

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 3160-4 or 3160-5 form.

Operator Signature Date: 3/24/2015

Well information:

API WELL #	Well Name	Well #	Operator Name	Type	Stat	County	Surf. Owner	UL	Sec	Twp	N/S	Rng	W/E	Feet	NS
30-039-31226-00-00	CHACO 2307 17H	163H	WPX ENERGY PRODUCTION, LLC	G	N	Rio Arriba	F	H	17	23	N	7	W	1871	N

Drilling/Casing Change

Conditions of Approval:

(See the below checked and additional 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 & **Verification of type of well (Oil or Gas)**
- ☐ Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- ☐ Ensure compliance with 19.15.17
- ☐ 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.

Additional requirements:

Must resubmit request for NSL and NSP with correct directional and perforation information.

The activities are in violation; action pending.

NMOCD Approved by Signature

4-29-15
Date

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

MAR 20 2015

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-058877
6. If Indian, Allottee or Tribe Name
7. If Unit of CA/Agreement, Name and/or No.
8. Well Name and No. Chaco 2307 17H #163H
9. API Well No. 30-039-31226
10. Field and Pool or Exploratory Area Basin Mancos
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) 505-333-1816
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) SHL: 1871' FNL & 372' FEL SEC 17 T23N R7W BHL: 1615' FNL & 311' FWL SEC 17 T23N R7W	

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
	☒ 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 changed the directional plans on the Chaco 2307-17H #163H well after the completed approved APD packet was issued. Inadvertently the NOI sundry with the change was not submitted. The well was drilled using the new directional and ops plans. Verbal notification was made to Troy Salyers on 3/13/15. Troy requested WPX to submit an NOI sundry for all noted changes. Attached are the updated As-Drilled C102, OPS and Directional Plans.

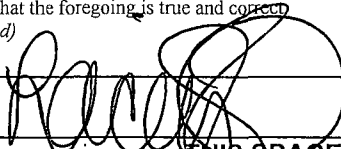
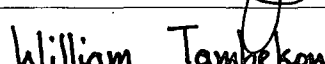
CONDITIONS OF APPROVAL

OIL CONS. DIV DIST. 3

Adhere to previously issued stipulations

MAR 30 2015

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) Lacey Granillo		Title Permit Tech III	
Signature 		Date 3/20/15	
THIS SPACE FOR FEDERAL OR STATE OFFICE USE			
Approved by  William Tambakan		Title Petroleum Engineer	Date 3-24-15
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 FFD	

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)

NMOCDAV

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

OIL CONSERVATION DIVISION

1220 South St. Francis Drive
Santa Fe, NM 87505

Submit one copy to
Appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

'API Number 30-039-31226	'Pool Code 97232	'Pool Name BASIN MANCOS
'Property Code 313186	'Property Name CHACO 2307-17H	'Well Number 163H
'GRID No. 120782	'Operator Name WPX ENERGY PRODUCTION, LLC	'Elevation 7257'

¹⁰ Surface Location

U/L or lot no.	Section	Township	Range	Lot 10n	Feet from the	North/South line	Feet from the	East/West line	County
H	17	23N	7W		1871	NORTH	372	EAST	RIO ARriba

¹¹ Bottom Hole Location If Different From Surface

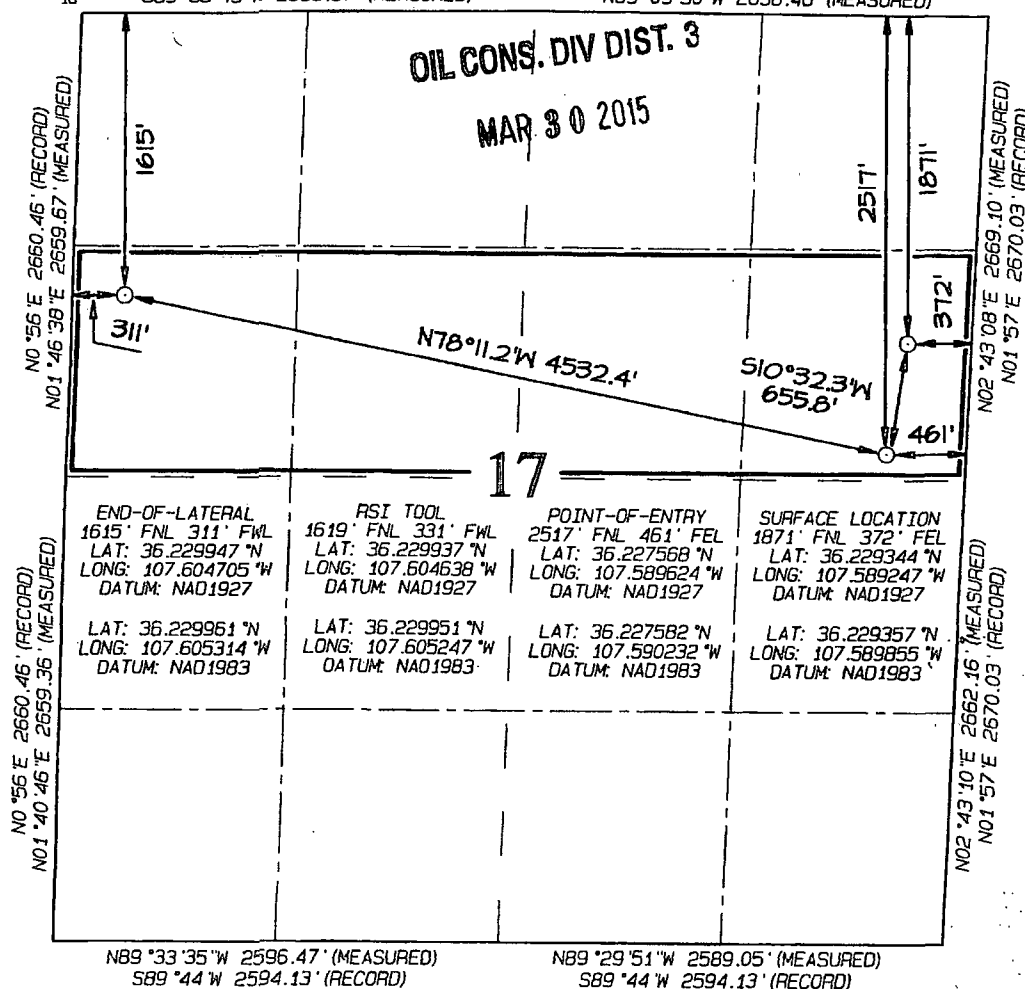
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	17	23N	7W		1615	NORTH	311	WEST	RIO ARBITRA

¹² Dedicated Acres 150.0 Acres - (S/2 N/2)	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

S89°08'W 2640.66' (RECORD)
S89°53'49"W 2639.67' (MEASURED)

N89°54'W 2644.62' (RECORD)
N89°09'30"W 2638.46' (MEASURED)



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. Therefore entered by the division.

Signature _____ Date 3/20/15

Printed Name Corey Grant

E-mail Address larryfrank@icloud.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: MARCH 19, 2015
Survey Date: JANUARY 30, 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: 2/15/2015 **FIELD:** Lybrook (Gallup)

WELL NAME: Chaco 2307-17M #163H **SURFACE:** BLM

SH Location: SENE Sec 17-23N-07W **ELEVATION:** 7257' GR

BH Location: SWNW Sec 17-23N-07W **MINERALS:** BLM
Rio Arriba, NM

MEASURED DEPTH: 10,952' **API #:** 30-039-31226

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

Name	MD	TVD	Name	MD	TVD
Ojo Alamo	1458	1443	Point Lookout	4555	4426
Kirtland	1782	1755	Mancos	4700	4570
Picture Cliffs	2134	2093	Kickoff Point	5185	5051
Lewis	2259	2213	Top Target	5976	5664
Chacra	2563	2506	Landing Point	6256	5717
Cliff House	3680	3579	Base Target	6257	5717
Menefee	3708	3606			
			TD	10952	5636

B. MUD LOGGING PROGRAM: Mudlogger on location from surface csg to TD.**C. LOGGING PROGRAM:** LWD GR from surface casing to TD.**D. NATURAL GAUGES:** Gauge any noticeable increases in gas flow. Record all gauges in Tour book and on morning reports.**II. DRILLING****A. MUD PROGRAM:** LSND mud (WBM) will be used to drill the 12-1/4" Surface hole, the 8 3/4" Directional Vertical hole, and the curve portion of the wellbore. A LSND (WBM) or (OBM) will be used to drill the lateral portion of well. Treat for lost circulation as necessary. Obtain 100% returns prior to cementing. Notify Engineering of any mud losses.**B. BOP TESTING:** While drill pipe is in use, the pipe rams and the blind rams will be function tested once each trip. The anticipated reservoir is expected to be less than 1300 psi, so the BOPE will be tested to **250 psi (Low) for 5 minutes** and **1500 psi (High) for 10 minutes**. Pressure test surface casing to **600 psi for 30 minutes** and intermediate casing to **1500 psi for 30 minutes**. Utilize a BOPE Testing Unit with a recording chart and appropriate test plug for testing. The drum brakes will be inspected and tested each tour. **All tests and inspections will be recorded in the tour book as to time and results.**

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

CASING TYPE	OH SIZE (IN)	DEPTH (MD) (FT)	CASING SIZE (IN)	WEIGHT(LB)	GRADE
Surface	12.25"	400'+	9.625"	36#	J-55
Intermediate	8.75"	6,256'	7"	23#	K-55
Prod. Liner	6.125"	6,106' - 10,952'	4-1/2"	11.6#	N-80
Tie-Back String	N/A	Surf. - 6,106'	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., and 2,000ft. Additionally run 1 turbolizing centralizer on every other joint from 100' below the top of the Kirtland to 100' above the top of the Ojo Alamo, as referenced in Formation Tops in Section I-A.
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 +/- 5,513 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 5,963 ft. MD) with a Liner Hanger and pack-off assembly then cemented to +/- 300 ft above the liner hanger. TOL will be +/- 5,813 ft. (MD) +/- 78 degree angle. TOC: +/- 5,513 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.



Company: WPX Energy Rocky Mountain, LLC
Project: Rio Arriba County, NM NAD27
Site: Chaco 2307-17H
Well: Chaco 2307-17H #163H
Wellbore: OH
Design: Plan #3

PROJECT DETAILS: Rio Arriba County, NM NAD27

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico Central 3002
System Datum: Mean Sea Level
Local North: True



WELL DETAILS: Chaco 2307-17H #163H

GL 7257' & RKB 14' @ 7271.00ft (Aztec 730)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1905418.33	105003.09	36.2293400	-107.5892500

Plan: Plan #3 (Chaco 2307-17H #163H/OH)

Created By: Janie Collins Date: 16:53, February 13 2015

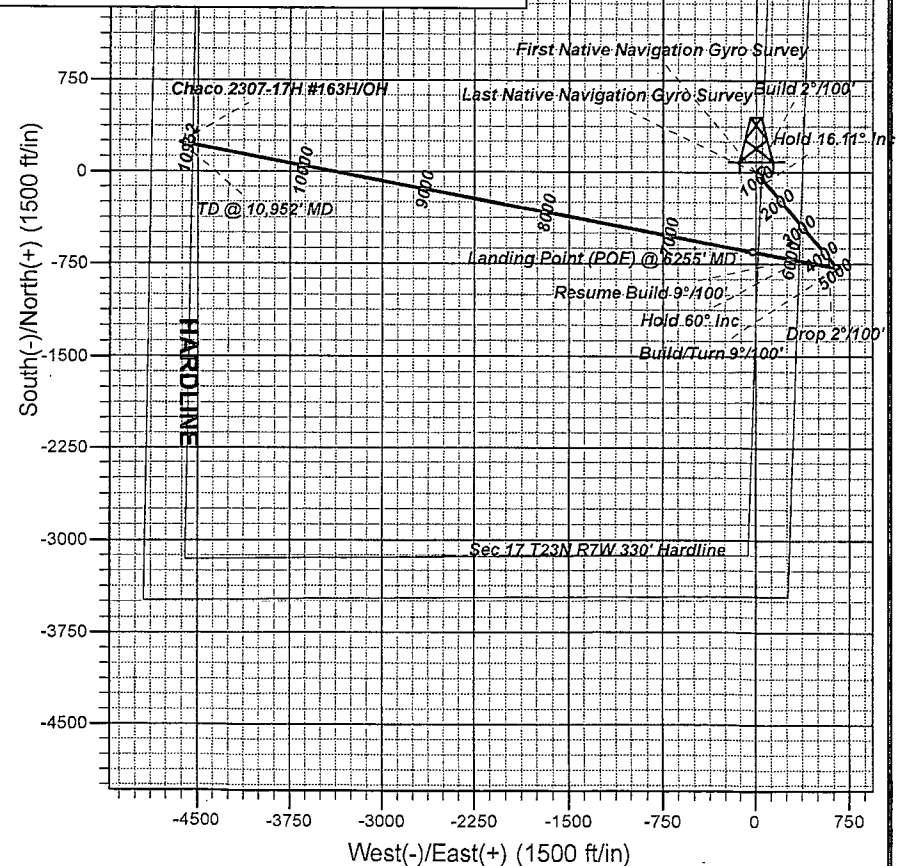
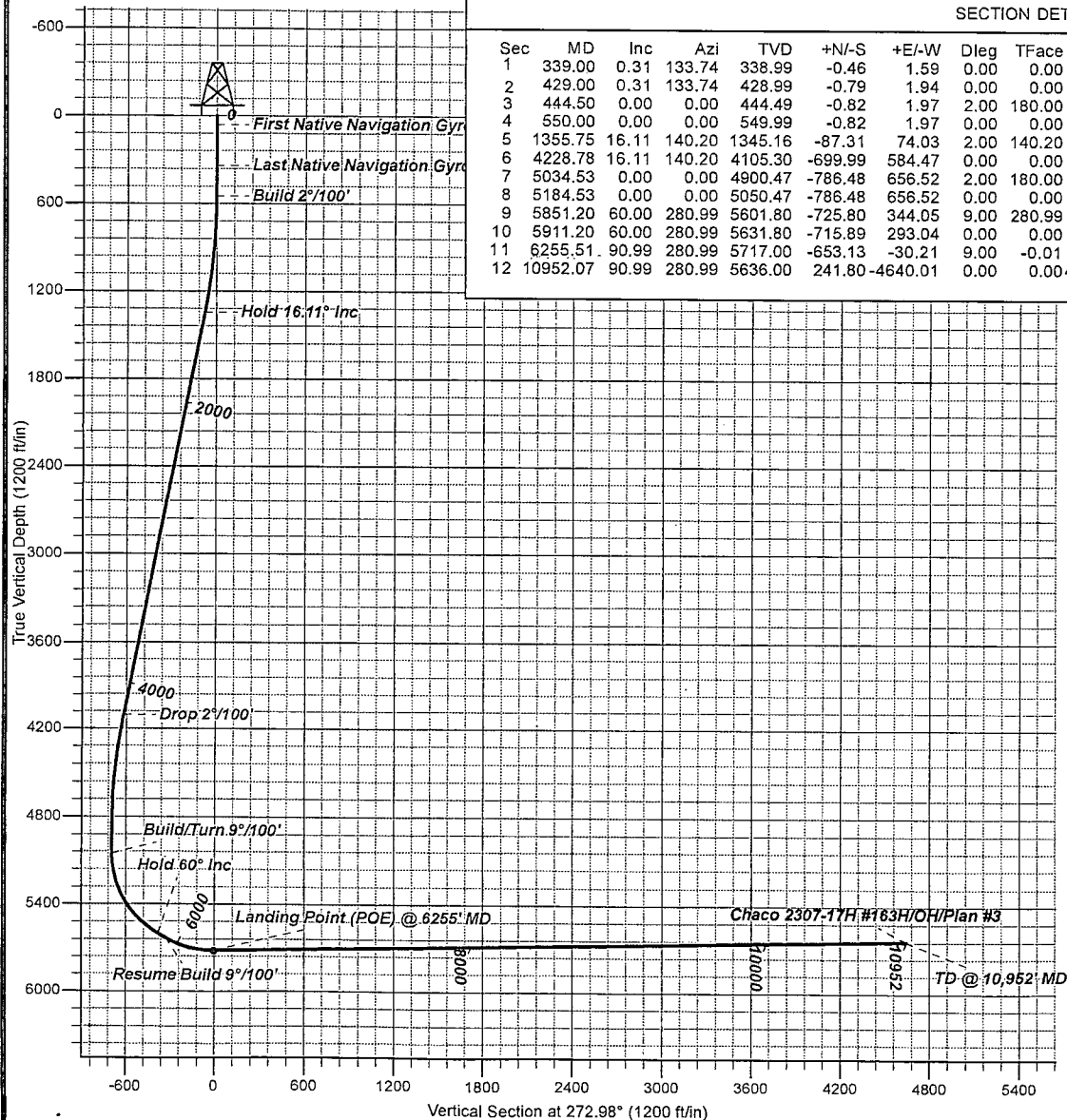


Azimuths to True North
Magnetic North: 9.45°

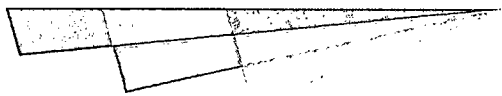
Magnetic Field
Strength: 50058.46nT
Dip Angle: 62.99°
Date: 8/27/2014
Model: BGGM2014

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target	Annotation
1	339.00	0.31	133.74	338.99	-0.46	1.59	0.00	0.00	-1.61		
2	429.00	0.31	133.74	428.99	-0.79	1.94	0.00	0.00	-1.98		
3	444.50	0.00	0.00	444.49	-0.82	1.97	2.00	180.00	-2.01		
4	550.00	0.00	0.00	549.99	-0.82	1.97	0.00	0.00	-2.01		Build 2°/100'
5	1355.75	16.11	140.20	1345.16	-87.31	74.03	2.00	140.20	-78.47		Hold 16.11° Inc
6	4228.78	16.11	140.20	4105.30	-699.99	584.47	0.00	0.00	-620.10		Drop 2°/100'
7	5034.53	0.00	0.00	4900.47	-786.48	656.52	2.00	180.00	-696.56		
8	5184.53	0.00	0.00	5050.47	-786.48	656.52	0.00	0.00	-696.56		Build/Turn 9°/100'
9	5851.20	60.00	280.99	5601.80	-725.80	344.05	9.00	280.99	-381.35		Hold 60° Inc
10	5911.20	60.00	280.99	5631.80	-715.89	293.04	0.00	0.00	-329.90		Resume Build 9°/100'
11	6255.51	90.99	280.99	5717.00	-653.13	-30.21	9.00	-0.01	-3.82		Landing Point (POE) @ 6255' MD
12	10952.07	90.99	280.99	5636.00	241.80	-4640.01	0.00	0.00	4646.31	Chaco 163H PBHL	TD @ 10,952' MD



WPXENERGYSM



WPX Energy Rocky Mountain, LLC

Rio Arriba County, NM NAD27

Chaco 2307-17H

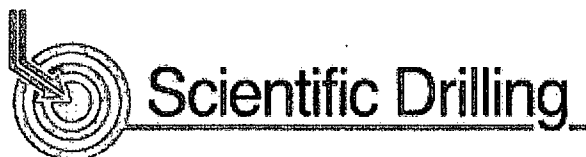
Chaco 2307-17H #163H

OH

Plan: Plan #3

Standard Planning Report - Geographic

13 February, 2015



www.scientificdrilling.com

Database:	Grand Junction District	Local Co-ordinate Reference:	Well Chaco 2307-17H #163H
Company:	WPX Energy Rocky Mountain, LLC	TVD Reference:	GL 7257' & RKB 14' @ 7271.00ft (Aztec 730)
Project:	Rio Arriba County, NM NAD27	MD Reference:	GL 7257' & RKB 14' @ 7271.00ft (Aztec 730)
Site:	Chaco 2307-17H	North Reference:	True
Well:	Chaco 2307-17H #163H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3		

Project	Rio Arriba County, NM NAD27		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico Central 3002		

Site	Chaco 2307-17H		
Site Position:		Northing:	1,905,418.33 usft
From:	Lat/Long	Easting:	105,003.10 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Latitude:	36.2293399
		Longitude:	-107.5892500
		Grid Convergence:	-0.79 °

Well	Chaco 2307-17H #163H		
Well Position	+N-S	0.00 ft	Northing: 1,905,418.33 usft
	+E-W	0.00 ft	Easting: 105,003.10 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	0.00 ft
		Latitude:	36.2293399
		Longitude:	-107.5892500
		Ground Level:	7,257.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	8/27/2014	9.45	62.99	50,058

Design	Plan #3			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	339.00
Vertical Section:	Depth From (TVD) (ft)	+N-S (ft)	+E-W (ft)	Direction (°)
	0.00	0.00	0.00	272.98

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
339.00	0.31	133.74	338.99	-0.46	1.59	0.00	0.00	0.00	0.00	
429.00	0.31	133.74	428.99	-0.79	1.94	0.00	0.00	0.00	0.00	
444.50	0.00	0.00	444.49	-0.82	1.97	2.00	-2.00	0.00	180.00	
550.00	0.00	0.00	549.99	-0.82	1.97	0.00	0.00	0.00	0.00	
1,355.75	16.11	140.20	1,345.16	-87.31	74.03	2.00	2.00	0.00	140.20	
4,228.78	16.11	140.20	4,105.30	-699.99	584.47	0.00	0.00	0.00	0.00	
5,034.53	0.00	0.00	4,900.47	-786.48	656.52	2.00	-2.00	0.00	180.00	
5,184.53	0.00	0.00	5,050.47	-786.48	656.52	0.00	0.00	0.00	0.00	
5,851.20	60.00	280.99	5,601.80	-725.80	344.05	9.00	9.00	0.00	280.99	
5,911.20	60.00	280.99	5,631.80	-715.89	293.04	0.00	0.00	0.00	0.00	
6,255.51	90.99	280.99	5,717.00	-653.13	-30.21	9.00	9.00	0.00	-0.01	
10,952.07	90.99	280.99	5,636.00	241.80	-4,640.01	0.00	0.00	0.00	0.00	Chaco 163H PBHL



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Chaco 2307-17H #163H
Company:	WPX Energy Rocky Mountain, LLC	TVD Reference:	GL 7257' & RKB 14' @ 7271.00ft (Aztec 730)
Project:	Rio Arriba County, NM NAD27	MD Reference:	GL 7257' & RKB 14' @ 7271.00ft (Aztec 730)
Site:	Chaco 2307-17H	North Reference:	True
Well:	Chaco 2307-17H #163H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
339.00	0.31	133.74	338.99	-0.46	1.59	1,905,417.85	105,004.68	36.2293387	-107.5892446
400.00	0.31	133.74	399.99	-0.68	1.83	1,905,417.62	105,004.92	36.2293381	-107.5892438
429.00	0.31	133.74	428.99	-0.79	1.94	1,905,417.51	105,005.03	36.2293378	-107.5892435
444.50	0.00	0.00	444.49	-0.82	1.97	1,905,417.48	105,005.06	36.2293377	-107.5892433
500.00	0.00	0.00	499.99	-0.82	1.97	1,905,417.48	105,005.06	36.2293377	-107.5892433
550.00	0.00	0.00	549.99	-0.82	1.97	1,905,417.48	105,005.06	36.2293377	-107.5892433
Build 2°/100'									
600.00	1.00	140.20	599.99	-1.16	2.25	1,905,417.14	105,005.33	36.2293368	-107.5892424
700.00	3.00	140.20	699.92	-3.84	4.49	1,905,414.43	105,007.53	36.2293294	-107.5892348
800.00	5.00	140.20	799.68	-9.20	8.95	1,905,409.01	105,011.92	36.2293147	-107.5892197
900.00	7.00	140.20	899.12	-17.23	15.64	1,905,400.89	105,018.50	36.2292926	-107.5891970
1,000.00	9.00	140.20	998.15	-27.92	24.55	1,905,390.08	105,027.26	36.2292633	-107.5891668
1,100.00	11.00	140.20	1,096.62	-41.26	35.67	1,905,376.58	105,038.19	36.2292266	-107.5891291
1,200.00	13.00	140.20	1,194.43	-57.23	48.97	1,905,360.43	105,051.27	36.2291827	-107.5890840
1,300.00	15.00	140.20	1,291.46	-75.82	64.46	1,905,341.63	105,066.50	36.2291317	-107.5890315
1,355.75	16.11	140.20	1,345.16	-87.31	74.03	1,905,330.01	105,075.91	36.2291001	-107.5889991
Hold 16.11° Inc									
1,400.00	16.11	140.20	1,387.67	-96.74	81.89	1,905,320.47	105,083.64	36.2290742	-107.5889724
1,500.00	16.11	140.20	1,483.74	-118.07	99.66	1,905,298.90	105,101.11	36.2290156	-107.5889122
1,600.00	16.11	140.20	1,579.81	-139.40	117.42	1,905,277.33	105,118.58	36.2289571	-107.5888520
1,700.00	16.11	140.20	1,675.89	-160.72	135.19	1,905,255.76	105,136.05	36.2288985	-107.5887918
1,800.00	16.11	140.20	1,771.96	-182.05	152.96	1,905,234.19	105,153.52	36.2288399	-107.5887315
1,900.00	16.11	140.20	1,868.03	-203.37	170.72	1,905,212.62	105,170.99	36.2287813	-107.5886713
2,000.00	16.11	140.20	1,964.10	-224.70	188.49	1,905,191.05	105,188.46	36.2287228	-107.5886111
2,100.00	16.11	140.20	2,060.17	-246.02	206.26	1,905,169.48	105,205.93	36.2286642	-107.5885508
2,200.00	16.11	140.20	2,156.24	-267.35	224.02	1,905,147.92	105,223.40	36.2286056	-107.5884906
2,300.00	16.11	140.20	2,252.31	-288.67	241.79	1,905,126.35	105,240.87	36.2285470	-107.5884304
2,400.00	16.11	140.20	2,348.38	-310.00	259.56	1,905,104.78	105,258.34	36.2284885	-107.5883702
2,500.00	16.11	140.20	2,444.45	-331.32	277.32	1,905,083.21	105,275.81	36.2284299	-107.5883099
2,600.00	16.11	140.20	2,540.52	-352.65	295.09	1,905,061.64	105,293.28	36.2283713	-107.5882497
2,700.00	16.11	140.20	2,636.59	-373.97	312.85	1,905,040.07	105,310.75	36.2283127	-107.5881895
2,800.00	16.11	140.20	2,732.66	-395.30	330.62	1,905,018.50	105,328.22	36.2282542	-107.5881292
2,900.00	16.11	140.20	2,828.73	-416.63	348.39	1,904,996.93	105,345.69	36.2281956	-107.5880690
3,000.00	16.11	140.20	2,924.80	-437.95	366.15	1,904,975.36	105,363.16	36.2281370	-107.5880088
3,100.00	16.11	140.20	3,020.87	-459.28	383.92	1,904,953.80	105,380.64	36.2280784	-107.5879486
3,200.00	16.11	140.20	3,116.95	-480.60	401.69	1,904,932.23	105,398.11	36.2280199	-107.5878883
3,300.00	16.11	140.20	3,213.02	-501.93	419.45	1,904,910.66	105,415.58	36.2279613	-107.5878281
3,400.00	16.11	140.20	3,309.09	-523.25	437.22	1,904,889.09	105,433.05	36.2279027	-107.5877679
3,500.00	16.11	140.20	3,405.16	-544.58	454.99	1,904,867.52	105,450.52	36.2278441	-107.5877077
3,600.00	16.11	140.20	3,501.23	-565.90	472.75	1,904,845.95	105,467.99	36.2277856	-107.5876474
3,700.00	16.11	140.20	3,597.30	-587.23	490.52	1,904,824.38	105,485.46	36.2277270	-107.5875872
3,800.00	16.11	140.20	3,693.37	-608.55	508.29	1,904,802.81	105,502.93	36.2276684	-107.5875270
3,900.00	16.11	140.20	3,789.44	-629.88	526.05	1,904,781.25	105,520.40	36.2276098	-107.5874668
4,000.00	16.11	140.20	3,885.51	-651.21	543.82	1,904,759.68	105,537.87	36.2275513	-107.5874065
4,100.00	16.11	140.20	3,981.58	-672.53	561.59	1,904,738.11	105,555.34	36.2274927	-107.5873463
4,200.00	16.11	140.20	4,077.65	-693.86	579.35	1,904,716.54	105,572.81	36.2274341	-107.5872861
4,228.78	16.11	140.20	4,105.30	-699.99	584.47	1,904,710.33	105,577.84	36.2274172	-107.5872687
Drop 2°/100'									
4,300.00	14.69	140.20	4,173.96	-714.53	596.57	1,904,695.83	105,589.74	36.2273773	-107.5872277
4,400.00	12.69	140.20	4,271.12	-732.71	611.72	1,904,677.24	105,604.64	36.2273274	-107.5871763
4,500.00	10.69	140.20	4,369.04	-748.28	624.69	1,904,661.50	105,617.39	36.2272846	-107.5871324
4,600.00	8.69	140.20	4,467.60	-761.21	635.47	1,904,648.42	105,627.98	36.2272491	-107.5870959
4,700.00	6.69	140.20	4,566.70	-771.49	644.03	1,904,638.02	105,636.41	36.2272209	-107.5870668
4,800.00	4.69	140.20	4,666.20	-779.11	650.38	1,904,630.31	105,642.65	36.2271999	-107.5870453

Database:	Grand Junction District	Local Co-ordinate Reference:	Well Chaco 2307-17H #163H
Company:	WPX Energy Rocky Mountain, LLC	TVD Reference:	GL 7257' & RKB 14' @ 7271.00ft (Aztec 730)
Project:	Rio Arriba County, NM NAD27	MD Reference:	GL 7257' & RKB 14' @ 7271.00ft (Aztec 730)
Site:	Chaco 2307-17H	North Reference:	True
Well:	Chaco 2307-17H #163H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,900.00	2.69	140.20	4,765.99	-784.05	654.50	1,904,625.31	105,646.70	36.2271864	-107.5870313
5,000.00	0.69	140.20	4,865.94	-786.32	656.39	1,904,623.02	105,648.56	36.2271801	-107.5870249
5,034.53	0.00	0.00	4,900.47	-786.48	656.52	1,904,622.86	105,648.69	36.2271797	-107.5870245
5,100.00	0.00	0.00	4,965.94	-786.48	656.52	1,904,622.86	105,648.69	36.2271797	-107.5870245
5,184.53	0.00	0.00	5,050.47	-786.48	656.52	1,904,622.86	105,648.69	36.2271797	-107.5870245
Build/Turn 9°/100'									
5,200.00	1.39	280.99	5,065.94	-786.44	656.34	1,904,622.90	105,648.50	36.2271798	-107.5870251
5,300.00	10.39	280.99	5,165.31	-784.49	646.27	1,904,624.99	105,638.46	36.2271852	-107.5870592
5,400.00	19.39	280.99	5,261.85	-779.59	621.07	1,904,630.23	105,613.33	36.2271986	-107.5871447
5,500.00	28.39	280.99	5,353.19	-771.88	581.35	1,904,638.49	105,573.72	36.2272198	-107.5872793
5,600.00	37.39	280.99	5,437.07	-761.54	528.09	1,904,649.57	105,520.62	36.2272482	-107.5874599
5,700.00	46.39	280.99	5,511.43	-748.82	462.61	1,904,663.19	105,455.32	36.2272831	-107.5876818
5,800.00	55.39	280.99	5,574.45	-734.05	386.52	1,904,679.02	105,379.43	36.2273237	-107.5879398
5,851.20	60.00	280.99	5,601.80	-725.80	344.05	1,904,687.85	105,337.08	36.2273464	-107.5880838
Hold 60° Inc									
5,900.00	60.00	280.99	5,626.20	-717.74	302.56	1,904,696.48	105,295.71	36.2273685	-107.5882244
5,911.20	60.00	280.99	5,631.80	-715.89	293.04	1,904,698.46	105,286.21	36.2273736	-107.5882567
Resume Build 9°/100'									
6,000.00	67.99	280.99	5,670.70	-700.69	214.75	1,904,714.74	105,208.15	36.2274154	-107.5885220
6,100.00	76.99	280.99	5,700.75	-682.53	121.23	1,904,734.19	105,114.89	36.2274652	-107.5888391
6,200.00	85.99	280.99	5,715.53	-663.70	24.24	1,904,754.36	105,018.17	36.2275170	-107.5891679
6,255.50	90.99	280.99	5,717.00	-653.13	-30.21	1,904,765.68	104,963.87	36.2275460	-107.5893524
Chaco 163H POE									
6,255.51	90.99	280.99	5,717.00	-653.13	-30.21	1,904,765.69	104,963.86	36.2275460	-107.5893525
Landing Point (POE) @ 6255' MD									
6,300.00	90.99	280.99	5,716.23	-644.65	-73.88	1,904,774.77	104,920.32	36.2275693	-107.5895005
6,400.00	90.99	280.99	5,714.50	-625.60	-172.03	1,904,795.17	104,822.44	36.2276216	-107.5898332
6,500.00	90.99	280.99	5,712.78	-606.54	-270.19	1,904,815.58	104,724.56	36.2276740	-107.5901660
6,600.00	90.99	280.99	5,711.05	-587.49	-368.34	1,904,835.99	104,626.68	36.2277263	-107.5904987
6,700.00	90.99	280.99	5,709.33	-568.43	-466.49	1,904,856.40	104,528.80	36.2277786	-107.5908314
6,800.00	90.99	280.99	5,707.61	-549.38	-564.64	1,904,876.81	104,430.92	36.2278310	-107.5911642
6,900.00	90.99	280.99	5,705.88	-530.32	-662.80	1,904,897.22	104,333.04	36.2278833	-107.5914969
7,000.00	90.99	280.99	5,704.16	-511.27	-760.95	1,904,917.63	104,235.16	36.2279356	-107.5918296
7,100.00	90.99	280.99	5,702.43	-492.21	-859.10	1,904,938.04	104,137.28	36.2279880	-107.5921624
7,200.00	90.99	280.99	5,700.71	-473.16	-957.25	1,904,958.45	104,039.40	36.2280403	-107.5924951
7,300.00	90.99	280.99	5,698.98	-454.10	-1,055.41	1,904,978.86	103,941.52	36.2280926	-107.5928278
7,400.00	90.99	280.99	5,697.26	-435.05	-1,153.56	1,904,999.27	103,843.64	36.2281449	-107.5931606
7,500.00	90.99	280.99	5,695.53	-415.99	-1,251.71	1,905,019.68	103,745.76	36.2281973	-107.5934933
7,600.00	90.99	280.99	5,693.81	-396.94	-1,349.86	1,905,040.09	103,647.88	36.2282496	-107.5938260
7,700.00	90.99	280.99	5,692.08	-377.88	-1,448.02	1,905,060.50	103,550.00	36.2283019	-107.5941588
7,800.00	90.99	280.99	5,690.36	-358.83	-1,546.17	1,905,080.90	103,452.12	36.2283542	-107.5944915
7,900.00	90.99	280.99	5,688.63	-339.77	-1,644.32	1,905,101.31	103,354.24	36.2284066	-107.5948243
8,000.00	90.99	280.99	5,686.91	-320.72	-1,742.48	1,905,121.72	103,256.36	36.2284589	-107.5951570
8,100.00	90.99	280.99	5,685.19	-301.66	-1,840.63	1,905,142.13	103,158.48	36.2285112	-107.5954897
8,200.00	90.99	280.99	5,683.46	-282.61	-1,938.78	1,905,162.54	103,060.60	36.2285635	-107.5958225
8,300.00	90.99	280.99	5,681.74	-263.55	-2,036.93	1,905,182.95	102,962.72	36.2286159	-107.5961552
8,400.00	90.99	280.99	5,680.01	-244.50	-2,135.09	1,905,203.36	102,864.84	36.2286682	-107.5964879
8,500.00	90.99	280.99	5,678.29	-225.44	-2,233.24	1,905,223.77	102,766.96	36.2287205	-107.5968207
8,600.00	90.99	280.99	5,676.56	-206.39	-2,331.39	1,905,244.18	102,669.08	36.2287728	-107.5971534
8,700.00	90.99	280.99	5,674.84	-187.33	-2,429.54	1,905,264.59	102,571.20	36.2288251	-107.5974862
8,800.00	90.99	280.99	5,673.11	-168.28	-2,527.70	1,905,285.00	102,473.32	36.2288774	-107.5978189
8,900.00	90.99	280.99	5,671.39	-149.22	-2,625.85	1,905,305.41	102,375.44	36.2289298	-107.5981517
9,000.00	90.99	280.99	5,669.66	-130.17	-2,724.00	1,905,325.82	102,277.56	36.2289821	-107.5984844
9,100.00	90.99	280.99	5,667.94	-111.11	-2,822.15	1,905,346.23	102,179.68	36.2290344	-107.5988171

Database:	Grand Junction District	Local Co-ordinate Reference:	Well Chaco 2307-17H #163H
Company:	WPX Energy Rocky Mountain, LLC	TVD Reference:	GL 7257' & RKB 14' @ 7271.00ft (Aztec 730)
Project:	Rio Arriba County, NM NAD27	MD Reference:	GL 7257' & RKB 14' @ 7271.00ft (Aztec 730)
Site:	Chaco 2307-17H	North Reference:	True
Well:	Chaco 2307-17H #163H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,200.00	90.99	280.99	5,666.22	-92.06	-2,920.31	1,905,366.63	102,081.80	36.2290867	-107.5991499
9,300.00	90.99	280.99	5,664.49	-73.00	-3,018.46	1,905,387.04	101,983.92	36.2291390	-107.5994826
9,400.00	90.99	280.99	5,662.77	-53.95	-3,116.61	1,905,407.45	101,886.04	36.2291913	-107.5998154
9,500.00	90.99	280.99	5,661.04	-34.89	-3,214.76	1,905,427.86	101,788.16	36.2292436	-107.6001481
9,600.00	90.99	280.99	5,659.32	-15.84	-3,312.92	1,905,448.27	101,690.28	36.2292959	-107.6004809
9,700.00	90.99	280.99	5,657.59	3.22	-3,411.07	1,905,468.68	101,592.40	36.2293482	-107.6008136
9,800.00	90.99	280.99	5,655.87	22.27	-3,509.22	1,905,489.09	101,494.52	36.2294005	-107.6011463
9,900.00	90.99	280.99	5,654.14	41.33	-3,607.37	1,905,509.50	101,396.64	36.2294528	-107.6014791
10,000.00	90.99	280.99	5,652.42	60.38	-3,705.53	1,905,529.91	101,298.77	36.2295052	-107.6018118
10,100.00	90.99	280.99	5,650.69	79.44	-3,803.68	1,905,550.32	101,200.89	36.2295575	-107.6021446
10,200.00	90.99	280.99	5,648.97	98.49	-3,901.83	1,905,570.73	101,103.01	36.2296098	-107.6024773
10,300.00	90.99	280.99	5,647.25	117.55	-3,999.99	1,905,591.14	101,005.13	36.2296621	-107.6028101
10,400.00	90.99	280.99	5,645.52	136.60	-4,098.14	1,905,611.55	100,907.25	36.2297144	-107.6031428
10,500.00	90.99	280.99	5,643.80	155.66	-4,196.29	1,905,631.96	100,809.37	36.2297667	-107.6034756
10,600.00	90.99	280.99	5,642.07	174.71	-4,294.44	1,905,652.37	100,711.49	36.2298190	-107.6038083
10,700.00	90.99	280.99	5,640.35	193.77	-4,392.60	1,905,672.77	100,613.61	36.2298713	-107.6041411
10,800.00	90.99	280.99	5,638.62	212.82	-4,490.75	1,905,693.18	100,515.73	36.2299236	-107.6044738
10,900.00	90.99	280.99	5,636.90	231.88	-4,588.90	1,905,713.59	100,417.85	36.2299758	-107.6048066
10,952.07	90.99	280.99	5,636.00	241.80	-4,640.01	1,905,724.22	100,366.88	36.2300031	-107.6049798
TD @ 10,952' MD - Chaco 163H PBHL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Chaco 163H PBHL	0.00	0.00	5,636.00	241.80	-4,640.01	1,905,724.22	100,366.88	36.2300031	-107.6049798
- hit/miss target									
- Shape									
- plan hits target center									
- Point									
Chaco 163H POE	0.00	0.00	5,717.00	-653.13	-30.21	1,904,765.68	104,963.87	36.2275460	-107.5893524
- plan misses target center by 0.01ft at 6255.50ft MD (5717.00 TVD, -653.13 N, -30.21 E)									
- Point									

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
550.00	549.99	-0.82	1.97	Build 2°/100'
1,355.75	1,345.16	-87.31	74.03	Hold 16.11° Inc
4,228.78	4,105.30	-699.99	584.47	Drop 2°/100'
5,184.53	5,050.47	-786.48	656.52	Build/Turn 9°/100'
5,851.20	5,601.80	-725.80	344.05	Hold 60° Inc
5,911.20	5,631.80	-715.89	293.04	Resume Build 9°/100'
6,255.51	5,717.00	-653.13	-30.21	Landing Point (POE) @ 6255' MD
10,952.07	5,636.00	241.80	-4,640.01	TD @ 10,952' MD