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: March 4th, 2014

Application Type:

☐ P&A ☒ Drilling/Casing Change ☐ Recomplete/DHC

☒ Location Change ☒ Other: CH Formation tops, drop pilot hole

Well information:

API WELL #	Well Name	Well #	Operator Name	Type	Stat	County	Surf Owner	UL	Sec	Twp	N/S	Rng	W/E
30-043-21136-00-00	CHACO 2306 19E	188H	WPX ENERGY PRODUCTION, LLC	O	N	Sandoval	F	E	19	23	N	6	W

Conditions of Approval:

Notify NMOCD 24hrs prior to beginning operations

Hold C104 for as drilled plat, directional survey, and NSL

NMOCD Approved by Signature

3-24-14
Date

RECEIVED
MAR 04 2014
Farmington Field Office
Bureau of Land Management

Form 3160-5
(February 2005)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

RCVD MAR 18 '14
OIL CONS. DIV.
DIST. 3

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE – *Other instructions on page 2.*

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other	5. Lease Serial No. NMSF-078360
	6. If Indian, Allottee or Tribe Name
	7. If Unit of CA/Agreement, Name and/or No.
	8. Well Name and No. Chaco 2306-19E #188H
2. Name of Operator WPX Energy Production, LLC	9. API Well No. 30-043-21136
3a. Address PO Box 640 Aztec, NM 87410 3b. Phone No. *(include area code)* 505-333-1808	10. Field and Pool or Exploratory Area Lybrook Gallup
4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)* Sur: 1779' FNL & 302' FWL, sec 19, T23N, R6W – BHL: 1195' FNL & 230' FWL, Sec 24, T23N, R7W	11. Country or Parish, State Sandoval County, NM

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

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

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

WPX plans to plans to change the lateral, mud program and casing design on this well as per attached C-102, operations plan and directional plan. Although this horizontal well will be drilled past the applicable setbacks, an unorthodox location application is not required because the completed interval in this well, as defined by 19.15.16.7 B(1) NMAC,will be entirely within the applicable setbacks . This approach complies with all applicable rules, including 19.15.16.14 A(3) NMAC, 19.15.16.14 B(2) NMAC, 19.15.16.15 B(2)NMAC, and 19.15.16.15. B(4) NMAC.

CONDITIONS OF APPROVAL
Adhere to previously issued stipulations.

BLM'S APPROVAL OR ACCEPTANCE OF THIS ACTION DOES NOT RELIEVE THE LESSEE AND OPERATOR FROM OBTAINING ANY OTHER AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS

14. I hereby certify that the foregoing is true and correct. Name *(Printed/Typed)* Larry Higgins	Title Permit Supervisor
Signature Larry Higgins	Date 3/4/2014

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by William Tambekou	Petroleum Engineer	Date 3/14/2014
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.	Office FFO	

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

(Instructions on page 2)

NMOCD

District I
1625 N. French Drive, Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First Street, Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Drive, Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
1220 South St. Francis Drive
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011

Submit one copy to
Appropriate District Office

☐ AMENDED REPORT

RECEIVED
MAR 04 2014
Farmington Field Office
Bureau of Land Management

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-043-21136	42289	LYBROOK GALLUP

[4] Property Code	[5] Property Name	[6] Well Number
~~39987~~ 40021	CHACO 2306-19E	188H

[7] OGRID No.	[8] Operator Name	[9] Elevation
120782	WPX ENERGY PRODUCTION, LLC	6965'

[10] Surface Location

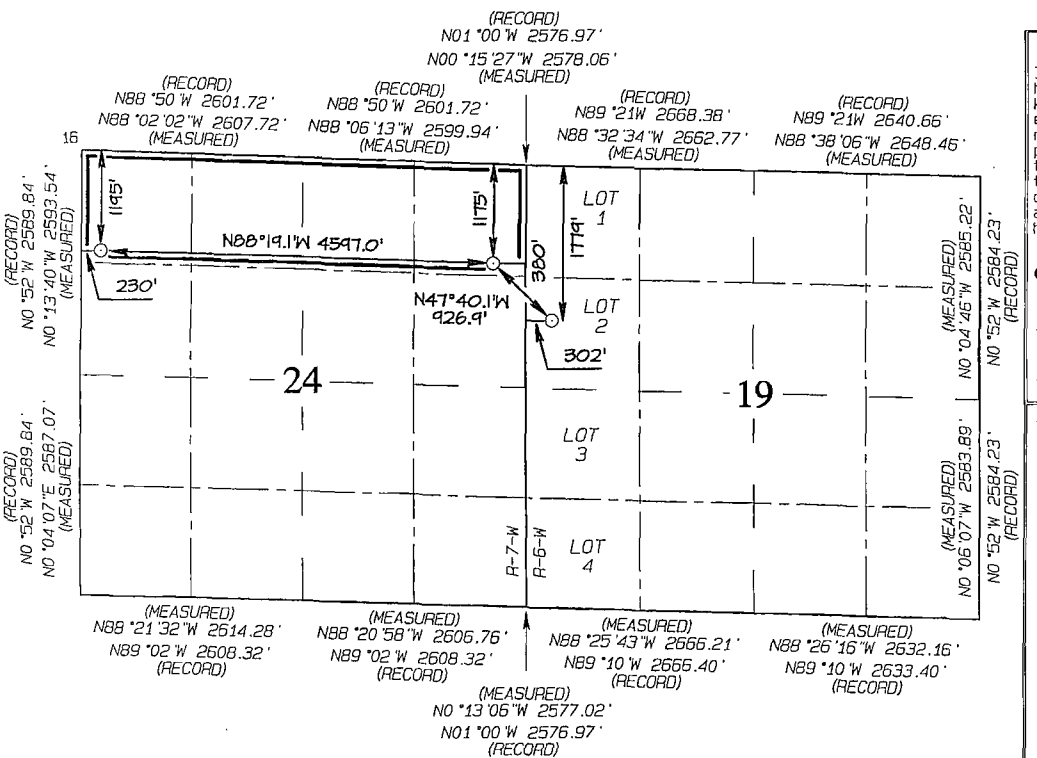
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	19	23N	6W	2	1779	NORTH	302	WEST	SANDOVAL

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	24	23N	7W		1195	NORTH	230	WEST	SANDOVAL

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
160.0 Acres N/2 N/2 - Section 24			

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
1195' FNL 230' FWL
SECTION 24, T23N, R7W
LAT: 36.21519 °N
LONG: 107.53467 °W
DATUM: NAD1927

LAT: 36.21520 °N
LONG: 107.53528 °W
DATUM: NAD1983

POINT-OF-ENTRY
1175' FNL 380' FEL
SECTION 24, T23N, R7W
LAT: 36.21498 °N
LONG: 107.51909 °W
DATUM: NAD1927

LAT: 36.21500 °N
LONG: 107.51970 °W
DATUM: NAD1983

SURFACE LOCATION
1779' FNL 302' FWL
SECTION 19, T23N, R6W
LAT: 36.21329 °N
LONG: 107.51674 °W
DATUM: NAD1927

LAT: 36.21331 °N
LONG: 107.51735 °W
DATUM: NAD1983

[17] OPERATOR CERTIFICATION

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

Larry Higgins 3/4/14
Signature Date

Larry Higgins
Printed Name

larry.higgins@wpxenergy.com
E-mail Address

[18] SURVEYOR CERTIFICATION

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

Date Revised: FEBRUARY 28, 2014
Date of Survey: JULY 10, 2012

Signature and Seal of Professional Surveyor

JASON C. EDWARDS
NEW MEXICO
15269
REGISTERED PROFESSIONAL SURVEYOR

JASON C. EDWARDS
Certificate Number 15269

WPXENERGY

WPX ENERGY

Operations Plan

(Note: This procedure will be adjusted on site based upon actual conditions)

DATE:	2/27/2014	**FIELD:**	Lybrook (Gallup)
WELL NAME:	**Chaco 2306-19E #188H**	**SURFACE:**	BLM
SH Location:	SWNW Sec 19-23N-06W	**ELEVATION:**	6964' GR
BH Location:	NWNW Sec 24-23N-07W Sandoval, NM	**MINERALS:**	BLM
MEASURED DEPTH:	**10,537'**	**LEASE #:**	NMSF 078360

I. **GEOLOGY:** Surface formation – San Jose

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

Name		MD	TVD		Name		MD	TVD
Ojo Alamo		1,320	1,314		Point Lookout		4,239	4,193
Kirtland		1,621	1,611		Mancos		4,427	4,379
Pictured Cliffs		1,926	1,911		**Kickoff Point**		**4,870**	**4,821**
Lewis		2,012	1,996		Target Top		5,664	5,432
Chacra		2,346	2,326		**Landing Point**		**5,940**	**5,488**
Cliff House		3,451	3,416		Target Base		5,940	5,488
Menefee		3,470	3,434					
					TD		10,537	5,414

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 ¾" Directional Vertical hole, and the curve portion of the wellbore. A LSND (WBM) or (OBM) will be used to drill the lateral portion of well. Treat for lost circulation as necessary. Obtain 100% returns prior to cementing. Notify Engineering of any mud losses.

B. **BOP TESTING:** While drill pipe is in use, the pipe rams and the blind rams will be function tested once each trip. The anticipated reservoir is expected to be less than 1300 psi, so the BOPE will be tested to **250 psi (Low) for 5 minutes** and **1500 psi (High) for 10 minutes**. Pressure test surface casing to **600 psi for 30 minutes** and intermediate casing to **1500 psi for 30 minutes.** Utilize a BOPE Testing Unit with a recording chart and appropriate test plug for testing. The drum brakes will be inspected and tested each tour. **All tests and inspections will be recorded in the tour book as to time and results.**

NOTE: Vertical portion of the well (8-3/4 in.) will be directionally drilled as per attached Directional Plan to +/- 4,870' (MD) / 4,821' (TVD). Curve portion of wellbore will be drilled and landed at +/- 90 deg. at +/- 5,940' (MD) / 5,488' (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 +/- 10,537' (MD) / 5,414' (TVD). Will run 4-1/2 in. Production Liner from +/- 5,790 ft. to TD and cemented. Liner will be tied back to surface w / 4-1/2" Casing for stimulation / testing, then removed from the well.

III. MATERIALS

A. CASING PROGRAM:

CASING TYPE	OH SIZE (IN)	DEPTH (MD) (FT)	CASING SIZE (IN)	WEIGHT(LB)	GRADE
Surface	12.25"	400'+	9.625"	36#	J-55
Intermediate	8.75"	5,940'	7"	23#	K-55
Prod. Liner	6.125"	5,790' - 10,537'	4-1/2"	11.6#	N-80
Tie-Back String	N/A	Surf. - 5,790'	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 (310 sx / 536.3 cu ft / 95.5 bbls). Mix Foamed Cement w/ +/- 75,000 SCF Nitrogen. Est. TOC +/- 5,490 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 5,940 ft. MD) with a Liner Hanger and pack-off assembly then cemented to +/- 300 ft above the liner hanger. TOL will be +/- 5,790 ft. (MD) +/- 77 degree angle. TOC: +/- 5,490 ft. (MD).

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

A 4-1/2" 11.6# N-80 tie-back string with seal assembly will be run and stung into the PBR of the liner hanger, tested to 1500 PSI and hung off at the surface.

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

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

WPXENERGY

WPX Energy

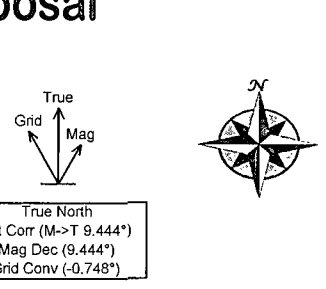
Rev 0

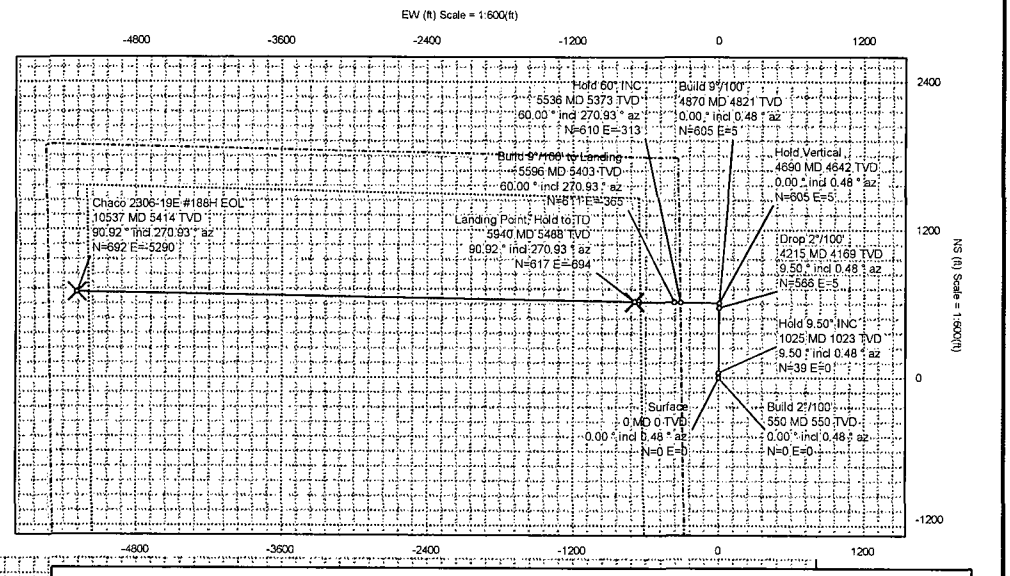
PATHFINDER
A Schlumberger Company

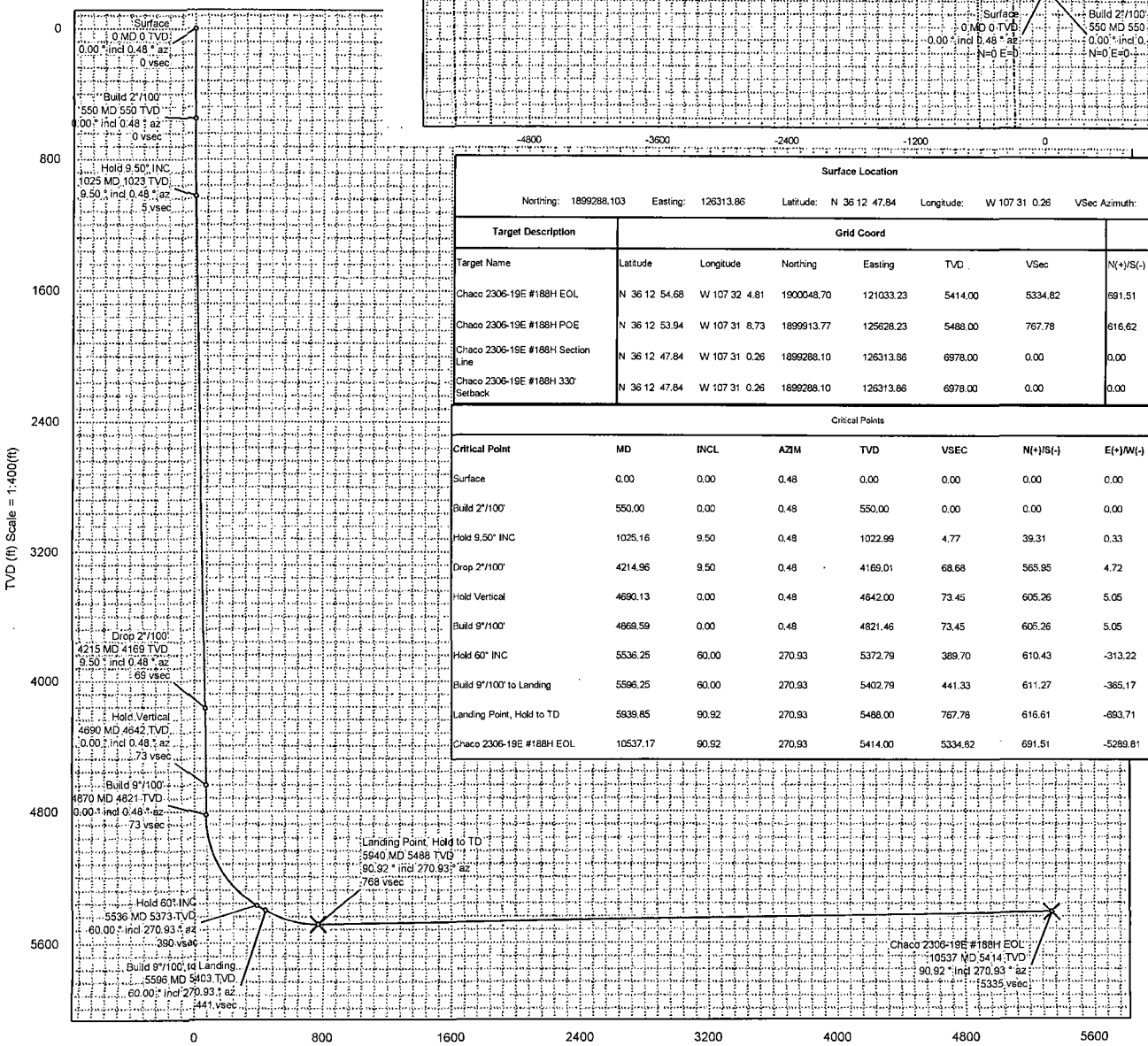
Borehole:	Well:	Field:	Structure:
Original Hole	Chaco 2306-19E #188H	NM Sandoval County NAD27	Sec 19-23N-6W

Gravity & Magnetic Parameters				Surface Location	NAD27 New Mexico State Plane, Central Zone, US Feet			Miscellaneous			
Model: BGGM 2013	Dip: 62.998°	Date: 25-Feb-2014		Lat: N 36 12 47.84	Northing: 1899288.103ft US	Grid Conv: -0.7485°		Slot: Chaco 2306-19E #188H	TVD Ref: Mud Line(6978ft above MSL)		
MagDec: 9.444°	FS: 50130.373nT	Gravity FS: 998.492mgn (9.80665 Based)		Lon: W 107 31 0.26	Easting: 126313.86ftUS	Scale Fact: 1.0000598		Plan: Chaco 2306-19E #188H R0 mdv 25Feb14			

Proposal







Vertical Section (ft) Azim = 277.448° Scale = 1:400(ft) Origin = 0N/-S, 0E/-W

Surface Location

Northing: 1899288.103 Easting: 126313.86 Latitude: N 36 12 47.84 Longitude: W 107 31 0.26 VSec Azimuth: 277.448

Target Description	Grid Coord						Local Coord	
Target Name	Latitude	Longitude	Northing	Easting	TVD	VSec	N(+)/S(-)	E(+)/W(-)
Chaco 2306-19E #188H EOL	N 36 12 54.68	W 107 32 4.81	1900048.70	121033.23	5414.00	5334.82	691.51	-5289.81
Chaco 2306-19E #188H POE	N 36 12 53.94	W 107 31 8.73	1899913.77	125628.23	5488.00	767.78	616.62	-693.71
Chaco 2306-19E #188H Section Line	N 36 12 47.84	W 107 31 0.26	1899288.10	126313.86	6978.00	0.00	0.00	0.00
Chaco 2306-19E #188H 330' Setback	N 36 12 47.84	W 107 31 0.26	1899288.10	126313.86	6978.00	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	0.48	0.00	0.00	0.00	0.00	
Build 2°/100'	550.00	0.00	0.48	550.00	0.00	0.00	0.00	0.00
Hold 9.50° INC	1025.16	9.50	0.48	1022.99	4.77	39.31	0.33	2.00
Drop 2°/100'	4214.96	9.50	0.48	4169.01	68.68	565.95	4.72	0.00
Hold Vertical	4690.13	0.00	0.48	4642.00	73.45	605.26	5.05	2.00
Build 9°/100'	4869.59	0.00	0.48	4821.46	73.45	605.26	5.05	0.00
Hold 60° INC	5536.25	60.00	270.93	5372.79	389.70	610.43	-313.22	9.00
Build 9°/100' to Landing	5596.25	60.00	270.93	5402.79	441.33	611.27	-365.17	0.00
Landing Point, Hold to TD	5939.85	90.92	270.93	5488.00	767.78	616.61	-693.71	9.00
Chaco 2306-19E #188H EOL	10537.17	90.92	270.93	5414.00	5334.82	691.51	-5289.81	0.00

WPXENERGY

PATHFINDER
A Schlumberger Company

Chaco 2306-19E #188H R0 mdv 25Feb14 Proposal Geodetic Report

(Def Plan)

Report Date:	February 25, 2014 - 02:25 PM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	WPX Energy	**Vertical Section Azimuth:**	277.448 ° (True North)
Field:	NM Sandoval County NAD27	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	WPX Sec 19-23N-6W (Chaco 2306-19E #188H) / Chaco 2306-19E #188H	**TVD Reference Datum:**	Mud Line
Well:	Chaco 2306-19E #188H	**TVD Reference Elevation:**	6978.000 ft above MSL
Borehole:	Original Hole	**Seabed / Ground Elevation:**	6964.000 ft above MSL
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	9.444 °
Survey Name:	Chaco 2306-19E #188H R0 mdv 25Feb14	**Total Gravity Field Strength:**	998.4919mgn (9.80665 Based)
Survey Date:	February 25, 2014	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	109.934 ° / 5900.847 ft / 6.095 / 1.075	**Total Magnetic Field Strength:**	50130.373 nT
Coordinate Reference System:	NAD27 New Mexico State Plane, Central Zone, US Feet	**Magnetic Dip Angle:**	62.998 °
Location Lat / Long:	N 36° 12' 47.84400", W 107° 31' 0.26400"	**Declination Date:**	February 25, 2014
Location Grid N/E Y/X:	N 1899288.103 ftUS, E 126313.860 ftUS	**Magnetic Declination Model:**	BGGM 2013
CRS Grid Convergence Angle:	-0.7485 °	**North Reference:**	True North
Grid Scale Factor:	1.0000598	**Grid Convergence Used:**	0.0000 °
Version / Patch:	2.7.1043.0	**Total Corr Mag North->True North:**	9.4442 °
		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	0.48	0.00	0.00	0.00	0.00	N/A	1899288.10	126313.86	N 36 12 47.84	W 107 31 0.26
	100.00	0.00	0.48	100.00	0.00	0.00	0.00	0.00	1899288.10	126313.86	N 36 12 47.84	W 107 31 0.26
	200.00	0.00	0.48	200.00	0.00	0.00	0.00	0.00	1899288.10	126313.86	N 36 12 47.84	W 107 31 0.26
	300.00	0.00	0.48	300.00	0.00	0.00	0.00	0.00	1899288.10	126313.86	N 36 12 47.84	W 107 31 0.26
	400.00	0.00	0.48	400.00	0.00	0.00	0.00	0.00	1899288.10	126313.86	N 36 12 47.84	W 107 31 0.26
	500.00	0.00	0.48	500.00	0.00	0.00	0.00	0.00	1899288.10	126313.86	N 36 12 47.84	W 107 31 0.26
Build 2°/100'	550.00	0.00	0.48	550.00	0.00	0.00	0.00	0.00	1899288.10	126313.86	N 36 12 47.84	W 107 31 0.26
	600.00	1.00	0.48	600.00	0.05	0.44	0.00	2.00	1899288.54	126313.87	N 36 12 47.85	W 107 31 0.26
	700.00	3.00	0.48	699.93	0.48	3.93	0.03	2.00	1899292.03	126313.94	N 36 12 47.88	W 107 31 0.26
	800.00	5.00	0.48	799.68	1.32	10.90	0.09	2.00	1899299.00	126314.09	N 36 12 47.95	W 107 31 0.26
	900.00	7.00	0.48	899.13	2.59	21.35	0.18	2.00	1899309.45	126314.32	N 36 12 48.06	W 107 31 0.26
	1000.00	9.00	0.48	998.15	4.28	35.27	0.29	2.00	1899323.37	126314.62	N 36 12 48.19	W 107 31 0.26
Hold 9.50° INC	1025.16	9.50	0.48	1022.99	4.77	39.31	0.33	2.00	1899327.41	126314.70	N 36 12 48.23	W 107 31 0.26
	1100.00	9.50	0.48	1096.80	6.27	51.67	0.43	0.00	1899339.77	126314.97	N 36 12 48.35	W 107 31 0.26
	1200.00	9.50	0.48	1195.42	8.27	68.18	0.57	0.00	1899356.27	126315.32	N 36 12 48.52	W 107 31 0.26
	1300.00	9.50	0.48	1294.05	10.28	84.69	0.71	0.00	1899372.78	126315.67	N 36 12 48.68	W 107 31 0.26
	1400.00	9.50	0.48	1392.68	12.28	101.20	0.84	0.00	1899389.29	126316.03	N 36 12 48.84	W 107 31 0.25
	1500.00	9.50	0.48	1491.31	14.28	117.71	0.98	0.00	1899405.80	126316.38	N 36 12 49.01	W 107 31 0.25
	1600.00	9.50	0.48	1589.94	16.29	134.22	1.12	0.00	1899422.30	126316.73	N 36 12 49.17	W 107 31 0.25
	1700.00	9.50	0.48	1688.56	18.29	150.73	1.26	0.00	1899438.81	126317.09	N 36 12 49.33	W 107 31 0.25
	1800.00	9.50	0.48	1787.19	20.29	167.24	1.40	0.00	1899455.32	126317.44	N 36 12 49.50	W 107 31 0.25
	1900.00	9.50	0.48	1885.82	22.30	183.75	1.53	0.00	1899471.83	126317.79	N 36 12 49.66	W 107 31 0.25
	2000.00	9.50	0.48	1984.45	24.30	200.26	1.67	0.00	1899488.33	126318.15	N 36 12 49.82	W 107 31 0.24
	2100.00	9.50	0.48	2083.07	26.30	216.77	1.81	0.00	1899504.84	126318.50	N 36 12 49.99	W 107 31 0.24
	2200.00	9.50	0.48	2181.70	28.31	233.28	1.95	0.00	1899521.35	126318.85	N 36 12 50.15	W 107 31 0.24
	2300.00	9.50	0.48	2280.33	30.31	249.79	2.08	0.00	1899537.86	126319.21	N 36 12 50.31	W 107 31 0.24
	2400.00	9.50	0.48	2378.96	32.32	266.30	2.22	0.00	1899554.36	126319.56	N 36 12 50.48	W 107 31 0.24
	2500.00	9.50	0.48	2477.58	34.32	282.81	2.36	0.00	1899570.87	126319.91	N 36 12 50.64	W 107 31 0.24
	2600.00	9.50	0.48	2576.21	36.32	299.32	2.50	0.00	1899587.38	126320.27	N 36 12 50.80	W 107 31 0.23
	2700.00	9.50	0.48	2674.84	38.33	315.83	2.64	0.00	1899603.89	126320.62	N 36 12 50.97	W 107 31 0.23
	2800.00	9.50	0.48	2773.47	40.33	332.34	2.77	0.00	1899620.40	126320.97	N 36 12 51.13	W 107 31 0.23
	2900.00	9.50	0.48	2872.09	42.33	348.85	2.91	0.00	1899636.90	126321.33	N 36 12 51.29	W 107 31 0.23
	3000.00	9.50	0.48	2970.72	44.34	365.36	3.05	0.00	1899653.41	126321.68	N 36 12 51.46	W 107 31 0.23
	3100.00	9.50	0.48	3069.35	46.34	381.87	3.19	0.00	1899669.92	126322.04	N 36 12 51.62	W 107 31 0.23
	3200.00	9.50	0.48	3167.98	48.34	398.38	3.32	0.00	1899686.43	126322.39	N 36 12 51.78	W 107 31 0.22
	3300.00	9.50	0.48	3266.60	50.35	414.89	3.46	0.00	1899702.93	126322.74	N 36 12 51.95	W 107 31 0.22
	3400.00	9.50	0.48	3365.23	52.35	431.40	3.60	0.00	1899719.44	126323.10	N 36 12 52.11	W 107 31 0.22
	3500.00	9.50	0.48	3463.86	54.35	447.91	3.74	0.00	1899735.95	126323.45	N 36 12 52.27	W 107 31 0.22
	3600.00	9.50	0.48	3562.49	56.36	464.42	3.87	0.00	1899752.46	126323.80	N 36 12 52.44	W 107 31 0.22
	3700.00	9.50	0.48	3661.12	58.36	480.93	4.01	0.00	1899768.96	126324.16	N 36 12 52.60	W 107 31 0.22
	3800.00	9.50	0.48	3759.74	60.36	497.44	4.15	0.00	1899785.47	126324.51	N 36 12 52.76	W 107 31 0.21
	3900.00	9.50	0.48	3858.37	62.37	513.95	4.29	0.00	1899801.98	126324.86	N 36 12 52.93	W 107 31 0.21
	4000.00	9.50	0.48	3957.00	64.37	530.46	4.43	0.00	1899818.49	126325.22	N 36 12 53.09	W 107 31 0.21
	4100.00	9.50	0.48	4055.63	66.37	546.97	4.56	0.00	1899834.99	126325.57	N 36 12 53.25	W 107 31 0.21
	4200.00	9.50	0.48	4154.25	68.38	563.47	4.70	0.00	1899851.50	126325.92	N 36 12 53.42	W 107 31 0.21
Drop 2°/100'	4214.96	9.50	0.48	4169.01	68.68	565.95	4.72	0.00	1899853.97	126325.98	N 36 12 53.44	W 107 31 0.21
	4300.00	7.80	0.48	4253.08	70.23	578.74	4.83	2.00	1899866.76	126326.25	N 36 12 53.57	W 107 31 0.21
	4400.00	5.80	0.48	4352.37	71.67	590.58	4.93	2.00	1899878.60	126326.50	N 36 12 53.68	W 107 31 0.20
	4500.00	3.80	0.48	4452.01	72.68	598.95	5.00	2.00	1899886.97	126326.68	N 36 12 53.77	W 107 31 0.20
	4600.00	1.80	0.48	4551.89	73.28	603.84	5.04	2.00	1899891.86	126326.79	N 36 12 53.82	W 107 31 0.20
Hold Vertical	4690.13	0.00	0.48	4642.00	73.45	605.26	5.05	2.00	1899893.28	126326.82	N 36 12 53.83	W 107 31 0.20
	4700.00	0.00	0.48	4651.87	73.45	605.26	5.05	0.00	1899893.28	126326.82	N 36 12 53.83	W 107 31 0.20
	4800.00	0.00	0.48	4751.87	73.45	605.26	5.05	0.00	1899893.28	126326.82	N 36 12 53.83	W 107 31 0.20
Build 9°/100'	4869.59	0.00	0.48	4821.46	73.45	605.26	5.05	0.00	1899893.28	126326.82	N 36 12 53.83	W 107 31 0.20
	4900.00	2.74	270.93	4851.86	74.17	605.27	4.32	9.00	1899893.30	126326.09	N 36 12 53.83	W 107 31 0.21
	5000.00	11.74	270.93	4950.96	86.67	605.48	-8.26	9.00	1899893.67	126313.51	N 36 12 53.83	W 107 31 0.36
	5100.00	20.74	270.93	5046.87	114.42	605.93	-36.19	9.00	1899894.49	126285.59	N 36 12 53.84	W 107 31 0.71
	5200.00	29.74	270.93	5137.24	156.74	606.62	-78.78	9.00	1899895.74	126243.01	N 36 12 53.84	W 107 31 1.23
	5300.00	38.74	270.93	5219.82	212.58	607.53	-134.97	9.00	1899897.38	126186.83	N 36 12 53.85	W 107 31 1.91
	5400.00	47.74	270.93	5292.60	280.57	608.64	-203.39	9.00	1899899.39	126118.42	N 36 12 53.86	W 107 31 2.75
	5500.00	56.74	270.93	5353.78	359.04	609.93	-282.36	9.00	1899901.70	126039.48	N 36 12 53.88	W 107 31 3.71
Hold 60° INC	5536.25	60.00	270.93	5372.79	389.70	610.43	-313.22	9.00	1899902.60	126008.63	N 36 12 53.88	W 107 31 4.09
Build 9°/100' to Landing	5596.25	60.00	270.93	5402.79	441.33	611.27	-365.17	0.00	1899904.13	125956.68	N 36 12 53.89	W 107 31 4.72
	5600.00	60.34	270.93	5404.65	444.55	611.32	-368.42	9.00	1899904.22	125953.44	N 36 12 53.89	W 107 31 4.76
	5700.00	69.34	270.93	5447.13	534.39	612.79	-458.83	9.00	1899906.87	125863.05	N 36 12 53.90	W 107 31 5.86
	5800.00	78.34	270.93	5474.94	629.72	614.35	-554.76	9.00	1899909.68	125767.14	N 36 12 53.92	W 107 31 7.03
	5900.00	87.34	270.93	5487.39	728.19	615.96	-653.87	9.00	1899912.59	125668.06	N 36 12 53.94	W 107 31 8.24
Landing Point, Hold to TD	5939.85	90.92	270.93	5488.00	767.78	616.61	-693.71	9.00	1899913.76	125628.23	N 36 12 53.94	W 107 31 8.73
	6000.00	90.92	270.93	5487.03	827.53	617.59	-753.84	0.00	1899915.53	125568.11	N 36 12 53.95	W 107 31 9.46
	6100.00	90.92	270.93	5485.41	926.87	619.22	-853.81	0.00	1899918.46	125468.16	N 36 12 53.97	W 107 31 10.68
	6200.00	90.92	270.93	5483.80	1026.21	620.85	-953.78	0.00	1899921.39	125368.21	N 36 12 53.98	W 107 31 11.90
	6300.00	90.92	270.93	5482.19	1125.55	622.48	-1053.76	0.00	1899924.33	125268.26	N 36 12 54.00	W 107 31 13.12
	6400.00	90.92	270.93	5480.58	1224.89	624.10	-1153.73	0.00	1899927.26	125168.32	N 36 12 54.02	W 107 31 14.34
	6500.00	90.92	270.93	5478.97	1324.24	625.73	-1253.70	0.00	1899930.20	125068.37	N 36 12 54.03	W 107 31 15.56
	6600.00	90.92	270.93	5477.35	1423.58	627.36	-1353.68	0.00	1899933.13	124968.42	N 36 12 54.05	W 107 31 16.78

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	90.92	270.93	5475.74	1522.92	628.99	-1453.65	0.00	1899936.07	124868.47	N 36 12 54.06	W 107 31 18.00
	6800.00	90.92	270.93	5474.13	1622.26	630.62	-1553.63	0.00	1899939.00	124768.52	N 36 12 54.08	W 107 31 19.22
	6900.00	90.92	270.93	5472.52	1721.60	632.25	-1653.60	0.00	1899941.93	124668.57	N 36 12 54.10	W 107 31 20.44
	7000.00	90.92	270.93	5470.91	1820.94	633.88	-1753.57	0.00	1899944.87	124568.62	N 36 12 54.11	W 107 31 21.66
	7100.00	90.92	270.93	5469.30	1920.28	635.50	-1853.55	0.00	1899947.80	124468.67	N 36 12 54.13	W 107 31 22.88
	7200.00	90.92	270.93	5467.69	2019.63	637.13	-1953.52	0.00	1899950.74	124368.72	N 36 12 54.14	W 107 31 24.10
	7300.00	90.92	270.93	5466.08	2118.97	638.76	-2053.49	0.00	1899953.67	124268.77	N 36 12 54.16	W 107 31 25.32
	7400.00	90.92	270.93	5464.46	2218.31	640.39	-2153.47	0.00	1899956.61	124168.82	N 36 12 54.18	W 107 31 26.54
	7500.00	90.92	270.93	5462.85	2317.65	642.02	-2253.44	0.00	1899959.54	124068.87	N 36 12 54.19	W 107 31 27.76
	7600.00	90.92	270.93	5461.24	2416.99	643.65	-2353.42	0.00	1899962.48	123968.92	N 36 12 54.21	W 107 31 28.98
	7700.00	90.92	270.93	5459.63	2516.33	645.28	-2453.39	0.00	1899965.41	123868.97	N 36 12 54.22	W 107 31 30.20
	7800.00	90.92	270.93	5458.02	2615.67	646.91	-2553.36	0.00	1899968.35	123769.02	N 36 12 54.24	W 107 31 31.42
	7900.00	90.92	270.93	5456.41	2715.02	648.53	-2653.34	0.00	1899971.28	123669.07	N 36 12 54.26	W 107 31 32.64
	8000.00	90.92	270.93	5454.80	2814.36	650.16	-2753.31	0.00	1899974.22	123569.12	N 36 12 54.27	W 107 31 33.86
	8100.00	90.92	270.93	5453.19	2913.70	651.79	-2853.28	0.00	1899977.15	123469.17	N 36 12 54.29	W 107 31 35.08
	8200.00	90.92	270.93	5451.58	3013.04	653.42	-2953.26	0.00	1899980.09	123369.22	N 36 12 54.30	W 107 31 36.30
	8300.00	90.92	270.93	5449.97	3112.38	655.05	-3053.23	0.00	1899983.02	123269.27	N 36 12 54.32	W 107 31 37.52
	8400.00	90.92	270.93	5448.36	3211.72	656.68	-3153.21	0.00	1899985.96	123169.32	N 36 12 54.34	W 107 31 38.74
	8500.00	90.92	270.93	5446.76	3311.07	658.31	-3253.18	0.00	1899988.89	123069.37	N 36 12 54.35	W 107 31 39.96
	8600.00	90.92	270.93	5445.15	3410.41	659.94	-3353.15	0.00	1899991.83	122969.42	N 36 12 54.37	W 107 31 41.18
	8700.00	90.92	270.93	5443.54	3509.75	661.57	-3453.13	0.00	1899994.76	122869.47	N 36 12 54.38	W 107 31 42.40
	8800.00	90.92	270.93	5441.93	3609.09	663.20	-3553.10	0.00	1899997.70	122769.52	N 36 12 54.40	W 107 31 43.62
	8900.00	90.92	270.93	5440.32	3708.43	664.83	-3653.07	0.00	1900000.63	122669.57	N 36 12 54.42	W 107 31 44.84
	9000.00	90.92	270.93	5438.71	3807.77	666.46	-3753.05	0.00	1900003.57	122569.62	N 36 12 54.43	W 107 31 46.06
	9100.00	90.92	270.93	5437.10	3907.11	668.09	-3853.02	0.00	1900006.51	122469.67	N 36 12 54.45	W 107 31 47.28
	9200.00	90.92	270.93	5435.49	4006.46	669.72	-3953.00	0.00	1900009.44	122369.72	N 36 12 54.46	W 107 31 48.50
	9300.00	90.92	270.93	5433.89	4105.80	671.35	-4052.97	0.00	1900012.38	122269.77	N 36 12 54.48	W 107 31 49.72
	9400.00	90.92	270.93	5432.28	4205.14	672.98	-4152.94	0.00	1900015.31	122169.82	N 36 12 54.50	W 107 31 50.94
	9500.00	90.92	270.93	5430.67	4304.48	674.61	-4252.92	0.00	1900018.25	122069.87	N 36 12 54.51	W 107 31 52.16
	9600.00	90.92	270.93	5429.06	4403.82	676.24	-4352.89	0.00	1900021.18	121969.92	N 36 12 54.53	W 107 31 53.38
	9700.00	90.92	270.93	5427.45	4503.16	677.87	-4452.86	0.00	1900024.12	121869.97	N 36 12 54.54	W 107 31 54.60
	9800.00	90.92	270.93	5425.85	4602.51	679.50	-4552.84	0.00	1900027.06	121770.02	N 36 12 54.56	W 107 31 55.82
	9900.00	90.92	270.93	5424.24	4701.85	681.13	-4652.81	0.00	1900029.99	121670.07	N 36 12 54.58	W 107 31 57.04
	10000.00	90.92	270.93	5422.63	4801.19	682.76	-4752.79	0.00	1900032.93	121570.12	N 36 12 54.59	W 107 31 58.26
	10100.00	90.92	270.93	5421.02	4900.53	684.39	-4852.76	0.00	1900035.86	121470.17	N 36 12 54.61	W 107 31 59.48
	10200.00	90.92	270.93	5419.42	4999.87	686.02	-4952.73	0.00	1900038.80	121370.23	N 36 12 54.62	W 107 32 0.70
	10300.00	90.92	270.93	5417.81	5099.21	687.65	-5052.71	0.00	1900041.74	121270.28	N 36 12 54.64	W 107 32 1.92
	10400.00	90.92	270.93	5416.20	5198.56	689.28	-5152.68	0.00	1900044.67	121170.33	N 36 12 54.66	W 107 32 3.14
	10500.00	90.92	270.93	5414.60	5297.90	690.91	-5252.65	0.00	1900047.61	121070.38	N 36 12 54.67	W 107 32 4.36
Chaco 2306-19E #188H EOL	10537.17	90.92	270.93	5414.00	5334.82	691.51	-5289.81	0.00	1900048.70	121033.23	N 36 12 54.68	W 107 32 4.81

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_UNKNOWN-Depth Only	Original Hole / Chaco 2306-19E #188H R0 mdv 25Feb14
	1	14.000	10537.168	1/100.000	30.000	30.000	SLB_UNKNOWN	Original Hole / Chaco 2306-19E #188H R0 mdv 25Feb14

PBHL { Y → 1779 − 691.51 = 1087.49 ≈ 1088 ft/N (Sec: 24; T: 23N; R: 7W)
X → 302 + 5207.66 − 5289.81 = 219.85 ≈ 220 ft/W (Sec: 24; T: 23N; R: 7W)

William Tambekou
3/13/2014