

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., 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 Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico

Form C-101
Revised November 14, 2012

Energy Minerals and Natural Resources

Oil Conservation Division

1220 South St. Francis Dr.

Santa Fe, NM 87505

☐ AMENDED REPORT

RCVD AUG 22 '13

OIL CONS. DIV.

DIST. 3

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

1. Operator Name and Address WPX Energy Production, LLC P.O. Box 640 Aztec, NM 87410		2. OGRID Number 120782
3. Property Code 39969		4. Property Name Chaco 2206-161
5. APL Number 30-043-21166		6. Well No. 223H

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
I	16	22N	6W		1480	South	290	East	Sandoval

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
L	16	22N	6W		1530	South	280	West	Sandoval

9. Pool Information

Pool Name LYBROOK GALLUP	Pool Code 42289
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Additional Well Information

11. Work Type N	12. Well Type O	13. Cable/Rotary R	14. Lease Type S	15. Ground Level Elevation 7194'
16. Multiple No	17. Proposed Depth 10,088' MD / 5,305' TVD	18. Formation Gallup	19. Contractor AWS	20. Spud Date 09/15/13
Depth to Ground water +/- 136'		Distance from nearest fresh water well >1000'		Distance to nearest surface water >1000'

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
J-55	12-1/4"	9-5/8"	36#	400'	230	Surface
K-55	8-3/4"	7"	23#	5,706'	1050	Surface
N-80	6-1/8"	4-1/2"	11.6#	10,088'	420	4,600'

Casing/Cement Program: Additional Comment:

CONFIDENTIAL

22. Proposed Blowout Prevention Program

Type Double Ram	Working Pressure 3000#	Test Pressure 2000#
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23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief.

I further certify that I have complied with 19.15.14.9 (A) NMAC ☐ and/or 19.15.14.9 (B) NMAC ☐, if applicable.

Signature:

Printed name: Larry Higgins

Title: Permit Supervisor

E-mail Address: larry.higgins@wpenergy.com

Date: 08/21/13

Phone: 333-1808

OIL CONSERVATION DIVISION

Approved By:

Title:

Approved Date:

Conditions of Approval Attached

Charlie Harris 8-29-2013

SUPERVISOR DISTRICT # 3

AUG 29 2013

Expiration Date: AUG 29 2015

AUG 29 2013 ca

19.15.7.16(c) For Confidential Status

AV

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State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

Submit one copy to
Appropriate District Office

OIL CONSERVATION DIVISION

1220 South St. Francis Drive
Santa Fe, NM 87505

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-043-21166		*Pool Code 42289	*Pool Name LYBROOK GALLUP
*Property Code 039969	*Property Name CHACO 2206-16I		*Well Number 223H
*GRID No. 120782	*Operator Name WPX ENERGY PRODUCTION, LLC		*Elevation 7194'

¹⁰ Surface Location

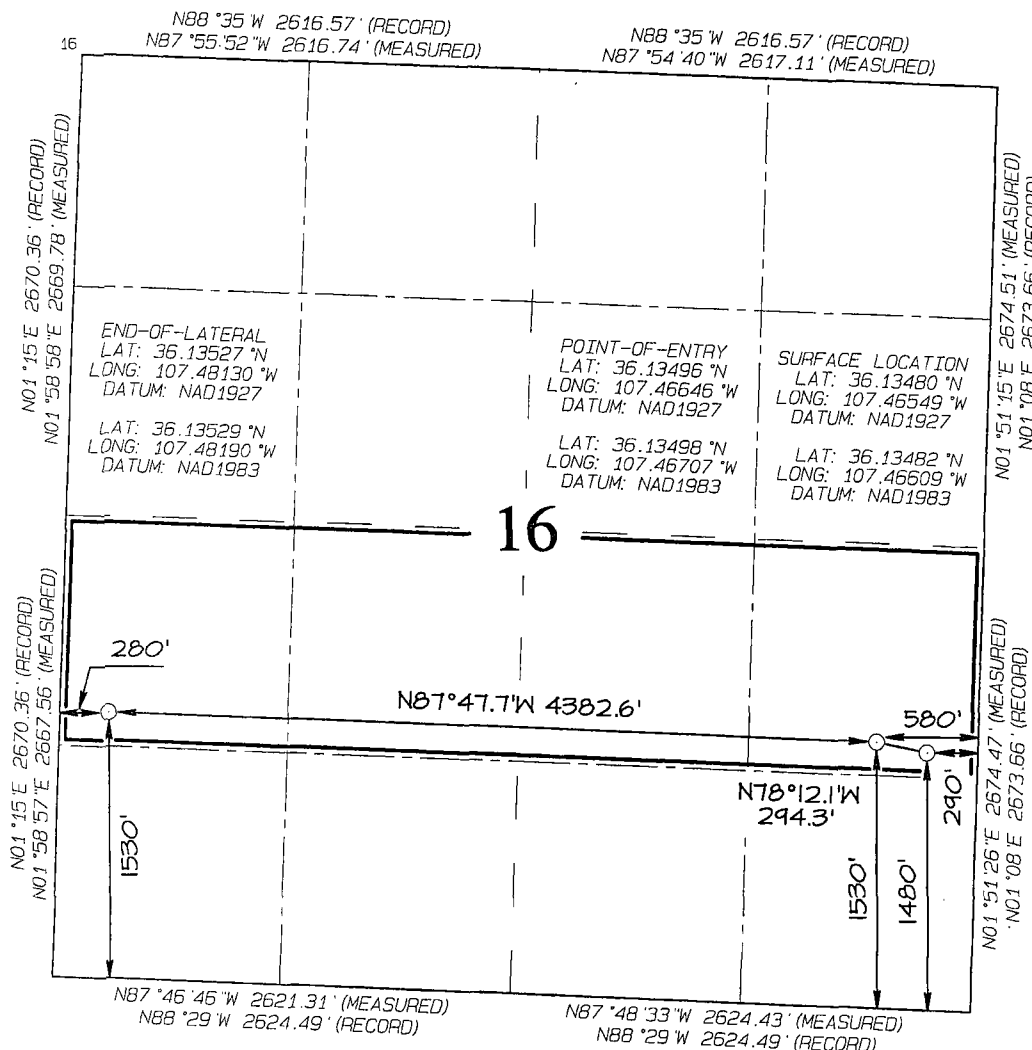
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	16	22N	6W		1480	SOUTH	290	EAST	SANDOVAL

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
L	16	22N	6W		1530	SOUTH	280	WEST	SANDOVAL

¹² Dedicated Acres 150.0 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 to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature: *Larry Higgins* Date: 8/21/13

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

¹⁸ SURVEYOR CERTIFICATION

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

Date Revised: AUGUST 20, 2013
Date of Survey: JUNE 21, 2012

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: 8/12/13 **FIELD:** Lybrook Gallup

WELL NAME: Chaco 2206-16I #223H **SURFACE:** State

SH Location: NESE Sec 16-22N-6W **ELEVATION:** 7,194' GR

BH Location: NWSW Sec 16-22N-6W **MINERALS:** State
Sandoval, NM

MEASURED DEPTH: 10,088' **LEASE #:** V09210

I. GEOLOGY: Surface formation – San Jose

A. FORMATION TOPS: (KB)

Name	MD	TVD	Name	MD	TVD
Ojo Alamo	1,266	1,264	Point Lookout	4,163	4,153
Kirtland	1,435	1,432	Mancos	4,258	4,248
Pictured Cliffs	1,832	1,828	Kickoff Point	4,878	4,867
Lewis	1,977	1,972	Target Top	5,463	5,335
Chacra	2,181	2,175	Landing Point	5,706	5,388
Cliff House	3,325	3,318	Target Base	5,915	5,539
Menefee	3,365	3,355			
			TD	10,088	5,305

B. MUD LOGGING PROGRAM: Mudlogger on location from surface csg to TD.

C. LOGGING PROGRAM: LWD GR from KOP to TD. LWD GR / 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 and the 8 3/4" Directional Vertical hole and drill the curve portion of the wellbore. (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 1500 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 vertically/directionally drilled as per attached Directional Plan to +/- 4,878' MD / 4,867 (TVD). The 8-3/4 in. Curve portion of wellbore will be drilled and landed at +/- 90 deg. at +/- 5,706' (MD) / 5,388' (TVD). 7 in. csg will be set at this point. Will drill the lateral (6-1/8 in. hole) as per the attached Directional Plan to +/- 10,088'(MD) / 5,305' (TVD). Will run 4-1/2 in. Production Casing to TD and Cement.

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

Surface	12.25"	400'+	9 5/8	36#	J-55
Intermediate	8.75"	5,706'	7	23#	K-55
Longstring	6.125"	10,088'	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 CASING: Run 4-1/2" casing with cement nose guide Float Shoe + 1 joint 4-1/2" csg.+ Float Collar. Centralizer program will be determined when Lateral is evaluated by Geoscientists and Reservoir Engineers.

C. CEMENTING:

(Note: Volumes may be adjusted onsite due to actual conditions)

1. SURFACE: 10 bbl Fr Water Spacer + 230 sx (270 cu.ft.) of "Premium Cement" + 2% Calcium Chloride Cement + 0.125# pps of Poly-E-Flake, 15.8 #/gal. The 100% excess should circulate cement to the surface. WOC 12 hours. Test csg to 600 psi for 30 minutes. Total Volume: (230 sx / 270 cu-ft / 48 Bbls).
2. INTERMEDIATE: 20 bbl (112 cu-ft) Mud Flush III spacer + Lead: 850 sx Foamed 50/50 Poz Cement. 13.0 ppg (Yield :1.43 cu-ft/ sk. / Vol: 1216 cu-ft) + 0.1% Halad 766 + 0.2% Versaset + 1.5% Chem-Foamer 760 + TAIL: 100 sx 13.5 #/gal. (Yield: 1.28 cu-ft / sk / Vol: 128 cu-ft) + 0.2% Versaset + 0.15% HALAD-766. + F. Water Displacement (1,511 cu-ft) + 100 sx Top-Out Cement Premium: Yield: (1.17 cu-ft/ sk (Vol: 117 cu-ft). Est TOC: Surface. Test Casing to 1500 PSI for 30 minutes. Total Volume: (2021 cu-ft/1050 sx/260 bbls).
3. PRODUCTION CASING: **STAGE 1**: 40 bbl (224.6 cu-ft) KCL water Spacer + **STAGE 2**:10 bbl (56.cu-ft) Fr Water Spacer.+ **STAGE 3**:40 bbl 10 ppg (224.6 cu-ft) Tuned Spacer III + 0.2 gal/bbl Musol + 38.7 ppb Barite + 0.5 gal/bbl SEM-7. + **STAGE 4**: 10 bbl Fr Water Spacer.+ **STAGE 5**: Lead Cement, 70 sx Premium cmt + 0.1% Halad-766, Yield 1.16 cu ft/sk, 15.8 #/gal, (70 sx / 81.2 cu ft. / 14.46 bbls) **STAGE 6**: Foamed Lead Cement: 240 sx. 50/50 Poz Standard + 0.2% Versaset + 0.2% HALAD-766 + 1.5% Chem-Foamer 760. Yield 1.43 cu-ft/sk ,13.0 ppg. (240sx / 343.2 cu-ft / 61.1bbls) + **STAGE 7**: Tail Cement : 110 sx 50/50 Poz Premium + 0.2% Versaset + .05% HALAD-766 + .05% SA-1015,Yield 1.3 cu-ft/sk,13.5 ppg. (110 sx / 143 cu ft. / 25.46 bbls) **STAGE 8**: Displace w/+/-162 bbl KCL Water. Total Cement (420 sx / 568.5 cu ft / 101.2 bbls). Mix w/ +/- 98,000 SCF Nitrogen. Est. TOC +/- 4,600 ft. Total Volume: (567.4 cu-ft / 420 sx / 101.1 bbls).

IV. COMPLETION**A. CBL**

1. Run Cement Bond Log and ensure top of cement is above 7" casing shoe.

B. PRESSURE TEST

1. Pressure test 4-1/2" casing to 5000 psi max, hold at 1500 psi for 30 minutes.

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 with CTU and flowback lateral.

D. RUNNING TUBING

1. Production Tubing: Run 2-3/8", 4.7#, N-80, EUE tubing with a SN (1.91" ID) on top of bottom joint. Land tubing at landing 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.
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Chaco 2206-16I #223H R0 mdv 5Aug13 Proposal Geodetic Report (Def Plan)



Report Date:	August 06, 2013 - 12:49 PM	Survey / DLS Computation:	Minimum Curvature / Lubinski
Client:	WPX Energy	Vertical Section Azimuth:	272.135 ° (True North)
Field:	NM Sandoval County NAD27	Vertical Section Origin:	0.000 ft, 0.000 ft
Structure / Slot:	WPX Sec 16-22N-6W (Chaco 2206-16I #223H) / Chaco 2206-16I #223H	TVD Reference Datum:	RKB
Well:	Chaco 2206-16I #223H	TVD Reference Elevation:	7208.000 ft above MSL
Borehole:	Original Hole	Seabed / Ground Elevation:	7194.000 ft above MSL
UWI / API#:	Unknown / Unknown	Magnetic Declination:	9.474 °
Survey Name:	Chaco 2206-16I #223H R0 mdv 5Aug13	Total Gravity Field Strength:	998.4580mgn (9.80665 Based)
Survey Date:	August 05, 2013	Total Magnetic Field Strength:	50156.878 nT
Tort / AHD / DDI / ERD Ratio:	101.094 ° / 5159.185 ft / 5.990 / 0.958	Magnetic Dip Angle:	62.954 °
Coordinate Reference System:	NAD27 New Mexico State Plane, Central Zone, US Feet	Declination Date:	August 05, 2013
Location Lat / Long:	N 36° 8' 5.28000", W 107° 27' 55.76400"	Magnetic Declination Model:	BGGM 2013
Location Grid N/E Y/X:	N 1870522.013 ftUS, E 141075.402 ftUS	North Reference:	True North
CRS Grid Convergence Angle:	-0.7168 °	Grid Convergence Used:	0.0000 °
Grid Scale Factor:	1.00004742	Total Corr Mag North->True North:	9.4741 °
		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	79.16	0.00	0.00	0.00	0.00	N/A	1870522.01	141075.40	N 36 8 5.28	W 107 27 55.76
	100.00	0.00	79.16	100.00	0.00	0.00	0.00	0.00	1870522.01	141075.40	N 36 8 5.28	W 107 27 55.76
	200.00	0.00	79.16	200.00	0.00	0.00	0.00	0.00	1870522.01	141075.40	N 36 8 5.28	W 107 27 55.76
	300.00	0.00	79.16	300.00	0.00	0.00	0.00	0.00	1870522.01	141075.40	N 36 8 5.28	W 107 27 55.76
	400.00	0.00	79.16	400.00	0.00	0.00	0.00	0.00	1870522.01	141075.40	N 36 8 5.28	W 107 27 55.76
	500.00	0.00	79.16	500.00	0.00	0.00	0.00	0.00	1870522.01	141075.40	N 36 8 5.28	W 107 27 55.76
KOP, Build 2"/100'	550.00	0.00	79.16	550.00	0.00	0.00	0.00	0.00	1870522.01	141075.40	N 36 8 5.28	W 107 27 55.76
	600.00	1.00	79.16	600.00	-0.43	0.08	0.43	2.00	1870522.09	141075.83	N 36 8 5.28	W 107 27 55.76
	700.00	3.00	79.16	699.93	-3.83	0.74	3.86	2.00	1870522.70	141079.27	N 36 8 5.29	W 107 27 55.72
	800.00	5.00	79.16	799.68	-10.62	2.05	10.71	2.00	1870523.93	141086.13	N 36 8 5.30	W 107 27 55.63
Hold 5° INC	800.22	5.00	79.16	799.91	-10.64	2.05	10.73	2.00	1870523.93	141086.15	N 36 8 5.30	W 107 27 55.63
	900.00	5.00	79.16	899.30	-19.12	3.69	19.27	0.00	1870525.46	141094.72	N 36 8 5.32	W 107 27 55.53
	1000.00	5.00	79.16	998.92	-27.62	5.33	27.84	0.00	1870527.00	141103.31	N 36 8 5.33	W 107 27 55.42
	1100.00	5.00	79.16	1098.54	-36.12	6.97	36.41	0.00	1870528.53	141111.90	N 36 8 5.35	W 107 27 55.32
	1200.00	5.00	79.16	1198.16	-44.63	8.61	44.98	0.00	1870530.06	141120.49	N 36 8 5.37	W 107 27 55.22
	1300.00	5.00	79.16	1297.78	-53.13	10.25	53.55	0.00	1870531.60	141129.07	N 36 8 5.38	W 107 27 55.11
	1400.00	5.00	79.16	1397.40	-61.63	11.89	62.11	0.00	1870533.13	141137.66	N 36 8 5.40	W 107 27 55.01
	1500.00	5.00	79.16	1497.01	-70.13	13.54	70.68	0.00	1870534.66	141146.25	N 36 8 5.41	W 107 27 54.90
	1600.00	5.00	79.16	1596.63	-78.63	15.18	79.25	0.00	1870536.20	141154.84	N 36 8 5.43	W 107 27 54.80
	1700.00	5.00	79.16	1696.25	-87.13	16.82	87.82	0.00	1870537.73	141163.43	N 36 8 5.45	W 107 27 54.69
	1800.00	5.00	79.16	1795.87	-95.63	18.46	96.38	0.00	1870539.26	141172.01	N 36 8 5.46	W 107 27 54.59
	1900.00	5.00	79.16	1895.49	-104.13	20.10	104.95	0.00	1870540.80	141180.60	N 36 8 5.48	W 107 27 54.48
	2000.00	5.00	79.16	1995.11	-112.63	21.74	113.52	0.00	1870542.33	141189.19	N 36 8 5.49	W 107 27 54.38
	2100.00	5.00	79.16	2094.73	-121.13	23.38	122.09	0.00	1870543.87	141197.78	N 36 8 5.51	W 107 27 54.28
	2200.00	5.00	79.16	2194.35	-129.63	25.02	130.65	0.00	1870545.40	141206.37	N 36 8 5.53	W 107 27 54.17
	2300.00	5.00	79.16	2293.96	-138.13	26.66	139.22	0.00	1870546.93	141214.95	N 36 8 5.54	W 107 27 54.07
	2400.00	5.00	79.16	2393.58	-146.63	28.30	147.79	0.00	1870548.47	141223.54	N 36 8 5.56	W 107 27 53.96
	2500.00	5.00	79.16	2493.20	-155.13	29.94	156.36	0.00	1870550.00	141232.13	N 36 8 5.58	W 107 27 53.86
	2600.00	5.00	79.16	2592.82	-163.63	31.58	164.92	0.00	1870551.53	141240.72	N 36 8 5.59	W 107 27 53.75
	2700.00	5.00	79.16	2692.44	-172.13	33.22	173.49	0.00	1870553.07	141249.30	N 36 8 5.61	W 107 27 53.65
	2800.00	5.00	79.16	2792.06	-180.63	34.87	182.06	0.00	1870554.60	141257.89	N 36 8 5.62	W 107 27 53.54
	2900.00	5.00	79.16	2891.68	-189.14	36.51	190.63	0.00	1870556.13	141266.48	N 36 8 5.64	W 107 27 53.44
	3000.00	5.00	79.16	2991.30	-197.64	38.15	199.20	0.00	1870557.67	141275.07	N 36 8 5.66	W 107 27 53.34
	3100.00	5.00	79.16	3090.91	-206.14	39.79	207.76	0.00	1870559.20	141283.66	N 36 8 5.67	W 107 27 53.23
	3200.00	5.00	79.16	3190.53	-214.64	41.43	216.33	0.00	1870560.73	141292.24	N 36 8 5.69	W 107 27 53.13
Drop, 2"/100'	3300.00	5.00	79.16	3290.15	-223.14	43.07	224.90	0.00	1870562.27	141300.83	N 36 8 5.71	W 107 27 53.02
	3380.25	5.00	79.16	3370.09	-229.96	44.39	231.77	0.00	1870563.50	141307.72	N 36 8 5.72	W 107 27 52.94
	3400.00	4.61	79.16	3369.78	-231.57	44.70	233.40	2.00	1870563.79	141309.35	N 36 8 5.72	W 107 27 52.92
	3500.00	2.61	79.16	3469.57	-237.71	45.88	239.58	2.00	1870564.90	141315.55	N 36 8 5.73	W 107 27 52.84
	3600.00	0.61	79.16	3569.53	-240.44	46.41	242.34	2.00	1870565.39	141318.32	N 36 8 5.74	W 107 27 52.81
Hold Vertical	3630.47	0.00	79.16	3620.00	-240.60	46.44	242.50	2.00	1870565.42	141318.48	N 36 8 5.74	W 107 27 52.81
	3700.00	0.00	79.16	3689.53	-240.60	46.44	242.50	0.00	1870565.42	141318.48	N 36 8 5.74	W 107 27 52.81
	3800.00	0.00	79.16	3789.53	-240.60	46.44	242.50	0.00	1870565.42	141318.48	N 36 8 5.74	W 107 27 52.81
	3900.00	0.00	79.16	3889.53	-240.60	46.44	242.50	0.00	1870565.42	141318.48	N 36 8 5.74	W 107 27 52.81
	4000.00	0.00	79.16	3989.53	-240.60	46.44	242.50	0.00	1870565.42	141318.48	N 36 8 5.74	W 107 27 52.81
	4100.00	0.00	79.16	4089.53	-240.60	46.44	242.50	0.00	1870565.42	141318.48	N 36 8 5.74	W 107 27 52.81
	4200.00	0.00	79.16	4189.53	-240.60	46.44	242.50	0.00	1870565.42	141318.48	N 36 8 5.74	W 107 27 52.81
	4300.00	0.00	79.16	4289.53	-240.60	46.44	242.50	0.00	1870565.42	141318.48	N 36 8 5.74	W 107 27 52.81
	4400.00	0.00	79.16	4389.53	-240.60	46.44	242.50	0.00	1870565.42	141318.48	N 36 8 5.74	W 107 27 52.81
	4500.00	0.00	79.16	4489.53	-240.60	46.44	242.50	0.00	1870565.42	141318.48	N 36 8 5.74	W 107 27 52.81
	4600.00	0.00	79.16	4589.53	-240.60	46.44	242.50	0.00	1870565.42	141318.48	N 36 8 5.74	W 107 27 52.81
	4700.00	0.00	79.16	4689.53	-240.60	46.44	242.50	0.00	1870565.42	141318.48	N 36 8 5.74	W 107 27 52.81
	4800.00	0.00	79.16	4789.53	-240.60	46.44	242.50	0.00	1870565.42	141318.48	N 36 8 5.74	W 107 27 52.81
KOP, Build 11"/100'	4877.69	0.00	79.16	4867.22	-240.60	46.44	242.50	0.00	1870565.42	141318.48	N 36 8 5.74	W 107 27 52.81
	4900.00	2.45	271.49	4889.52	-240.12	46.45	242.02	11.00	1870565.44	141318.00	N 36 8 5.74	W 107 27 52.81
	5000.00	13.45	271.49	4988.41	-226.31	46.81	228.21	11.00	1870565.97	141304.19	N 36 8 5.74	W 107 27 52.98
	5100.00	24.45	271.49	5082.84	-193.88	47.65	195.79	11.00	1870567.22	141271.78	N 36 8 5.75	W 107 27 53.38
	5200.00	35.45	271.49	5169.35	-144.03	48.95	145.95	11.00	1870569.13	141221.96	N 36 8 5.76	W 107 27 53.98
	5300.00	46.45	271.49	5244.76	-78.59	50.65	80.53	11.00	1870571.65	141156.57	N 36 8 5.78	W 107 27 54.78
	5400.00	57.45	271.49	5306.29	0.04	52.69	1.93	11.00	1870574.68	141077.99	N 36 8 5.80	W 107 27 55.74
	5500.00	68.45	271.49	5351.69	88.96	55.00	-86.97	11.00	1870578.10	140989.12	N 36 8 5.82	W 107 27 56.82
	5600.00	79.45	271.49	5379.29	184.91	57.50	-182.89	11.00	1870581.80	140893.23	N 36 8 5.85	W 107 27 57.99
	5700.00	90.45	271.49	5388.07	284.36	60.08	-282.32	11.00	1870585.62	140793.84	N 36 8 5.87	W 107 27 59.21
Landing Point, Hold to TD	5705.74	91.09	271.49	5388.00	290.10	60.23	-288.06	11.00	1870585.84	140788.11	N 36 8 5.88	W 107 27 59.28
	5800.00	91.09	271.49	5386.21	384.34	62.68	-382.27	0.00	1870589.47	140693.93	N 36 8 5.90	W 107 28 0.42
	5900.00	91.09	271.49	5384.32	484.31	65.27	-482.22	0.00	1870593.32	140594.02	N 36 8 5.93	W 107 28 1.64
	6000.00	91.09	271.49	5382.42	584.29	67.87	-582.17	0.00	1870597.17	140494.11	N 36 8 5.95	W 107 28 2.86
	6100.00	91.09	271.49	5380.53	684.27	70.47	-682.11	0.00	1870601.02	140394.19	N 36 8 5.98	W 107 28 4.08
	6200.00	91.09	271.49	5378.64	784.24	73.07	-782.08	0.00	1870604.86	140294.28	N 36 8 6.00	W 107 28 5.30
	6300.00	91.09	271.49	5376.74	884.22	75.67	-882.01	0.00	1870608.71	140194.37	N 36 8 6.03	W 107 28 6.52
	6400.00	91.09	271.49	5374.85	984.19	78.26	-981.96	0.00	1870612.56	140094.46	N 36 8 6.05	W 107 28 7.73
	6500.00	91.09	271.49	5372.96	1084.17	80.86	-1081.91	0.00	1870616.41	139994.54	N 36 8 6.08	W 107 28 8.95
	6600.00	910										

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 ° ' ")
	7100.00	91.09	271.49	5361.59	1684.02	96.45	-1681.50	0.00	1870639.49	138395.07	N 36 8 6.23	W 107 28 16.28
	7200.00	91.09	271.49	5359.70	1784.00	99.04	-1781.54	0.00	1870643.34	138295.16	N 36 8 6.26	W 107 28 17.48
	7300.00	91.09	271.49	5357.80	1883.97	101.64	-1881.49	0.00	1870647.19	138195.24	N 36 8 6.28	W 107 28 18.70
	7400.00	91.09	271.49	5355.91	1983.95	104.24	-1981.44	0.00	1870651.04	138095.33	N 36 8 6.31	W 107 28 19.92
	7500.00	91.09	271.49	5354.02	2083.93	106.84	-2081.39	0.00	1870654.89	138095.42	N 36 8 6.34	W 107 28 21.14
	7600.00	91.09	271.49	5352.12	2183.90	109.43	-2181.34	0.00	1870658.73	138095.50	N 36 8 6.36	W 107 28 22.36
	7700.00	91.09	271.49	5350.23	2283.88	112.03	-2281.29	0.00	1870662.58	138095.59	N 36 8 6.39	W 107 28 23.57
	7800.00	91.09	271.49	5348.33	2383.85	114.63	-2381.23	0.00	1870666.43	138095.68	N 36 8 6.41	W 107 28 24.79
	7900.00	91.09	271.49	5346.44	2483.83	117.23	-2481.18	0.00	1870670.28	138095.77	N 36 8 6.44	W 107 28 26.01
	8000.00	91.09	271.49	5344.55	2583.80	119.82	-2581.13	0.00	1870674.13	138095.85	N 36 8 6.46	W 107 28 27.23
	8100.00	91.09	271.49	5342.65	2683.78	122.42	-2681.08	0.00	1870677.97	138095.94	N 36 8 6.49	W 107 28 28.45
	8200.00	91.09	271.49	5340.76	2783.76	125.02	-2781.03	0.00	1870681.82	138096.03	N 36 8 6.51	W 107 28 29.67
	8300.00	91.09	271.49	5338.86	2883.73	127.62	-2880.98	0.00	1870685.67	138196.12	N 36 8 6.54	W 107 28 30.88
	8400.00	91.09	271.49	5336.97	2983.71	130.21	-2980.92	0.00	1870689.52	138096.20	N 36 8 6.57	W 107 28 32.10
	8500.00	91.09	271.49	5335.08	3083.68	132.81	-3080.87	0.00	1870693.37	137996.29	N 36 8 6.59	W 107 28 33.32
	8600.00	91.09	271.49	5333.18	3183.66	135.41	-3180.82	0.00	1870697.21	137896.38	N 36 8 6.62	W 107 28 34.54
	8700.00	91.09	271.49	5331.29	3283.63	138.01	-3280.77	0.00	1870701.06	137796.47	N 36 8 6.64	W 107 28 35.76
	8800.00	91.09	271.49	5329.39	3383.61	140.60	-3380.72	0.00	1870704.91	137696.55	N 36 8 6.67	W 107 28 36.98
	8900.00	91.09	271.49	5327.50	3483.59	143.20	-3480.67	0.00	1870708.76	137596.64	N 36 8 6.69	W 107 28 38.19
	9000.00	91.09	271.49	5325.61	3583.56	145.80	-3580.61	0.00	1870712.61	137496.73	N 36 8 6.72	W 107 28 39.41
	9100.00	91.09	271.49	5323.71	3683.54	148.40	-3680.56	0.00	1870716.45	137396.82	N 36 8 6.75	W 107 28 40.63
	9200.00	91.09	271.49	5321.82	3783.51	150.99	-3780.51	0.00	1870720.30	137296.90	N 36 8 6.77	W 107 28 41.85
	9300.00	91.09	271.49	5319.93	3883.49	153.59	-3880.46	0.00	1870724.15	137196.99	N 36 8 6.80	W 107 28 43.07
	9400.00	91.09	271.49	5318.03	3983.46	156.19	-3980.41	0.00	1870728.00	137097.08	N 36 8 6.82	W 107 28 44.29
	9500.00	91.09	271.49	5316.14	4083.44	158.79	-4080.36	0.00	1870731.85	136997.17	N 36 8 6.85	W 107 28 45.51
	9600.00	91.09	271.49	5314.24	4183.41	161.39	-4180.30	0.00	1870735.69	136897.25	N 36 8 6.87	W 107 28 46.72
	9700.00	91.09	271.49	5312.35	4283.39	163.98	-4280.25	0.00	1870739.54	136797.34	N 36 8 6.90	W 107 28 47.94
	9800.00	91.09	271.49	5310.46	4383.37	166.58	-4380.20	0.00	1870743.39	136697.43	N 36 8 6.92	W 107 28 49.16
	9900.00	91.09	271.49	5308.56	4483.34	169.18	-4480.15	0.00	1870747.24	136597.52	N 36 8 6.95	W 107 28 50.38
	10000.00	91.09	271.49	5306.67	4583.32	171.78	-4580.10	0.00	1870751.09	136497.60	N 36 8 6.98	W 107 28 51.60
Chaco 2206-161 #223H PBHL/TD	10088.07	91.09	271.49	5305.00	4671.36	174.06	-4668.12	0.00	1870754.47	136409.61	N 36 8 7.00	W 107 28 52.67

Survey Type: Def Plan

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

Survey Program:

Description	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	0.000	14.000	1/100.000	30.000	30.000	SLB_UNKNOWN-Depth Only	Original Hole / Chaco 2206-161 #223H R0 mdv 5Aug13
	14.000	10088.068	1/100.000	30.000	30.000	SLB_UNKNOWN	Original Hole / Chaco 2206-161 #223H R0 mdv 5Aug13

WELL	Chaco 2206-161 #223H	FIELD	NM Sandoval County NAD27	STRUCTURE	Sec 16-22N-6W
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Magnetic Parameters	Surface Location	NAD27 New Mexico State Plane, Central Zone, US Feet	Miscellaneous
Model: BGGM 2013	Lat: N 36 8 5.280	Northings: 1870522.01 ftUS	Slot: Chaco 2206-161 #223H
Dip: 62.954°	Long: W 107 27 55.764	Eastings: 141075.40 ftUS	Plan: RD mdy 5 Aug13
Mag Dec: 9.474°		Scale Fact: 1.00004742	TVD Ref: RKB(7208ft above MSL)
Date: August 05, 2013			Srvy Date: August 05, 2013
FS: 50156.9nT			

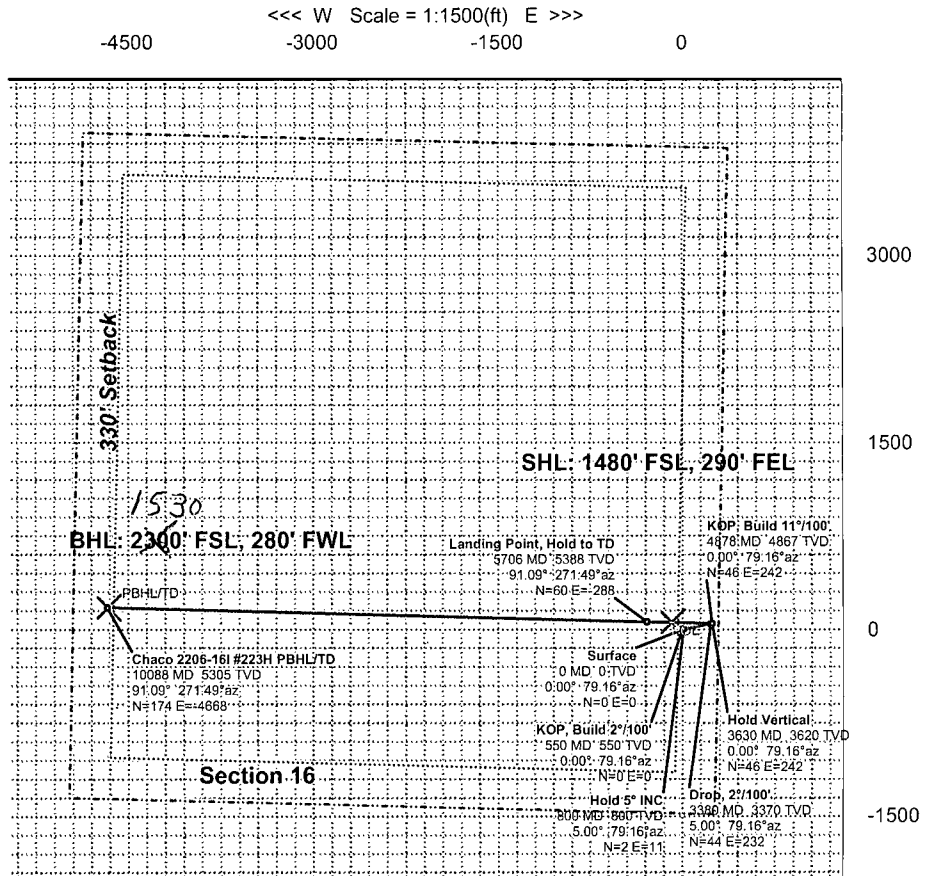
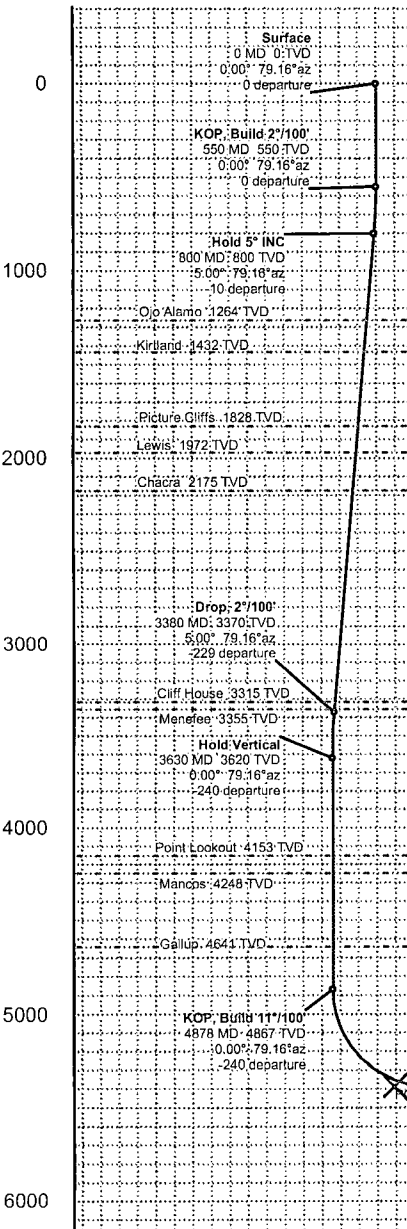
Proposal



True North
Tot Corr (M->T) 9.4741°
Mag Dec (9.474°)
Grid Conv (-0.717°)



TVD Scale = 1:1000(ft)



Critical Point	MD	INCL	AZIM	TVD	XSEC	N(±)/S(±)	E(±)/W(±)	DLS
Surface	0.00	0.00	79.16	0.00	0.00	0.00	0.00	
KOP, Build 2°/100'	550.00	0.00	79.16	550.00	0.00	0.00	0.00	0.00
Hold 5° INC	800.22	5.00	79.16	799.91	-10.64	2.05	10.73	2.00
Drop, 2°/100'	3380.25	5.00	79.16	3370.09	-229.96	44.39	231.77	0.00
Hold Vertical	3630.47	0.00	79.16	3620.00	-240.60	46.44	242.50	2.00
KOP, Build 11°/100'	4877.69	0.00	79.16	4867.22	-240.60	46.44	242.50	0.00
Landing Point, Hold to TD	5705.74	91.09	271.49	5388.00	290.10	60.23	-288.06	11.00
Chaco 2206-161 #223H PBHL/TD	10088.07	91.09	271.49	5305.00	4671.36	174.06	-4668.12	0.00

Vertical Section (ft) Azim = 272.14° Scale = 1:1000(ft) Origin = 0 N/-S, 0 E/-W

<<< S Scale = 1:1500(ft) N >>>