

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:

API WELL #	Well Name	Well #	Operator Name	Type	Stat	County	Surf_Owner	UL	Sec	Twp	N/S	Rng	W/E	Feet	NS	Ft	EW
30-039-31262-00-00	CHACO 2306 03E	412H	WPX ENERGY PRODUCTION, LLC	O	N	Rio Arriba	F	E	3	23	N	6	W	1965	N	270	W
30-039-31261-00-00	CHACO 2306 03E	413H	WPX ENERGY PRODUCTION, LLC	O	N	Rio Arriba	F	E	3	23	N	6	W	1743	N	255	W

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 and lateral alignment.

Conditions of Approval:

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

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

Hold C-104 for (NSL)

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.

Charlie T. Lerrin

NMOCD Approved by Signature

10/15/14
Date

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

OCT 10 2014

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-130875

6. If Indian, Allottee or Tribe Name

RCVD OCT 15 '14

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

8. Well Name and No.
Chaco 2306-03E #413H

9. API Well No. DIST. 3
30-039-31261

10. Field and Pool or Exploratory Area
Counselors Gallup-Dakota

11. Country or Parish, State
Rio Arriba, 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)
505-333-1806

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
SHL: 1743' FNL & 255' FWL SEC 3 23N 6W
BHL: 1580' FNL & 230' FWL SEC 4 23N 6W

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 Dilectione Mea #2H to the Chaco 2306-03E #413H. We also request to change the lateral alignment of this well per attached C-102, operation plan and directional plan.

14. I hereby certify that the foregoing is true and correct.

Name (Printed/Typed)

Heather Riley

Title Regulatory Manager

Signature

Date 10/9/14

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Title

LLC

Date

10-14-14

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

Submit one copy to
Appropriate District Office

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

OIL CONSERVATION DIVISION

1220 South St. Francis Drive
Santa Fe. NM 87505

☐ AMENDED REPORT

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

WELL LOCATION AND ACREAGE DEDICATION PLAT OCT 10 2014

*API Number		*Pool Code 13379		*Pool Name COUNSELORS GALLUP-DAKOTA	
*Property Code		*Property Name CHACO 2306-03E			*Well Number 413H
*GRID No. 120782		*Operator Name WPX ENERGY PRODUCTION, LLC			*Elevation 6693'

¹⁰ Surface Location

U/L or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	3	23N	6W		1743	NORTH	255	WEST	RIO ARRIBA

¹¹ Bottom Hole Location If Different From Surface

U/L or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	280	East/West line	County
E	4	23N	6W		1580	NORTH	230	WEST	RIO ARRIBA

¹² Dedicated Acres 160.00 Acres S/2 N/2 - Section 4	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. RCVD OCT 15 '14 ST. LOUIS, MO
--	-------------------------------	----------------------------------	---

RCVD OCT 15 '14
OIL CONS. DIV.

DIST. 3

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
1580' FNL 230' FWL
SECTION 4, T23N, R6W
LAT: 36.256253°N
LONG: 107.482337°W
DATUM: NAD1927

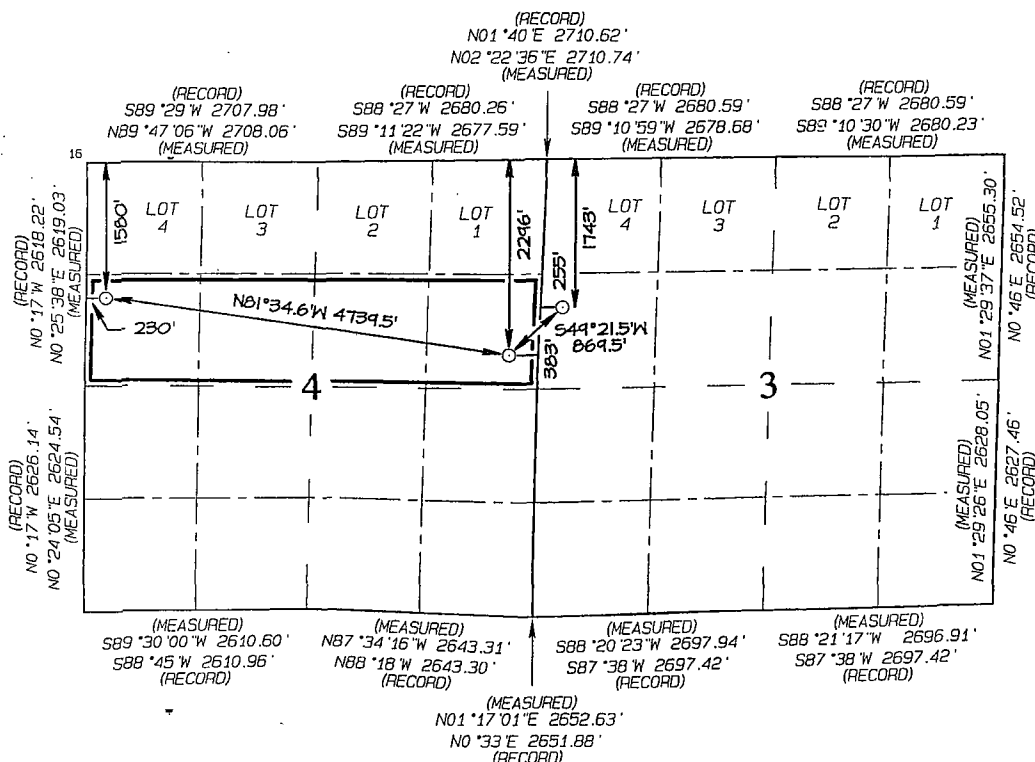
LAT: 36.256266 *N
LONG: 107.482942 *W
DATUM: NAD1983

POINT-OF-ENTRY
2296' FNL 383' FEL
SECTION 4, T23N, R6W
LAT: 36.254509°N
LONG: 107.466409°W
DATUM: NAD1927

LAT: 36.254522 °N
LONG: 107.467014 °W
DATUM: NAD1983

SURFACE LOCATION
1743' FNL 255' FWL
SECTION 3, T23N, R6W
LAT: 36.256087°N
LONG: 107.464196°W
DATUM: NAD1927

LAT: 36.256100 *N
LONG: 107.464800 *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 working interest, or a unitary pooling agreement or a compulsory pooling order heretofore entered by the Division.

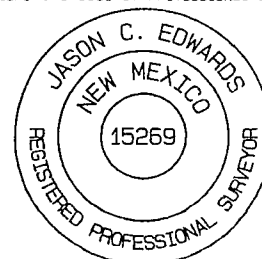
Signature Heather Riley Date 10/9/2014
Printed Name Heather Riley
E-mail Address heather.riley@wprenergy.com

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: OCTOBER 9, 2014
Date of Survey: JANUARY 29, 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: 9/26/14 **FIELD:** Counselors Gallup - Dakota

WELL NAME: Chaco 2306-03E #413H **SURFACE:** BLM

SH Location: SWNW Sec 3 -23N -06W **ELEVATION:** 6693' GR

BH Location: SWNW Sec 4 -23N -06W **MINERALS:** BLM
Rio Arriba CO., NM

MEASURED DEPTH: 10,729' **LEASE #:** NMN130875

I. GEOLOGY: Surface formation – San Jose

A. FORMATION TOPS: (KB)

Name	MD	TVD	Name	MD	TVD
Ojo Alamo	1399	1391	Point Lookout	4274	4221
Kirtland	1588	1577	Mancos	4546	4489
Picture Cliffs	2008	1990	Kickoff Point	4913	4855
Lewis	2102	2083	Top Target	5637	5435
Chacra	2412	2388	Landing Point	5990	5521
Cliff House	3515	3474	Base Target	5990	5521
Menefee	3557	3515			
			TD	10729	5397

- 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 +/- 4,913' (MD) / 4,855' (TVD). Curve portion of wellbore will be drilled and landed at +/- 90 deg. at +/- 5,990' (MD) / 5,521' (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 +/- 10,729' (MD) / 5,397' (TVD). Will run 4-1/2 in. Production Liner from +/- 5,440 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"	5990'	7"	23#	K-55
Prod. Liner	6.125"	5,440' - 10,729'	4-1/2"	11.6#	N-80
Tie-Back String	N/A	Surf. - 5,440'	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). 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 (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).

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.



SAN JUAN BASIN

SJ 03-23N-6W

Chaco 2306-03E

Chaco 2306-03E #413

Wellbore #1

Plan: Design #1 24Sep14 jps

Standard Planning Report - Geographic

25 September, 2014

Database:	COMPASS-SANJUAN	Local Co-ordinate Reference:	Well Chaco 2306-03E #413
Company:	SAN JUAN BASIN	TVD Reference:	KB @ 6708.0usft (Original Well Elev)
Project:	SJ 03-23N-6W	MD Reference:	KB @ 6708.0usft (Original Well Elev)
Site:	Chaco 2306-03E	North Reference:	True
Well:	Chaco 2306-03E #413	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 24Sep14 jps		

Project	SJ 03-23N-6W, 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 2306-03E				
Site Position:		Northing:	1,912,712.39 usft	Latitude:	36.256217
From:	Lat/Long	Easting:	608,852.41 usft	Longitude:	-107.464136
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in	Grid Convergence:	0.22 °

Well	Chaco 2306-03E #413					
Well Position	+N/-S	0.0 usft	Northing:	1,912,665.00 usft	Latitude:	36.256087
	+E/-W	0.0 usft	Easting:	608,834.90 usft	Longitude:	-107.464196
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	6,693.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF2010	9/24/2014	(°)	(°)	(nT)
			9.31	63.02	50,171

Design	Design #1 24Sep14 jps			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.0	0.0	0.0	278.90

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	
1,059.1	10.18	176.21	1,056.4	-45.0	3.0	2.00	2.00	0.00	176.21	
4,403.6	10.18	176.21	4,348.2	-634.9	42.0	0.00	0.00	0.00	0.00	
4,912.6	0.00	0.00	4,854.6	-679.9	45.0	2.00	-2.00	0.00	180.00	
5,579.3	60.00	278.90	5,405.9	-630.7	-269.5	9.00	9.00	0.00	278.90	
5,639.3	60.00	278.90	5,435.9	-622.6	-320.8	0.00	0.00	0.00	0.00	
5,989.5	91.50	277.71	5,521.1	-574.5	-652.5	9.00	8.99	-0.34	-2.28	
10,730.1	91.50	277.71	5,397.0	60.9	-5,348.7	0.00	0.00	0.00	0.00	TD / PBHL Chaco 230

Database: COMPASS-SANJUAN
 Company: SAN JUAN BASIN
 Project: SJ 03-23N-6W
 Site: Chaco 2306-03E
 Well: Chaco 2306-03E #413
 Wellbore: Wellbore #1
 Design: Design #1 24Sep14 jps

Local Co-ordinate Reference: Well Chaco 2306-03E #413
 TVD Reference: KB @ 6708.0usft (Original Well Elev)
 MD Reference: KB @ 6708.0usft (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	1,912,665.00	608,834.90	36.256087	-107.464196
200.0	0.00	0.00	200.0	0.0	0.0	1,912,665.00	608,834.90	36.256087	-107.464196
400.0	0.00	0.00	400.0	0.0	0.0	1,912,665.00	608,834.90	36.256087	-107.464196
550.0	0.00	0.00	550.0	0.0	0.0	1,912,665.00	608,834.90	36.256087	-107.464196
Start Build 2.00									
600.0	1.00	176.21	600.0	-0.4	0.0	1,912,664.57	608,834.93	36.256086	-107.464196
800.0	5.00	176.21	799.7	-10.9	0.7	1,912,654.13	608,835.66	36.256057	-107.464194
1,000.0	9.00	176.21	998.2	-35.2	2.3	1,912,629.82	608,837.36	36.255990	-107.464188
1,059.1	10.18	176.21	1,056.4	-45.0	3.0	1,912,620.00	608,838.05	36.255963	-107.464186
Hold 10.18 Inc, 176.21 Az									
1,200.0	10.18	176.21	1,195.1	-69.9	4.6	1,912,595.15	608,839.79	36.255895	-107.464181
1,400.0	10.18	176.21	1,392.0	-105.1	7.0	1,912,559.89	608,842.26	36.255798	-107.464173
1,600.0	10.18	176.21	1,588.8	-140.4	9.3	1,912,524.62	608,844.73	36.255701	-107.464165
1,800.0	10.18	176.21	1,785.7	-175.7	11.6	1,912,489.36	608,847.20	36.255604	-107.464157
2,000.0	10.18	176.21	1,982.5	-211.0	14.0	1,912,454.09	608,849.67	36.255508	-107.464149
2,200.0	10.18	176.21	2,179.4	-246.2	16.3	1,912,418.82	608,852.14	36.255411	-107.464141
2,400.0	10.18	176.21	2,376.2	-281.5	18.6	1,912,383.56	608,854.61	36.255314	-107.464133
2,600.0	10.18	176.21	2,573.1	-316.8	21.0	1,912,348.29	608,857.07	36.255217	-107.464125
2,800.0	10.18	176.21	2,769.9	-352.1	23.3	1,912,313.03	608,859.54	36.255120	-107.464117
3,000.0	10.18	176.21	2,966.8	-387.3	25.6	1,912,277.76	608,862.01	36.255023	-107.464109
3,200.0	10.18	176.21	3,163.6	-422.6	28.0	1,912,242.50	608,864.48	36.254926	-107.464101
3,400.0	10.18	176.21	3,360.5	-457.9	30.3	1,912,207.23	608,866.95	36.254829	-107.464093
3,600.0	10.18	176.21	3,557.3	-493.2	32.6	1,912,171.97	608,869.42	36.254732	-107.464086
3,800.0	10.18	176.21	3,754.2	-528.4	35.0	1,912,136.70	608,871.89	36.254635	-107.464078
4,000.0	10.18	176.21	3,951.0	-563.7	37.3	1,912,101.44	608,874.36	36.254539	-107.464070
4,200.0	10.18	176.21	4,147.9	-599.0	39.6	1,912,066.17	608,876.83	36.254442	-107.464062
4,400.0	10.18	176.21	4,344.7	-634.3	42.0	1,912,030.90	608,879.30	36.254345	-107.464054
4,403.6	10.18	176.21	4,348.2	-634.9	42.0	1,912,030.28	608,879.34	36.254343	-107.464054
Start Drop -2.00									
4,600.0	6.25	176.21	4,542.6	-662.9	43.9	1,912,002.28	608,881.30	36.254266	-107.464047
4,800.0	2.25	176.21	4,742.0	-677.7	44.9	1,911,987.49	608,882.34	36.254225	-107.464044
4,912.6	0.00	0.00	4,854.6	-679.9	45.0	1,911,985.28	608,882.49	36.254219	-107.464044
KOP 9°/100									
5,000.0	7.86	278.90	4,941.7	-679.0	39.1	1,911,986.18	608,876.57	36.254222	-107.464064
5,200.0	25.86	278.90	5,132.3	-670.0	-18.0	1,911,994.91	608,819.45	36.254246	-107.464257
5,400.0	43.87	278.90	5,295.8	-652.4	-130.5	1,912,012.09	608,706.89	36.254295	-107.464639
5,579.3	60.00	278.90	5,405.9	-630.7	-269.5	1,912,033.33	608,567.83	36.254355	-107.465110
Hold 60° for 60'									
5,600.0	60.00	278.90	5,416.3	-627.9	-287.2	1,912,036.03	608,550.09	36.254362	-107.465170
5,639.3	60.00	278.90	5,435.9	-622.6	-320.8	1,912,041.17	608,516.46	36.254377	-107.465264
Begin 9°/100									
5,800.0	74.45	278.31	5,498.0	-600.5	-467.0	1,912,062.68	608,370.24	36.254437	-107.465780
5,989.5	91.50	277.71	5,521.1	-574.5	-652.5	1,912,088.06	608,184.57	36.254509	-107.466409
Landing Pt. Hold 91.5 Inc, 277.71 Az									
6,000.0	91.50	277.71	5,520.8	-573.1	-662.9	1,912,089.43	608,174.17	36.254513	-107.466445
6,200.0	91.50	277.71	5,515.6	-546.2	-861.0	1,912,115.48	607,975.94	36.254586	-107.467117
6,400.0	91.50	277.71	5,510.3	-519.4	-1,059.2	1,912,141.53	607,777.72	36.254660	-107.467789
6,600.0	91.50	277.71	5,505.1	-492.6	-1,257.3	1,912,167.58	607,579.49	36.254734	-107.468461
6,800.0	91.50	277.71	5,499.8	-465.8	-1,455.4	1,912,193.63	607,381.26	36.254807	-107.469133
7,000.0	91.50	277.71	5,494.6	-439.0	-1,653.5	1,912,219.68	607,183.04	36.254881	-107.469804
7,200.0	91.50	277.71	5,489.4	-412.2	-1,851.7	1,912,245.73	606,984.81	36.254955	-107.470476
7,400.0	91.50	277.71	5,484.1	-385.4	-2,049.8	1,912,271.79	606,786.58	36.255028	-107.471148
7,600.0	91.50	277.71	5,478.9	-358.6	-2,247.9	1,912,297.84	606,588.35	36.255102	-107.471820
7,800.0	91.50	277.71	5,473.7	-331.8	-2,446.1	1,912,323.89	606,390.13	36.255175	-107.472492

Database:	COMPASS-SANJUAN	Local Co-ordinate Reference:	Well Chaco 2306-03E #413
Company:	SAN JUAN BASIN	TVD Reference:	KB @ 6708.0usft (Original Well Elev)
Project:	SJ 03-23N-6W	MD Reference:	KB @ 6708.0usft (Original Well Elev)
Site:	Chaco 2306-03E	North Reference:	True
Well:	Chaco 2306-03E #413	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 24Sep14 jps		

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	91.50	277.71	5,468.4	-305.0	-2,644.2	1,912,349.94	606,191.90	36.255249	-107.473164
8,200.0	91.50	277.71	5,463.2	-278.2	-2,842.3	1,912,375.99	605,993.67	36.255323	-107.473836
8,400.0	91.50	277.71	5,458.0	-251.4	-3,040.4	1,912,402.04	605,795.45	36.255396	-107.474508
8,600.0	91.50	277.71	5,452.7	-224.6	-3,238.6	1,912,428.09	605,597.22	36.255470	-107.475180
8,800.0	91.50	277.71	5,447.5	-197.8	-3,436.7	1,912,454.15	605,398.99	36.255543	-107.475852
9,000.0	91.50	277.71	5,442.3	-171.0	-3,634.8	1,912,480.20	605,200.77	36.255617	-107.476524
9,200.0	91.50	277.71	5,437.0	-144.1	-3,832.9	1,912,506.25	605,002.54	36.255690	-107.477196
9,400.0	91.50	277.71	5,431.8	-117.3	-4,031.1	1,912,532.30	604,804.31	36.255764	-107.477868
9,600.0	91.50	277.71	5,426.6	-90.5	-4,229.2	1,912,558.35	604,606.08	36.255838	-107.478540
9,800.0	91.50	277.71	5,421.3	-63.7	-4,427.3	1,912,584.40	604,407.86	36.255911	-107.479212
10,000.0	91.50	277.71	5,416.1	-36.9	-4,625.4	1,912,610.46	604,209.63	36.255985	-107.479884
10,200.0	91.50	277.71	5,410.9	-10.1	-4,823.6	1,912,636.51	604,011.40	36.256058	-107.480556
10,400.0	91.50	277.71	5,405.6	16.7	-5,021.7	1,912,662.56	603,813.18	36.256132	-107.481228
10,600.0	91.50	277.71	5,400.4	43.5	-5,219.8	1,912,688.61	603,614.95	36.256205	-107.481900
10,730.1	91.50	277.71	5,397.0	60.9	-5,348.7	1,912,705.55	603,486.04	36.256253	-107.482337
TD at 10730.1									

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 2306- - plan hits target center - Point	0.00	0.00	5,397.0	60.9	-5,348.7	1,912,705.55	603,486.04	36.256253	-107.482337
PP 2306-03E #413 - plan misses target center by 99.1usft at 5975.6usft MD (5521.3 TVD, -576.3 N, -638.7 E) - Point	0.00	0.00	5,521.0	-674.5	-652.5	1,911,988.00	608,184.98	36.254234	-107.466409

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
1,059.1	1,056.4	-45.0	3.0	Hold 10.18 Inc, 176.21 Az
4,403.6	4,348.2	-634.9	42.0	Start Drop -2.00
4,912.6	4,854.6	-679.9	45.0	KOP 9°/100
5,579.3	5,405.9	-630.7	-269.5	Hold 60° for 60'
5,639.3	5,435.9	-622.6	-320.8	Begin 9°/100
5,989.5	5,521.1	-574.5	-652.5	Landing Pt. Hold 91.5 Inc, 277.71 Az
10,730.1	5,397.0	60.9	-5,348.7	TD at 10730.1

Well Name: Chaco 2306-03E #413
 Surface Location: Chaco 2306-03E
 NAD 1927 (NADCON CONUS) , US State Plane 1927 (Exact solution) New Mexico West 3003
 Ground Elevation: 6693.0
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1912665.00 608834.90 36.256087 -107.464196
 KB @ 6708.0usft (Original Well Elev)



Azimuths to True North
 Magnetic North: 9.31°
 Magnetic Field
 Strength: 50170.8snT
 Dip Angle: 63.02°
 Date: 9/24/2014
 Model: IGRF2010

Project: SJ 03-23N-6W
 Site: Chaco 2306-03E
 Well: Chaco 2306-03E #413
 Design #1 24Sep14 jps

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Departure	Annotation
550.0	550.0	0.00	0.00	0.0	0.0	0.0	0.0	Start Build 2.00
1056.4	1059.1	10.18	176.21	-45.0	3.0	-9.9	45.1	Hold 10.18 Inc, 176.21 Az
4348.2	4403.6	10.18	176.21	-634.9	42.0	-139.7	636.3	Start Drop -2.00
4854.6	4912.6	0.00	0.00	-679.9	45.0	-149.6	681.4	KOP 9°/100
5405.9	5579.3	60.00	278.90	-630.7	-269.5	168.7	999.7	Hold 60° for 60'
5435.9	5639.3	60.00	278.90	-622.6	-320.8	220.6	1051.7	Begin 9°/100
5521.1	5989.5	91.50	277.71	-574.5	-652.5	555.8	1386.8	Landing Pt. Hold 91.5 Inc, 277.71 Az
5397.0	10729.1	91.50	277.71	60.8	-5347.7	5292.7	6124.8	TD at 10730.1

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
TD / PBHL Chaco 2306-03E #413	5397.0	60.9	-5348.7	1912705.55	603486.04	36.256253	-107.482337
PP 2306-03E #413	5521.0	-674.5	-652.5	1911988.00	608184.98	36.254234	-107.466409

