

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

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

MAR 14 2013

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.

Farmington Field Office

Bureau of Land Management

5. Lease Serial No.

NMSF-078360

6. If Indian Allottee or Tribe Name

SUBMIT IN TRIPLICATE – Other instructions on page 2.

1. Type of Well ☐ Oil Well ☐ Gas Well ☐ Other		7. If Unit of CA/Agreement, Name and/or No.
2. Name of Operator WPX Energy Production, LLC		8. Well Name and No. Chaco 2306-19M #191H
3a. Address PO Box 640 Aztec, NM 87410	3b. Phone No. (include area code) 505-333-1808	9. API Well No. 30-043-21139
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sur: 1236' FSL & 287' FWL, sec 19, T23N, R6W – BHL: 340' FSL & 340' FWL, Sec 24, T23N, R7W		10. Field and Pool or Exploratory Area Lybrook Gallup
		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
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other _____
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	<u>Casing Change</u>
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

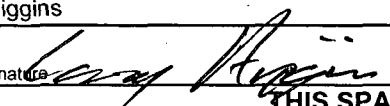
13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomple horizontally, give subsurface locations and measured and true vertical depths 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.

RCVD MAR 26 '13
OIL CONS. DIV.
DIST. 3

WPX Energy intends to change the casing and cementing design on the above well as per attached drilling plan.

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

CONDITIONS OF APPROVAL
Adhere to previously issued stipulations.

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed) Larry Higgins	Title Permit Supervisor
Signature 	Date 3/14/13

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by <u>Troy L. Salyers</u>	Title <u>Petroleum Eng.</u>	Date <u>3/22/2013</u>
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 <u>FFO</u>	

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)

NMOCDA

CHACO 2306-19M #191-H
Drilling Program (Draft)
WPX Energy Co.

WELL NAME:	CHACO 2306-19M #191H
COUNTY, STATE:	Sandoval County, New Mexico
AFE #	WT33806
LOCATION – Surface:	W/2 SW Sec 19, T23N, R6W
TD at Bottom Hole:	SW SW Sec 24, T23N, R7W
API #:	30-043-21139
Surface Csg Size / Depth	13-3/8" at 400+' MD
PROPOSED TD:	10,473' (MD) / 5,416' TVD
ZONES OF INTEREST / OBJECTIVES:	Mancos
GLE / KB:	7,012' GL / KB 7,026'
Lease	USA NMSF 078360

DRIVING DIRECTIONS: From US-550 and US-64 in Bloomfield, NM: Go 50.4 miles South of Bloomfield. NM to MM 100.9, Turn Right and go .7 mi, turn Right for .8 mi. to location.

Drilling Rig: Aztec Rig # 980

KB Elevation: 7,026'

Geology: Formation

Name	MD	TVD	Name	MD	TVD
Ojo Alamo	1,353	1,348	Gallup	4,891	4,788
Kirtland	1,471	1,463	Kickoff Point	5,059	4,947
Pictured Cliffs	1,964	1,940	Lwr Mancos	5,369	5,266
Lewis	2,061	2,033	Top Core	5,467	5,364
Chacra	2,366	2,328	Top Target	5,550	5,447
Cliff House	3,509	3,431	Landing Point	5,973	5,529
Menefee	3,581	3,501	Target Base	5,646	5,543
Point Lookout	4,321	4,221	Base Core	5,647	5,544
Mancos	4,507	4,405	Juana Lopez	5,947	5,944
			TD Pilot	6,050	5,947
			TD	10,473	5,416

Proposed Casing Program:

	<u>Hole Size</u>	<u>Casing</u>	<u>MD/TVD</u>	<u>TOC</u>
Surface:	17-1/2"	13-3/8", 68#, K55, BT&C, R3 (126') btm 13-3/8", 54.5#, K-55, BT&C, R3 (155') middle 13-3/8", 68#, L80, BT&C, R3 (3031') Top out	+400' / +400'	Surface
Intermediate:	12-1/4"	9-5/8", 36 ppf, K55, LT&C, 8rd, Rge 3	4,560' / 4,458'	Surface
Interm. Liner	8-3/4"	7", 23 ppf, K-55, LTC, 8rd, Rge 3, Liner	4,400' - 5,973'	TOL
Production:	6-1/8"	4-1/2", 11.6 ppf, N-80, 8rd, Rge 3	10,473' - 5,416'	~4,200'

Coring: 180 ft. conventional cores will be cut: Procedure to follow.

Evaluation: Mud Logging: Mud Logger on location from surface casing to TD.

Electric Logging: As selected by Geoscientists

**CHACO 2306-19M #191-H
Drilling Program (Draft)
WPX Energy Co.**

Major Service Providers:

Cement:	Halliburton
Drilling Fluids:	Baroid Drilling Fluids
Fresh Water:	SSS Trucking

Drilling Procedure:

1. Mobilize and RU Aztec Rig # 980: **BLM / OCD Farmington F. Office 24 hrs. prior to spud.**
 - Review surface use agreement included with drilling program. Review same with Toolpushers and rig crews to ensure compliance with regard to trash pick up and lease road speed limits.
 - Record beginning and ending diesel readings for Rig tank and Camp tank in daily report. Monitor and document daily fuel usage in IADC and daily reports. Fuel is to be charged out on a daily basis.
 - BHA inspection will be conducted every 200 hours or as needed.
 - Advise the New Mexico OCD and BLM of spud 24 hours prior to spud. Advise 24 hour prior to cementing all casing strings. All conversations are to be documented in the IADC reports as well as the daily reports. Include all pertinent information, including date, time, person contacted.
 - Ensure a copy of the approved drilling permit is posted in doghouse prior to spud of the well.
 - All accidents are to be reported as soon as practical to drilling engineer and Myke Lane (WPX Energy, EH&S) and detailed in the daily reports as well on the WPX Energy accident form. A copy of the contractor's incident investigation report should also be included with WPX Energy accident form.
 - Blind rams are to be functioned after all trips. All function tests are to be documented in daily reports.
 - BOP and associated well control equipment are to be inspected prior to nipple up. Ensure bottles are properly charged and all equipment is in working condition.
 - BOP pressure tests are to be conducted after the BOPs have been installed, after each casing string or anytime a pressure seal has been broken and/or every 30 days.
 - Well control drills are to be conducted as necessary to ensure crews are familiar with shut-in procedures. All drills and shut-in times are to be documented in IADC and daily reports.
 - Slow pump rates are to be recorded and documented on the daily reports daily or when the mud weight has changed more the 0.5 ppg.
 - All trips are to be conducted using pump strokes and trip sheet to monitor for proper fill-up and displacement.
 - The following reports are to be sent every morning by 06:00 hrs:

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Drilling Program (Draft)
WPX Energy Co.**

- ◆ WellEZ Daily Drilling Report
- ◆ BHA, Casing Tallies etc as they become available
- ◆ Mud Reports

- The following items need to be recorded daily in the PA morning reports.

- Daily fuel consumption/cumulative use
- Topic of Tailgate safety meeting for both crews
- Accidents/Injuries are reported
- Crew status (crews full, etc)
- Repair time for an event/Cumulative Repair time
- Cumulative hours on BHA.

1. Rig up Top Drive and drill mouse hole to depth as needed to set shuck.

SURFACE HOLE: 17-1/2" Hole , 13-3/8" Casing

2. Prepare to spud well by picking up the following BHA:

- ◆ 17-1/2" Tri-Cone Tooth (re-tipped) jetted with 3x18 nozzles
- ◆ 6-1/2" OD Float sub w/float installed
- ◆ 2 – 6-1/2" Drill Collars
- ◆ 6-1/2" Drill Collars as needed to reach 400'+

Spud well. Drill ahead using, surveying well every 150' below surface and at interval TD

Interval Mud Properties:

Interval (Feet)	Mud Weight (ppg)	Funnel Vis. (sec/qt)	Plastic Vis. (cp)	Yield Point (lb/100ft ²)	Fluid Loss (ml/30 min)	HTHP Fluid Loss (ml/30 min)	Total Solids (%)
0 - 400'+	8.8	60-70	18	22	8.0	N/A	< 8

- ◆ Spud well with pre-mixed **Shale-Drill** mud.
 - ◆ Control seepage losses with the addition of LCM as needed.
 - ◆ Use high viscosity PHPA Polymer HI-VIS sweeps containing freshwater gel to clean hole as required. Frequency will be dictated by holes conditions and previous results of sweeps pumped.
 - ◆ Continue drilling ahead with the above mud properties to the planned TD/Casing Point. Planned surface casing point is 400+ft. MD.
 - ◆ Casing tally should be completed prior to TD, adjust TD (> 400ft.) to allow casing collar to be near floor level during cement job.
3. Upon reaching TD, circulate and sweep hole clean. Wiper trip will be at the discretion of well site supervisor. Drop survey and strap out of the hole.

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WPX Energy Co.

4. Hold pre-job safety meeting regarding casing running equipment, discuss shoe and collar locations as well as centralizer placement with rig and casing crews. RU casing running equipment and run casing as follows: **Run all of the 54# K-55 BT&C Casing and all 68# K-55 BT&C Casing.**

- ◆ 13-3/8" BT&C Notched Regular Pattern Shoe (Baker Lock on threads)
- ◆ 13-3/8" 68#, K-55, BT&C Insert Float in Collar (Baker Lock Connections)
- ◆ 13-3/8" 68#, K-55, BT&C Casing (Baker Lock Connections)
- ◆ 13-3/8" 54.5#, K-55 BT&C Casing
- ◆ 13-3/8" 68#, L-80 BT&C Casing

All casing is to be drifted to API specs prior to running.

- ◆ (1) Centralizer is to be placed on bottom 4 jts of casing.
- ◆ ***Notify BLM Casing/Cement hotline and New Mexico Oil Conservation District 24 hrs prior to running and cementing casing.***
- ◆ Have 13-3/8" casing swage on location

Be prepared to wash casing to bottom as necessary with rig pumps. Circulate a minimum 1-1/2 times the casing volume with rig pumps prior to cementing well.

5. Make up landing joint, land casing at depth necessary to make up wellhead, NU BOP and flowline.
6. RU Halliburton. Hold safety/procedure meeting regarding cement job. Pressure test lines to 2M# and cement surface casing with the following:

SURFACE: 10 bbl Fr Water Spacer +510 sx (596.7 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 106.2 bbls.). The 100% excess should circulate cement to the surface. WOC 12 hours. Test csg to 1500psi. **Total Volume: (597 cu-ft/510 sx/ 106Bbls).**

The above volumes are based on 100% excess on annular volume.

Release top plug and displace with Drilling Mud. Monitor and note cement returns in daily reports. Bump plug with 500 psi over final circulating pressure. Do not over-displace more than 1/2 the volume of the shoe joint. Release pressure and ensure floats are holding.

7. RD cementing equipment. Make sure 13-3/8" csg is straight in wellbore for a level Casing Head. WOC Minimum 12 hours.
8. After WOC 12 hours, break out landing jt. and install wellhead.
9. NU BOP and associated equipment.
10. Pressure test BOP and related equipment as follows:
- 250 psi (low) for 5 minutes
 - 1,500 psi (high) for 10 minutes
 - Utilize BOP testing unit with recording chart and appropriate test plug
 - **Notify BLM Farmington FO and NMOCD of BOP pressure test 24 hours prior to testing**
11. After completion of BOP pressure testing, pressure test surface casing to 600 psi for 30 minutes prior to tripping in to drill out. Utilize BOP testing unit with recording chart.

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INTERMEDIATE HOLE: 12-1/4" Hole

1. PU the following BHA and TIH to drill float equipment:

- ◆ 12-1/4" HTC DP504FX PDC Bit - 6x15's
- ◆ 1- 6-3/4" 7/8 lobe 5.7 Stage Pathfinder Mud Motor
- ◆ Float Sub
- ◆ Directional Equipment
- ◆ 12- 6-1/4" drill collars

TIH and tag cement plug, note cement top in daily reports.

2. Continue drilling ahead until DC's have cleared casing shoe and Baroid Shale-Drill WBM mud has been treated and conditioned. Use all solids control equipment to remove cuttings from mud. Place water based mud cuttings in cuttings container on location.

Drill with at least 440 gpm:

Interval Mud Properties:

Interval (Feet)	Mud Weight (ppg)	Funnel Vis. (sec/qt)	Plastic Vis. (cp)	Yield Point (lb/100ft ²)	Fluid Loss (ml/30 min)	HTHP Fluid Loss (ml/30 min)	LG Solids (%)
Int. csg to 4,560'	9.6- 9.9	70-80	15-20	20-25	<7	NA	<8

3. Drill ahead to TD of 2,930'. 30' above expected top of Menefee Formation.
- **Make Short Trip at this point do not POOH faster than 60' per minute in open hole. Swab pressures may cause hole sloughing and bridges. TIH at same rate.**
 - **Drill ahead to TD @ 4,560 ft. (MD) adjust Mud Properties as needed.**
4. Circulate hole clean, run sweeps until Shale Shaker has cleaned up to a minimal amount of cuttings. TOOH, LD Directional tools. PU BHA, TIH to TD noting all bridges and tight spots. Circ. and cond. hole. (MW-9.8 / Vis-80+)

RUNNING 9-5/8 in. CASING

Hold pre-job safety meeting regarding casing running operations and equipment, discuss shoe and collar locations as well as centralizer placement with rig and casing crews. All casing running equipment is to be visually inspected for adequate capacity as well as condition. Review wellhead installation procedures with casing and rig crews. RU casing running equipment and run casing as follows:

- ◆ Float shoe (Baker Lock on threads)
- ◆ 1 jt - 9-5/8" 36# K-55 LT&C (Thread-Lok Connections)
- ◆ Float Collar (Thread-Lok Connections)
- ◆ 9-5/8" 36# K-55 LT&C to Surface

Make-up landing joint to casing. Ensure all lock downs are backed out in wellhead and prepare to land casing.

Use swage to fill 9-5/8" casing.

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WPX Energy Co.**

All casing is to be drifted to API specs prior to running. Threads are to be visually inspected by drilling supervisor.

Monitor make-up torque and check periodically.

Centralizers are to be placed as follows: **Actual number and placement of Centralizers will be determined when 12-1/4" hole is at TD.**

- ◆ 1 – Turbolizer centralizer on bottom 3 joints
- ◆ 1 – Bowspring centralizer on every 4th joint from float collar to 2,000' MD
- ◆ 1 – Turbolizer centralizer at 2,700', 2,500', 2,300', 2,000', 1,500', and 1,000'

- ◆ **Notify BLM Casing/Cement hotline and New Mexico Oil Conservation District 24 hrs prior to running and cementing casing.**

Be prepared to wash casing to landing point with Rig Pumps. Circulate a minimum of 1-1/2 casing volumes with rig pumps prior to cementing well.

Hold pre-job safety/procedure meeting prior to RU Halliburton. Cement 9-5/8" casing as follows:

INTERMEDIATE: 20 bbl (112 cu-ft) Mud Flush III spacer + Lead: 1190 sx Foamed 50/50 Poz Cement. 13.0 ppg (Yield: 1.43 cu-ft/ sk. / Vol: 1701 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 (1,874 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: (1946 cu-ft/1390 sx/347 bbls).**

The above cement volumes are based on a TOC @ surface with 40% excess applied to open hole volumes. Actual volumes will be based on caliper log plus 25% excess. **Total Volume = To be determined.**

Release top plug and displace with WBM using the cement pumps. Monitor and note returns in daily reports. Bump plug with 500 psi over final circulating pressure. Do not over-displace more than 1/2 the volume of the shoe joint. Release pressure and ensure floats are holding. RD cementing equipment from rig floor. **Immediately contact engineering if cement is not circulated to surface**

PILOT / CORE HOLE: 8-3/4 in.

1. PU 8-3/4" PDC bit and drill out of 9-5/8" casing. Drill to top core point +/- 5,467 ft. Do not drill at a ROP faster than 40 ft/hr once bit is deeper than 5,000 ft. This will allow Mud Loggers to pick the exact core points. Two 90 ft. cores will be cut.
2. Once Core points are selected, circ and condition mud and sweep hole until clean. TOOH and pick up CORPRO coring BHA and cut desired core intervals. Lay down cores and coring BHA, PU 8-3/4" drilling BHA. TIH and ream thru 7-7/8" cored intervals and finish drilling Pilot Hole to TD (6,050 ft) at the faster ROP. Circ and Condition hole until cuttings at surface are minimal and small in size. TOOH at slower rate, 60 ft/min.
3. RU SLB Logging and run Open Hole Logs. RD SLB Logging.
4. Hold pre-job safety meeting regarding Whipstock running and setting operations.
5. PU SLB / Smith 9-5/8" OH Whipstock and UBHO Sub. Run 200ft. 2-7/8 in. Tubing Tail Pipe. Orange peel btm jt. below Whip (not recoverable). RIH and position Whip at 5,059 ft. (KOP). RU WL with Gyro orient Whip to 270.93 deg Az. RD Wireline and LD Gyro. RU Halliburton, pressure up on DP, set anchors on Whip. RU WL with Gyro, RIH and ck orientation of Whip toolface.

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Drilling Program (Draft)
WPX Energy Co.**

Shear off Whip. RU and pump cement from end of tailpipe ~ 5,273 ft. to +/- 100 ft. above top of Whip.

PILOT HOLE PLUG BACK: Will set Open Hole Whipstock and cement in place with – Pumping about 200' of cement below and about 100' of cement above Whipstock. Use 75 sks of Premium G cement, 15.8#/Gal, (Yield of 1.15 cu ft/sack, and Vol of 15.3 Bbls (86.25 cu ft).

6. TOOH with 5 stands of DP. circ. and cond. Shale-Drill (WBM) Mud. TOOH, LD Whip setting tools, PU Directional BHA and UBHO sub. Target Azimuth: (270.98 deg). RIH to TOC +/- 4,950 ft. dress cmt plug to ~10 ft from top of Whip.

Interval Mud Properties:

Interval (Feet)	Mud Weight (ppg)	Funnel Vis. (sec/qt)	Plastic Vis. (cp)	Yield Point (lb/100ft ²)	Fluid Loss (ml/30 min)	HTHP Fluid Loss (ml/30 min)	Total Solids (%)
TOC – 7" csg .pt. '	9.6-9.8	60-70	18-22	14-18	N/A	<7	< 6

7. TIH with directional assembly to TOC, RU side-entry sub and wireline, RIH w/ Gyro, Sync w/ MWD, orient high side of motor with Whip. Slide Drill off of Whip using Gyro for guide when Whip magnetics interfere with MWD. When MWD starts giving accurate surveys, Pick up and remove Side-entry sub and RD WL and Gyro.

Drill Curve as per Directional Plan to TD: 5,973 ft. (MD), 5,529 ft. (TVD).

8. Circ and Sweep Hole clean. TOOH and LD Directional Tools. PU Bit, TIH w/ slick BHA, Circ and Sweep hole clean. TOOH, BHA and DP not needed to run 7" Liner. TOL @ ~ 4,430 ft.

RUNNING 7 in. LINER

Hold pre-job safety meeting regarding casing running operations and equipment, discuss shoe and collar locations as well as centralizer placement with rig and casing crews. All casing running equipment is to be visually inspected for adequate capacity as well as condition. RU casing running equipment and run casing as follows:

- ◆ Float shoe (Baker Lock on threads)
- ◆ 1 jt – 7" 23# K-55 LT&C (Thread-Lok Connections)
- ◆ Landing Collar (Thread-Lok Connections)
- ◆ 7" 23# K-55 LT&C to ~ 4,430 ft.

All casing is to be drifted to API specs prior to running. Threads are to be visually inspected by drilling supervisor.

Monitor make-up torque and check periodically.

Centralizers are to be placed as follows: **Actual number and placement of Centralizers will be determined when 8-3/4" hole is at TD.**

- ◆ 1 – Bowspring centralizer on bottom 3 joints (3 centralizers)
- ◆ 1 – Bowspring centralizer on every 3rd joint from Landing collar to last joint of casing below Liner Hanger.

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WPX Energy Co.**

- ♦ **Notify BLM Casing/Cement hotline and New Mexico Oil Conservation District 24 hrs prior to running and cementing casing.**

Be prepared to wash casing to landing point with Rig Pumps. Circulate a minimum of 1-1/2 casing volumes with rig pumps prior to cementing well.

Set Liner Hanger and release from it to the Cementing position.

Hold pre-job safety/procedure meeting prior to RU Halliburton. RU cementing company while circulating. Cement 7" Liner as follows:

Drilling Liner: 20 bbl (112 cu-ft) Mud Flush III spacer + 350 Sacks 50/50 Poz Premium Cement. 13.5ppg (Yield: 1.30 cu-ft/ sk. / Vol: 455 cu-ft, / 81bbl) + 2% Bentonite Gel + 0.1% CRF3 + 5# KolSeal. Fresh water Displacement (688cu-ft). Total Volume: (455 cu-ft/350 sx/81 bbls)

Release top plug and displace with WBM using the cement pumps. Monitor and note returns in daily reports. Bump plug with 500 psi over final circulating pressure. Do not over-displace more than 1/2 the volume of the shoe joint. Release pressure and ensure floats are holding. Sting out of Liner and circulate out excess cement. TOOH with DP and Liner setting assembly. TOOH LDDP.

PRODUCTION HOLE: 6-1/8 in.

1. Change Rams in BOP's to 3-1/2 in. RU testers and test pipe rams and 7" casing to 250 psi low for 5 minutes and 1500 psi high for 10 minutes. Chart test results.
2. Displace Shale-Drill mud OOH, Clean Mud pits and fill with Invermul OBM.
3. PU 6-1/8" Bit and BHA, TIH, Drill out float equipment and 15 ft of new formation. Circ. Hole clean, TOOH for iPZIG Directional BHA.
4. PU PDC bit and iPZIG Directional BHA, TIH. Drill Lateral as per Directional Plan to TD: 10,473 FT. (MD).

Interval Mud Properties:

Interval (Feet)	Mud Weight (ppg)	Funnel Vis. (sec/qt)	Plastic Vis. (cp)	Yield Point (lb/100ft ²)	Fluid Loss (ml/30 min)	HTHP Fluid Loss (ml/30 min)	Total Solids (%)
7" csg-TD	8.4-8.6	60-70	15-20	12-14	N/A	<7	< 6

5. Circ. and Cond. hole with sweeps, Short trip into 7 in. casing. TIH to TD and circ hole until clean at Shale Shaker. TOOH LDDP.

RUNNING 4-1/2" in. CASING

**CHACO 2306-19M #191-H
Drilling Program (Draft)
WPX Energy Co.**

1. Hold pre-job safety meeting regarding casing running operations and equipment, discuss shoe and collar locations as well as centralizer placement with rig and casing crews. Review wellhead installation procedures with casing and rig crews. RU casing running equipment and run casing as follows:
2. All casing is to be drifted to API specs prior to running. Threads are to be visually inspected by drilling supervisor.
 - ◆ Float shoe (Baker Lock threads)
 - ◆ 1 jt – 4-1/2" 11.6# N-80 LT&C (Thread-Lok Connections)
 - ◆ Float Collar (Thread-Lok Connections)
 - ◆ 4-1/2" 11.6# N-80 LT&C to Surface

Use swage to fill 4-1/2" casing.

3. Monitor make-up torque and check periodically as needed. Centralizers are to be placed as follows: **ACTUAL CENTRALIZER Program will be determined when well reaches TD.**
 - ◆ 1 – Bowspring centralizer on bottom 3 joints (3 centralizers)
 - ◆ 1 – Bowspring centralizer on every 3rd joint from float collar to 2,500' MD

◆ *Notify BLM Casing/Cement hotline and New Mexico Oil Conservation District 24 hrs prior to running and cementing casing.*

Circulate a minimum of 1-1/2 casing volumes with rig pumps prior to cementing well.

4. Hold pre-job safety/procedure meeting prior to RU Halliburton. RU cementing company while circulating. Cement 7" casing as follows:

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. / 12.7 bbls) STAGE 5: Foamed Lead Cement: 13.0 ppg (450 sacks, 114 bbl / 644 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. / 34.45 bbls) STAGE 7: Displace w/ 162bbl Fr Water. Mix w/ +/- 75,000 SCF Nitrogen. Est. TOC +/- 4,137 ft. Total Volume: (908 cu-ft/660 sx/162 bbls).

5. The above cement volumes are based on a TOC ~ 4137 ft. with 25% excess applied to open hole volumes. **Actual Total Volume to be determined.**
6. Release top plug and displace with 2% KCL Water using the cement pumps. Monitor and note returns in daily reports. Bump plug with 500 psi over final circulating pressure. Do not over-displace more than 1/2 the volume of the shoe joint. Release pressure and ensure floats are holding. RD cementing equipment from rig floor. **Immediately contact engineering if cement is not circulated to surface**

**CHACO 2306-19M #191-H
Drilling Program (Draft)
WPX Energy Co.**

WPX Energy	Environmental	Myke Lane	(505)634-4219	(505)330-3198	Myke.Lane@Williams.com
WPX Energy	Procurement	Tommy Darrell	(505)634-4237	(505)947-1174	Tommy.Darrell@Williams.com
WPX Energy	Procurement	Ron Cochran	(505)-634-4231	(505)320-7065	Ron.Cochran@Williams.com
WPX Energy	Contracts/MSA's	Helen Manzanares	(505)634-4224		Helen.Manzanares@Williams.com
WPX Energy	Regulatory	Larry Higgins	(505)634-4208	(505)320-4314	Larry.Higgins@Williams.com
WPX Energy	Production Superintendent	Randy VanDenBerg	(505)634-4201	(970)759-0501	Randy.VanDenBerg@Williams.com
WPX Energy	SJB Management	Ken McQueen	(918)573-2889	(918)232-3081	Ken.McQueen@Williams.com
Antelope Sales and Service	Wellheads (owner)	Brian Wimbish	(505)327-0918	(505)860-7999	wimbishbriang@qwest.net
Antelope Sales and Service	Wellheads (service coordinator)	Gabe Salazar	(505)327-0918	(505)860-0438	
SSS Trucking	Fresh Water	Mitch Wagner	(505)334-6193		
Halliburton	Alliance Engineer	Mitch Kabrick	(918)581-5208	(918)231-9390	mitch.kabrick@Halliburton.com
Halliburton	Mud Technical Professional	Matt Jensen		(505)486-3049	Matt.Jensen@Halliburton.com
Halliburton	Baroid Warehouse Engineer	Gary Przekurat	(505)325-1896	(505)320-8410	Gary.Przekurat2@Halliburton.com
Halliburton	Cement Co-ordinator	Justin Kiddoo	(505)324-3505	(505)330-3081	Justin.Kiddoo@Halliburton.com
Pathfinder	Directional Coordinator	Thomas Billings	(505)324-0357	(505)801-9065	Tbillings@Pathfinder.slb.com
Weatherford	Wireline Logging	Bill Rodgers	(303)824-6558	(720)635-6016	Bill.Rodgers@Weatherford.com
BLM	Cement Hotline		(505)599-8907		
NMOCD	Kelly Roberts		(505)334-6178 x16		
Fraleys	Fuel		(505)327-7474		
Knight Oil Tools	Rental Tools	Ben Reese	(505)632-6666	(505)330-0347	breesee@knightoiltools.com
Knight Oil Tools	Fishing Tools	Tim Torrez	(505)632-6666	(505)330-8092	
Choquette Well Logging	Mud Logging	Andy Choquette			
Smith International	Drill Bits (Denver)	Terry Kerr	(303)623-9185	(303)887-6807	tkerr@smith.com
Smith International	Drill Bits (Farmington)	Jacob Waitman	(505)326-2679	(505)325-0942	jwaitman@smith.com
K&C RV	Potable Water and Sewer		(505)334-4088		
High Desert Industrial	Welding	Steve Rowe	(505)325-2690	(505)320-6616	s.rowe@highdesertoilfield.com
Adobe	Location Construction	Johnny Stinson	(505)632-1486	(505)320-6076	johnny@adobecontractorsinc.com
Basin Wireline	Gyro and Plug setting		(505)327-5244		

Invoice Processing/Accounts Payable Address:

Invoices are to have the following information:

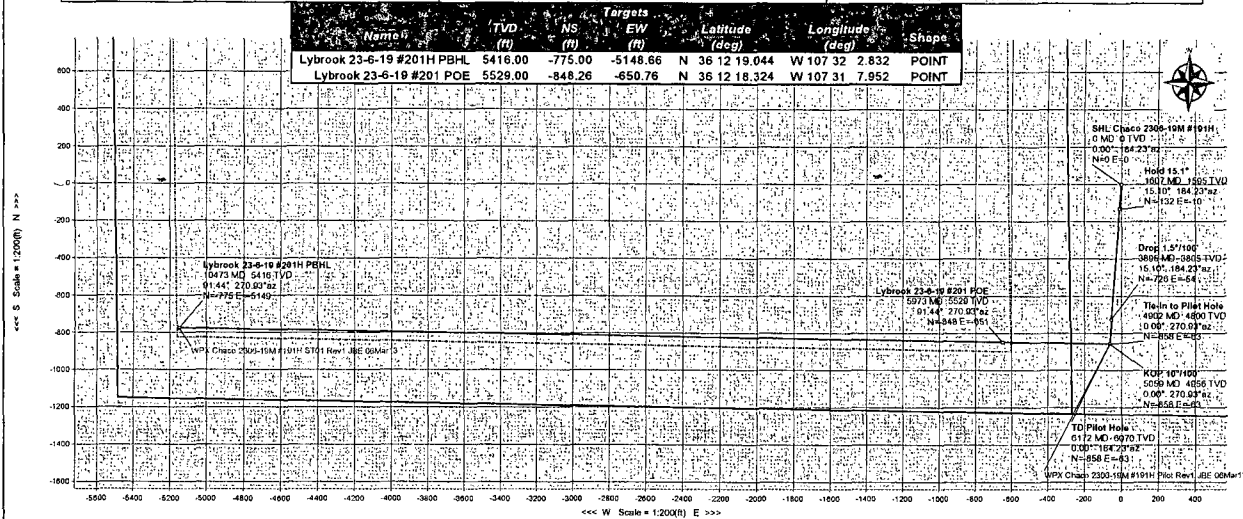
Chaco 2306-19M #191-H

AFE# WT33806

Routing Code: NXEKK334711

KB: 14'

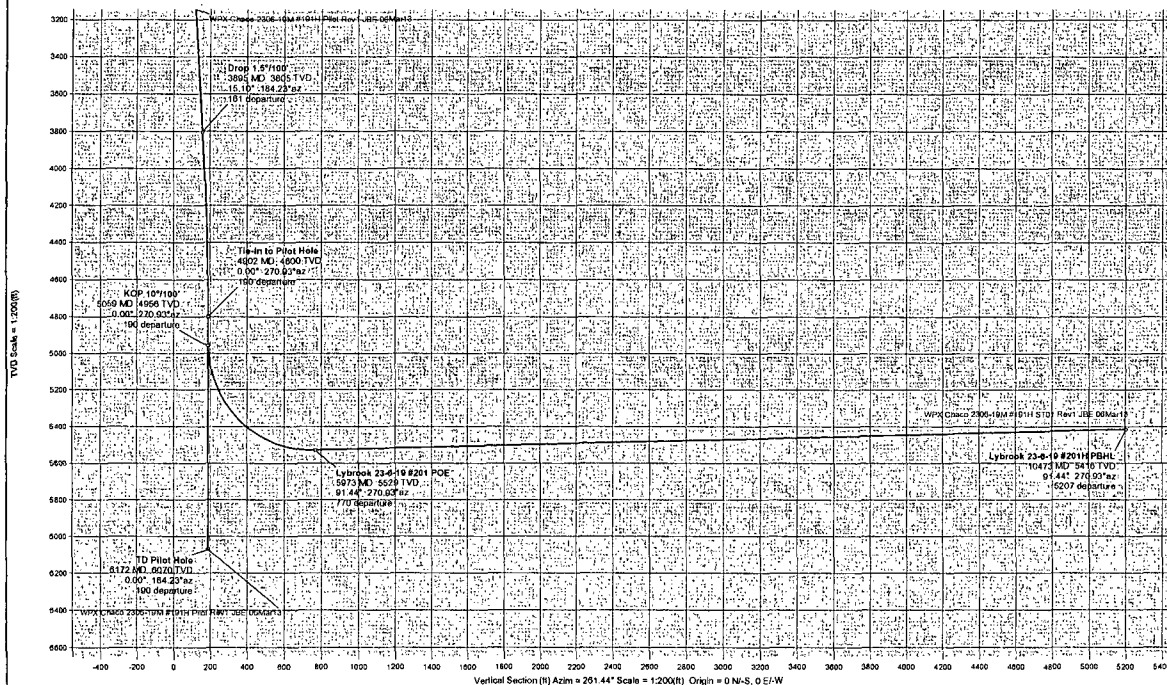
WELL	Chaco 2306-19M #191H	FIELD	NM Sandoval County NAD27	SURVEY	AWS #980
Magnetic Parameters	Dip: 62.96° Mag Dec: -9.66°	Date: March 06, 2013 By: JBE	Surface Location Lat: N 36 12 26.71° Long: W 107 31 01.2°	NAAD27 to NAD83 NAD83 to NAD27 Grid Conv: -0.748°	Remarks Site: Chaco 2306-19M #191H Plan: ST01 Rev1 JBE 06Mar13 TVD Ref: RKN70201 above MSL Key Point: March 06, 2013



Legend
Lybrook 23-6-19 #201H PBHL
Sec 24 T23N R07W 230 HL
Sec 19 T23N R06W
Sec 24 T23N R07W
Lybrook 23-6-19 #201 POE
WPX Chaco 2306-19M #191H ST01 Rev1 JBE 06Mar13
WPX Chaco 2306-19M #191H Pilot Rev1 JBE 06Mar13



True North
Tot Corr (M->T) 9.5663°
Mag Dec (9.566°)
Grid Conv (-0.748°)



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 2306-19M #191H	0.00	0.00	184.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nudge 1.5°/100'	600.00	0.00	184.23	600.00	0.00	0.00	0.00	0.00	0.00	0.00
Hold 15.1°	1606.88	15.10	184.23	1595.26	29.22	-131.58	-9.74	131.94	184.23	1.50
Drop 1.5°/100'	3895.41	15.10	184.23	3804.74	161.26	-726.25	-53.76	728.24	184.23	0.00
Hold Vertical	4902.29	0.00	184.23	4800.00	190.48	-857.83	-63.50	860.18	184.23	1.50
Tie-In to Pilot Hole	4902.30	0.00	270.93	4800.01	190.48	-857.83	-63.50	860.18	184.23	0.00
KOP 10°/100'	5058.52	0.00	270.93	4956.23	190.48	-857.83	-63.50	860.18	184.23	0.00
Lybrook 23-6-19 #201 POE	5972.90	91.44	270.93	5529.00	769.77	-848.26	-650.76	1069.12	217.49	10.00
Lybrook 23-6-19 #201H PBHL	10472.81	91.44	270.93	5416.00	5206.66	-775.00	-5148.66	5206.66	261.44	0.00

Drawn By: Buck French
Date Created: March 06, 2013 04:07:32 PM
Checked By:
Approved By:
Approved Date:



WPX Chaco 2306-19M #191H ST01 Rev1 JBE 06Mar13 Proposal Geodetic Report (Non-Def Plan)



Report Date: March 06, 2013 - 04:20 PM
Client: WPX Energy
Field: NM Sandoval County NAD27
Structure / Slot: WPX Chaco 2306-19M #191H / Chaco 2306-19M #191H
Well: Chaco 2306-19M #191H
Borehole: ST01
UWI / API#: Unknown / Unknown
Survey Name: WPX Chaco 2306-19M #191H ST01 Rev1 JBE 06Mar13
Survey Date: March 06, 2013
Tort / AHD / DDI / ERD Ratio: 121.647 ° / 5948.012 ft / 6.137 / 1.075
Coordinate Reference System: NAD27 New Mexico State Plane, Central Zone, US Feet
Location Lat / Long: N 36° 12' 26.71200", W 107° 31' 0.01200"
Location Grid N/E Y/X: N 1897150.963 ftUS, E 126306.599 ftUS
CRS Grid Convergence Angle: -0.7483 °
Grid Scale Factor: 1.0000598

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 261.440 ° (True North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 7026.000 ft above MSL
Seabed / Ground Elevation: 7012.000 ft above MSL
Magnetic Declination: 9.566 °
Total Gravity Field Strength: 999.1594 mgn (9.8 based)
Total Magnetic Field Strength: 50225.214 nT
Magnetic Dip Angle: 62.987 °
Declination Date: March 06, 2013
Magnetic Declination Model: BGGM 2012
North Reference: True North
Grid Convergence Used: 0.0000 °
Total Corr Mag North->True North: 9.5663 °
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 ° ' ")
Tie-In to Pilot Hole	4902.30	0.00	270.93	4800.01	190.48	-857.83	-63.50	N/A	1896293.99	126231.90	N 36 12 18.23	W 107 31 0.79
KOP 10"/100'	5058.52	0.00	270.93	4956.23	190.48	-857.83	-63.50	0.00	1896293.99	126231.90	N 36 12 18.23	W 107 31 0.79
Lybrook 23-6-19	5972.90	91.44	270.93	5529.00	769.77	-848.26	-650.76	10.00	1896311.23	125644.78	N 36 12 18.32	W 107 31 7.95
Lybrook 23-6-19 #201H PBHL	10472.81	91.44	270.93	5416.00	5206.66	-775.00	-5148.66	0.00	1896443.24	121147.96	N 36 12 19.04	W 107 32 2.83

Survey Type: Non-Def Plan

Survey Error Model: ISCSWA 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	ST01 / WPX Chaco 2306-19M #191H ST01 Rev1 JBE 06Mar13
	14.000	10472.815	1/100.000	30.000	30.000	SLB_UNKNOWN	ST01 / WPX Chaco 2306-19M #191H ST01 Rev1 JBE 06Mar13



WPX Chaco 2306-19M #191H ST01 Rev1 JBE 06Mar13 Proposal Geodetic Report (Non-Def Plan)



Report Date: March 06, 2013 - 04:22 PM
 Client: WPX Energy
 Field: NM Sandoval County NAD27
 Structure / Slot: WPX Chaco 2306-19M #191H / Chaco 2306-19M #191H
 Well: Chaco 2306-19M #191H
 Borehole: ST01
 UWI / API#: Unknown / Unknown
 Survey Name: WPX Chaco 2306-19M #191H ST01 Rev1 JBE 06Mar13
 Survey Date: March 06, 2013
 Tort / AHD / DDI / ERD Ratio: 121.647° / 5946.012 ft / 6.137 / 1.075
 Coordinate Reference System: NAD27 New Mexico State Plane, Central Zone, US Feet
 Location Lat / Long: N 36° 12' 26.71200", W 107° 31' 0.01200"
 Location Grid N/E Y/X: N 1897150.963 RUS, E 126306.599 RUS
 CRS Grid Convergence Angle: -0.7483°
 Grid Scale Factor: 1.0000598

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 261.440° (True North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: RKB
 TVD Reference Elevation: 7026.000 ft above MSL
 Seabed / Ground Elevation: 7012.000 ft above MSL
 Magnetic Declination: 9.566°
 Total Gravity Field Strength: 999.1594 mgn (9.8 based)
 Total Magnetic Field Strength: 50225.214 nT
 Magnetic Dip Angle: 62.987°
 Declination Date: March 06, 2013
 Magnetic Declination Model: BGGM 2012
 North Reference: True North
 Grid Convergence Used: 0.0000°
 Total Corr Mag North->True North: 9.5663°
 Local Coord Referenced To: Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim True (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (RUS)	Easting (RUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL Chaco 2306-19M #191H	0.00	0.00	184.23	0.00	0.00	0.00	0.00	N/A	1897150.96	126306.60	N 36 12 26.71	W 107 31 0.01
	100.00	0.00	184.23	100.00	0.00	0.00	0.00	0.00	1897150.96	126306.60	N 36 12 26.71	W 107 31 0.01
	200.00	0.00	184.23	200.00	0.00	0.00	0.00	0.00	1897150.96	126306.60	N 36 12 26.71	W 107 31 0.01
	300.00	0.00	184.23	300.00	0.00	0.00	0.00	0.00	1897150.96	126306.60	N 36 12 26.71	W 107 31 0.01
	400.00	0.00	184.23	400.00	0.00	0.00	0.00	0.00	1897150.96	126306.60	N 36 12 26.71	W 107 31 0.01
	500.00	0.00	184.23	500.00	0.00	0.00	0.00	0.00	1897150.96	126306.60	N 36 12 26.71	W 107 31 0.01
Nudge 1.5"/100'	600.00	0.00	184.23	600.00	0.00	0.00	0.00	0.00	1897150.96	126306.60	N 36 12 26.71	W 107 31 0.01
	700.00	1.50	184.23	699.99	0.29	-1.31	-0.10	1.50	1897149.66	126306.49	N 36 12 26.70	W 107 31 0.01
	800.00	3.00	184.23	799.91	1.16	-5.22	-0.39	1.50	1897145.75	126306.14	N 36 12 26.66	W 107 31 0.02
	900.00	4.50	184.23	899.69	2.61	-11.74	-0.87	1.50	1897139.23	126305.58	N 36 12 26.60	W 107 31 0.02
	1000.00	6.00	184.23	999.27	4.63	-20.87	-1.54	1.50	1897130.12	126304.78	N 36 12 26.51	W 107 31 0.03
	1100.00	7.50	184.23	1098.57	7.24	-32.59	-2.41	1.50	1897118.41	126303.76	N 36 12 26.39	W 107 31 0.04
	1200.00	9.00	184.23	1197.54	10.41	-46.90	-3.47	1.50	1897104.11	126302.52	N 36 12 26.25	W 107 31 0.05
	1300.00	10.50	184.23	1296.09	14.16	-63.79	-4.72	1.50	1897087.24	126301.04	N 36 12 26.08	W 107 31 0.07
	1400.00	12.00	184.23	1394.16	18.48	-83.24	-6.16	1.50	1897067.80	126299.35	N 36 12 25.89	W 107 31 0.09
	1500.00	13.50	184.23	1491.70	23.37	-105.25	-7.79	1.50	1897045.82	126297.43	N 36 12 25.67	W 107 31 0.11
	1600.00	15.00	184.23	1588.62	28.82	-129.80	-9.61	1.50	1897021.29	126295.30	N 36 12 25.43	W 107 31 0.13
Hold 15.1°	1606.88	15.10	184.23	1595.26	29.22	-131.58	-9.74	1.50	1897019.51	126295.14	N 36 12 25.41	W 107 31 0.13
	1700.00	15.10	184.23	1685.16	34.59	-155.78	-11.53	0.00	1896995.34	126293.03	N 36 12 25.17	W 107 31 0.15
	1800.00	15.10	184.23	1781.71	40.36	-181.76	-13.45	0.00	1896969.38	126290.77	N 36 12 24.91	W 107 31 0.18
	1900.00	15.10	184.23	1878.25	46.13	-207.75	-15.38	0.00	1896943.42	126288.51	N 36 12 24.66	W 107 31 0.20
	2000.00	15.10	184.23	1974.80	51.90	-233.73	-17.30	0.00	1896917.46	126286.25	N 36 12 24.40	W 107 31 0.22
	2100.00	15.10	184.23	2071.35	57.67	-259.72	-19.23	0.00	1896891.50	126283.98	N 36 12 24.14	W 107 31 0.25
	2200.00	15.10	184.23	2167.89	63.44	-285.70	-21.15	0.00	1896865.55	126281.72	N 36 12 23.89	W 107 31 0.27
	2300.00	15.10	184.23	2264.44	69.21	-311.69	-23.07	0.00	1896839.59	126279.46	N 36 12 23.63	W 107 31 0.29
	2400.00	15.10	184.23	2360.98	74.98	-337.67	-25.00	0.00	1896813.63	126277.19	N 36 12 23.37	W 107 31 0.32
	2500.00	15.10	184.23	2457.53	80.75	-363.66	-26.92	0.00	1896787.67	126274.93	N 36 12 23.12	W 107 31 0.34
	2600.00	15.10	184.23	2554.08	86.52	-389.64	-28.84	0.00	1896761.71	126272.67	N 36 12 22.86	W 107 31 0.36
	2700.00	15.10	184.23	2650.62	92.29	-415.63	-30.77	0.00	1896735.75	126270.41	N 36 12 22.60	W 107 31 0.39

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 ° ' ")
	2800.00	15.10	184.23	2747.17	98.06	-441.61	-32.69	0.00	1896709.79	126268.14	N 36 12 22.34	W 107 31 0.41
	2900.00	15.10	184.23	2843.71	103.83	-467.59	-34.61	0.00	1896683.83	126265.88	N 36 12 22.09	W 107 31 0.43
	3000.00	15.10	184.23	2940.26	109.80	-493.58	-36.54	0.00	1896657.87	126263.62	N 36 12 21.83	W 107 31 0.46
	3100.00	15.10	184.23	3036.80	115.37	-519.56	-38.46	0.00	1896631.62	126261.35	N 36 12 21.57	W 107 31 0.48
	3200.00	15.10	184.23	3133.35	121.14	-545.55	-40.38	0.00	1896605.96	126259.09	N 36 12 21.32	W 107 31 0.50
	3300.00	15.10	184.23	3229.90	126.91	-571.53	-42.31	0.00	1896580.00	126256.83	N 36 12 21.06	W 107 31 0.53
	3400.00	15.10	184.23	3326.44	132.68	-597.52	-44.23	0.00	1896554.04	126254.57	N 36 12 20.80	W 107 31 0.55
	3500.00	15.10	184.23	3422.98	138.45	-623.50	-46.15	0.00	1896528.08	126252.30	N 36 12 20.55	W 107 31 0.58
	3600.00	15.10	184.23	3519.53	144.22	-649.49	-48.08	0.00	1896502.12	126250.04	N 36 12 20.29	W 107 31 0.60
	3700.00	15.10	184.23	3616.08	149.99	-675.47	-50.00	0.00	1896476.16	126247.78	N 36 12 20.03	W 107 31 0.62
	3800.00	15.10	184.23	3712.63	155.76	-701.46	-51.92	0.00	1896450.20	126245.51	N 36 12 19.78	W 107 31 0.65
Drop 1.5°/100'	3895.41	15.10	184.23	3804.74	161.26	-728.25	-53.76	0.00	1896425.44	126243.36	N 36 12 19.53	W 107 31 0.67
	3900.00	15.03	184.23	3809.17	161.53	-727.44	-53.85	1.50	1896424.25	126243.25	N 36 12 19.52	W 107 31 0.67
	4000.00	13.53	184.23	3906.08	166.99	-752.04	-55.67	1.50	1896399.67	126241.11	N 36 12 19.28	W 107 31 0.69
	4100.00	12.03	184.23	4003.60	171.89	-774.11	-57.30	1.50	1896377.62	126239.19	N 36 12 19.06	W 107 31 0.71
	4200.00	10.53	184.23	4101.66	176.22	-793.63	-58.75	1.50	1896358.13	126237.49	N 36 12 18.86	W 107 31 0.73
	4300.00	9.03	184.23	4200.20	179.98	-810.57	-60.00	1.50	1896341.20	126236.01	N 36 12 18.70	W 107 31 0.74
	4400.00	7.53	184.23	4299.16	183.18	-824.94	-61.07	1.50	1896326.84	126234.76	N 36 12 18.55	W 107 31 0.76
	4500.00	6.03	184.23	4398.45	185.79	-838.72	-61.94	1.50	1896315.07	126233.73	N 36 12 18.44	W 107 31 0.77
	4600.00	4.53	184.23	4498.02	187.83	-845.91	-62.62	1.50	1896305.90	126232.94	N 36 12 18.35	W 107 31 0.78
	4700.00	3.03	184.23	4597.80	189.29	-852.49	-63.10	1.50	1896296.32	126232.36	N 36 12 18.28	W 107 31 0.78
Hold Vertical Tie-In to Pilot Hole	4800.00	1.53	184.23	4697.72	190.17	-856.46	-63.40	1.50	1896295.35	126232.02	N 36 12 18.24	W 107 31 0.79
	4900.00	0.03	184.23	4797.71	190.48	-857.83	-63.50	1.50	1896293.99	126231.90	N 36 12 18.23	W 107 31 0.79
	4902.29	0.00	184.23	4800.00	190.48	-857.83	-63.50	1.50	1896293.99	126231.90	N 36 12 18.23	W 107 31 0.79
	4902.30	0.00	270.93	4800.01	190.48	-857.83	-63.50	0.00	1896293.99	126231.90	N 36 12 18.23	W 107 31 0.79
	5000.00	0.00	270.93	4897.71	190.48	-857.83	-63.50	0.00	1896293.99	126231.90	N 36 12 18.23	W 107 31 0.79
	5058.52	0.00	270.93	4956.23	190.48	-857.83	-63.50	0.00	1896293.99	126231.90	N 36 12 18.23	W 107 31 0.79
	5100.00	1.15	270.93	4967.67	191.96	-857.81	-65.00	10.00	1896294.03	126230.40	N 36 12 18.23	W 107 31 0.81
	5200.00	14.15	270.93	5066.28	207.62	-857.55	-80.86	10.00	1896284.50	126214.52	N 36 12 18.23	W 107 31 1.00
	5300.00	24.15	270.93	5190.62	239.93	-857.01	-113.63	10.00	1896295.46	126181.78	N 36 12 18.24	W 107 31 1.40
	5400.00	34.15	270.93	5277.85	287.91	-856.22	-162.27	10.00	1896296.89	126133.15	N 36 12 18.24	W 107 31 1.99
KOP 10°/100'	5500.00	44.15	270.93	5355.30	350.10	-855.19	-225.31	10.00	1896298.74	126070.12	N 36 12 18.26	W 107 31 2.76
	5600.00	54.15	270.93	5420.63	424.61	-853.98	-300.85	10.00	1896300.95	125994.60	N 36 12 18.27	W 107 31 3.68
	5700.00	64.15	270.93	5471.85	509.17	-852.56	-386.58	10.00	1896303.47	125908.90	N 36 12 18.28	W 107 31 4.73
	5800.00	74.15	270.93	5507.39	601.23	-851.04	-479.90	10.00	1896306.21	125815.60	N 36 12 18.30	W 107 31 5.87
	5900.00	84.15	270.93	5526.20	687.97	-849.44	-577.97	10.00	1896309.09	125717.55	N 36 12 18.31	W 107 31 7.06
	5972.90	91.44	270.93	5529.00	769.77	-848.26	-650.76	10.00	1896311.23	125644.78	N 36 12 18.32	W 107 31 7.95
	6000.00	91.44	270.93	5528.32	796.49	-847.82	-677.85	0.00	1896312.02	125617.70	N 36 12 18.33	W 107 31 8.28
	6100.00	91.44	270.93	5525.81	905.09	-846.19	-777.80	0.00	1896314.96	125517.76	N 36 12 18.34	W 107 31 9.50
	6200.00	91.44	270.93	5523.30	993.69	-844.56	-877.76	0.00	1896317.89	125417.83	N 36 12 18.36	W 107 31 10.72
	6300.00	91.44	270.93	5520.79	1092.29	-842.93	-977.71	0.00	1896320.83	125317.90	N 36 12 18.38	W 107 31 11.94
Lybrook 23-6-19 #201 POE	6400.00	91.44	270.93	5518.27	1190.89	-841.30	-1077.67	0.00	1896323.76	125217.97	N 36 12 18.39	W 107 31 13.16
	6500.00	91.44	270.93	5515.76	1289.49	-839.67	-1177.62	0.00	1896326.70	125118.04	N 36 12 18.41	W 107 31 14.38
	6600.00	91.44	270.93	5513.25	1388.09	-838.04	-1277.58	0.00	1896329.63	125018.11	N 36 12 18.42	W 107 31 15.60
	6700.00	91.44	270.93	5510.74	1486.69	-836.41	-1377.53	0.00	1896332.57	124918.18	N 36 12 18.44	W 107 31 16.82
	6800.00	91.44	270.93	5508.23	1585.29	-834.78	-1477.49	0.00	1896335.50	124818.25	N 36 12 18.46	W 107 31 18.04
	6900.00	91.44	270.93	5505.72	1683.89	-833.15	-1577.45	0.00	1896338.44	124718.32	N 36 12 18.47	W 107 31 19.26
	7000.00	91.44	270.93	5503.21	1782.48	-831.52	-1677.40	0.00	1896341.37	124618.39	N 36 12 18.49	W 107 31 20.48
	7100.00	91.44	270.93	5500.70	1881.08	-829.90	-1777.36	0.00	1896344.30	124518.45	N 36 12 18.50	W 107 31 21.70
	7200.00	91.44	270.93	5498.19	1979.68	-828.27	-1877.31	0.00	1896347.24	124418.52	N 36 12 18.52	W 107 31 22.92
	7300.00	91.44	270.93	5495.67	2078.28	-826.64	-1977.27	0.00	1896350.17	124318.59	N 36 12 18.54	W 107 31 24.14
	7400.00	91.44	270.93	5493.16	2176.88	-825.01	-2077.22	0.00	1896353.11	124218.66	N 36 12 18.55	W 107 31 25.36
	7500.00	91.44	270.93	5490.65	2275.48	-823.38	-2177.18	0.00	1896356.04	124118.73	N 36 12 18.57	W 107 31 26.58
	7600.00	91.44	270.93	5488.14	2374.08	-821.75	-2277.13	0.00	1896358.97	124018.80	N 36 12 18.58	W 107 31 27.80
	7700.00	91.44	270.93	5485.63	2472.68	-820.12	-2377.09	0.00	1896361.91	123918.87	N 36 12 18.60	W 107 31 29.02
	7800.00	91.44	270.93	5483.12	2571.28	-818.50	-2477.04	0.00	1896364.84	123818.93	N 36 12 18.62	W 107 31 30.24
	7900.00	91.44	270.93	5480.61	2669.88	-816.87	-2577.00	0.00	1896367.78	123719.00	N 36 12 18.63	W 107 31 31.45
	8000.00	91.44	270.93	5478.10	2768.48	-815.24	-2676.95	0.00	1896370.71	123619.07	N 36 12 18.65	W 107 31 32.67
	8100.00	91.44	270.93	5475.59	2867.08	-813.61	-2776.91	0.00	1896373.64	123519.14	N 36 12 18.66	W 107 31 33.89

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	91.44	270.93	5473.07	2965.88	-811.98	-2876.86	0.00	1896376.58	123419.21	N 36 12 18.68	W 107 31 35.11
	8300.00	91.44	270.93	5470.58	3064.28	-810.36	-2976.82	0.00	1896379.51	123319.28	N 36 12 18.70	W 107 31 36.33
	8400.00	91.44	270.93	5468.05	3162.88	-808.73	-3076.77	0.00	1896382.44	123219.35	N 36 12 18.71	W 107 31 37.55
	8500.00	91.44	270.93	5465.54	3261.47	-807.10	-3176.73	0.00	1896385.38	123119.42	N 36 12 18.73	W 107 31 38.77
	8600.00	91.44	270.93	5463.03	3360.07	-805.47	-3276.68	0.00	1896388.31	123019.49	N 36 12 18.74	W 107 31 39.99
	8700.00	91.44	270.93	5460.52	3458.67	-803.84	-3376.64	0.00	1896391.24	122919.55	N 36 12 18.76	W 107 31 41.21
	8800.00	91.44	270.93	5458.01	3557.27	-802.22	-3476.59	0.00	1896394.18	122819.62	N 36 12 18.78	W 107 31 42.43
	8900.00	91.44	270.93	5455.50	3655.87	-800.59	-3576.55	0.00	1896397.11	122719.69	N 36 12 18.79	W 107 31 43.65
	9000.00	91.44	270.93	5452.98	3754.47	-798.96	-3676.50	0.00	1896400.04	122619.76	N 36 12 18.81	W 107 31 44.87
	9100.00	91.44	270.93	5450.47	3853.07	-797.33	-3776.46	0.00	1896402.98	122519.83	N 36 12 18.82	W 107 31 46.09
	9200.00	91.44	270.93	5447.96	3951.67	-795.71	-3876.42	0.00	1896405.91	122419.90	N 36 12 18.84	W 107 31 47.31
	9300.00	91.44	270.93	5445.45	4050.27	-794.08	-3976.37	0.00	1896408.84	122319.97	N 36 12 18.86	W 107 31 48.53
	9400.00	91.44	270.93	5442.94	4148.87	-792.45	-4076.33	0.00	1896411.78	122220.04	N 36 12 18.87	W 107 31 49.75
	9500.00	91.44	270.93	5440.43	4247.47	-790.82	-4176.28	0.00	1896414.71	122120.10	N 36 12 18.89	W 107 31 50.97
	9600.00	91.44	270.93	5437.92	4346.07	-789.20	-4276.24	0.00	1896417.64	122020.17	N 36 12 18.90	W 107 31 52.19
	9700.00	91.44	270.93	5435.41	4444.67	-787.57	-4376.19	0.00	1896420.57	121920.24	N 36 12 18.92	W 107 31 53.41
	9800.00	91.44	270.93	5432.90	4543.27	-785.94	-4476.15	0.00	1896423.51	121820.31	N 36 12 18.94	W 107 31 54.63
	9900.00	91.44	270.93	5430.38	4641.87	-784.31	-4576.10	0.00	1896426.44	121720.38	N 36 12 18.95	W 107 31 55.85
	10000.00	91.44	270.93	5427.87	4740.47	-782.69	-4676.06	0.00	1896429.37	121620.45	N 36 12 18.97	W 107 31 57.07
	10100.00	91.44	270.93	5425.36	4839.07	-781.06	-4776.01	0.00	1896432.30	121520.52	N 36 12 18.98	W 107 31 58.29
	10200.00	91.44	270.93	5422.85	4937.67	-779.43	-4875.97	0.00	1896435.24	121420.59	N 36 12 19.00	W 107 31 59.50
	10300.00	91.44	270.93	5420.34	5036.27	-777.81	-4975.92	0.00	1896438.17	121320.65	N 36 12 19.02	W 107 32 0.72
	10400.00	91.44	270.93	5417.83	5134.87	-776.18	-5075.88	0.00	1896441.10	121220.72	N 36 12 19.03	W 107 32 1.94
Lybrook 23-6-19 #201H PBHL	10472.81	91.44	270.93	5416.00	5206.66	-775.00	-5148.66	0.00	1896443.24	121147.96	N 36 12 19.04	W 107 32 2.83

Survey Type: Non-Def Plan

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7855 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	ST01 / WPX Chaco 2306-19M
	14.000	10472.815	1/100.000	30.000	30.000	SLB_UNKNOWN	#191H ST01 Rev1 JBE 06Mar13
							ST01 / WPX Chaco 2306-19M
							#191H ST01 Rev1 JBE 06Mar13