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: 9/2/14
Well information:

API WELL #	Well Name	Well #	Operator Name	Type	Stat	County	Surf_Owner	UL	Sec	Twp	N/S	Rng	W/E	Feet	NS	Ft	EW
30-045-35553-00-00	CHACO 2308 06H	395H	WPX ENERGY PRODUCTION, LLC	O	N	San Juan	F	H	6	23	N	8	W	1687	N	291	E

Application Type:

☐ P&A ☒ Drilling/Casing Change ☒ Location Change

☐ Recomplete/DHC (For hydraulic fracturing operations review EPA Underground injection control Guidance #84)

☒ Other: Name change

Conditions of Approval:

Notify NMOCD 24hrs prior to beginning operations
Hold C-104 for as drilled plat, directional survey and NSL

(For hydraulic fracturing operations review EPA Underground injection control Guidance #84)

NMOCD Approved by Signature

9-4-14
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

Form 3160-5
(February 2005)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED
SEP 02 2014
Farmington Field Office

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.*

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other	5. Lease Serial No. NMNM 109399 ✓
	6. If Indian, Allottee or Tribe Name
	7. If Unit of CA/Agreement, Name and/or No.
	8. Well Name and No. Chaco 2308-06H #395H
2. Name of Operator WPX Energy Production, LLC	9. API Well No. 30-045-35553
3a. Address PO Box 640 Aztec, NM 87410 3b. Phone No. *(include area code)* 505-333-1808	10. Field and Pool or Exploratory Area Nageezi Gallup
4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)* SHL:1687' FNL & 291' FEL SEC 6 23N 8W BHL: 330' FNL & 230' FWL SEC 6 23N 8W	11. Country or Parish, State San Juan County, NM

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
	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Subsequent Report	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other **Name Change/Realign lateral**
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	RCVD SEP 3'14
☐ Final Abandonment Notice	☐ 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 recomplete 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 recompletion 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.)

OIL CONS. DIV.

WPX plans to plans to realign the lateral on this well as per attached C-102, operations plan and directional plan. 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. WPX would also like to change the well name from the Katie #1H to the Chaco 2308-06H #395H.

CONDITIONS OF APPROV

Adhere to previously issued stipulati

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

14. I hereby certify that the foregoing is true and correct. Name *(Printed/Typed)* Larry Higgins	DIST. 3 Title Regulatory Specialist
Signature Larry Higgins	Date 9/2/14

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by William Tambekou	Title Petroleum Engineer	Date 9/2/2014
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.	Office FFO	

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)

NMOCD

District I
1625 N. French Drive, Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

District II
811 S. First Street, Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

District IV
1220 S. St. Francis Drive, Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Drive
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011

Submit one copy to Appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number	2 Pool Code	3 Pool Name
30-045-35553	47540	NAGEEZI GALLUP

4 Property Code	5 Property Name	6 Well Number
313663	CHACO 2308-06H	395H

7 OGRID No.	8 Operator Name	9 Elevation
120782	WPX ENERGY PRODUCTION, LLC	6927'

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
H	6	23N	8W		1687	NORTH	291	EAST	SAN JUAN

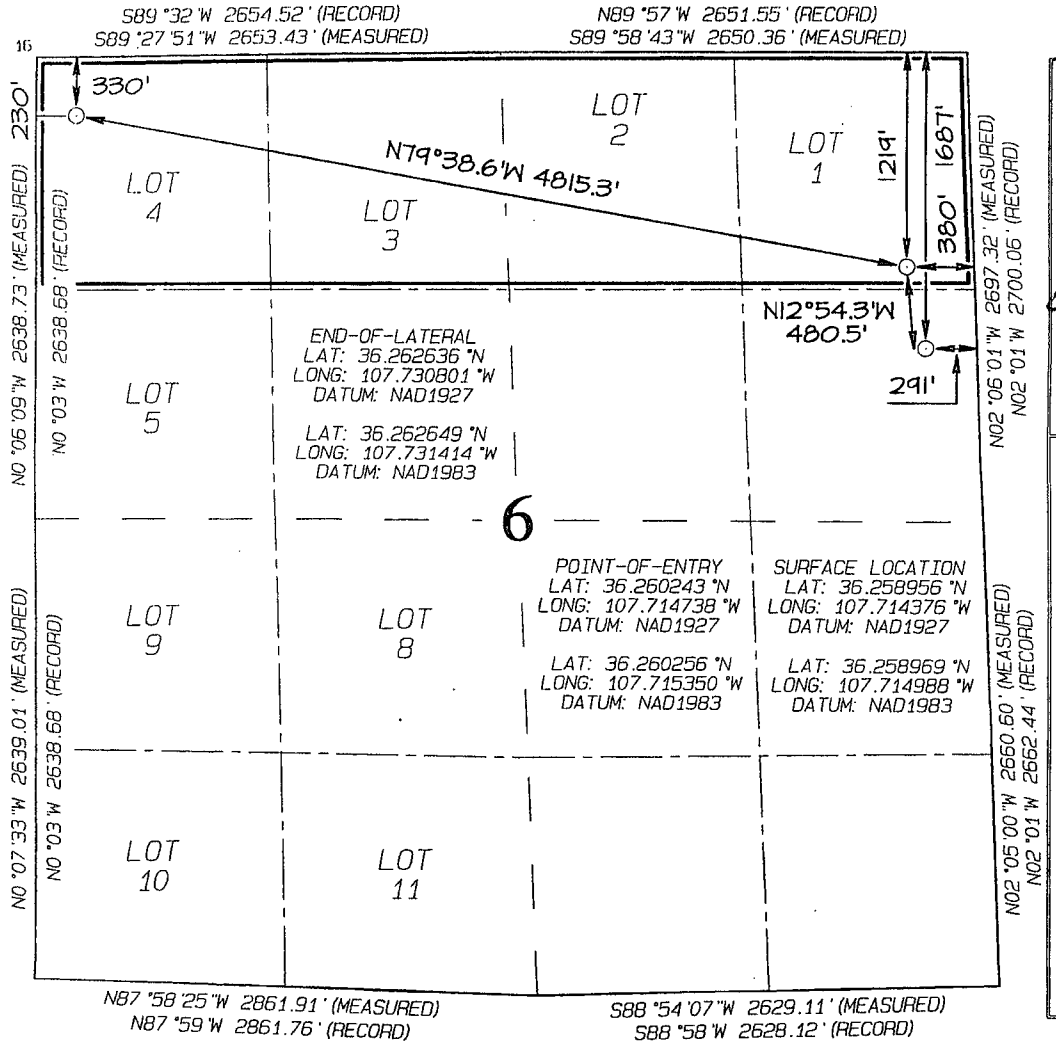
11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	6	23N	8W	4	330	NORTH	230	WEST	SAN JUAN

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.
163.34 Acres - N/2 N/2			RCVD SEP 3'14

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

OIL CONS. DIV.
DIST. 3



17 OPERATOR CERTIFICATION

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

Signature Date 9/2/14

Larry Higgins
Printed Name

larry.higgins@wpxenergy.com
E-mail Address

18 SURVEYOR CERTIFICATION

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

Date Revised: AUGUST 27, 2014
Date of Survey: AUGUST 25, 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:	8/29/14	**FIELD:**	Nageezi Gallup
WELL NAME:	**Chaco 2308-06H #395H**	**SURFACE:**	BLM
SH Location:	SENE Sec 6 -23N -08W	**ELEVATION:**	6927' GR
BH Location:	NWNW Sec 6 -23N -08W San Juan Co., NM	**MINERALS:**	BLM
MEASURED DEPTH:	**10,661'**	**LEASE #:**	NMNM 109399

I. GEOLOGY: Surface formation – Nacimiento

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

Name	MD	TVD	Name	MD	TVD
Ojo Alamo	1047	1044	Point Lookout	4104	4094
Kirtland	1282	1275	Mancos	4308	4250
Picture Cliffs	1638	1625	**Kickoff Point**	4763	4703
Lewis	1783	1768	Top Target	5390	5232
Chacra	2055	2035	**Landing Point**	**5844**	5369
Cliff House	3133	3094	Base Target	5844	5369
Menefee	3190	3150			
			TD	10661	5210

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 att ached Directional Plan to +/- 4,763' (MD) / 4,703' (TVD). Curve portion of wellbore will be drilled and landed at +/- 90 deg. at +/- 5,844' (MD) / 5,369' (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 +/- 10,661' (MD) / 5,210' (TVD). Will run 4-1/2 in. Production Liner from +/- 5,694 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"	5844'	7"	23#	K-55
Prod. Liner	6.125"	5,694' - 10,661'	4-1/2"	11.6#	N-80
Tie-Back String	N/A	Surf. - 5,694'	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 +/- 5,394 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 (~5,700' 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 5,844 ft. MD) with a Liner Hanger and pack-off assembly then cemented to +/- 300 ft above the liner hanger. TOL will be +/- 5,694 ft. (MD) +/- 78 degree angle. TOC: +/- 5,394 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.

WPXENERGY

Well Name: Chaco 2308-06H #395H
Surface Location: Chaco 2308-06H
NAD 1927 (NADCON CONUS) , US State Plane 1927 (Exact solution) New Mexico West 3003
Ground Elevation: 6927.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1913523.70	535071.64	36.258956	-107.714376	

KELLY BUSHING @ 6941.0usft

T M

Azimuths to True North
Magnetic North: 9.43°
Magnetic Field
Strength: 50148.6snT
Dip Angle: 62.98°
Date: 8/15/2014
Model: IGRF2010

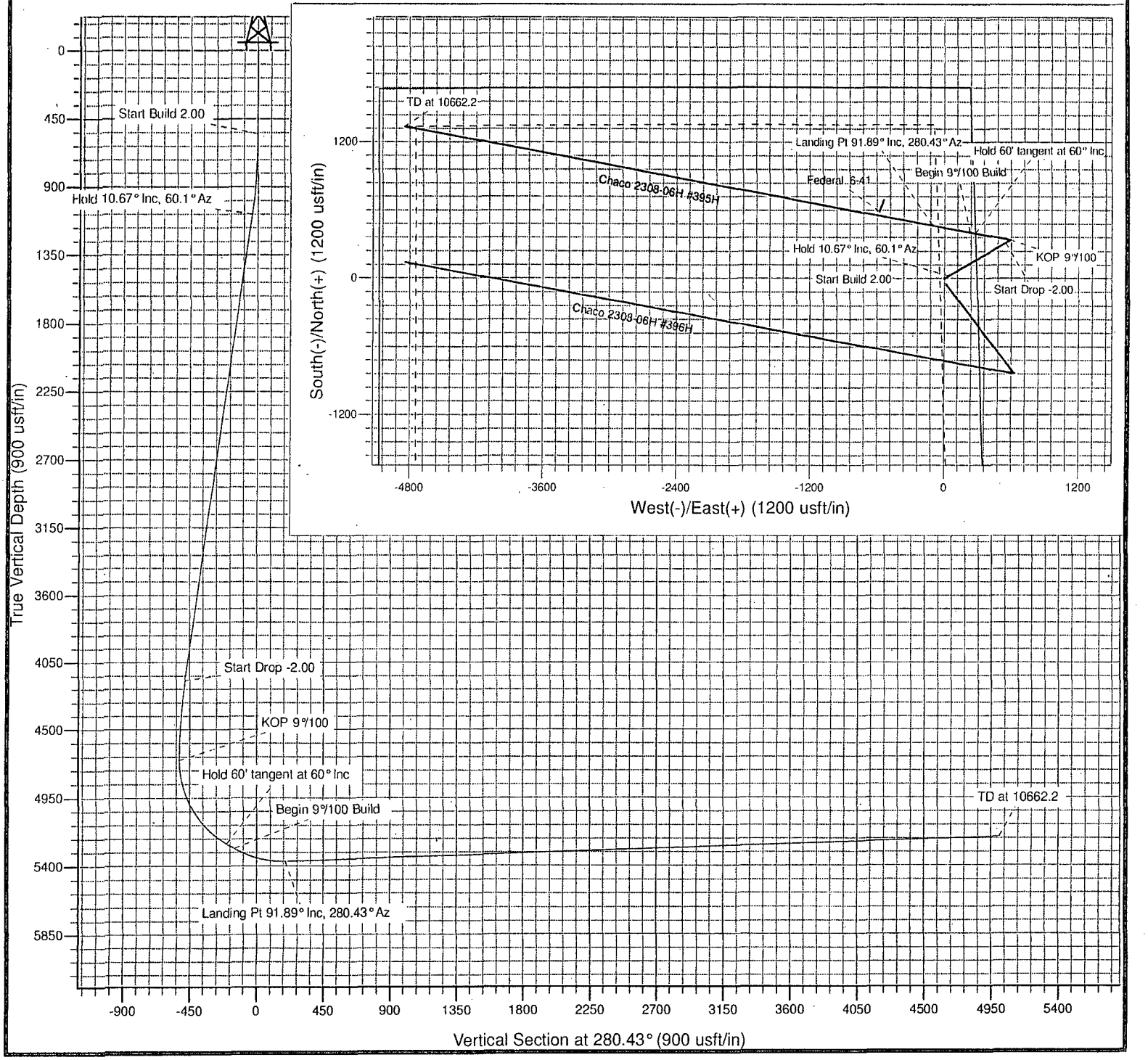
Project: SJ 06-23N-08W
Site: Chaco 2308-06H
Well: Chaco 2308-06H #395H
Design #1 15Aug14 kjs

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
1080.6	1083.7	10.67	60.10	24.7	43.0	-37.8	49.6	Hold 10.67° Inc, 60.1° Az
4172.1	4229.6	10.67	60.10	315.2	548.1	-482.0	632.3	Start Drop -2.00
4702.7	4763.3	0.00	60.10	339.9	591.1	-519.8	681.9	KOP 9°/100
5254.0	5430.0	60.00	280.43	397.5	278.0	-201.5	1000.2	Hold 60° tangent at 60° Inc
5284.0	5490.0	60.00	280.43	406.9	226.9	-149.5	1052.2	Begin 9°/100 Build
5369.0	5844.3	91.89	280.43	468.4	-106.8	189.8	1391.4	Landing Pt 91.89° Inc, 280.43° Az
5210.0	10661.2	91.89	280.43	1339.7	-4841.5	5004.1	6205.7	TD at 10662.2

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
TD / PBHL Chaco #395	5210.0	1339.9	-4842.5	1914857.69	530227.50	36.262636	-107.730801	Circle (Radius: 230.0)
- plan hits target center								
PP Chaco #395	5369.0	468.4	-106.8	1913991.98	534964.30	36.260243	-107.714738	Circle (Radius: 50.0)
- plan misses target center by 0.1usft at 5844.3usft MD (5369.0 TVD, 468.4 N, -106.8 E)								



WPXENERGY SM

SAN JUAN BASIN

SJ 06-23N-08W
Chaco 2308-06H
Chaco 2308-06H #395H

Wellbore #1

Plan: Design #1 15Aug14 kjs

Standard Planning Report - Geographic

28 August, 2014

Database:	COMPASS-SANJUAN	Local Co-ordinate Reference:	Well Chaco 2308-06H #395H
Company:	SAN JUAN BASIN	TVD Reference:	KELLY BUSHING @ 6941.0usft
Project:	SJ 06-23N-08W	MD Reference:	KELLY BUSHING @ 6941.0usft
Site:	Chaco 2308-06H	North Reference:	True
Well:	Chaco 2308-06H #395H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 15Aug14 kjs		

Project SJ 06-23N-08W

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 2308-06H

Site Position:		Northing:	1,913,523.71 usft	Latitude:	36.258957
From:	Map	Easting:	535,071.64 usft	Longitude:	-107.714376
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in	Grid Convergence:	0.07 °

Well Chaco 2308-06H #395H

Well Position	+N/-S	0.0 usft	Northing:	1,913,523.71 usft	Latitude:	36.258957
	+E/-W	0.0 usft	Easting:	535,071.64 usft	Longitude:	-107.714376
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	6,927.0 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/15/2014	9.43	62.98	50,149

Design Design #1 15Aug14 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	280.43

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
0.0	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	
1,083.7	10.67	60.10	1,080.6	24.7	43.0	2.00	2.00	0.00	60.10	
4,229.6	10.67	60.10	4,172.1	315.2	548.1	0.00	0.00	0.00	0.00	
4,763.3	0.00	0.00	4,702.7	339.9	591.1	2.00	-2.00	0.00	180.00	
5,430.0	60.00	280.43	5,254.0	397.5	278.0	9.00	9.00	0.00	280.43	
5,490.0	60.00	280.43	5,284.0	406.9	226.9	0.00	0.00	0.00	0.00	
5,844.3	91.89	280.43	5,369.0	468.4	-106.8	9.00	9.00	0.00	0.00	
10,662.2	91.89	280.43	5,210.0	1,339.9	-4,842.5	0.00	0.00	0.00	0.00	TD / PBHL Chaco #39

Database:	COMPASS-SAN JUAN	Local Co-ordinate Reference:	Well Chaco 2308-06H #395H
Company:	SAN JUAN BASIN	TVD Reference:	KELLY BUSHING @ 6941.0usft
Project:	SJ 06-23N-08W	MD Reference:	KELLY BUSHING @ 6941.0usft
Site:	Chaco 2308-06H	North Reference:	True
Well:	Chaco 2308-06H #395H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 15Aug14 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
0.0	0.00	0.00	0.0	0.0	0.0	1,913,523.71	535,071.64	36.258957	-107.714376
200.0	0.00	0.00	200.0	0.0	0.0	1,913,523.71	535,071.64	36.258957	-107.714376
400.0	0.00	0.00	400.0	0.0	0.0	1,913,523.71	535,071.64	36.258957	-107.714376
550.0	0.00	0.00	550.0	0.0	0.0	1,913,523.71	535,071.64	36.258957	-107.714376
Start Build 2.00°									
600.0	1.00	60.10	600.0	0.2	0.4	1,913,523.93	535,072.02	36.258957	-107.714375
800.0	5.00	60.10	799.7	5.4	9.5	1,913,529.15	535,081.08	36.258971	-107.714344
1,000.0	9.00	60.10	998.2	17.6	30.6	1,913,541.33	535,102.19	36.259005	-107.714272
1,083.7	10.67	60.10	1,080.6	24.7	43.0	1,913,548.47	535,114.58	36.259024	-107.714230
Hold 10.67° Inc, 60.1° Az									
1,200.0	10.67	60.10	1,194.9	35.4	61.6	1,913,559.23	535,133.24	36.259054	-107.714167
1,400.0	10.67	60.10	1,391.4	53.9	93.8	1,913,577.74	535,165.34	36.259105	-107.714058
1,600.0	10.67	60.10	1,588.0	72.4	125.9	1,913,596.24	535,197.43	36.259155	-107.713949
1,800.0	10.67	60.10	1,784.5	90.9	158.0	1,913,614.75	535,229.52	36.259206	-107.713840
2,000.0	10.67	60.10	1,981.1	109.3	190.1	1,913,633.26	535,261.61	36.259257	-107.713731
2,200.0	10.67	60.10	2,177.6	127.8	222.2	1,913,651.76	535,293.71	36.259308	-107.713622
2,400.0	10.67	60.10	2,374.1	146.3	254.3	1,913,670.27	535,325.80	36.259358	-107.713513
2,600.0	10.67	60.10	2,570.7	164.7	286.5	1,913,688.78	535,357.89	36.259409	-107.713404
2,800.0	10.67	60.10	2,767.2	183.2	318.6	1,913,707.28	535,389.98	36.259460	-107.713295
3,000.0	10.67	60.10	2,963.8	201.7	350.7	1,913,725.79	535,422.08	36.259510	-107.713186
3,200.0	10.67	60.10	3,160.3	220.1	382.8	1,913,744.30	535,454.17	36.259561	-107.713078
3,400.0	10.67	60.10	3,356.8	238.6	414.9	1,913,762.80	535,486.26	36.259612	-107.712969
3,600.0	10.67	60.10	3,553.4	257.1	447.0	1,913,781.31	535,518.35	36.259663	-107.712860
3,800.0	10.67	60.10	3,749.9	275.5	479.1	1,913,799.82	535,550.45	36.259713	-107.712751
4,000.0	10.67	60.10	3,946.5	294.0	511.3	1,913,818.32	535,582.54	36.259764	-107.712642
4,200.0	10.67	60.10	4,143.0	312.5	543.4	1,913,836.83	535,614.63	36.259815	-107.712533
4,229.6	10.67	60.10	4,172.1	315.2	548.1	1,913,839.57	535,619.38	36.259822	-107.712517
Start Drop -2.00									
4,400.0	7.27	60.10	4,340.4	328.4	571.2	1,913,852.84	535,642.39	36.259859	-107.712439
4,600.0	3.27	60.10	4,539.5	337.6	587.1	1,913,862.01	535,658.29	36.259884	-107.712385
4,763.3	0.00	60.10	4,702.7	339.9	591.1	1,913,864.33	535,662.32	36.259890	-107.712371
KOP 9°/100									
4,800.0	3.30	280.43	4,739.4	340.1	590.1	1,913,864.52	535,661.28	36.259891	-107.712374
5,000.0	21.30	280.43	4,934.0	347.8	548.3	1,913,872.15	535,619.53	36.259912	-107.712516
5,200.0	39.30	280.43	5,105.9	366.0	449.5	1,913,890.23	535,520.67	36.259962	-107.712851
5,400.0	57.30	280.43	5,238.4	392.9	303.2	1,913,916.97	535,374.38	36.260036	-107.713347
5,430.0	60.00	280.43	5,254.0	397.5	278.0	1,913,921.58	535,349.18	36.260049	-107.713433
Hold 60° tangent at 60° Inc									
5,490.0	60.00	280.43	5,284.0	406.9	226.9	1,913,930.92	535,298.06	36.260074	-107.713606
Begin 9°/100 Build									
5,600.0	69.90	280.43	5,330.6	425.0	129.0	1,913,948.82	535,200.15	36.260124	-107.713938
5,800.0	87.90	280.43	5,368.9	460.3	-63.2	1,913,983.96	535,007.88	36.260221	-107.714590
5,844.3	91.89	280.43	5,369.0	468.4	-106.8	1,913,991.93	534,964.29	36.260243	-107.714738
Landing Pt 91.89° Inc, 280.43° Az - PP Chaco #395 (50' R)									
6,000.0	91.89	280.43	5,363.8	496.5	-259.8	1,914,019.91	534,811.24	36.260321	-107.715257
6,200.0	91.89	280.43	5,357.2	532.7	-456.4	1,914,055.85	534,614.60	36.260420	-107.715924
6,400.0	91.89	280.43	5,350.6	568.9	-653.0	1,914,091.78	534,417.97	36.260519	-107.716591
6,600.0	91.89	280.43	5,344.0	605.1	-849.6	1,914,127.72	534,221.33	36.260619	-107.717258
6,800.0	91.89	280.43	5,337.4	641.2	-1,046.2	1,914,163.66	534,024.70	36.260718	-107.717924
7,000.0	91.89	280.43	5,330.8	677.4	-1,242.7	1,914,199.60	533,828.07	36.260817	-107.718591
7,200.0	91.89	280.43	5,324.2	713.6	-1,439.3	1,914,235.54	533,631.43	36.260917	-107.719258
7,400.0	91.89	280.43	5,317.6	749.8	-1,635.9	1,914,271.48	533,434.80	36.261016	-107.719925
7,600.0	91.89	280.43	5,311.0	786.0	-1,832.5	1,914,307.42	533,238.17	36.261116	-107.720592
7,800.0	91.89	280.43	5,304.4	822.1	-2,029.1	1,914,343.36	533,041.53	36.261215	-107.721258

Database:	COMPASS-SANJUAN	Local Co-ordinate Reference:	Well Chaco 2308-06H #395H
Company:	SAN JUAN BASIN	TVD Reference:	KELLY BUSHING @ 6941.0usft
Project:	SJ 06-23N-08W	MD Reference:	KELLY BUSHING @ 6941.0usft
Site:	Chaco 2308-06H	North Reference:	True
Well:	Chaco 2308-06H #395H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 15Aug14 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
8,000.0	91.89	280.43	5,297.8	858.3	-2,225.7	1,914,379.30	532,844.90	36.261314	-107.721925
8,200.0	91.89	280.43	5,291.2	894.5	-2,422.3	1,914,415.24	532,648.26	36.261414	-107.722592
8,400.0	91.89	280.43	5,284.6	930.7	-2,618.9	1,914,451.18	532,451.63	36.261513	-107.723259
8,600.0	91.89	280.43	5,278.0	966.9	-2,815.5	1,914,487.12	532,255.00	36.261612	-107.723926
8,800.0	91.89	280.43	5,271.4	1,003.1	-3,012.0	1,914,523.06	532,058.36	36.261712	-107.724593
9,000.0	91.89	280.43	5,264.8	1,039.2	-3,208.6	1,914,559.00	531,861.73	36.261811	-107.725260
9,200.0	91.89	280.43	5,258.2	1,075.4	-3,405.2	1,914,594.94	531,665.10	36.261910	-107.725926
9,400.0	91.89	280.43	5,251.6	1,111.6	-3,601.8	1,914,630.88	531,468.46	36.262010	-107.726593
9,600.0	91.89	280.43	5,245.0	1,147.8	-3,798.4	1,914,666.82	531,271.83	36.262109	-107.727260
9,800.0	91.89	280.43	5,238.4	1,184.0	-3,995.0	1,914,702.76	531,075.20	36.262208	-107.727927
10,000.0	91.89	280.43	5,231.9	1,220.1	-4,191.6	1,914,738.69	530,878.56	36.262308	-107.728594
10,200.0	91.89	280.43	5,225.3	1,256.3	-4,388.2	1,914,774.63	530,681.93	36.262407	-107.729261
10,400.0	91.89	280.43	5,218.7	1,292.5	-4,584.8	1,914,810.57	530,485.29	36.262506	-107.729927
10,600.0	91.89	280.43	5,212.1	1,328.7	-4,781.4	1,914,846.51	530,288.66	36.262605	-107.730594
10,662.2	91.89	280.43	5,210.0	1,339.9	-4,842.5	1,914,857.69	530,227.51	36.262636	-107.730802
TD at 10662.2 - TD / PBHL Chaco #395 (230' R)									

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 #395 - plan hits target center - Circle (radius 230.0)	0.00	0.00	5,210.0	1,339.9	-4,842.5	1,914,857.69	530,227.50	36.262636	-107.730802
PP Chaco #395 (50' R) - plan misses target center by 0.1usft at 5844.3usft MD (5369.0 TVD, 468.4 N, -106.8 E) - Circle (radius 50.0)	0.00	0.00	5,369.0	468.4	-106.8	1,913,991.98	534,964.30	36.260243	-107.714738

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
550.0	550.0	0.0	0.0	Start Build 2.00
1,083.7	1,080.6	24.7	43.0	Hold 10.67° Inc, 60.1° Az
4,229.6	4,172.1	315.2	548.1	Start Drop -2.00
4,763.3	4,702.7	339.9	591.1	KOP 9°/100
5,430.0	5,254.0	397.5	278.0	Hold 60' tangent at 60° Inc
5,490.0	5,284.0	406.9	226.9	Begin 9°/100 Build
5,844.3	5,369.0	468.4	-106.8	Landing Pt 91.89° Inc, 280.43° Az
10,662.2	5,210.0	1,339.9	-4,842.5	TD at 10662.2