°W
DATUM: NAD1983

LAT: 36.247984°N
LONG: 107.640860°W
DATUM: NAD1983

LAT: 36.245494°N
LONG: 107.625024°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: *Heather Riley* Date: 10/3/2014

Printed Name: Heather Riley
heather.riley@wpxenenergy.com

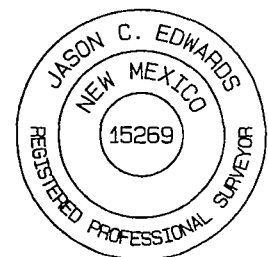
E-mail Address

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: SEPTEMBER 6, 2014
Survey Date: SEPTEMBER 4, 2014

Signature and Seal of Professional Surveyor



JASON C. EDWARDS
Certificate Number 15269

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

DATE: 8/28/2014 **FIELD:** Basin Mancos

WELL NAME: Chaco 2308-11A #407H **SURFACE:** BLM

SH Location: NENE Sec 11 -23N -08W **ELEVATION:** 7011' GR

BH Location: NENE Sec 12 -23N -08W
San Juan Co, NM **MINERALS:** Federal

MEASURED DEPTH: 10,737' **LEASE #:** NMNM 109397

I. GEOLOGY: Surface formation – Nacimiento**A. FORMATION TOPS:** (KB)

Name	MD	TVD	Name	MD	TVD
Ojo Alamo	1182	1177	Point Lookout	4279	4211
Kirtland	1490	1479	Mancos	4468	4397
Picture Cliffs	1876	1857	Kickoff Point	4912	4838
Lewis	1991	1969	Top Target	5683	5437
Chacra	2298	2270	Landing Point	5980	5505
Cliff House	3406	3356	Base Target	5972	5504
Menefee	3443	3392			
			TD	10737	5445

- 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.**

NOTE: Vertical portion of the well (8-3/4 in.) will be directionally drilled as per attached Directional Plan to +/- 4,912' (MD) / 4,838' (TVD). Curve portion of wellbore will be drilled and landed at +/- 90 deg. at +/- 5,980' (MD) / 5,505' (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 +/- 10,737' (MD) / 5,445' (TVD). Will run 4-1/2 in. Production Liner from +/- 5,830 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:

<u>CASING TYPE</u>	<u>OH SIZE (IN)</u>	<u>DEPTH (MD) (FT)</u>	<u>CASING SIZE (IN)</u>	<u>WEIGHT(LB)</u>	<u>GRADE</u>
Surface	12.25"	400'+	9.625"	36#	J-55
Intermediate	8.75"	5,980'	7"	23#	K-55
Prod. Liner	6.125"	5,830' - 10,747'	4-1/2"	11.6#	N-80
Tie-Back String	N/A	Surf. - 5830'	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 + (2) RSI (Sliding Sleeves) 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: 850 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). Test Casing to 1500 PSI for 30 minutes. Total Cement Volume: (1050 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 (536.3 cu ft / 95.5 bbls). Mix Foamed Cement w/ +/- 75,000 SCF Nitrogen. Est. TOC +/- 5,530 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 5,980 ft. MD) with a Liner Hanger and pack-off assembly then cemented to +/- 300 ft above the liner hanger. TOL will be +/- 5,830 ft. (MD) +/- 78 degree angle. TOC: +/- 5,530 ft. (MD).

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

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.

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

Well Name: Chaco 2308-11A #407H

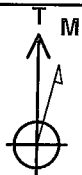
Surface Location: Chaco 2308-11A

NAD 1927 (NADCON CONUS) , US State Plane 1927 (Exact solution) New Mexico West 3003

Ground Elevation: 7011.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1909526.70	555506.59	36.247887	-107.645090	

WELL @ 7025.0usft (Original Well Elev)



Azimuths to True North
Magnetic North: 9.40°

Magnetic Field

Strength: 50147.7snT

Dip Angle: 62.99°

Date: 8/26/2014

Model: IGRF2010

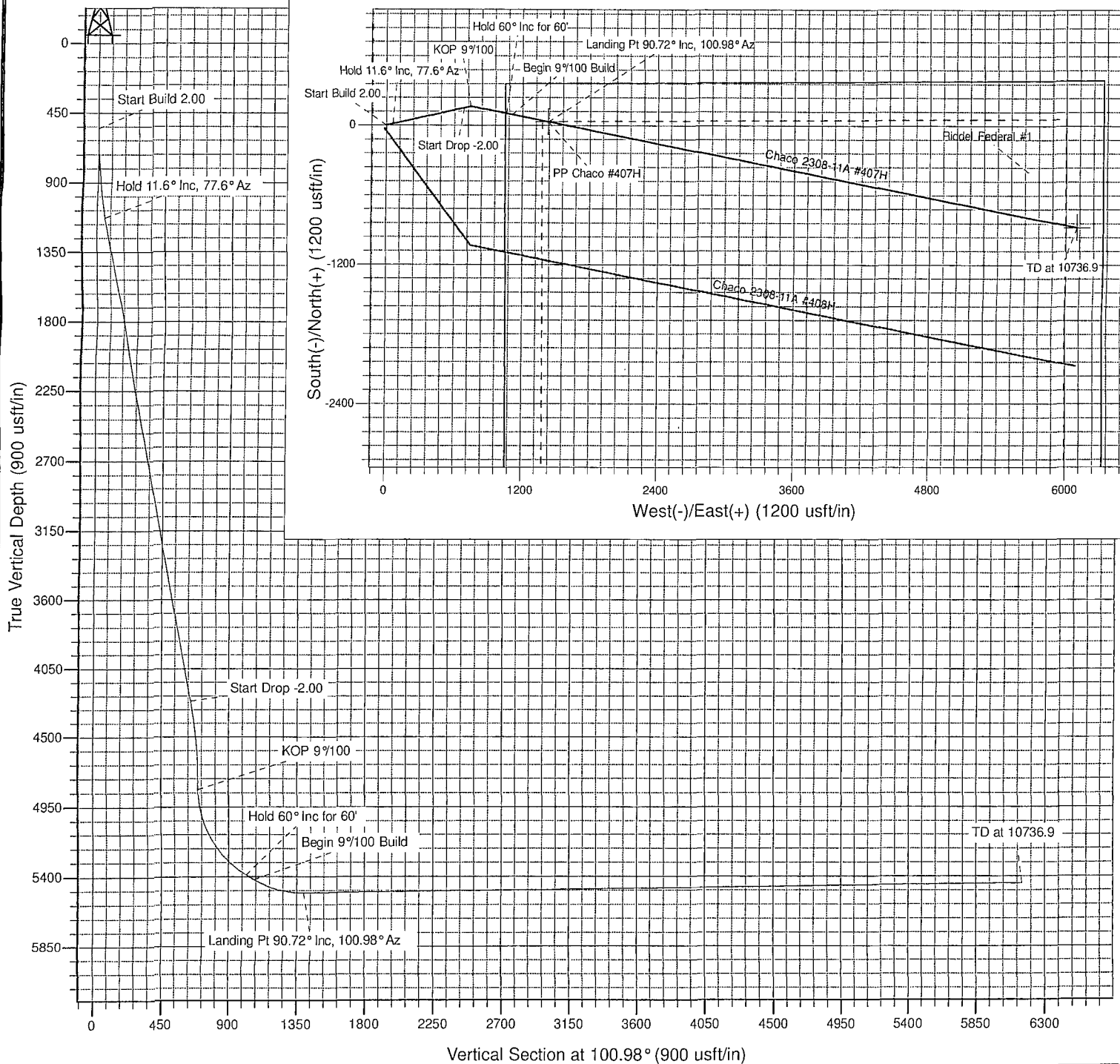
Project: SJ 12-23N-08W
Site: Chaco 2308-11A
Well: Chaco 2308-11A #407H
Design #1 26Aug14 kjs

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Departure	Annotation
550.0	550.0	0.00	0.00	0.0	0.0	0.0	0.0	Start Build 2.00
1126.1	1130.0	11.60	77.60	12.6	57.2	53.7	58.5	Hold 11.6° Inc, 77.6° Az
4262.3	4331.7	11.60	77.60	150.8	685.9	644.7	702.3	Start Drop -2.00
4838.4	4911.7	0.00	0.00	163.4	743.1	698.4	760.9	KOP 9°/100
5389.7	5578.4	60.00	100.98	102.8	1055.6	1016.7	1079.2	Hold 60° Inc for 60'
5419.7	5638.4	60.00	100.98	92.9	1106.6	1068.6	1131.1	Begin 9°/100 Build
5505.0	5979.7	90.72	100.98	30.7	1427.0	1395.0	1457.5	Landing Pt 90.72° Inc, 100.98° Az
5445.0	10736.9	90.72	100.98	-875.1	6096.7	6151.8	6214.3	TD at 10736.9

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
TD / PBHL Chaco #407H	5445.0	-875.1	6096.7	1908663.48	561605.00	36.245481	-107.624414	Point
PP Chaco #407H	5505.0	30.7	1427.0	1909560.18	556933.54	36.247971	-107.640250	Point
- plan hits target center								





SAN JUAN BASIN

SJ 12-23N-08W

Chaco 2308-11A

Chaco 2308-11A #407H

Wellbore #1

Plan: Design #1 26Aug14 kjs

Standard Planning Report - Geographic

28 August, 2014



WPX
Planning Report - Geographic

Database: COMPASS-SANJUAN
Company: SAN JUAN BASIN
Project: SJ 12-23N-08W
Site: Chaco 2308-11A
Well: Chaco 2308-11A #407H
Wellbore: Wellbore #1
Design: Design #1 26Aug14 kjs

Local Co-ordinate Reference: Well Chaco 2308-11A #407H
TVD Reference: WELL @ 7025.0usft (Original Well Elev)
MD Reference: WELL @ 7025.0usft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Project SJ 12-23N-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 2308-11A

Site Position: Northing: 1,909,526.70 usft Latitude: 36.247887
From: Map Easting: 555,506.59 usft Longitude: -107.645090
Position Uncertainty: 0.0 usft Slot Radius: 13.200 in Grid Convergence: 0.11 °

Well Chaco 2308-11A #407H

Well Position +N/-S 0.0 usft Northing: 1,909,526.70 usft Latitude: 36.247887
+E/-W 0.0 usft Easting: 555,506.59 usft Longitude: -107.645090
Position Uncertainty 0.0 usft Wellhead Elevation: 0.0 usft Ground Level: 7,011.0 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/26/2014	9.40	62.99	50,148

Design Design #1 26Aug14 kjs

Audit Notes:

Version: Phase: PLAN Tie On Depth: 0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	100.98

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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
550.0	0.00	0.00	550.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,130.0	11.60	77.60	1,126.1	12.6	57.2	2.00	2.00	0.00	77.60	
4,331.7	11.60	77.60	4,262.3	150.8	685.9	0.00	0.00	0.00	0.00	
4,911.7	0.00	0.00	4,838.4	163.4	743.1	2.00	-2.00	0.00	180.00	
5,578.4	60.00	100.98	5,389.7	102.8	1,055.6	9.00	9.00	0.00	100.98	
5,638.4	60.00	100.98	5,419.7	92.9	1,106.6	0.00	0.00	0.00	0.00	
5,979.7	90.72	100.98	5,505.0	30.7	1,427.0	9.00	9.00	0.00	-0.01	
10,736.9	90.72	100.98	5,445.0	-875.1	6,096.7	0.00	0.00	0.00	0.00	TD / PBHL Chaco #407H

Database: COMPASS-SANJUAN
 Company: SAN JUAN BASIN
 Project: SJ 12-23N-08W
 Site: Chaco 2308-11A
 Well: Chaco 2308-11A #407H
 Wellbore: Wellbore #1
 Design: Design #1 26Aug14 kjs

Local Co-ordinate Reference: Well Chaco 2308-11A #407H
 TVD Reference: WELL @ 7025.0usft (Original Well Elev)
 MD Reference: WELL @ 7025.0usft (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
0.0	0.00	0.00	0.0	0.0	0.0	1,909,526.70	555,506.59	36.247887	-107.645090
200.0	0.00	0.00	200.0	0.0	0.0	1,909,526.70	555,506.59	36.247887	-107.645090
400.0	0.00	0.00	400.0	0.0	0.0	1,909,526.70	555,506.59	36.247887	-107.645090
550.0	0.00	0.00	550.0	0.0	0.0	1,909,526.70	555,506.59	36.247887	-107.645090
Start Build 2.00									
600.0	1.00	77.60	600.0	0.1	0.4	1,909,526.80	555,507.02	36.247887	-107.645089
800.0	5.00	77.60	799.7	2.3	10.6	1,909,529.07	555,517.23	36.247894	-107.645054
1,000.0	9.00	77.60	998.2	7.6	34.4	1,909,534.34	555,541.02	36.247908	-107.644973
1,130.0	11.60	77.60	1,126.1	12.6	57.2	1,909,539.38	555,563.72	36.247922	-107.644896
Hold 11.6° Inc, 77.6° Az									
1,200.0	11.60	77.60	1,194.6	15.6	70.9	1,909,542.43	555,577.46	36.247930	-107.644850
1,400.0	11.60	77.60	1,390.5	24.2	110.2	1,909,551.14	555,616.72	36.247954	-107.644717
1,600.0	11.60	77.60	1,586.4	32.9	149.5	1,909,559.86	555,655.98	36.247977	-107.644583
1,800.0	11.60	77.60	1,782.4	41.5	188.7	1,909,568.57	555,695.24	36.248001	-107.644450
2,000.0	11.60	77.60	1,978.3	50.1	228.0	1,909,577.28	555,734.51	36.248025	-107.644317
2,200.0	11.60	77.60	2,174.2	58.8	267.3	1,909,586.00	555,773.77	36.248049	-107.644184
2,400.0	11.60	77.60	2,370.1	67.4	306.6	1,909,594.71	555,813.03	36.248072	-107.644051
2,600.0	11.60	77.60	2,566.0	76.0	345.9	1,909,603.42	555,852.29	36.248096	-107.643917
2,800.0	11.60	77.60	2,761.9	84.7	385.1	1,909,612.14	555,891.56	36.248120	-107.643784
3,000.0	11.60	77.60	2,957.8	93.3	424.4	1,909,620.85	555,930.82	36.248144	-107.643651
3,200.0	11.60	77.60	3,153.8	102.0	463.7	1,909,629.56	555,970.08	36.248167	-107.643518
3,400.0	11.60	77.60	3,349.7	110.6	503.0	1,909,638.28	556,009.34	36.248191	-107.643385
3,600.0	11.60	77.60	3,545.6	119.2	542.2	1,909,646.99	556,048.61	36.248215	-107.643251
3,800.0	11.60	77.60	3,741.5	127.9	581.5	1,909,655.70	556,087.87	36.248238	-107.643118
4,000.0	11.60	77.60	3,937.4	136.5	620.8	1,909,664.42	556,127.13	36.248262	-107.642985
4,200.0	11.60	77.60	4,133.3	145.1	660.1	1,909,673.13	556,166.39	36.248286	-107.642852
4,331.7	11.60	77.60	4,262.3	150.8	685.9	1,909,678.87	556,192.24	36.248302	-107.642764
Start Drop -2.00									
4,400.0	10.23	77.60	4,329.4	153.6	698.6	1,909,681.67	556,204.87	36.248309	-107.642721
4,600.0	6.23	77.60	4,527.3	159.8	726.6	1,909,687.88	556,232.83	36.248326	-107.642626
4,800.0	2.23	77.60	4,726.7	162.9	741.0	1,909,691.08	556,247.25	36.248335	-107.642577
4,911.7	0.00	0.00	4,838.4	163.4	743.1	1,909,691.55	556,249.37	36.248336	-107.642570
KOP 9°/100									
5,000.0	7.95	100.98	4,926.4	162.2	749.1	1,909,690.39	556,255.37	36.248333	-107.642550
5,200.0	25.95	100.98	5,116.9	151.2	806.1	1,909,679.45	556,312.39	36.248302	-107.642356
5,400.0	43.95	100.98	5,280.2	129.4	918.1	1,909,657.93	556,424.43	36.248243	-107.641977
5,578.4	60.00	100.98	5,389.7	102.8	1,055.6	1,909,631.53	556,561.97	36.248169	-107.641510
Hold 60° Inc for 60'									
5,600.0	60.00	100.98	5,400.5	99.2	1,074.0	1,909,628.00	556,580.36	36.248160	-107.641448
5,638.4	60.00	100.98	5,419.7	92.9	1,106.6	1,909,621.73	556,613.00	36.248142	-107.641337
Begin 9°/100 Build									
5,800.0	74.55	100.98	5,482.0	64.6	1,252.5	1,909,593.70	556,759.01	36.248064	-107.640842
5,979.7	90.72	100.98	5,505.0	30.7	1,427.0	1,909,560.20	556,933.48	36.247972	-107.640251
Landing Pt 90.72° Inc, 100.98° Az									
5,979.8	90.72	100.98	5,505.0	30.7	1,427.0	1,909,560.19	556,933.54	36.247971	-107.640251
PP Chaco #407H									
6,000.0	90.72	100.98	5,504.7	26.9	1,446.8	1,909,556.38	556,953.38	36.247961	-107.640183
6,200.0	90.72	100.98	5,502.2	-11.2	1,643.2	1,909,518.68	557,149.78	36.247856	-107.639518
6,400.0	90.72	100.98	5,499.7	-49.3	1,839.5	1,909,480.98	557,346.18	36.247752	-107.638852
6,600.0	90.72	100.98	5,497.2	-87.4	2,035.8	1,909,443.29	557,542.58	36.247647	-107.638186
6,800.0	90.72	100.98	5,494.6	-125.5	2,232.1	1,909,405.59	557,738.98	36.247542	-107.637520
7,000.0	90.72	100.98	5,492.1	-163.5	2,428.5	1,909,367.89	557,935.38	36.247438	-107.636854
7,200.0	90.72	100.98	5,489.6	-201.6	2,624.8	1,909,330.19	558,131.78	36.247333	-107.636189
7,400.0	90.72	100.98	5,487.1	-239.7	2,821.1	1,909,292.49	558,328.17	36.247228	-107.635523

Database: COMPASS-SANJUAN
Company: SAN JUAN BASIN
Project: SJ 12-23N-08W
Site: Chaco 2308-11A
Well: Chaco 2308-11A #407H
Wellbore: Wellbore #1
Design: Design #1 26Aug14 kjs

Local Co-ordinate Reference: Well Chaco 2308-11A #407H
TVD Reference: WELL @ 7025.0usft (Original Well Elev)
MD Reference: WELL @ 7025.0usft (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
7,600.0	90.72	100.98	5,484.5	-277.8	3,017.4	1,909,254.79	558,524.57	36.247124	-107.634857
7,800.0	90.72	100.98	5,482.0	-315.9	3,213.8	1,909,217.09	558,720.97	36.247019	-107.634191
8,000.0	90.72	100.98	5,479.5	-353.9	3,410.1	1,909,179.39	558,917.37	36.246914	-107.633526
8,200.0	90.72	100.98	5,477.0	-392.0	3,606.4	1,909,141.69	559,113.77	36.246810	-107.632860
8,400.0	90.72	100.98	5,474.5	-430.1	3,802.7	1,909,103.99	559,310.17	36.246705	-107.632194
8,600.0	90.72	100.98	5,471.9	-468.2	3,999.1	1,909,066.29	559,506.57	36.246600	-107.631528
8,800.0	90.72	100.98	5,469.4	-506.3	4,195.4	1,909,028.59	559,702.96	36.246496	-107.630862
9,000.0	90.72	100.98	5,466.9	-544.3	4,391.7	1,908,990.89	559,899.36	36.246391	-107.630197
9,200.0	90.72	100.98	5,464.4	-582.4	4,588.0	1,908,953.19	560,095.76	36.246286	-107.629531
9,400.0	90.72	100.98	5,461.9	-620.5	4,784.4	1,908,915.49	560,292.16	36.246181	-107.628865
9,600.0	90.72	100.98	5,459.3	-658.6	4,980.7	1,908,877.79	560,488.56	36.246077	-107.628199
9,800.0	90.72	100.98	5,456.8	-696.7	5,177.0	1,908,840.09	560,684.96	36.245972	-107.627534
10,000.0	90.72	100.98	5,454.3	-734.8	5,373.3	1,908,802.39	560,881.36	36.245867	-107.626868
10,200.0	90.72	100.98	5,451.8	-772.8	5,569.7	1,908,764.69	561,077.75	36.245763	-107.626202
10,400.0	90.72	100.98	5,449.2	-810.9	5,766.0	1,908,726.99	561,274.15	36.245658	-107.625536
10,600.0	90.72	100.98	5,446.7	-849.0	5,962.3	1,908,689.30	561,470.55	36.245553	-107.624870
10,736.9	90.72	100.98	5,445.0	-875.1	6,096.7	1,908,663.49	561,605.01	36.245482	-107.624415

TD at 10736.9 - TD / PBHL Chaco #407H

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 #407H - plan hits target center - Point	0.00	0.00	5,445.0	-875.1	6,096.7	1,908,663.49	561,605.01	36.245482	-107.624415
PP Chaco #407H - plan hits target center - Point	0.00	0.00	5,505.0	30.7	1,427.0	1,909,560.18	556,933.54	36.247971	-107.640251

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
550.0	550.0	0.0	0.0	Start Build 2.00
1,130.0	1,126.1	12.6	57.2	Hold 11.6° Inc, 77.6° Az
4,331.7	4,262.3	150.8	685.9	Start Drop -2.00
4,911.7	4,838.4	163.4	743.1	KOP 9°/100
5,578.4	5,389.7	102.8	1,055.6	Hold 60° Inc for 60'
5,638.4	5,419.7	92.9	1,106.6	Begin 9°/100 Build
5,979.7	5,505.0	30.7	1,427.0	Landing Pt 90.72° Inc, 100.98° Az
10,736.9	5,445.0	-875.1	6,096.7	TD at 10736.9