

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary-Designate

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: November 27, 2013

Application Type:

☐ P&A ☒ Drilling/Casing Change ☐ Recomplete/DHC
☐ Location Change ☐ Other: _____

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
30-045-35496-00-00	CHACO 2308 09A	145H	WPX ENERGY PRODUCTION, LLC	O	N	San Juan	F	A	9	23	N	8	W	917	N	240	E

Conditions of Approval:

Notify NMOCD 24hrs prior to beginning operations

Hold C104 for Directional Survey, and "As Drilled Plat"
Update landing point on C102

FEB 07 2014

NMOCD Approved by Signature

Date

RECEIVED

Form 3160-5
(February 2005)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JAN 15 2014

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

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)

SHL: 917' FNL & 240' FEL SEC 09 23N 8W

BHL: 380' FNL & 230' FWL SEC 09 23N 8W

NMSF-18463

NMSF-18463

6. If Indian, Allottee or Tribe Name

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

8. Well Name and No.

Chaco 2308-09A #145H

9. API Well No.

30-045-35496

10. Field and Pool or Exploratory Area

Nageezi Gallup

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
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other <u>Correct plat</u>
	☒ 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 plans to change casing design as per attached operation plan and directional plan. The entire well will now be drilled with WBM.

RCVD JAN 31 '14
OIL CONS. DIV.
DIST. 3

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

Name (Printed/Typed)

Larry Higgins

Title Regulatory Specialist

Signature

Date 1/15/2014

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Title

Date

JAN 30 2014

-----Original Signed: Stephen Mason-----
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

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.

NMOCD

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

DATE: 1/13/2014 **FIELD:** Nageezi (Gallup)

WELL NAME: Chaco 2308-09A #145H **SURFACE:** BLM

SH Location: NENE Sec 9 -23N -08W **ELEVATION:** 6883' GR

BH Location: NWNW Sec 9 -23N -08W **MINERALS:** BLM
San Juan Co, NM

MEASURED DEPTH: 10,489' **LEASE #:** NMNM18463

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

Name	MD	TVD	Name	MD	TVD
Ojo Alamo	937	936	Point Lookout	4,048	3,992
Kirtland	1,150	1,146	Mancos	4,274	4,214
Pictured Cliffs	1,645	1,632	Kickoff Point	4,640	4,575
Lewis	1,764	1,749	Target Top	5,345	5,183
Chacra	2,023	2,003	Landing Point	5,817	5,328
Cliff House	3,115	3,076	Target Base	5,817	5,328
Menefee	3,183	3,143			
			TD	10,489	5,154

B. MUD LOGGING PROGRAM: Mudlogger on location from surface csg to TD.**C. LOGGING PROGRAM:** LWD GR from surface casing to TD. LWD GR / E- Sonic will be run in Lateral.**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 +/- 4,640' (MD) / 4,575' (TVD). Curve portion of wellbore will be drilled and landed at +/- 90 deg. at +/- 5,817' (MD) / 5,328' (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 +/- 10,489' (MD) / 5,154' (TVD). Will run 4-1/2 in. Production Liner from +/- 5,667 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"	5,817'	7"	23#	K-55
Prod. Liner	6.125"	5,667' - 10,489'	4-1/2"	11.6#	N-80
Tie-Back String	N/A	Surf. - 5,667'	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 (563.3 cu ft / 95.5 bbls). Mix Foamed Cement w/ +/- 75,000 SCF Nitrogen. Est. TOC +/- 5,367 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 5,817 ft. MD) with a Liner Hanger and pack-off assembly then cemented to +/- 300 ft above the liner hanger. TOL will be +/- 5,667 ft. (MD) +/- 79 degree angle. TOC: +/- 5,367 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.

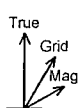
The Drilling Rig will be rigged down at this point and Completion operations will begin. After Stimulation and Testing operations are complete the 4-1/2" tie-back string will be removed from the well.

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

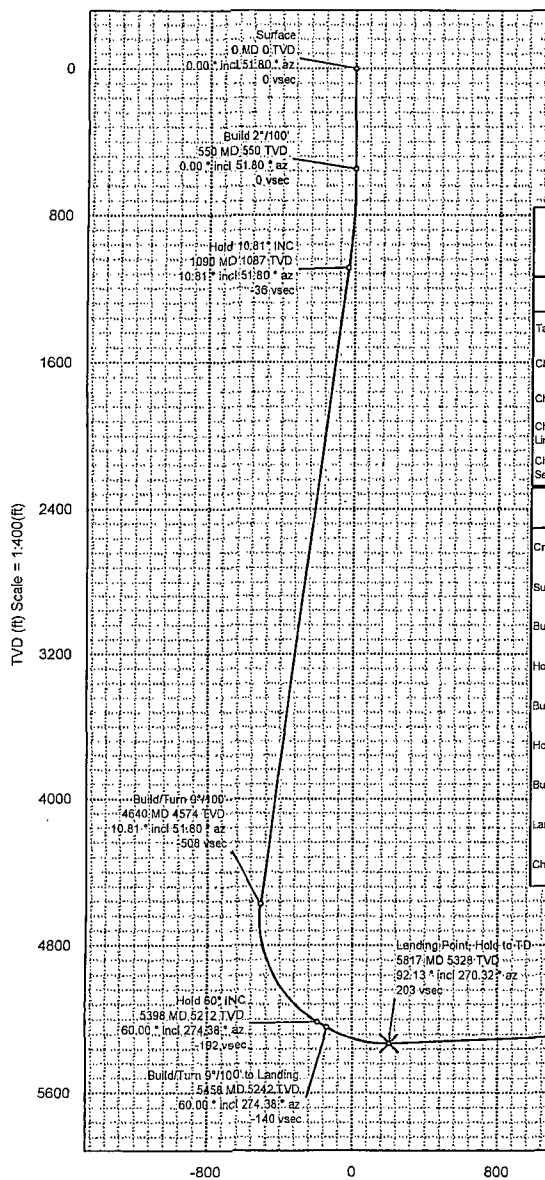
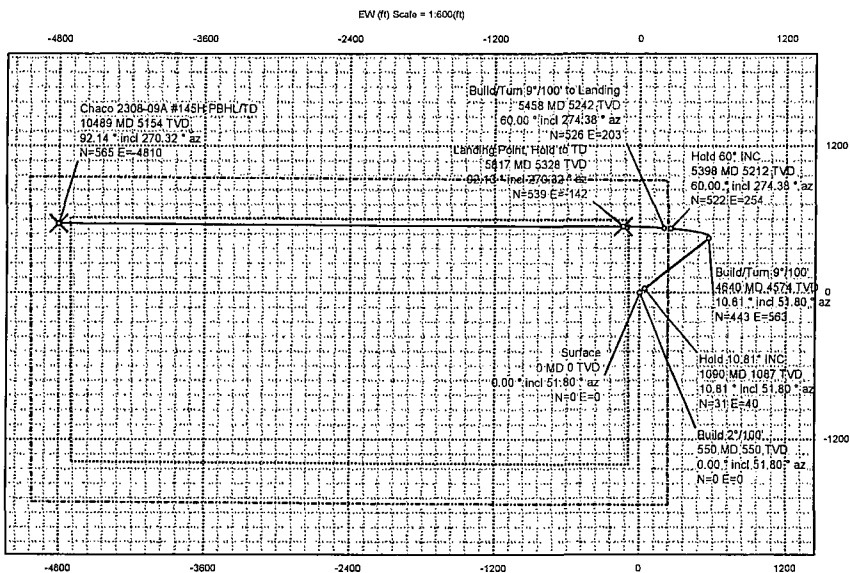
Borehole:	Well:	Field:	Structure:
Original Hole	Chaco 2308-09A #145H	NM San Juan County NAD27	Sec 9-23N-8W

Gravity & Magnetic Parameters	Surface Location	Miscellaneous
Model: BGGM 2013 Dip: 63° Date: 13-Jan-2014	NAD27 New Mexico State Plane, Western Zone, US Feet	Slot: Chaco 2308-09A #145H TVD Ref: RKB(6897R above MSL)
MagDec: 9.527° FS: 50143.042rT Gravity FS: 998.922mgn (9.80665 Based)	Lat: N 36 14 47.15 Northing: 1908979.059R US Grid Conv: 0.0918°	Plan: Chaco 2308-09A #145H R2 mdr 13Jan14
	Lon: W 107 40 41.02 Easting: 545785.69RUS Scale Fact: 0.99991907	

Proposal



True North
Tot Corr (M→T 9.527°)
Mag Dec (9.527°)
Grid Conv (0.092°)



Surface Location								
Northing: 1908979.059		Easting: 545785.69		Latitude: N 36 14 47.15		Longitude: W 107 40 41.02		VSec Azimuth: 276.696
Target Description		Grid Coord					Local Coord	
Target Name	Latitude	Longitude	Northing	Easting	TVD	VSec	N(+)S(-)	E(+)W(-)
Chaco 2308-09A #145H PBHL/TD	N 36 14 52.73	W 107 41 39.73	1909535.98	540975.52	5154.00	4842.70	564.67	-4809.67
Chaco 2308-09A #145H POE	N 36 14 52.48	W 107 40 42.74	1909517.57	545643.29	5328.00	203.41	538.79	-141.55
Chaco 2308-09A #145H Section Line	N 36 14 47.15	W 107 40 41.02	1908979.06	545785.69	6897.00	0.00	0.00	0.00
Chaco 2308-09A #145H 330' Setback	N 36 14 47.15	W 107 40 41.02	1908979.06	545785.69	6897.00	0.00	0.00	0.00
Critical Points								
Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)S(-)	E(+)W(-)	DLS
Surface	0.00	0.00	51.80	0.00	0.00	0.00	0.00	
Build 2°/100'	550.00	0.00	51.80	550.00	0.00	0.00	0.00	0.00
Hold 10.81° INC	1090.45	10.81	51.80	1087.25	-36.00	31.43	39.94	2.00
Build/Turn 9°/100'	4639.91	10.81	51.80	4573.74	-507.53	443.08	563.04	0.00
Hold 60° INC	5397.57	60.00	274.38	5212.50	-191.89	521.56	254.44	9.00
Build/Turn 9°/100' to Landing	5457.57	60.00	274.38	5242.50	-139.97	525.53	202.63	0.00
Landing Point, Hold to TD	5817.21	92.13	270.32	5328.00	203.40	538.78	-141.54	9.00
Chaco 2308-09A #145H PBHL/TD	10488.65	92.13	270.32	5154.00	4842.70	564.67	-4809.67	0.00



Chaco 2308-09A #145H R2 mdv 13Jan14 Proposal Geodetic Report

(Def Plan)

Report Date: January 13, 2014 - 10:32 AM
Client: WPX Energy
Field: NM San Juan County NAD27
Structure / Slot: WPX Sec 9-23N-8W (Chaco 2308-09A #145H) / Chaco 2308-09A #145H
Well: Chaco 2308-09A #145H
Borehole: Original Hole
UWI / API#: Unknown / Unknown
Survey Name: Chaco 2308-09A #145H R2 mdv 13Jan14
Survey Date: August 20, 2013
Tort / AHD / DDI / ERD Ratio: 111.370 * / 6123.932 ft / 6.128 / 1.149
Coordinate Reference System: NAD27 New Mexico State Plane, Western Zone, US Feet
Location Lat / Long: N 36° 14' 47.14800", W 107° 40' 41.01600"
Location Grid N/E Y/X: N 1908979.059 ftUS, E 545785.690 ftUS
CRS Grid Convergence Angle: 0.0918 *
Grid Scale Factor: 0.99991907
Version / Patch: 2.7.1043.0
Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 278.696 * (True North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 6897.000 ft above MSL
Seabed / Ground Elevation: 6883.000 ft above MSL
Magnetic Declination: 9.527 *
Total Gravity Field Strength: 998.9218mgn (9.80665 Based)
Gravity Model: DOX
Total Magnetic Field Strength: 50143.042 nT
Magnetic Dip Angle: 63.000 *
Declination Date: January 13, 2014
Magnetic Declination Model: BGGM 2013
North Reference: True North
Grid Convergence Used: 0.0000 *
Total Corr Mag North->True: 9.5274 *
Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim True (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
Surface	0.00	0.00	51.80	0.00	0.00	0.00	0.00	N/A	1908979.06	545785.69	N 36 14 47.15	W 107 40 41.02
Build 2"/100'	100.00	0.00	51.80	100.00	0.00	0.00	0.00	0.00	1908979.06	545785.69	N 36 14 47.15	W 107 40 41.02
	200.00	0.00	51.80	200.00	0.00	0.00	0.00	0.00	1908979.06	545785.69	N 36 14 47.15	W 107 40 41.02
	300.00	0.00	51.80	300.00	0.00	0.00	0.00	0.00	1908979.06	545785.69	N 36 14 47.15	W 107 40 41.02
	400.00	0.00	51.80	400.00	0.00	0.00	0.00	0.00	1908979.06	545785.69	N 36 14 47.15	W 107 40 41.02
	500.00	0.00	51.80	500.00	0.00	0.00	0.00	0.00	1908979.06	545785.69	N 36 14 47.15	W 107 40 41.02
	550.00	0.00	51.80	550.00	0.00	0.00	0.00	0.00	1908979.06	545785.69	N 36 14 47.15	W 107 40 41.02
	600.00	1.00	51.80	600.00	-0.31	0.27	0.34	2.00	1908979.33	545786.03	N 36 14 47.15	W 107 40 41.01
	700.00	3.00	51.80	699.93	-2.78	2.43	3.09	2.00	1908981.49	545788.77	N 36 14 47.17	W 107 40 40.98
	800.00	5.00	51.80	799.68	-7.72	6.74	8.57	2.00	1908985.81	545794.25	N 36 14 47.21	W 107 40 40.91
	900.00	7.00	51.80	899.13	-15.13	13.21	16.78	2.00	1908992.29	545802.45	N 36 14 47.28	W 107 40 40.81
Hold 10.81° INC	1000.00	9.00	51.80	998.15	-24.98	21.81	27.72	2.00	1909000.91	545813.37	N 36 14 47.36	W 107 40 40.68
	1090.45	10.81	51.80	1087.25	-36.00	31.43	39.94	2.00	1909010.55	545825.58	N 36 14 47.46	W 107 40 40.53
	1100.00	10.81	51.80	1096.63	-37.27	32.54	41.35	0.00	1909011.66	545826.98	N 36 14 47.47	W 107 40 40.51
	1200.00	10.81	51.80	1194.86	-50.56	44.14	56.09	0.00	1909023.28	545841.70	N 36 14 47.58	W 107 40 40.33
	1300.00	10.81	51.80	1293.08	-63.84	55.74	70.82	0.00	1909034.90	545856.42	N 36 14 47.70	W 107 40 40.15
	1400.00	10.81	51.80	1391.31	-77.13	67.33	85.56	0.00	1909046.52	545871.14	N 36 14 47.81	W 107 40 39.97
	1500.00	10.81	51.80	1489.53	-90.41	78.93	100.30	0.00	1909058.14	545885.85	N 36 14 47.93	W 107 40 39.79
	1600.00	10.81	51.80	1587.76	-103.70	90.53	115.04	0.00	1909069.76	545900.57	N 36 14 48.04	W 107 40 39.61
	1700.00	10.81	51.80	1685.99	-116.98	102.13	129.77	0.00	1909081.38	545915.29	N 36 14 48.16	W 107 40 39.43
	1800.00	10.81	51.80	1784.21	-130.27	113.72	144.51	0.00	1909093.00	545930.01	N 36 14 48.27	W 107 40 39.25
	1900.00	10.81	51.80	1882.44	-143.55	125.32	159.25	0.00	1909104.62	545944.72	N 36 14 48.39	W 107 40 39.07
	2000.00	10.81	51.80	1980.66	-156.83	136.92	173.99	0.00	1909116.24	545959.44	N 36 14 48.50	W 107 40 38.89
	2100.00	10.81	51.80	2078.89	-170.12	148.52	188.72	0.00	1909127.86	545974.16	N 36 14 48.62	W 107 40 38.71
	2200.00	10.81	51.80	2177.11	-183.40	160.11	203.46	0.00	1909139.49	545988.88	N 36 14 48.73	W 107 40 38.53
	2300.00	10.81	51.80	2275.34	-196.69	171.71	218.20	0.00	1909151.11	546003.59	N 36 14 48.85	W 107 40 38.35
	2400.00	10.81	51.80	2373.57	-209.97	183.31	232.94	0.00	1909162.73	546018.31	N 36 14 48.96	W 107 40 38.17
	2500.00	10.81	51.80	2471.79	-223.26	194.91	247.67	0.00	1909174.35	546033.03	N 36 14 49.08	W 107 40 37.99
	2600.00	10.81	51.80	2570.02	-236.54	206.50	262.41	0.00	1909185.97	546047.75	N 36 14 49.19	W 107 40 37.81
	2700.00	10.81	51.80	2668.24	-249.83	218.10	277.15	0.00	1909197.59	546062.46	N 36 14 49.30	W 107 40 37.63
	2800.00	10.81	51.80	2766.47	-263.11	229.70	291.89	0.00	1909209.21	546077.18	N 36 14 49.42	W 107 40 37.45
	2900.00	10.81	51.80	2864.69	-276.39	241.30	306.62	0.00	1909220.83	546091.90	N 36 14 49.53	W 107 40 37.27
	3000.00	10.81	51.80	2962.92	-289.68	252.89	321.36	0.00	1909232.45	546106.62	N 36 14 49.65	W 107 40 37.09
	3100.00	10.81	51.80	3061.15	-302.96	264.49	336.10	0.00	1909244.07	546121.34	N 36 14 49.76	W 107 40 36.91
	3200.00	10.81	51.80	3159.37	-316.25	276.09	350.83	0.00	1909255.69	546136.05	N 36 14 49.88	W 107 40 36.73
	3300.00	10.81	51.80	3257.60	-329.53	287.69	365.57	0.00	1909267.31	546150.77	N 36 14 49.99	W 107 40 36.55
	3400.00	10.81	51.80	3355.82	-342.82	299.28	380.31	0.00	1909278.93	546165.49	N 36 14 50.11	W 107 40 36.37
	3500.00	10.81	51.80	3454.05	-356.10	310.88	395.05	0.00	1909290.55	546180.21	N 36 14 50.22	W 107 40 36.19
	3600.00	10.81	51.80	3552.28	-369.39	322.48	409.78	0.00	1909302.17	546194.92	N 36 14 50.34	W 107 40 36.01
	3700.00	10.81	51.80	3650.50	-382.67	334.08	424.52	0.00	1909313.79	546209.64	N 36 14 50.45	W 107 40 35.83
	3800.00	10.81	51.80	3748.73	-395.96	345.68	439.26	0.00	1909325.41	546224.36	N 36 14 50.57	W 107 40 35.65
3900.00	10.81	51.80	3846.95	-409.24	357.27	454.00	0.00	1909337.03	546239.08	N 36 14 50.68	W 107 40 35.47	
4000.00	10.81	51.80	3945.18	-422.52	368.87	468.73	0.00	1909348.65	546253.79	N 36 14 50.80	W 107 40 35.29	
4100.00	10.81	51.80	4043.40	-435.81	380.47	483.47	0.00	1909360.27	546268.51	N 36 14 50.91	W 107 40 35.11	
4200.00	10.81	51.80	4141.63	-449.09	392.07	498.21	0.00	1909371.89	546283.23	N 36 14 51.03	W 107 40 34.93	
4300.00	10.81	51.80	4239.86	-462.38	403.66	512.95	0.00	1909383.51	546297.95	N 36 14 51.14	W 107 40 34.75	
4400.00	10.81	51.80	4338.08	-475.66	415.26	527.68	0.00	1909395.13	546312.66	N 36 14 51.25	W 107 40 34.57	
4500.00	10.81	51.80	4436.31	-488.95	426.86	542.42	0.00	1909406.75	546327.38	N 36 14 51.37	W 107 40 34.39	
4600.00	10.81	51.80	4534.53	-502.23	438.46	557.16	0.00	1909418.37	546342.10	N 36 14 51.48	W 107 40 34.21	
Build/Turn 9"/100'	4639.91	10.81	51.80	4573.74	-507.53	443.09	563.04	0.00	1909423.01	546347.97	N 36 14 51.53	W 107 40 34.14
Hold 60° INC	4700.00	7.43	24.43	4633.08	-512.71	450.11	569.08	9.00	1909430.05	546354.00	N 36 14 51.60	W 107 40 34.07
	4800.00	9.05	318.91	4732.25	-508.85	461.95	566.58	9.00	1909441.88	546351.48	N 36 14 51.72	W 107 40 34.10
	4900.00	16.42	294.29	4829.78	-489.51	473.72	548.49	9.00	1909453.61	546333.38	N 36 14 51.83	W 107 40 34.32
	5000.00	24.87	285.33	4923.30	-455.18	485.12	515.26	9.00	1909464.96	546300.13	N 36 14 51.95	W 107 40 34.73
	5100.00	33.60	280.77	5010.49	-406.69	495.87	467.70	9.00	1909475.64	546252.55	N 36 14 52.05	W 107 40 35.31
	5200.00	42.43	277.93	5089.20	-345.23	505.71	406.98	9.00	1909485.38	546191.82	N 36 14 52.15	W 107 40 36.05
	5300.00	51.31	275.91	5157.50	-272.33	514.40	334.60	9.00	1909493.95	546119.43	N 36 14 52.23	W 107 40 36.93
	5397.57	60.00	274.38	5212.50	-191.89	521.56	254.44	9.00	1909500.99	546039.27	N 36 14 52.31	W 107 40 37.91
	5400.00	60.00	274.38	5213.71	-189.78	521.73	252.34	0.00	1909501.14	546037.17	N 36 14 52.31	W 107 40 37.94
	Build/Turn 9"/100' to Landing	5457.57	60.00	274.38	5242.50	-139.97	525.53	202.63	0.00	1909504.87	545987.46	N 36 14 52.34
Landing Point, Hold to TD	5500.00	63.79	273.82	5262.48	-102.59	528.20	165.31	9.00	1909507.48	545950.14	N 36 14 52.37	W 107 40 39.00
	5600.00	72.72	272.62	5299.50	-9.97	533.38	72.66	9.00	1909512.52	545857.49	N 36 14 52.42	W 107 40 40.13
	5700.00	81.66	271.53	5321.66	87.12	536.90	-24.68	9.00	1909515.87	545760.15	N 36 14 52.46	W 107 40 41.32
	5800.00	90.60	270.50	5328.41	186.30	538.66	-124.33	9.00	1909517.48	545660.50	N 36 14 52.47	W 107 40 42.53
	5817.21	92.13	270.32	5328.00	203.40	538.78	-141.54	9.00	1909517.57	545643.30	N 36 14 52.48	W 107 40 42.74
	5900.00	92.13	270.32	5324.91	285.62	539.25	-224.27	0.00	1909517.90	545560.57	N 36 14 52.48	W 107 40 43.75
	6000.00	92.13	270.32	5321.19	384.93	539.80	-324.20	0.00	1909518.30	545460.65	N 36 14 52.49	W 107 40 44.97
	6100.00	92.13	270.32	5317.47	484.24	540.36	-424.13	0.00	1909518.70	545360.73	N 36 14 52.49	W 107 40 46.19
	6200.00	92.13	270.32	5313.74	583.56	540.92	-524.06	0.00	1909519.09	545260.81	N 36 14 52.50	W 107 40 47.41
	6300.00	92.13	270.32	5310.02	682.87	541.48	-623.99	0.00	1909519.49	545160.89	N 36 14 52.50	W 107 40 48.63
	6400.00	92.13	270.32	5306.29	782.18	542.03	-723.92	0.00	1909519.89	545060.97	N 36 14 52.51	W 107 40 49.85
	6500.00	92.13	270.									

Comments	MD (ft)	Incl (°)	Azim True (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	6700.00	92.13	270.32	5295.12	1080.12	543.70	-1023.70	0.00	1909521.08	544761.20	N 36 14 52.52	W 107 40 53.51
	6800.00	92.13	270.32	5291.39	1179.43	544.26	-1123.63	0.00	1909521.47	544661.28	N 36 14 52.53	W 107 40 54.73
	6900.00	92.13	270.32	5287.67	1278.74	544.82	-1223.56	0.00	1909521.87	544561.36	N 36 14 52.54	W 107 40 55.95
	7000.00	92.13	270.32	5283.94	1378.05	545.37	-1323.49	0.00	1909522.27	544461.44	N 36 14 52.54	W 107 40 57.17
	7100.00	92.13	270.32	5280.22	1477.37	545.93	-1423.42	0.00	1909522.66	544361.52	N 36 14 52.55	W 107 40 58.39
	7200.00	92.13	270.32	5276.49	1576.68	546.49	-1523.35	0.00	1909523.06	544261.59	N 36 14 52.55	W 107 40 59.61
	7300.00	92.13	270.32	5272.77	1675.99	547.04	-1623.28	0.00	1909523.45	544161.67	N 36 14 52.56	W 107 41 0.83
	7400.00	92.13	270.32	5269.05	1775.30	547.60	-1723.21	0.00	1909523.85	544061.75	N 36 14 52.56	W 107 41 2.05
	7500.00	92.13	270.32	5265.32	1874.62	548.15	-1823.14	0.00	1909524.24	543961.83	N 36 14 52.57	W 107 41 3.27
	7600.00	92.13	270.32	5261.60	1973.93	548.71	-1923.06	0.00	1909524.64	543861.91	N 36 14 52.57	W 107 41 4.49
	7700.00	92.13	270.32	5257.87	2073.24	549.26	-2022.99	0.00	1909525.03	543761.99	N 36 14 52.58	W 107 41 5.71
	7800.00	92.13	270.32	5254.15	2172.55	549.82	-2122.92	0.00	1909525.43	543662.07	N 36 14 52.58	W 107 41 6.93
	7900.00	92.13	270.32	5250.42	2271.86	550.37	-2222.85	0.00	1909525.82	543562.14	N 36 14 52.59	W 107 41 8.15
	8000.00	92.13	270.32	5246.70	2371.18	550.93	-2322.78	0.00	1909526.22	543462.22	N 36 14 52.60	W 107 41 9.37
	8100.00	92.13	270.32	5242.97	2470.49	551.48	-2422.71	0.00	1909526.61	543362.30	N 36 14 52.60	W 107 41 10.59
	8200.00	92.13	270.32	5239.25	2569.80	552.04	-2522.64	0.00	1909527.01	543262.38	N 36 14 52.61	W 107 41 11.81
	8300.00	92.13	270.32	5235.52	2669.11	552.59	-2622.57	0.00	1909527.40	543162.46	N 36 14 52.61	W 107 41 13.03
	8400.00	92.13	270.32	5231.80	2768.42	553.14	-2722.50	0.00	1909527.79	543062.54	N 36 14 52.62	W 107 41 14.25
	8500.00	92.13	270.32	5228.07	2867.74	553.70	-2822.43	0.00	1909528.19	542962.61	N 36 14 52.62	W 107 41 15.47
	8600.00	92.13	270.32	5224.35	2967.05	554.25	-2922.35	0.00	1909528.58	542862.69	N 36 14 52.63	W 107 41 16.69
	8700.00	92.13	270.32	5220.62	3066.36	554.80	-3022.28	0.00	1909528.97	542762.77	N 36 14 52.63	W 107 41 17.91
	8800.00	92.13	270.32	5216.90	3165.67	555.36	-3122.21	0.00	1909529.37	542662.85	N 36 14 52.64	W 107 41 19.13
	8900.00	92.13	270.32	5213.17	3264.98	555.91	-3222.14	0.00	1909529.76	542562.93	N 36 14 52.64	W 107 41 20.35
	9000.00	92.13	270.32	5209.45	3364.30	556.46	-3322.07	0.00	1909530.15	542463.01	N 36 14 52.65	W 107 41 21.57
	9100.00	92.13	270.32	5205.72	3463.61	557.02	-3422.00	0.00	1909530.55	542363.09	N 36 14 52.65	W 107 41 22.79
	9200.00	92.13	270.32	5202.00	3562.92	557.57	-3521.93	0.00	1909530.94	542263.16	N 36 14 52.66	W 107 41 24.01
	9300.00	92.13	270.32	5198.28	3662.23	558.12	-3621.86	0.00	1909531.33	542163.24	N 36 14 52.66	W 107 41 25.23
	9400.00	92.13	270.32	5194.55	3761.54	558.67	-3721.79	0.00	1909531.72	542063.32	N 36 14 52.67	W 107 41 26.45
	9500.00	92.13	270.32	5190.83	3860.85	559.23	-3821.72	0.00	1909532.11	541963.40	N 36 14 52.68	W 107 41 27.67
	9600.00	92.13	270.32	5187.10	3960.17	559.78	-3921.65	0.00	1909532.51	541863.48	N 36 14 52.68	W 107 41 28.89
	9700.00	92.13	270.32	5183.38	4059.48	560.33	-4021.57	0.00	1909532.90	541763.56	N 36 14 52.69	W 107 41 30.11
	9800.00	92.13	270.32	5179.65	4158.79	560.88	-4121.50	0.00	1909533.29	541663.63	N 36 14 52.69	W 107 41 31.33
	9900.00	92.13	270.32	5175.93	4258.10	561.43	-4221.43	0.00	1909533.68	541563.71	N 36 14 52.70	W 107 41 32.55
	10000.00	92.13	270.32	5172.20	4357.41	561.98	-4321.36	0.00	1909534.07	541463.79	N 36 14 52.70	W 107 41 33.77
	10100.00	92.13	270.32	5168.48	4456.72	562.53	-4421.29	0.00	1909534.46	541363.87	N 36 14 52.71	W 107 41 34.99
	10200.00	92.13	270.32	5164.75	4556.04	563.08	-4521.22	0.00	1909534.85	541263.95	N 36 14 52.71	W 107 41 36.21
	10300.00	92.13	270.32	5161.03	4655.35	563.64	-4621.15	0.00	1909535.24	541164.03	N 36 14 52.72	W 107 41 37.43
	10400.00	92.13	270.32	5157.30	4754.66	564.19	-4721.08	0.00	1909535.63	541064.11	N 36 14 52.72	W 107 41 38.65

Chaco 2308-09A 10488.65 92.13 270.32 5154.00 4842.70 564.67 -4809.67 0.00 1909535.98 540975.52 N 36 14 52.73 W 107 41 39.73
#145H PBHL/TD

Survey Type: Def Plan

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma

Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	14.000	1/100.000	30.000	30.000	SLB_MWD-STD-Depth Only	Original Hole / Chaco 2308-09A #145H R2 mdv 13Jan14
	1	14.000	10488.652	1/100.000	30.000	30.000	SLB_MWD-STD	Original Hole / Chaco 2308-09A #145H R2 mdv 13Jan14