

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

☐ AMENDED REPORT

1220 South St. Francis Dr.

Santa Fe, NM 87505

RCVD MAY 15 '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. API Number 30-043-21149		4. Well No. 225H
5. Property Code 39908	6. Property Name Chaco 2206-02H	

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
H	2	22N	6W		1666	North	278	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
D	2	22N	6W	4	380	North	380	West	Sandoval

9. Pool Information

Pool Name	Pool Code
Lybrook Gallup	42289

Additional Well Information

11. Work Type N	12. Well Type O	13. Cable/Rotary R	14. Lease Type S	15. Ground Level Elevation 6949'
16. Multiple No	17. Proposed Depth 10,120' MD / 5,352' TVD	18. Formation Gallup	19. Contractor AWS	20. Spud Date 06/01/13
Depth to Ground water +/- 50'		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
K-55	12-1/4"	9-5/8"	36#	400'	190	Surface
K-55	8-3/4"	7"	23#	5,964'	1050	Surface
N-80	6-1/8"	4-1/2"	11.6#	10,120'	458	4,900'

Casing/Cement Program: Additional Comments

A COMPLETE C-144 MUST BE SUBMITTED TO AND APPROVED BY THE NMOC FOR: A PIT, CLOSED LOOP SYSTEM, BELOW GRADE TANK, OR PROPOSED ALTERNATIVE METHOD, PURSUANT TO NMOC PART 19.15.17, PRIOR TO THE USE OR CONSTRUCTION OF THE ABOVE APPLICATIONS.

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Double Ram	3000#	2000#	

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) NMOC ☐ and/or 19.15.14.9 (B) NMOC ☐, if applicable.

Signature:

Printed name: Larry Higgins

Hold C104

Title: Permit Supervisor

for Directional Survey
and "As Drilled" plat

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

Date: 05/14/13

Phone: 333-1808

OIL CONSERVATION DIVISION

Approved By:

Charlie Herron

Title:

SUPERVISOR DISTRICT # 3

Approved Date:

MAY 17 2013

Expiration Date:

MAY 17 2015

Conditions of Approval Attached

MAY 17 2013 ea

rv

NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENT

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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 30-043-21149		Pool Code 42289	Pool Name LYBROOK GALLUP
Property Code 39908	Property Name CHACO 2206-02H		Well Number 225H
GRID No. 120782	Operator Name WPX ENERGY PRODUCTION, LLC		Elevation 6949'

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
H	2	22N	6W		1666	NORTH	278	EAST	SANDOVAL

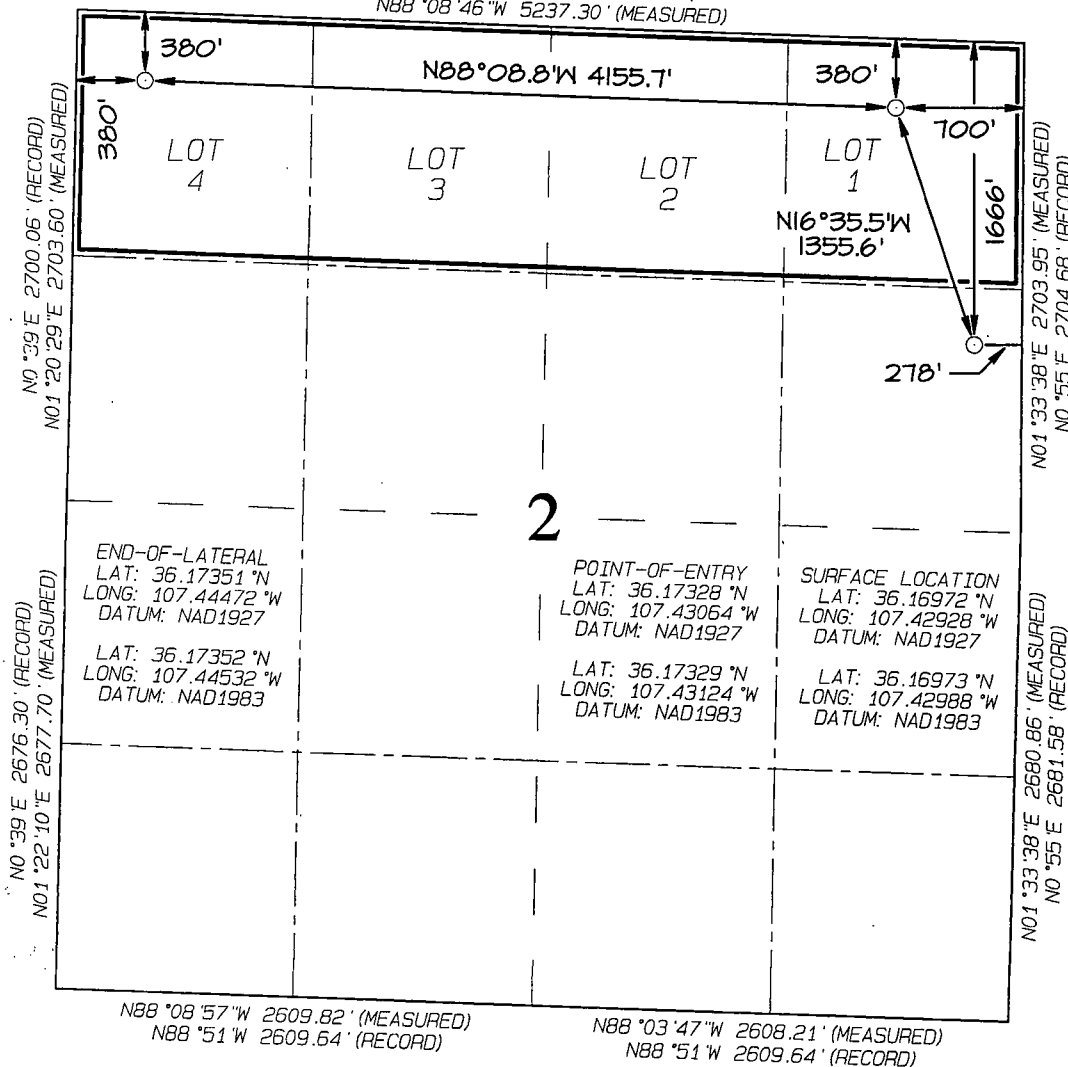
11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	2	22N	6W	4	380	NORTH	380	WEST	SANDOVAL

12 Dedicated Acres 162.80 Acres - (N/2 N/2)	13 Joint or Infill	14 Consolidation Code	15 Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

N88°52'W 5239.08' (RECORD)
N88°08'46"W 5237.30' (MEASURED)



17 OPERATOR CERTIFICATION

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

Larry Higgins 5/14/13
Signature Date

LARRY HIGGINS

Printed Name

larry.higgins@wpxenergy.com

E-mail Address

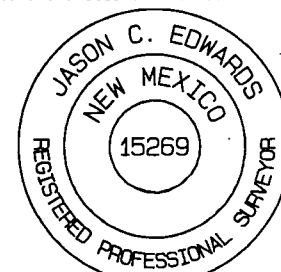
18 SURVEYOR CERTIFICATION

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: MAY 10, 2013

Date of Survey: JUNE 8, 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: 5/02/2013 **FIELD:** Wildcat Gallup

WELL NAME: Chaco 2206-02H #225H **SURFACE:** State

SH Location: SENE of Sec 2 T22N R6W **ELEVATION:** 6,949' GR

County: Sandoval Co, NM

BH Location: NWNW Sec 2 T223N R6W **MINERALS:** State

MEASURED DEPTH: 10,120 **LEASE #:** State

I. GEOLOGY: Surface formation – San Jose

A. FORMATION TOPS: (KB)

Name	MD	TVD	Name	MD	TVD
Ojo Alamo	1,311	1,302	Point Lookout	4,342	4,119
Kirtland	1,612	1,588	Mancos	4,519	4,292
Pictured Cliffs	1,902	1,856	Kickoff Point	5,057	4,827
Lewis	2,017	1,962	Target Top	5,725	5,353
Chacra	2,356	2,275	Landing Point	5,964	5,401
Cliff House	3,535	3,363	Target Base	5,964	5,401
Menefee	3,560	3,386			
			TD	10,120	5,352

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

C. LOGGING PROGRAM: MWD: GR for curve and MWD: GR / SONIC 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 8 3/4" Directional Vertical Hole and the curve portion of 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 **1800 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 +/- 5,057' (MD) / 4,827' (TVD). The curve portion of wellbore will be drilled and landed at +/- 90 deg. at +/- 5,964' (MD) / 5,401' (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 +/- 10,120' (MD). Will run 4-1/2 in. Production Casing from surface to TD and cement.

III. MATERIALS

A. CASING PROGRAM:

<u>CASING TYPE</u>	<u>OH SIZE</u>	<u>DEPTH (MD)</u>	<u>CASING SIZE</u>	<u>WEIGHT</u>	<u>GRADE</u>
Surface	12.25"	+/- 400'	9.625"	36#	J-55
Intermediate	8.75"	5964'	7"	23#	K-55
Longstring	6.125"	10,120'	4.5"	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) Turbulent centralizer on each of the bottom (3) joints and one standard centralizer every (3) joints to 2,500 ft. Run (1) Turbulent centralizer at 2,700', 2,500', 2,300', 2,000', 1,500', and 1,000'.
3. PRODUCTION CASING: Run 4-1/2" casing with cement nose guide Float Shoe + 1jt. of 4-1/2" casing + Float Collar. Centralizer program will be determined by Wellbore condition and 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 + 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).
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 / TOTETANK + 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:** 10 bbl (56 cu-ft) Fr Water Spacer. **STAGE 2:** 20 bbl 10 ppg (112.3 cu-ft) Tuned Spacer III + 0.2 gal/bbl Musol + 59.8 ppb Barite. **STAGE 3:** 10 bbl Fr Water Spacer. **STAGE 4: Lead Cement:** Standard Type V + .4% Halad-766 + .3% Halad R-344, Yield 1.19 cu ft/sk, 15.6 #/gal, (60 sx/71.4 cu ft.) **STAGE 5:** 248 sx Foamed Lead Cement: 13.0 ppg (63.28 bbl / 355.3 cu-ft) 50/50 Poz Standard + 0.2% Versaset + 0.2% HALAD-766 + 1.5% Chem-Foamer 760. Yield 1.43 cu-ft/sk. **STAGE 6:** Tail Cement : 150 sx 50/50 Poz Standard + 0.2% Versaset + 0.25% HALAD-766, Weight: 13.5 ppg (Yield 1.29 cu ft/sk. / 193.5 cu ft.) **STAGE 7:** Displace w/176.6 bbl Fr Water. Total Cement (620.2 cu ft / 110.4 bbls). Mix w/ +/- 75,000 SCF Nitrogen. Est. TOC +/- 4,900 ft. Total Volume: (620.2 cu-ft/458 sx/110.4 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 (~5,300' MD).
-



Chaco 2206-02H #225H Rev0 JBE 29Mar13 Proposal Geodetic Report

(Non-Def Plan)

Report Date: March 29, 2013 - 10:05 AM
Client: WPX Energy
Field: NM Sandoval County NAD27
Structure / Slot: WPX Chaco 2206-02H #225H / Chaco 2206-02H #225H
Well: Chaco 2206-02H #225H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Chaco 2206-02H #225H Rev0 JBE 29Mar13
Survey Date: March 29, 2013
Tort / AHD / DDI / ERD Ratio: 135.982 ° / 6030.019 ft / 6.187 / 1.117
Coordinate Reference System: NAD27 New Mexico State Plane, Central Zone, US Feet
Location Lat / Long: N 36° 10' 10.99200", W 107° 25' 45.40800"
Location Grid N/E Y/X: N 1883101.986 ftUS, E 151922.771 ftUS
CRS Grid Convergence Angle: -0.6961 °
Grid Scale Factor: 1.00003865

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 286.830 ° (True North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 6963.000 ft above MSL
Seabed / Ground Elevation: 6949.000 ft above MSL
Magnetic Declination: 9.519 °
Total Gravity Field Strength: 999.1621 mgn (9.8 based)
Total Magnetic Field Strength: 50207.437 nT
Magnetic Dip Angle: 62.969 °
Declination Date: March 29, 2013
Magnetic Declination Model: BGGM 2012
North Reference: True North
Grid Convergence Used: 0.0000 °
Total Corr Mag North->True North: 9.5190 °
Local Coord Referenced To: Structure Reference Point

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 ° ' ")
SHL - Chaco 2206-02H #225H	0.00	0.00	7.90	0.00	0.00	0.00	0.00	N/A	1883101.99	151922.77	N 36 10 10.99	W 107 25 45.41
Nudge 2°/100'	550.00	0.00	7.90	550.00	0.00	0.00	0.00	0.00	1883101.99	151922.77	N 36 10 10.99	W 107 25 45.41
Hold 22.6°	1682.69	22.65	7.90	1653.41	34.30	218.92	30.38	2.00	1883320.53	151955.81	N 36 10 13.16	W 107 25 45.04
Drop 2°/100'	3896.68	22.65	7.90	3696.59	166.66	1063.58	147.62	0.00	1884163.73	152083.30	N 36 10 21.51	W 107 25 43.61
	5029.38	0.00	7.90	4800.00	200.96	1282.50	178.00	2.00	1884382.28	152116.35	N 36 10 23.67	W 107 25 43.24
KOP 10°/100'	5057.16	0.00	7.90	4827.78	200.96	1282.50	178.00	0.00	1884382.28	152116.35	N 36 10 23.67	W 107 25 43.24
Chaco 2206-02H #225H Landing	5963.86	90.67	271.16	5400.70	759.07	1294.23	-401.54	10.00	1884401.05	151536.97	N 36 10 23.79	W 107 25 50.31
Chaco 2206-02H #225H PBHL	10119.71	90.67	271.16	5352.00	4760.15	1378.26	-4556.26	0.00	1884535.55	147383.43	N 36 10 24.62	W 107 26 40.98

Survey Type: Non-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 Borehole / Chaco 2206-02H #225H Rev0 JBE 29Mar13
	14.000	10119.710	1/100.000	30.000	30.000	SLB_UNKNOWN	Original Borehole / Chaco 2206-02H #225H Rev0 JBE 29Mar13



Chaco 2206-02H #225H Rev0 JBE 29Mar13 Proposal Geodetic Report

(Non-Def Plan)

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Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 286.830 ° (True North)
Vertical Section Origin: 0.000 ft, 0.000 ft
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TVD Reference Elevation: 6963.000 ft above MSL
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North Reference: True North
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Total Corr Mag North->True North: 9.5190 °
Local Coord Referenced To: Structure Reference Point

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 ° ' ")
SHL - Chaco 2206-02H #225H	0.00	0.00	7.90	0.00	0.00	0.00	0.00	N/A	1883101.99	151922.77	N 36 10 10.99	W 107 25 45.41
	100.00	0.00	7.90	100.00	0.00	0.00	0.00	0.00	1883101.99	151922.77	N 36 10 10.99	W 107 25 45.41
	200.00	0.00	7.90	200.00	0.00	0.00	0.00	0.00	1883101.99	151922.77	N 36 10 10.99	W 107 25 45.41
	300.00	0.00	7.90	300.00	0.00	0.00	0.00	0.00	1883101.99	151922.77	N 36 10 10.99	W 107 25 45.41
	400.00	0.00	7.90	400.00	0.00	0.00	0.00	0.00	1883101.99	151922.77	N 36 10 10.99	W 107 25 45.41
	500.00	0.00	7.90	500.00	0.00	0.00	0.00	0.00	1883101.99	151922.77	N 36 10 10.99	W 107 25 45.41
Nudge 2°/100'	550.00	0.00	7.90	550.00	0.00	0.00	0.00	0.00	1883101.99	151922.77	N 36 10 10.99	W 107 25 45.41
	600.00	1.00	7.90	600.00	0.07	0.43	0.06	2.00	1883102.42	151922.84	N 36 10 11.00	W 107 25 45.41
	700.00	3.00	7.90	699.93	0.61	3.89	0.54	2.00	1883105.87	151923.36	N 36 10 11.03	W 107 25 45.40
	800.00	5.00	7.90	799.68	1.69	10.80	1.50	2.00	1883112.77	151924.40	N 36 10 11.10	W 107 25 45.39
	900.00	7.00	7.90	899.13	3.31	21.15	2.94	2.00	1883123.10	151925.96	N 36 10 11.20	W 107 25 45.37
	1000.00	9.00	7.90	998.15	5.47	34.94	4.85	2.00	1883136.86	151928.04	N 36 10 11.34	W 107 25 45.35
	1100.00	11.00	7.90	1096.63	8.17	52.13	7.24	2.00	1883154.03	151930.64	N 36 10 11.51	W 107 25 45.32
	1200.00	13.00	7.90	1194.44	11.40	72.73	10.09	2.00	1883174.59	151933.75	N 36 10 11.71	W 107 25 45.28
	1300.00	15.00	7.90	1291.46	15.15	96.69	13.42	2.00	1883198.51	151937.36	N 36 10 11.95	W 107 25 45.24
	1400.00	17.00	7.90	1387.58	19.43	123.99	17.21	2.00	1883225.76	151941.49	N 36 10 12.22	W 107 25 45.20
	1500.00	19.00	7.90	1482.68	24.22	154.60	21.46	2.00	1883256.32	151946.11	N 36 10 12.52	W 107 25 45.15
	1600.00	21.00	7.90	1576.65	29.53	188.47	26.16	2.00	1883290.13	151951.22	N 36 10 12.86	W 107 25 45.09
Hold 22.6°	1682.69	22.65	7.90	1653.41	34.30	218.92	30.38	2.00	1883320.53	151955.81	N 36 10 13.16	W 107 25 45.04
	1700.00	22.65	7.90	1669.38	35.34	225.53	31.30	0.00	1883327.12	151956.81	N 36 10 13.22	W 107 25 45.03
	1800.00	22.65	7.90	1761.67	41.32	263.68	36.60	0.00	1883365.21	151962.57	N 36 10 13.60	W 107 25 44.96
	1900.00	22.65	7.90	1853.95	47.29	301.83	41.89	0.00	1883403.29	151968.33	N 36 10 13.98	W 107 25 44.90
	2000.00	22.65	7.90	1946.24	53.27	339.98	47.19	0.00	1883441.38	151974.09	N 36 10 14.35	W 107 25 44.83
	2100.00	22.65	7.90	2038.52	59.25	378.13	52.48	0.00	1883479.46	151979.84	N 36 10 14.73	W 107 25 44.77
	2200.00	22.65	7.90	2130.81	65.23	416.28	57.78	0.00	1883517.55	151985.60	N 36 10 15.11	W 107 25 44.70
	2300.00	22.65	7.90	2223.09	71.21	454.43	63.07	0.00	1883555.63	151991.36	N 36 10 15.49	W 107 25 44.64
	2400.00	22.65	7.90	2315.38	77.18	492.58	68.37	0.00	1883593.72	151997.12	N 36 10 15.86	W 107 25 44.57
	2500.00	22.65	7.90	2407.66	83.16	530.73	73.66	0.00	1883631.80	152002.88	N 36 10 16.24	W 107 25 44.51
	2600.00	22.65	7.90	2499.95	89.14	568.88	78.96	0.00	1883669.89	152008.64	N 36 10 16.62	W 107 25 44.45

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 ° ' ")
	2700.00	22.65	7.90	2592.23	95.12	607.03	84.25	0.00	1883707.97	152014.39	N 36 10 16.99	W 107 25 44.38
	2800.00	22.65	7.90	2684.52	101.10	645.18	89.55	0.00	1883746.06	152020.15	N 36 10 17.37	W 107 25 44.32
	2900.00	22.65	7.90	2776.80	107.07	683.33	94.84	0.00	1883784.14	152025.91	N 36 10 17.75	W 107 25 44.25
	3000.00	22.65	7.90	2869.09	113.05	721.49	100.14	0.00	1883822.23	152031.67	N 36 10 18.13	W 107 25 44.19
	3100.00	22.65	7.90	2961.37	119.03	759.64	105.43	0.00	1883860.31	152037.43	N 36 10 18.50	W 107 25 44.12
	3200.00	22.65	7.90	3053.66	125.01	797.79	110.73	0.00	1883898.40	152043.18	N 36 10 18.88	W 107 25 44.06
	3300.00	22.65	7.90	3145.94	130.99	835.94	116.02	0.00	1883936.48	152048.94	N 36 10 19.26	W 107 25 43.99
	3400.00	22.65	7.90	3238.22	136.96	874.09	121.32	0.00	1883974.57	152054.70	N 36 10 19.64	W 107 25 43.93
	3500.00	22.65	7.90	3330.51	142.94	912.24	126.61	0.00	1884012.65	152060.46	N 36 10 20.01	W 107 25 43.86
	3600.00	22.65	7.90	3422.79	148.92	950.39	131.91	0.00	1884050.74	152066.22	N 36 10 20.39	W 107 25 43.80
	3700.00	22.65	7.90	3515.08	154.90	988.54	137.20	0.00	1884088.82	152071.98	N 36 10 20.77	W 107 25 43.73
	3800.00	22.65	7.90	3607.36	160.88	1026.69	142.50	0.00	1884126.91	152077.73	N 36 10 21.14	W 107 25 43.67
Drop 2°/100'	3896.68	22.65	7.90	3696.59	166.66	1063.58	147.62	0.00	1884163.73	152083.30	N 36 10 21.51	W 107 25 43.61
	3900.00	22.59	7.90	3699.65	166.85	1064.84	147.79	2.00	1884164.99	152083.49	N 36 10 21.52	W 107 25 43.61
	4000.00	20.59	7.90	3792.63	172.56	1101.28	152.85	2.00	1884201.37	152088.99	N 36 10 21.88	W 107 25 43.54
	4100.00	18.59	7.90	3886.84	177.77	1134.48	157.46	2.00	1884234.52	152094.00	N 36 10 22.21	W 107 25 43.49
	4200.00	16.59	7.90	3982.16	182.46	1164.41	161.61	2.00	1884264.39	152098.52	N 36 10 22.51	W 107 25 43.44
	4300.00	14.59	7.90	4078.48	186.63	1191.03	165.30	2.00	1884290.96	152102.54	N 36 10 22.77	W 107 25 43.39
	4400.00	12.59	7.90	4175.67	190.27	1214.30	168.53	2.00	1884314.19	152106.05	N 36 10 23.00	W 107 25 43.35
	4500.00	10.59	7.90	4273.63	193.39	1234.19	171.30	2.00	1884334.05	152109.05	N 36 10 23.20	W 107 25 43.32
	4600.00	8.59	7.90	4372.23	195.98	1250.69	173.58	2.00	1884350.52	152111.54	N 36 10 23.36	W 107 25 43.29
	4700.00	6.59	7.90	4471.35	198.02	1263.77	175.40	2.00	1884363.57	152113.52	N 36 10 23.49	W 107 25 43.27
	4800.00	4.59	7.90	4570.87	199.54	1273.41	176.74	2.00	1884373.20	152114.97	N 36 10 23.58	W 107 25 43.25
	4900.00	2.59	7.90	4670.67	200.51	1279.61	177.60	2.00	1884379.39	152115.91	N 36 10 23.65	W 107 25 43.24
	5000.00	0.59	7.90	4770.62	200.94	1282.35	177.98	2.00	1884382.13	152116.32	N 36 10 23.67	W 107 25 43.24
KOP 10°/100'	5029.38	0.00	7.90	4800.00	200.96	1282.50	178.00	2.00	1884382.28	152116.35	N 36 10 23.67	W 107 25 43.24
	5057.16	0.00	7.90	4827.78	200.96	1282.50	178.00	0.00	1884382.28	152116.35	N 36 10 23.67	W 107 25 43.24
	5100.00	4.28	271.16	4870.58	202.50	1282.53	176.40	10.00	1884382.33	152114.74	N 36 10 23.67	W 107 25 43.26
	5200.00	14.28	271.16	4969.15	218.02	1282.86	160.29	10.00	1884382.85	152098.64	N 36 10 23.68	W 107 25 43.45
	5300.00	24.28	271.16	5063.42	249.77	1283.53	127.31	10.00	1884383.92	152065.67	N 36 10 23.68	W 107 25 43.86
	5400.00	34.28	271.16	5150.53	296.81	1284.52	78.47	10.00	1884385.50	152016.84	N 36 10 23.69	W 107 25 44.45
	5500.00	44.28	271.16	5227.83	357.70	1285.80	15.25	10.00	1884387.55	151953.64	N 36 10 23.71	W 107 25 45.22
	5600.00	54.28	271.16	5292.98	430.58	1287.33	-60.44	10.00	1884390.00	151877.98	N 36 10 23.72	W 107 25 46.15
	5700.00	64.28	271.16	5343.99	513.25	1289.07	-146.28	10.00	1884392.78	151792.16	N 36 10 23.74	W 107 25 47.19
	5800.00	74.28	271.16	5379.32	603.20	1290.96	-239.68	10.00	1884395.81	151698.79	N 36 10 23.76	W 107 25 48.33
	5900.00	84.28	271.16	5397.89	697.68	1292.94	-337.79	10.00	1884398.99	151600.70	N 36 10 23.78	W 107 25 49.53
Chaco 2206-02H #225H Landing	5963.86	90.67	271.16	5400.70	759.07	1294.23	-401.54	10.00	1884401.05	151536.97	N 36 10 23.79	W 107 25 50.31
	6000.00	90.67	271.16	5400.28	793.87	1294.97	-437.67	0.00	1884402.22	151500.85	N 36 10 23.80	W 107 25 50.75
	6100.00	90.67	271.16	5399.11	890.15	1296.99	-537.64	0.00	1884405.46	151400.90	N 36 10 23.82	W 107 25 51.97
	6200.00	90.67	271.16	5397.94	986.42	1299.01	-637.62	0.00	1884408.70	151300.96	N 36 10 23.84	W 107 25 53.18
	6300.00	90.67	271.16	5396.77	1082.70	1301.04	-737.59	0.00	1884411.94	151201.01	N 36 10 23.86	W 107 25 54.40
	6400.00	90.67	271.16	5395.60	1178.98	1303.06	-837.56	0.00	1884415.18	151101.07	N 36 10 23.88	W 107 25 55.62
	6500.00	90.67	271.16	5394.43	1275.25	1305.09	-937.53	0.00	1884418.41	151001.13	N 36 10 23.90	W 107 25 56.84
	6600.00	90.67	271.16	5393.26	1371.53	1307.11	-1037.51	0.00	1884421.65	150901.18	N 36 10 23.92	W 107 25 58.06
	6700.00	90.67	271.16	5392.09	1467.80	1309.13	-1137.48	0.00	1884424.89	150801.24	N 36 10 23.94	W 107 25 59.28
	6800.00	90.67	271.16	5390.92	1564.08	1311.16	-1237.45	0.00	1884428.13	150701.29	N 36 10 23.96	W 107 26 0.50
	6900.00	90.67	271.16	5389.75	1660.36	1313.18	-1337.43	0.00	1884431.36	150601.35	N 36 10 23.98	W 107 26 1.72
	7000.00	90.67	271.16	5388.58	1756.63	1315.20	-1437.40	0.00	1884434.60	150501.40	N 36 10 24.00	W 107 26 2.94
	7100.00	90.67	271.16	5387.41	1852.91	1317.23	-1537.37	0.00	1884437.84	150401.46	N 36 10 24.02	W 107 26 4.16
	7200.00	90.67	271.16	5386.23	1949.19	1319.25	-1637.34	0.00	1884441.08	150301.52	N 36 10 24.04	W 107 26 5.38
	7300.00	90.67	271.16	5385.06	2045.46	1321.27	-1737.32	0.00	1884444.31	150201.57	N 36 10 24.06	W 107 26 6.60
	7400.00	90.67	271.16	5383.89	2141.74	1323.29	-1837.29	0.00	1884447.55	150101.63	N 36 10 24.08	W 107 26 7.82
	7500.00	90.67	271.16	5382.72	2238.01	1325.32	-1937.26	0.00	1884450.79	150001.68	N 36 10 24.10	W 107 26 9.04
	7600.00	90.67	271.16	5381.55	2334.29	1327.34	-2037.23	0.00	1884454.03	149901.74	N 36 10 24.12	W 107 26 10.25
	7700.00	90.67	271.16	5380.38	2430.57	1329.36	-2137.21	0.00	1884457.26	149801.79	N 36 10 24.14	W 107 26 11.47
	7800.00	90.67	271.16	5379.21	2526.84	1331.38	-2237.18	0.00	1884460.50	149701.85	N 36 10 24.16	W 107 26 12.69
	7900.00	90.67	271.16	5378.04	2623.12	1333.41	-2337.15	0.00	1884463.74	149601.90	N 36 10 24.18	W 107 26 13.91
	8000.00	90.67	271.16	5376.86	2719.39	1335.43	-2437.13	0.00	1884466.97	149501.96	N 36 10 24.20	W 107 26 15.13
	8100.00	90.67	271.16	5375.69	2815.67	1337.45	-2537.10	0.00	1884470.21	149402.02	N 36 10 24.22	W 107 26 16.35

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 ° ' ")
	8200.00	90.67	271.16	5374.52	2911.94	1339.47	-2637.07	0.00	1884473.44	149302.07	N 36 10 24.24	W 107 26 17.57
	8300.00	90.67	271.16	5373.35	3008.22	1341.49	-2737.04	0.00	1884476.68	149202.13	N 36 10 24.26	W 107 26 18.79
	8400.00	90.67	271.16	5372.18	3104.50	1343.51	-2837.02	0.00	1884479.92	149102.18	N 36 10 24.28	W 107 26 20.01
	8500.00	90.67	271.16	5371.00	3200.77	1345.54	-2936.99	0.00	1884483.15	149002.24	N 36 10 24.30	W 107 26 21.23
	8600.00	90.67	271.16	5369.83	3297.05	1347.56	-3036.96	0.00	1884486.39	148902.29	N 36 10 24.32	W 107 26 22.45
	8700.00	90.67	271.16	5368.66	3393.32	1349.58	-3136.93	0.00	1884489.62	148802.35	N 36 10 24.34	W 107 26 23.67
	8800.00	90.67	271.16	5367.49	3489.60	1351.60	-3236.91	0.00	1884492.86	148702.40	N 36 10 24.36	W 107 26 24.89
	8900.00	90.67	271.16	5366.31	3585.87	1353.62	-3336.88	0.00	1884496.09	148602.46	N 36 10 24.38	W 107 26 26.11
	9000.00	90.67	271.16	5365.14	3682.15	1355.64	-3436.85	0.00	1884499.33	148502.52	N 36 10 24.40	W 107 26 27.32
	9100.00	90.67	271.16	5363.97	3778.43	1357.66	-3536.82	0.00	1884502.56	148402.57	N 36 10 24.42	W 107 26 28.54
	9200.00	90.67	271.16	5362.79	3874.70	1359.68	-3636.80	0.00	1884505.80	148302.63	N 36 10 24.44	W 107 26 29.76
	9300.00	90.67	271.16	5361.62	3970.98	1361.70	-3736.77	0.00	1884509.03	148202.68	N 36 10 24.46	W 107 26 30.98
	9400.00	90.67	271.16	5360.45	4067.25	1363.72	-3836.74	0.00	1884512.27	148102.74	N 36 10 24.48	W 107 26 32.20
	9500.00	90.67	271.16	5359.27	4163.53	1365.74	-3936.72	0.00	1884515.50	148002.79	N 36 10 24.50	W 107 26 33.42
	9600.00	90.67	271.16	5358.10	4259.80	1367.76	-4036.69	0.00	1884518.74	147902.85	N 36 10 24.51	W 107 26 34.64
	9700.00	90.67	271.16	5356.93	4356.08	1369.78	-4136.66	0.00	1884521.97	147802.90	N 36 10 24.53	W 107 26 35.86
	9800.00	90.67	271.16	5355.75	4452.35	1371.80	-4236.63	0.00	1884525.21	147702.96	N 36 10 24.55	W 107 26 37.08
	9900.00	90.67	271.16	5354.58	4548.63	1373.82	-4336.61	0.00	1884528.44	147603.02	N 36 10 24.57	W 107 26 38.30
	10000.00	90.67	271.16	5353.41	4644.90	1375.84	-4436.58	0.00	1884531.67	147503.07	N 36 10 24.59	W 107 26 39.52
	10100.00	90.67	271.16	5352.23	4741.18	1377.86	-4536.55	0.00	1884534.91	147403.13	N 36 10 24.61	W 107 26 40.74
Chaco 2206-02H #225H PBHL	10119.71	90.67	271.16	5352.00	4760.15	1378.26	-4556.26	0.00	1884535.55	147383.43	N 36 10 24.62	W 107 26 40.98

Survey Type: Non-Def Plan

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

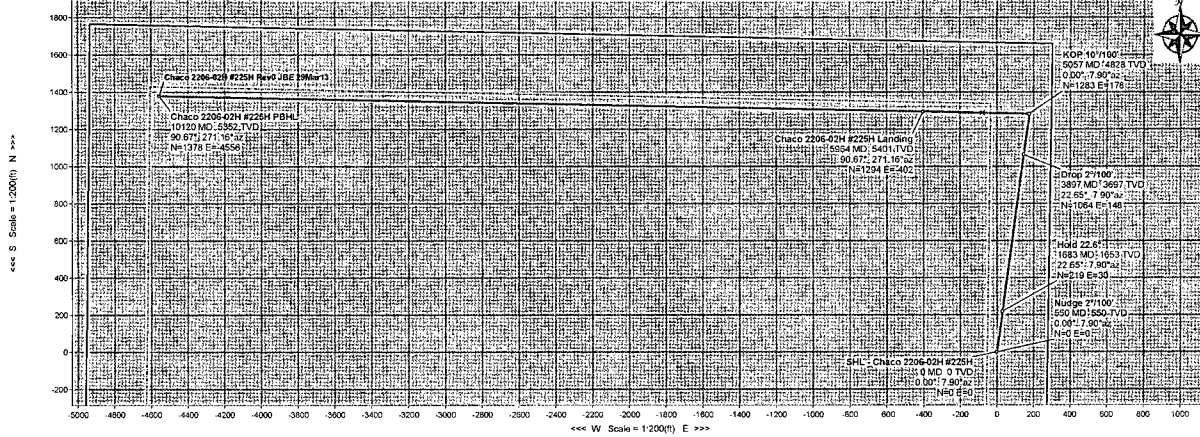
Description	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	0.000	14.000	1/100.000	30.000	30.000	SLB_UNKNOWN-Depth Only	Original Borehole / Chaco 2206-02H #225H Rev0 JBE 29Mar13
	14.000	10119.710	1/100.000	30.000	30.000	SLB_UNKNOWN	Original Borehole / Chaco 2206-02H #225H Rev0 JBE 29Mar13

KB: 14'

Rev0

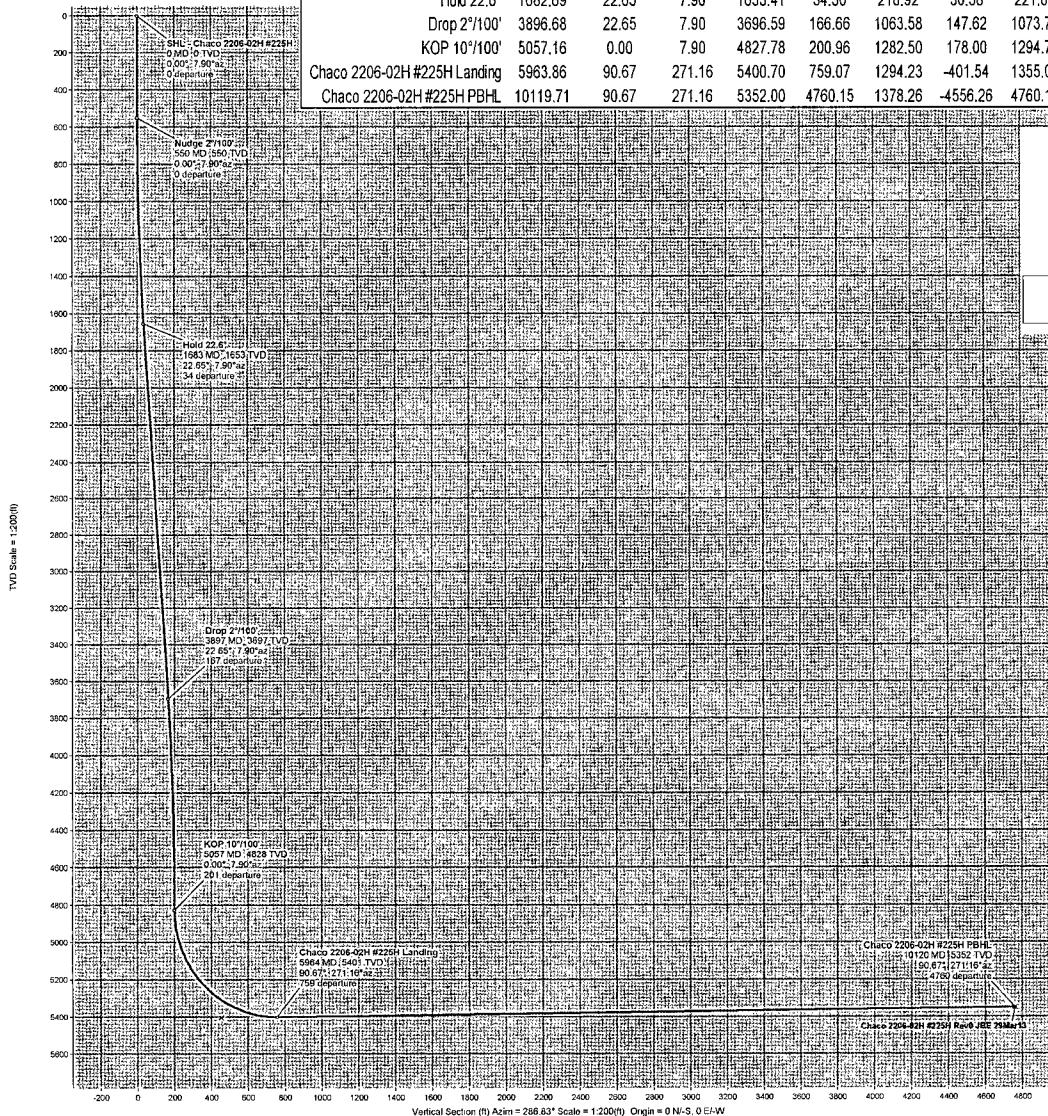
WELL	Chaco 2206-02H #225H	FIELD	NM Sandoval County NAD27	STRUCTURE	AWS #980
Magnetic Parameters	Dip: 62.90° Mag Dec: 9.519°	Date: March 29, 2013 F.S. 50231.147	Surface Location Lat: N 36 10 10.992 Lon: W 107 25 46.402	NAD27 New Mexico State Plane - Central Zone, US Feet Datum: 1983/11/18 Grid Cont: -4480' Scale Fact: 1.000385	Miscellaneous Sta: Chaco 2206-02H #225H Plan: Rev0 JBE 29Mar13 TVD Ref: BAH64038 above MSL Srv Date: March 28, 2013

Name	TVD (ft)	NS (ft)	EW (ft)	Latitude (deg)	Longitude (deg)	Shape
Chaco 2206-02H #225H PBHL	5352.00	1378.26	-4556.26	N 36 10 24.618	W 107 25 40.378	POINT
Chaco 2206-02H #225H POE	5404.00	1287.61	-81.47	N 36 10 23.725	W 107 25 46.402	POINT



Legend
Sec 02 T22N R06W Section Line
Chaco 2206-02H #225H PBHL
Sec 02 T22N R06W 330' HL
Chaco 2206-02H #225H POE
Chaco 2206-02H #225H Rev0 JBE 29Mar13

Critical Points										
Comments	Survey MD (ft)	Inclination (deg)	Azimuth (deg)	TVD (ft)	VS (ft)	NS (ft)	EW (ft)	Closure (ft)	Closure Azimuth (deg)	DLS (ft/100ft)
SHL - Chaco 2206-02H #225H	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nudge 2°/100'	550.00	0.00	7.90	550.00	0.00	0.00	0.00	0.00	0.00	0.00
Hold 22.6°	1682.69	22.65	7.90	1653.41	34.30	218.92	30.38	221.02	7.90	2.00
Drop 2°/100'	3896.68	22.65	7.90	3696.59	186.66	1063.58	147.62	1073.77	7.90	0.00
KOP 10°/100'	5057.16	0.00	7.90	4827.78	200.96	1282.50	178.00	1294.79	7.90	0.00
Chaco 2206-02H #225H Landing	5963.86	90.67	271.16	5400.70	759.07	1294.23	-401.54	1355.09	342.76	10.00
Chaco 2206-02H #225H PBHL	10119.71	90.67	271.16	5352.00	4760.15	1378.26	-4556.26	4760.15	286.83	0.00



True North
Tilt Corr (N-T 9.5190°)
Mag Dec (9.519°)
Grid Corr (40.696°)

Drawn By: Brock Smith
Date Created: March 29, 2013 09:49:02 AM
Checked By:
Checked Date:
Approved By:
Approved Date: