

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 6th, 2014

Application Type:

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

Well information:

WPX Energy
Chaco 2307-15M #166H
30-039-31202
UL M S15 T23N R7W

Conditions of Approval:

Notify NMOCD 24hrs prior to beginning operations
Hold C104 for directional survey, as drilled plat, and NSL

NMOCD Approved by Signature

3-21-14
Date

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

MAR 07 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.

5. Lease Serial No.

NMNM 58876

6. If Indian, Allottee or Tribe Name

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

8. Well Name and No.

Chaco 2307-15M #166H

9. API Well No.

30-039-31202

10. Field and Pool or Exploratory Area

Lybrook Gallup

11. Country or Parish, State

Rio Arriba, 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 Sur-BHL change
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

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

WPX plans to plans to change the surface location slightly for better rig access and move the BHL 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.

CONDITIONS OF APPROVAL

Adhere to previously issued stipulations.

THIS 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 Regulatory Specialist

Signature

Date 3/6/2014

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

William Tambekou

Petroleum

Title 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)

NWOCDA

Submit one copy to
Appropriate District Office

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

☐ AMENDED REPORT 20

MAR 07 2014

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-039-31202		*Pool Code 42289	*Pool Name LYBROOK GALLUP	*Planning Unit Name Bureau of Land Management
*Property Code 40295	*Property Name CHACO 2307-15M			*Well Number 166H
*OGRID No. 120782	*Operator Name WPX ENERGY PRODUCTION, LLC			*Elevation 7295'

¹⁰ Surface Location

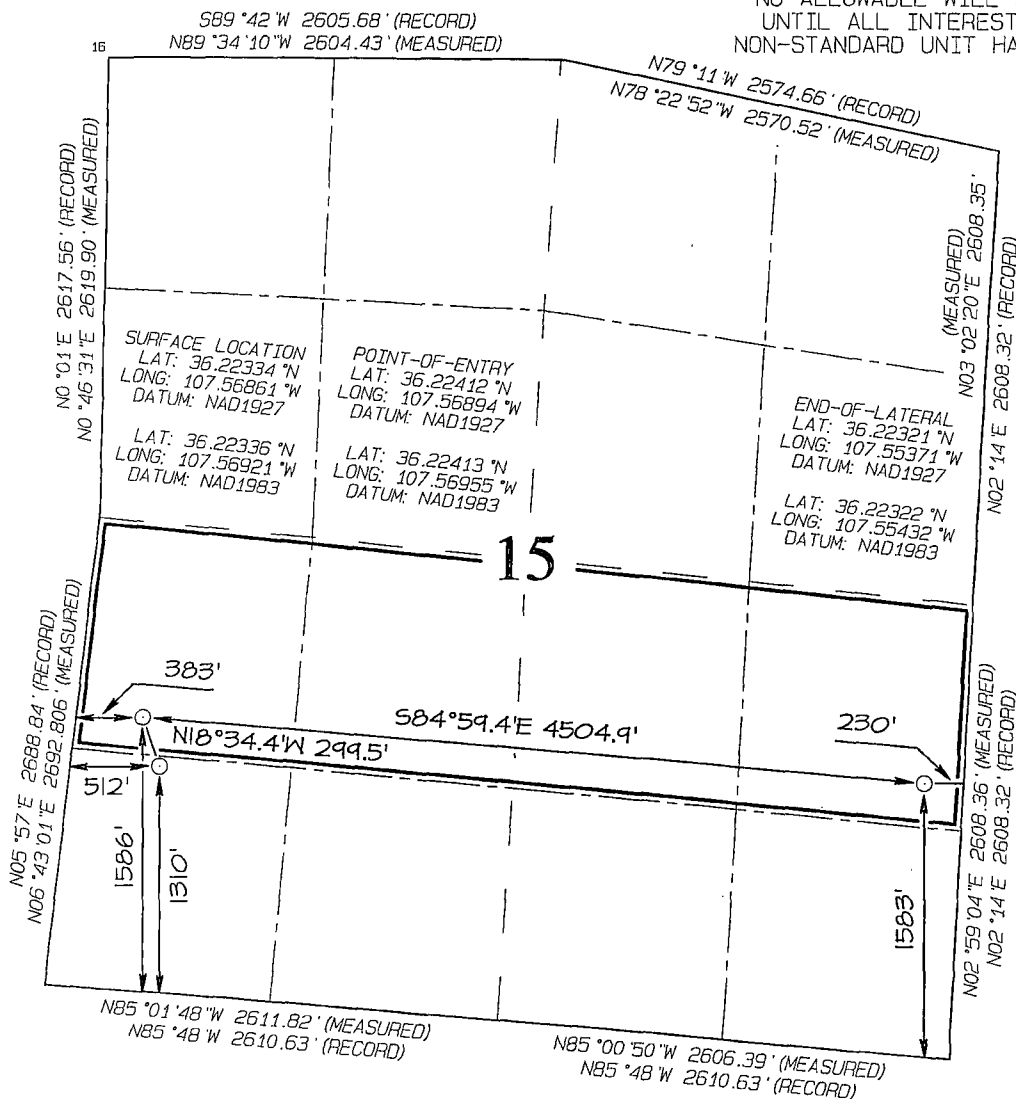
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	15	23N	7W		1310	SOUTH	512	WEST	RIO ARRIBA

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
I	15	23N	7W		1583	SOUTH	230	EAST	RIO ARRIBA

¹² Dedicated Acres	160.0 Acres - (N/2 S/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



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 a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature Gregg Steyer Date 3-6-14

Larry Higgins
Printed Name
larry.higgins@wpxenergy.com
E-mail Address

¹⁸ SURVEYOR CERTIFICATION

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

Date Revised: MARCH 5, 2014
Survey Date: AUGUST 23, 2013

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: 3/4/2014 **FIELD:** Lybrook (Gallup)

WELL NAME: Chaco 2307-15M #166H **SURFACE:** BLM

SH Location: SWSW Sec 15-23N-07W **ELEVATION:** 7295' GR

BH Location: NESE Sec 15-23N-07W
Rio Arriba, NM **MINERALS:** BLM

MEASURED DEPTH: 10,791' **LEASE #:** NMNM 58876

I. GEOLOGY: Surface formation – San Jose

A. FORMATION TOPS: (KB)

Name	MD	TVD	Name	MD	TVD
Ojo Alamo	1,532	1,518	Point Lookout	4,588	4,497
Kirtland	1,873	1,850	Mancos	4,733	4,641
Pictured Cliffs	2,203	2,172	Kickoff Point	5,221	5,128
Lewis	2,310	2,276	Target Top	5,963	5,717
Chacra	2,621	2,579	Landing Point	6,286	5,795
Cliff House	3,748	3,677	Target Base	6,286	5,795
Menefee	3,780	3,708			
			TD	10,791	5,754

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 +/- 5,221' (MD) / 5,128' (TVD). Curve portion of wellbore will be drilled and landed at +/- 90 deg. at +/- 6,286' (MD) / 5,795' (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 +/- 10,791' (MD) / 5,754' (TVD). Will run 4-1/2 in. Production Liner from +/- 6,136 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#	I-55
Intermediate	8.75"	6,286'	7"	23#	K-55
Prod. Liner	6.125"	6,136' - 10,791'	4-1/2"	11.6#	N-80
Tie-Back String	N/A	Surf. - 6,136'	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 (310sx / 536.3 cu ft / 95.5 bbls). Mix Foamed Cement w/ +/- 75,000 SCF Nitrogen. Est. TOC +/- 5,836 ft.

IV. COMPLETION

A. CBL

1. Run CCL for perforating.

B. PRESSURE TEST

1. Pressure test 4-1/2" casing to 4500 psi max, hold at 1500 psi for 30 minutes. Increase pressure to Open RSI sleeves.

C. STIMULATION

1. Stimulate with approximately 2,805,000# 20/40 mesh sand and 340,000# 16/30 mesh sand in 619,113 gallons water with 42,696 mscf N2 for 17 stages.
2. Isolate stages with flow through frac plug.
3. Drill out frac plugs and flowback lateral.

D. RUNNING TUBING

1. Production Tubing: Run 2-7/8", 6.5#, J-55, EUE tubing with a SN on top of bottom joint. Land tubing near Top of Liner point of curve (~5,800' MD).
- Although this horizontal well will be drilled past the applicable setbacks, an unorthodox location application is not required because the completed interval in this well, as defined by 19.15.16.7 B(1) NMAC, will be entirely within the applicable setbacks. This approach complies with all applicable rules, including 19.15.16.14 A(3) NMAC, 19.15.16.14 B(2) NMAC, 19.15.16.15 B(2) NMAC, and 19.15.16.15 B(4) NMAC.
-

NOTE:

Installation of RSI sleeves at Toe of Lateral.

Proposed Operations:

A 4-1/2" 11.6# N-80 Liner will be run to TD and landed +/- 150 ft. into the 7" 23# K-55 Intermediate casing (set at 6,286 ft. MD) with a Liner Hanger and pack-off assembly then cemented to +/- 300 ft above the liner hanger. TOL will be +/- 6,136 ft. (MD) +/- 77 degree angle. TOC: +/- 5,836 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.

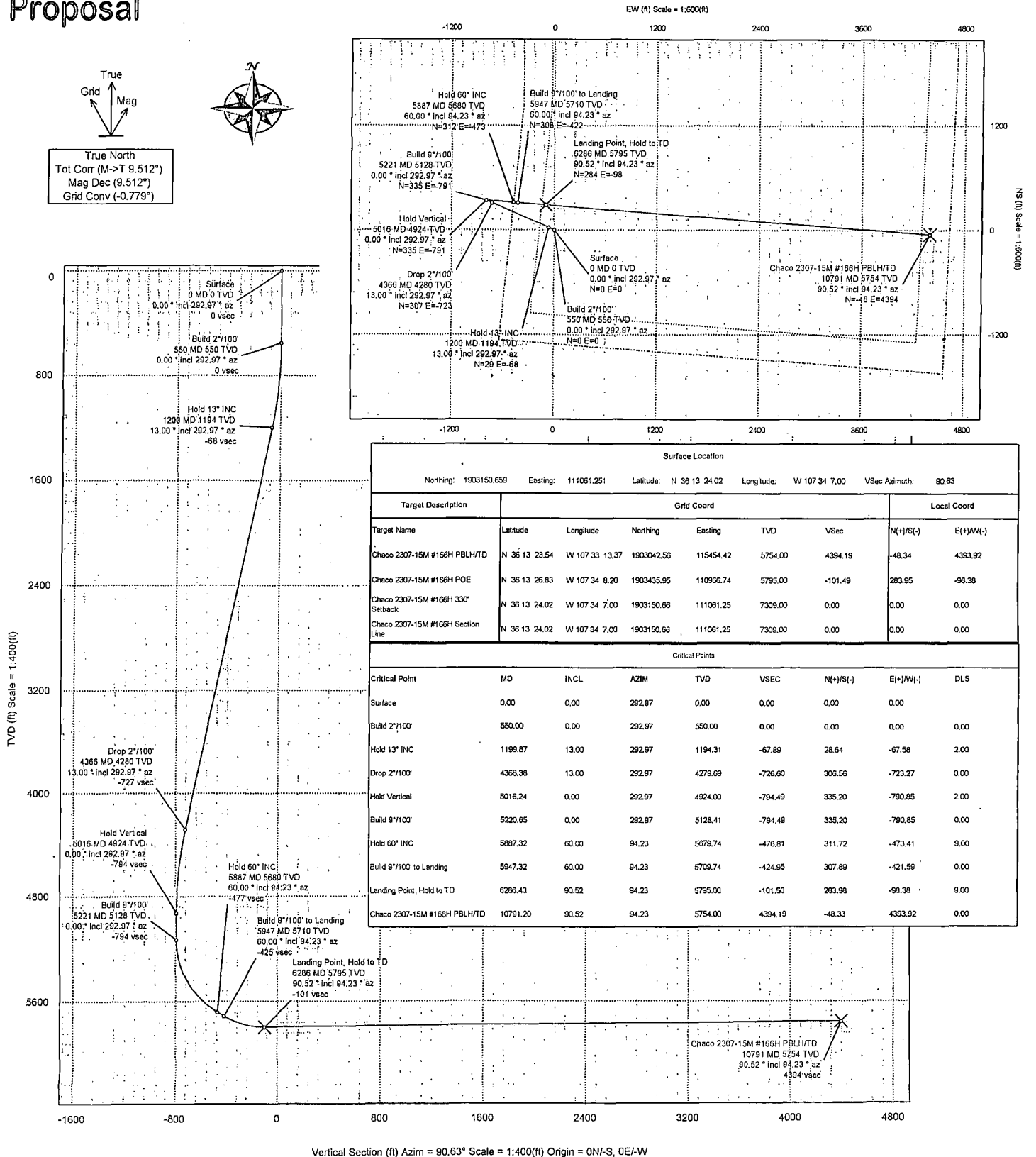
The Drilling Rig will be rigged down at this point and Completion operations will begin. After Stimulation and Testing operations are complete the 4-1/2" tie-back string will be removed from the well.

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

Borehole:	Well:	Field:	Structure:
Original Hole	Chaco 2307-15M #166H	NM, Rio Arriba (NAD 27 CZ)	Sec 15-23N-7W

Gravity & Magnetic Parameters		Surface Location		Miscellaneous	
Model: BGGM 2013 Dip: 63.009°	Date: 28-Feb-2014	Lat: N 36 13 24.02	North: 1903150.659	Grid Conv: -0.7793°	Slot: Chaco 2307-15M #166H
MagDec: 9.512°	FS: 50176.846mT Gravity FS: 998.456mgm (9.80665 Based)	Lon: W 107 34 7.00	Easting: 111061.251	Scale Fact: 1.00007311	TVD Ref: RKB(7309ft above MSL)
				Plan: Chaco 2307-15M #166H R4 mdv 28Feb14	

Proposal





Chaco 2307-15M #166H R4 mdv 28Feb14 Proposal Geodetic Report

(Def Plan)

Report Date: February 28, 2014 - 02:23 PM
Client: WPX Energy
Field: NM, Rio Arriba (NAD 27 CZ)
Structure / Slot: WPX Sec 15-23N-7W (Chaco 2307-15M #166H) / Chaco 2307-15M #166H
Well: Chaco 2307-15M #166H
Borehole: Original Hole
UWI / API#: Unknown / Unknown
Survey Name: Chaco 2307-15M #166H R4 mdv 28Feb14
Survey Date: September 24, 2013
Tort / AHD / DDI / ERD Ratio: 116.518 * / 6057.894 ft / 6.119 / 1.045
Coordinate Reference System: NAD27 New Mexico State Plane, Central Zone, US Feet
Location Lat / Long: N 36° 13' 24.02400", W 107° 34' 6.99600"
Location Grid N/E Y/X: N 1903150.659 ftUS, E 111061.251 ftUS
CRS Grid Convergence Angle: -0.7793 *
Grid Scale Factor: 1.00007311
Version / Patch: 2.7.1043.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 90.630 * (True North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 7309.000 ft above MSL
Seabed / Ground Elevation: 7295.000 ft above MSL
Magnetic Declination: 9.512 *
Total Gravity Field Strength: 998.4562mgn (9.80665 Based)
Gravity Model: DOX
Total Magnetic Field Strength: 50178.846 nT
Magnetic Dip Angle: 63.009 *
Declination Date: February 28, 2014
Magnetic Declination Model: BGM 2013
North Reference: True North
Grid Convergence Used: 0.0000 *
Total Corr Mag North->True North: 9.5122 *
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	292.97	0.00	0.00	0.00	0.00	N/A	1903150.66	111061.25	N 36 13 24.02	W 107 34 7.00
	100.00	0.00	292.97	100.00	0.00	0.00	0.00	0.00	1903150.66	111061.25	N 36 13 24.02	W 107 34 7.00
	200.00	0.00	292.97	200.00	0.00	0.00	0.00	0.00	1903150.66	111061.25	N 36 13 24.02	W 107 34 7.00
	300.00	0.00	292.97	300.00	0.00	0.00	0.00	0.00	1903150.66	111061.25	N 36 13 24.02	W 107 34 7.00
	400.00	0.00	292.97	400.00	0.00	0.00	0.00	0.00	1903150.66	111061.25	N 36 13 24.02	W 107 34 7.00
	500.00	0.00	292.97	500.00	0.00	0.00	0.00	0.00	1903150.66	111061.25	N 36 13 24.02	W 107 34 7.00
Build 2"/100'	550.00	0.00	292.97	550.00	0.00	0.00	0.00	0.00	1903150.66	111061.25	N 36 13 24.02	W 107 34 7.00
	600.00	1.00	292.97	600.00	-0.40	0.17	-0.40	2.00	1903150.83	111060.85	N 36 13 24.03	W 107 34 7.00
	700.00	3.00	292.97	699.93	-3.63	1.53	-3.61	2.00	1903152.24	111057.66	N 36 13 24.04	W 107 34 7.04
	800.00	5.00	292.97	799.68	-10.08	4.25	-10.04	2.00	1903155.05	111051.27	N 36 13 24.07	W 107 34 7.12
	900.00	7.00	292.97	899.13	-19.75	8.33	-19.66	2.00	1903159.26	111041.70	N 36 13 24.11	W 107 34 7.24
	1000.00	9.00	292.97	998.15	-32.62	13.76	-32.47	2.00	1903164.86	111028.96	N 36 13 24.16	W 107 34 7.39
	1100.00	11.00	292.97	1096.63	-48.88	20.54	-48.46	2.00	1903171.86	111013.07	N 36 13 24.23	W 107 34 7.59
Hold 13" INC	1199.87	13.00	292.97	1194.31	-67.89	28.64	-67.58	2.00	1903180.22	110994.07	N 36 13 24.31	W 107 34 7.82
	1200.00	13.00	292.97	1194.44	-67.91	28.65	-67.60	0.00	1903180.23	110994.04	N 36 13 24.31	W 107 34 7.82
	1300.00	13.00	292.97	1291.88	-88.72	37.43	-88.31	0.00	1903189.29	110973.45	N 36 13 24.39	W 107 34 8.07
	1400.00	13.00	292.97	1389.31	-109.52	46.21	-109.02	0.00	1903198.35	110952.86	N 36 13 24.48	W 107 34 8.33
	1500.00	13.00	292.97	1486.75	-130.32	54.98	-129.72	0.00	1903207.41	110932.28	N 36 13 24.57	W 107 34 8.58
	1600.00	13.00	292.97	1584.19	-151.12	63.76	-150.43	0.00	1903216.46	110911.69	N 36 13 24.65	W 107 34 8.83
	1700.00	13.00	292.97	1681.63	-171.93	72.54	-171.14	0.00	1903225.52	110891.10	N 36 13 24.74	W 107 34 9.08
	1800.00	13.00	292.97	1779.07	-192.73	81.31	-191.85	0.00	1903234.58	110870.51	N 36 13 24.83	W 107 34 9.34
	1900.00	13.00	292.97	1876.50	-213.53	90.09	-212.55	0.00	1903243.64	110849.93	N 36 13 24.91	W 107 34 9.59
	2000.00	13.00	292.97	1973.94	-234.33	98.87	-233.26	0.00	1903252.70	110829.34	N 36 13 25.00	W 107 34 9.84
	2100.00	13.00	292.97	2071.38	-255.14	107.64	-253.97	0.00	1903261.76	110808.75	N 36 13 25.09	W 107 34 10.10
	2200.00	13.00	292.97	2168.82	-275.94	116.42	-274.88	0.00	1903270.81	110788.16	N 36 13 25.18	W 107 34 10.35
	2300.00	13.00	292.97	2266.26	-296.74	125.20	-295.38	0.00	1903279.87	110767.58	N 36 13 25.28	W 107 34 10.60
	2400.00	13.00	292.97	2363.69	-317.55	133.97	-316.09	0.00	1903288.93	110746.99	N 36 13 25.35	W 107 34 10.85
	2500.00	13.00	292.97	2461.13	-338.35	142.75	-336.80	0.00	1903297.99	110726.40	N 36 13 25.44	W 107 34 11.11
	2600.00	13.00	292.97	2558.57	-359.15	151.53	-357.51	0.00	1903307.05	110705.81	N 36 13 25.52	W 107 34 11.36
	2700.00	13.00	292.97	2656.01	-379.95	160.30	-378.21	0.00	1903316.10	110685.23	N 36 13 25.61	W 107 34 11.61
	2800.00	13.00	292.97	2753.45	-400.76	169.08	-398.92	0.00	1903325.16	110664.64	N 36 13 25.70	W 107 34 11.86
	2900.00	13.00	292.97	2850.88	-421.56	177.86	-419.63	0.00	1903334.22	110644.05	N 36 13 25.78	W 107 34 12.12
	3000.00	13.00	292.97	2948.32	-442.36	186.63	-440.33	0.00	1903343.28	110623.46	N 36 13 25.87	W 107 34 12.37
	3100.00	13.00	292.97	3045.76	-463.16	195.41	-461.04	0.00	1903352.34	110602.88	N 36 13 25.96	W 107 34 12.62
	3200.00	13.00	292.97	3143.20	-483.97	204.19	-481.75	0.00	1903361.40	110582.29	N 36 13 26.04	W 107 34 12.88
	3300.00	13.00	292.97	3240.64	-504.77	212.97	-502.46	0.00	1903370.45	110561.70	N 36 13 26.13	W 107 34 13.13
	3400.00	13.00	292.97	3338.07	-525.57	221.74	-523.16	0.00	1903379.51	110541.11	N 36 13 26.22	W 107 34 13.38
	3500.00	13.00	292.97	3435.51	-546.37	230.52	-543.87	0.00	1903388.57	110520.53	N 36 13 26.30	W 107 34 13.63
	3600.00	13.00	292.97	3532.95	-567.17	239.30	-564.58	0.00	1903397.63	110499.94	N 36 13 26.39	W 107 34 13.89
	3700.00	13.00	292.97	3630.39	-587.98	248.07	-585.29	0.00	1903406.69	110479.35	N 36 13 26.48	W 107 34 14.14
	3800.00	13.00	292.97	3727.83	-608.78	256.85	-605.99	0.00	1903415.75	110458.76	N 36 13 26.58	W 107 34 14.39
	3900.00	13.00	292.97	3825.26	-629.58	265.63	-626.70	0.00	1903424.80	110438.18	N 36 13 26.65	W 107 34 14.64
	4000.00	13.00	292.97	3922.70	-650.39	274.40	-647.41	0.00	1903433.86	110417.59	N 36 13 26.74	W 107 34 14.90
	4100.00	13.00	292.97	4020.14	-671.19	283.18	-668.12	0.00	1903442.92	110397.00	N 36 13 26.82	W 107 34 15.15
	4200.00	13.00	292.97	4117.58	-691.99	291.96	-688.82	0.00	1903451.98	110376.41	N 36 13 26.91	W 107 34 15.40
	4300.00	13.00	292.97	4215.02	-712.80	300.73	-709.53	0.00	1903461.04	110355.83	N 36 13 27.00	W 107 34 15.66
Drop 2"/100'	4366.38	13.00	292.97	4279.69	-726.60	306.56	-723.27	0.00	1903467.05	110342.16	N 36 13 27.08	W 107 34 15.82
	4400.00	12.32	292.97	4312.50	-733.42	309.43	-730.06	2.00	1903470.02	110335.41	N 36 13 27.08	W 107 34 15.91
	4500.00	10.32	292.97	4410.55	-751.58	317.10	-748.14	2.00	1903477.93	110317.44	N 36 13 27.16	W 107 34 16.13
	4600.00	8.32	292.97	4509.22	-766.57	323.42	-763.06	2.00	1903484.45	110302.61	N 36 13 27.22	W 107 34 16.31
	4700.00	6.32	292.97	4608.40	-778.36	328.40	-774.80	2.00	1903489.59	110290.94	N 36 13 27.27	W 107 34 16.45
	4800.00	4.32	292.97	4707.96	-786.94	332.02	-783.34	2.00	1903493.32	110282.44	N 36 13 27.31	W 107 34 16.58
	4900.00	2.32	292.97	4807.79	-792.31	334.28	-788.68	2.00	1903495.66	110277.14	N 36 13 27.33	W 107 34 16.62
	5000.00	0.32	292.97	4907.76	-794.45	335.18	-790.81	2.00	1903496.59	110275.02	N 36 13 27.34	W 107 34 16.65
Hold Vertical	5016.24	0.00	292.97	4924.00	-794.49	335.20	-790.85	2.00	1903496.61	110274.98	N 36 13 27.34	W 107 34 16.65
	5100.00	0.00	292.97	5007.76	-794.49	335.20	-790.85	0.00	1903496.61	110274.98	N 36 13 27.34	W 107 34 16.65
	5200.00	0.00	292.97	5107.76	-794.49	335.20	-790.85	0.00	1903496.61	110274.98	N 36 13 27.34	W 107 34 16.65
Build 9"/100'	5220.65	0.00	292.97	5128.41	-794.49	335.20	-790.85	0.00	1903496.61	110274.98	N 36 13 27.34	W 107 34 16.65
	5300.00	7.14	94.23	5207.55	-789.56	334.84	-785.92	9.00	1903495.18	110279.90	N 36 13 27.34	W 107 34 16.58
	5400.00	16.14	94.23	5305.39	-789.44	333.35	-785.82	9.00	1903494.42	110299.98	N 36 13 27.32	W 107 34 16.34
	5500.00	25.14	94.23	5398.88	-734.30	330.75	-730.70	9.00	1903491.34	110335.06	N 36 13 27.29	W 107 34 15.91
	5600.00	34.14	94.23	5485.70	-684.99	327.11	-681.43	9.00	1903487.03	110384.28	N 36 13 27.26	W 107 34 15.31
	5700.00	43.14	94.23	5563.73	-622.73	322.51	-619.22	9.00	1903481.58	110446.43	N 36 13 27.21	W 107 34 14.55
	5800.00	52.14	94.23	5631.04	-549.06	317.06	-545.60	9.00	1903475.13	110519.97	N 36 13 27.16	W 107 34 13.65
Hold 60" INC	5887.32	60.00	94.23	5679.74	-476.81	311.72	-473.41	9.00	1903468.81	110592.09	N 36 13 27.11	W 107 34 12.77
	5900.00	60.00	94.23	5686.08	-465.85	310.91	-462.46	0.00	1903467.85	110603.03	N 36 13 27.10	W 107 34 12.64
Build 9"/100' to Landing	5947.32	60.00	94.23	5709.74	-424.95	307.89	-421.59	0.00	1903464.28	110643.86	N 36 13 27.07	W 107 34 12.14
	6000.00	64.74	94.23	5734.16	-378.38	304.45	-375.05	9.00	1903460.20	110690.35	N 36 13 27.03	W 107 34 11.57
	6100.00	73.74	94.23	5768.57	-285.15	297.56	-281.90	9.00	1903452.04	110783.41	N 36 13 26.97	W 107 34 10.44
	6200.00	82.74	94.23	5789.93	-187.55	290.34	-184.36	9.00	1903443.50	110880.84	N 36 13 26.90	W 107 34 9.25
Landing Point, Hold to TD	6286.43	90.52	94.23	5795.00	-101.50	283.98	-98.38	9.00	1903435.97	110966.73	N 36 13 26.83	W 107 34 8.20
	6300.00	90.52	94.23	5794.88	-87.98	282.98	-84.85					

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	90.52	94.23	5791.25	311.24	253.48	314.04	0.00	1903399.86	111378.74	N 36 13 26.53	W 107 34 3.16
	6800.00	90.52	94.23	5790.34	411.03	246.10	413.77	0.00	1903391.13	111478.36	N 36 13 26.46	W 107 34 1.95
	6900.00	90.52	94.23	5789.43	510.83	238.73	513.49	0.00	1903382.40	111577.98	N 36 13 26.38	W 107 34 0.73
	7000.00	90.52	94.23	5788.52	610.63	231.35	613.21	0.00	1903373.66	111677.60	N 36 13 26.31	W 107 33 59.51
	7100.00	90.52	94.23	5787.62	710.43	223.98	712.94	0.00	1903364.93	111777.22	N 36 13 26.24	W 107 33 58.30
	7200.00	90.52	94.23	5786.71	810.23	216.60	812.66	0.00	1903356.20	111876.84	N 36 13 26.17	W 107 33 57.08
	7300.00	90.52	94.23	5785.80	910.03	209.22	912.38	0.00	1903347.47	111976.46	N 36 13 26.09	W 107 33 55.86
	7400.00	90.52	94.23	5784.89	1009.83	201.85	1012.11	0.00	1903338.73	112076.08	N 36 13 26.02	W 107 33 54.64
	7500.00	90.52	94.23	5783.98	1109.62	194.47	1111.83	0.00	1903330.00	112175.70	N 36 13 25.95	W 107 33 53.43
	7600.00	90.52	94.23	5783.07	1209.42	187.09	1211.55	0.00	1903321.27	112275.32	N 36 13 25.87	W 107 33 52.21
	7700.00	90.52	94.23	5782.16	1309.22	179.72	1311.28	0.00	1903312.54	112374.94	N 36 13 25.80	W 107 33 50.99
	7800.00	90.52	94.23	5781.25	1409.02	172.34	1411.00	0.00	1903303.80	112474.57	N 36 13 25.73	W 107 33 49.78
	7900.00	90.52	94.23	5780.34	1508.82	164.96	1510.72	0.00	1903295.07	112574.19	N 36 13 25.65	W 107 33 48.56
	8000.00	90.52	94.23	5779.43	1608.62	157.59	1610.45	0.00	1903286.34	112673.81	N 36 13 25.58	W 107 33 47.34
	8100.00	90.52	94.23	5778.52	1708.42	150.21	1710.17	0.00	1903277.60	112773.43	N 36 13 25.51	W 107 33 46.12
	8200.00	90.52	94.23	5777.62	1808.21	142.83	1809.89	0.00	1903268.87	112873.05	N 36 13 25.44	W 107 33 44.91
	8300.00	90.52	94.23	5776.71	1908.01	135.46	1909.62	0.00	1903260.14	112972.67	N 36 13 25.36	W 107 33 43.69
	8400.00	90.52	94.23	5775.80	2007.81	128.08	2009.34	0.00	1903251.40	113072.29	N 36 13 25.29	W 107 33 42.47
	8500.00	90.52	94.23	5774.89	2107.61	120.70	2109.06	0.00	1903242.67	113171.91	N 36 13 25.22	W 107 33 41.26
	8600.00	90.52	94.23	5773.97	2207.41	113.33	2208.79	0.00	1903233.94	113271.53	N 36 13 25.14	W 107 33 40.04
	8700.00	90.52	94.23	5773.06	2307.21	105.95	2308.51	0.00	1903225.20	113371.15	N 36 13 25.07	W 107 33 38.82
	8800.00	90.52	94.23	5772.15	2407.01	98.57	2408.24	0.00	1903216.47	113470.77	N 36 13 25.00	W 107 33 37.61
	8900.00	90.52	94.23	5771.24	2506.80	91.19	2507.96	0.00	1903207.74	113570.40	N 36 13 24.92	W 107 33 36.39
	9000.00	90.52	94.23	5770.33	2606.60	83.82	2607.68	0.00	1903199.00	113670.02	N 36 13 24.85	W 107 33 35.17
	9100.00	90.52	94.23	5769.42	2706.40	76.44	2707.41	0.00	1903190.27	113769.64	N 36 13 24.78	W 107 33 33.95
	9200.00	90.52	94.23	5768.51	2806.20	69.06	2807.13	0.00	1903181.54	113869.26	N 36 13 24.71	W 107 33 32.74
	9300.00	90.52	94.23	5767.60	2906.00	61.68	2906.85	0.00	1903172.80	113968.88	N 36 13 24.63	W 107 33 31.52
	9400.00	90.52	94.23	5766.69	3005.80	54.31	3006.58	0.00	1903164.07	114068.50	N 36 13 24.56	W 107 33 30.30
	9500.00	90.52	94.23	5765.78	3105.59	46.93	3106.30	0.00	1903155.34	114168.12	N 36 13 24.49	W 107 33 29.09
	9600.00	90.52	94.23	5764.87	3205.39	39.55	3206.02	0.00	1903146.60	114267.74	N 36 13 24.41	W 107 33 27.87
	9700.00	90.52	94.23	5763.95	3305.19	32.17	3305.75	0.00	1903137.87	114367.36	N 36 13 24.34	W 107 33 26.65
	9800.00	90.52	94.23	5763.04	3404.99	24.80	3405.47	0.00	1903129.13	114466.98	N 36 13 24.27	W 107 33 25.44
	9900.00	90.52	94.23	5762.13	3504.79	17.42	3505.19	0.00	1903120.40	114566.60	N 36 13 24.19	W 107 33 24.22
	10000.00	90.52	94.23	5761.22	3604.59	10.04	3604.91	0.00	1903111.67	114666.22	N 36 13 24.12	W 107 33 23.00
	10100.00	90.52	94.23	5760.31	3704.38	2.66	3704.64	0.00	1903102.93	114765.85	N 36 13 24.05	W 107 33 21.78
	10200.00	90.52	94.23	5759.39	3804.18	-4.72	3804.36	0.00	1903094.20	114865.47	N 36 13 23.97	W 107 33 20.57
	10300.00	90.52	94.23	5758.48	3903.98	-12.09	3904.08	0.00	1903085.46	114965.09	N 36 13 23.90	W 107 33 19.35
	10400.00	90.52	94.23	5757.57	4003.78	-19.47	4003.81	0.00	1903076.73	115064.71	N 36 13 23.83	W 107 33 18.13
	10500.00	90.52	94.23	5756.66	4103.58	-26.85	4103.53	0.00	1903067.99	115164.33	N 36 13 23.76	W 107 33 16.92
	10600.00	90.52	94.23	5755.75	4203.38	-34.23	4203.25	0.00	1903059.26	115263.95	N 36 13 23.68	W 107 33 15.70
	10700.00	90.52	94.23	5754.83	4303.18	-41.61	4302.98	0.00	1903050.53	115363.57	N 36 13 23.61	W 107 33 14.48
Chaco 2307-15M #166H P8LH/TD	10791.20	90.52	94.23	5754.00	4394.19	-48.33	4393.92	0.00	1903042.56	115454.42	N 36 13 23.54	W 107 33 13.37

Survey Type:

Def Plan

Survey Error Model:
Survey Program:

ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma

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 2307-15M #166H R4 mdv 28Feb14
	1	14.000	10791.198	1/100.000	30.000	30.000	SLB_MWD-STD	Original Hole / Chaco 2307-15M #166H R4 mdv 28Feb14

$$PBLH \left\{ \begin{array}{l} Y-P (1310 - 48.33)_{ft} = 1261.67 \approx 1262 \text{ ft/s} \\ X-P (512 + 5218.21 - 4393.92)_{ft} = 1336.29 \approx 1336 \text{ ft/E} \end{array} \right.$$

* See plat, Form C-102 (skewed)

William Tambekou
3/14/2014