

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
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-101
Revised July 18, 2013

☐ AMENDED REPORT

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 30-045-35605
⁴ Property Code 313755	⁵ Property Name Chaco 2408-33D	⁶ Well No. 112H

⁷ Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
D	33	24N	8W		1276	NORTH	405	WEST	SAN JUAN

⁸ Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
E	32	24N	8W		1530	NORTH	230	WEST	SAN JUAN

⁹ Pool Information

RCUD SEP 26 '14

Pool Name Nageezi Gallup	Pool Code 47540
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OIL CON. DIV.
DIST. 3

Additional Well Information

¹¹ Work Type N	¹² Well Type O	¹³ Cable/Rotary R	¹⁴ Lease Type S	¹⁵ Ground Level Elevation 7020'
¹⁶ Multiple NO	¹⁷ Proposed Depth 10,768' MD/5,402' TVD	¹⁸ Formation Gallup	¹⁹ Contractor AWS	²⁰ Spud Date 11/1/2014
Depth to Ground water >120'		Distance from nearest fresh water well >1000'		Distance to nearest surface water >1000'

☒ We will be using a closed-loop system in lieu of lined pits

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'	190	Surface
K-55	8-3/4"	7"	23#	6063'	1050	Surface
N-80	6-1/8"	4-1/2"	11.6#	5,916' - 10,768'	310	5,916'

Casing/Cement Program: Additional Comments

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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) NMAC ☐ and/or 19.15.14.9 (B) NMAC ☐ if applicable.

Signature: *Larry Higgins* Hold C104

Printed name: Larry Higgins for Directional Survey and "As Drilled" plat

Title: Regulatory Specialist

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

Date: 9/25/14

Phone: 333-1808

OIL CONSERVATION DIVISION

Approved By:

Charles Lewis 10-3-2014

Title: SUPERVISOR DISTRICT # 3

Approved Date: OCT 03 2014

Expiration Date: OCT 03 2016

Conditions of Approval Attached

LAST PAGE *

District II
811 S. First Street, Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

Submit one copy to
Appropriate District Office

District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

OIL CONSERVATION DIVISION

1220 South St. Francis Drive
Santa Fe, NM 87505

☐ AMENDED REPORT

District IV
1220 S. St. Francis Drive, Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-045-35605	*Pool Code 47540	*Pool Name NAGEEZI GALLUP
*Property Code 313755	*Property Name CHACO 2408-33D	*Well Number 112H
*GRID No. 120782	*Operator Name WPX ENERGY PRODUCTION, LLC	*Elevation 7020'

¹⁰ Surface Location

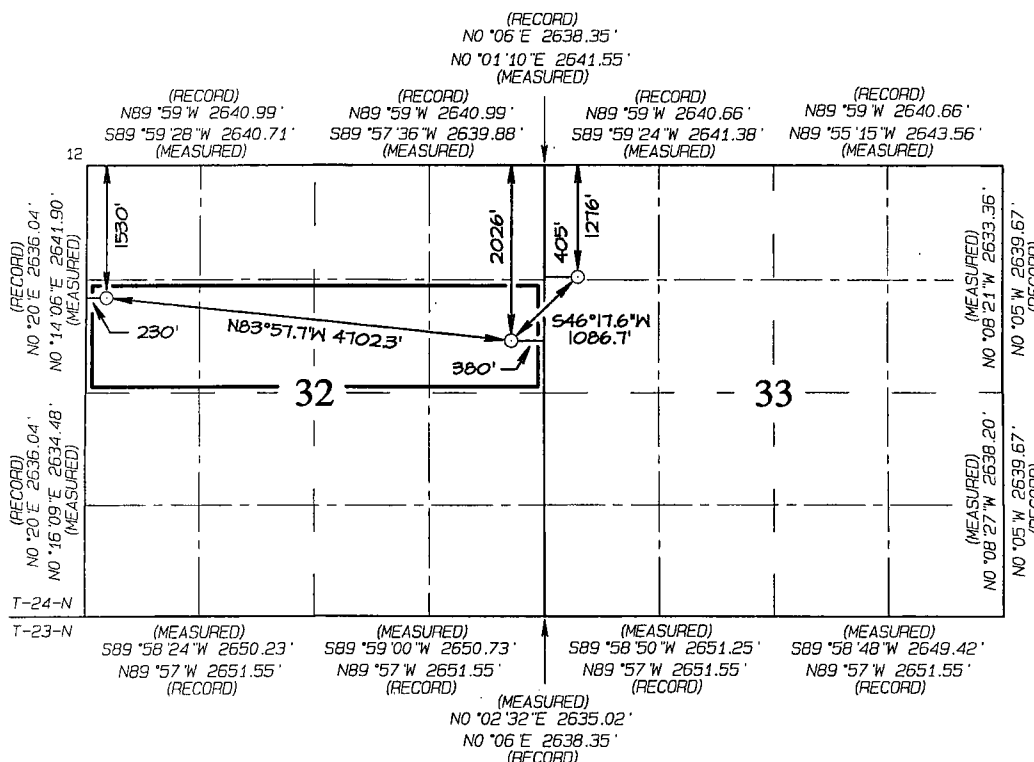
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the North/South line	Feet from the East/West line	County
D	33	24N	8W		1276 NORTH	405 WEST	SAN JUAN

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
E	32	24N	8W		1530	NORTH	230	WEST	SAN JUAN
¹² Dedicated Acres					¹³ Joint or Infill		¹⁴ Consolidation Code		¹⁵ Order No.
160.0 Acres S/2 N/2 - Section 32									ROUD SEP 26 '14 OIL CONS. DIV.

051. 2

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



END-OF-LATERAL
1530' FNL 230' FWL
SECTION 32, T24N, R8W
LAT: 36.273883°N
LONG: 107.712739°W
DATUM: NAD1927

LAT: 36.273896 °N
LONG: 107.713351 °W
DATUM: NAD1983

POINT-OF-ENTRY
2026' FNL 380' FEL
SECTION 32, T24N, R8W
LAT: 36.272507°N
LONG: 107.696877°W
DATUM: NAD1927

LAT: 36.272520 °N
LONG: 107.697489 °W
DATUM: NAD1983

SURFACE LOCATION
1276' FNL 405' FWL
SECTION 33, T24N, R8W
LAT: 36.274567°N
LONG: 107.694209°W
DATUM: NAD1927

LAT: 36.274579°N
LONG: 107.694821°W
DATUM: NAD1983

17 OPERATOR CERTIFICATION

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

Larry Higgins 8/22/14
Signature Date

Larry Higgins

Printed Name

larry.higgins@wpxenergy.com

E-mail Address

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

Date Revised: SEPTEMBER 25, 2014
Survey Date: DECEMBER 12, 2013

Signature and Seal of Professional Surveyor



JASON C. EDWARDS

Certificate Number 15269

WPX ENERGY

Operations Plan

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

DATE: 9/8/14 **FIELD:** Nageezi Gallup

WELL NAME: Chaco 2408-33D #112H **SURFACE:** BLM

SH Location: NWNW Sec 33 -24N -08W **ELEVATION:** 7020' GR

BH Location: SWNW Sec 32 -24N -08W **MINERALS:** State
San Juan Co., NM

MEASURED DEPTH: 10,768' **LEASE #:** L029861

I. GEOLOGY: Surface formation – Nacimiento

A. FORMATION TOPS: (KB)

Name	MD	TVD	Name	MD	TVD
Ojo Alamo	1315	1307	Point Lookout	4324	4243
Kirtland	1516	1503	Mancos	4556	4471
Picture Cliffs	1886	1864	Kickoff Point	4981	4895
Lewis	2025	2000	Top Target	5608	5425
Chacra	2309	2277	Landing Point	6063	5561
Cliff House	3398	3339	Base Target	6063	5561
Menefee	3441	3381			
			TD	10768	5402

- B. **MUD LOGGING PROGRAM:** Mudlogger on location from surface csg to TD.
- C. **LOGGING PROGRAM:** LWD GR from surface casing to TD.
- D. **NATURAL GAUGES:** Gauge any noticeable increases in gas flow. Record all gauges in Tour book and on morning reports.

II. DRILLING

- A. **MUD PROGRAM:** LSND mud (WBM) will be used to drill the 12-1/4" Surface hole, the 8 3/4" Directional Vertical hole, and the curve portion of the wellbore. A LSND (WBM) or (OBM) will be used to drill the lateral portion of well. Treat for lost circulation as necessary. Obtain 100% returns prior to cementing. Notify Engineering of any mud losses.
- B. **BOP TESTING:** While drill pipe is in use, the pipe rams and the blind rams will be function tested once each trip. The anticipated reservoir is expected to be less than 1300 psi, so the BOPE will be tested to **250 psi (Low) for 5 minutes and 1500 psi (High) for 10 minutes**. Pressure test surface casing to **600 psi for 30 minutes** and intermediate casing to **1500 psi for 30 minutes**. Utilize a BOPE Testing Unit with a recording chart and appropriate test plug for testing. The drum brakes will be inspected and tested each tour. **All tests and inspections will be recorded in the tour book as to time and results.**

NOTE: Vertical portion of the well (8-3/4 in.) will be directionally drilled as per attached Directional Plan to +/- 4,981' (MD) / 4,895' (TVD). Curve portion of wellbore will be drilled and landed at +/- 90 deg. at +/- 6,063' (MD) / 5,561' (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 +/- 10,768' (MD) / 5,402' (TVD). Will run 4-1/2 in. Production Liner from +/- 5,913 ft. to TD and cemented. Liner will be tied back to surface w / 4-1/2" Casing for stimulation / testing, then removed from the well.

III. MATERIALS

A. CASING PROGRAM:

<u>CASING TYPE</u>	<u>OH SIZE (IN)</u>	<u>DEPTH (MD) (FT)</u>	<u>CASING SIZE (IN)</u>	<u>WEIGHT(LB)</u>	<u>GRADE</u>
Surface	12.25"	400'+	9.625"	36#	J-55
Intermediate	8.75"	6,063'	7"	23#	K-55
Prod. Liner	6.125"	5,913' - 10,768'	4-1/2"	11.6#	N-80
Tie-Back String	N/A	Surf. - 5,913'	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 LINER: Run 4-1/2" Liner with cement nose guide Float Shoe + 2jts. of 4-1/2" casing + Landing Collar + 4-1/2" pup joint + (2) RSI (Sliding Sleeves) positioned inside the 330ft Hard line. Centralizer program will be determined by Wellbore condition and when Lateral is evaluated by Geoscientists and Reservoir Engineers. Set seals on Liner Hanger. Test TOL to 1500 psi for 15 minutes.
4. TIE-BACK CASING: None

C. CEMENTING:

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

1. SURFACE: 10 bbl Fr Water Spacer + 190 sx (222.3 cu.ft.) of "Premium Cement" + 2% Calcium Chloride Cement + 0.125# pps of Poly-E-Flake, 15.8 #/gal (1.17 cu ft./sk, Vol 39.58 Bbls.). The 100% excess should circulate cement to the surface. WOC 12 hours. Test csg to 600psi. Total Volume: (222.3 cu-ft/190 sx/39.6 Bbls). TOC at Surface.
2. INTERMEDIATE: 20 bbl (112 cu-ft) Mud Flush III spacer + Lead: 850 sx Foamed 50/50 Poz Cement. 13.0 ppg + 0.1% Halad 766 + 0.2% Versaset + 1.5% Chem-Foamer 760 (Yield :1.43 cu-ft/ sk. / Vol: 1216 cu-ft / 216.5 Bbls.) + TAIL: 100 sx 13.5 #/gal. + 0.2% Versaset + 0.15% HALAD-766 (Yield: 1.28 cu-ft / sk / Vol: 128 cu-ft / 22.8 Bbls.). + Fresh Water Displacement (1,362 cu-ft / +/- 242 Bbls) + 100 sx Top-Out Cement Premium: Yield: (1.17 cu-ft/ sk / (Vol: 117 cu-ft / 20.8 Bbls). Test Casing to 1500 PSI for 30 minutes. Total Cement Volume: (1050 sx / 1461 cu-ft / 260 bbls). Mix with +/- 84,000 SCF Nitrogen. TOC at surface.
3. PRODUCTION LINER: **STAGE 1:** 10 bbl (56 cu-ft) Fr Water Spacer. **STAGE 2:** 40 bbl 9.5 ppg (224.6 cu-ft) Tuned Spacer III + 0.5 gal/bbl Musol + 38.75 ppb Barite + 0.5 gal/bbl SEM-7. **STAGE 3:** 10 bbl Fr Water Spacer. **STAGE 4: Lead Cement:** 50 / 50 Poz Premium + 0.2% Versaset + 0.2% Halad -766, Yield 1.43 cu ft/sk, 13.0 ppg, (10 sx / 14.3 cu ft. / 2.5 bbls). **STAGE 5:** 200 sx. Foamed Lead Cement: 50 / 50 Poz Standard + 0.2% Versaset + 0.2% HALAD-766 + 1.5% Chem-Foamer 760. Yield 1.97 cu-ft/sk. 13.0 ppg (200 sx / 394 cu-ft. / 70.2 bbls.). **STAGE 6:** Tail Cement : 100 sx. 50/50 Poz Standard + 0.2% Versaset + 0.05% HALAD-766 + .05% SA-1015, Weight: 13.5 ppg (100 sx / Yield 1.28 cu ft/sk. / 128 cu ft. / 22.8 bbls) **STAGE 7:** Displace w/ +/- 137 bbl Fr Water. Total Cement (536.3 cu ft / 95.5 bbls). Mix Foamed Cement w/ +/- 75,000 SCF Nitrogen. Est. TOC +/- 5,613 ft.

IV. COMPLETION

A. CBL

1. Run CCL for perforating.

B. PRESSURE TEST

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

C. STIMULATION

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

D. RUNNING TUBING

1. Production Tubing: Run 2-7/8", 6.5#, J-55, EUE tubing with a SN on top of bottom joint. Land tubing near Top of Liner point of curve (~5,800' MD).

- Although this horizontal well will be drilled past the applicable setbacks, an unorthodox location application is not required because the completed interval in this well, as defined by 19.15.16.7 B(1) NMAC, will be entirely within the applicable setbacks. This approach complies with all applicable rules, including 19.15.16.14 A(3) NMAC, 19.15.16.14 B(2) NMAC, 19.15.16.15 B(2) NMAC, and 19.15.16.15 B(4) NMAC.

NOTE:

Installation of RSI sleeves at Toe of Lateral.

Proposed Operations:

A 4-1/2" 11.6# N-80 Liner will be run to TD and landed +/- 150 ft. into the 7" 23# K-55 Intermediate casing (set at 6,063 ft. MD) with a Liner Hanger and pack-off assembly then cemented to +/- 300 ft above the liner hanger. TOL will be +/- 5,913 ft. (MD) +/- 78 degree angle. TOC: +/- 5,613 ft. (MD).

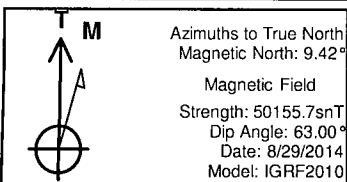
After cementing and TOL clean up operations are complete, the TOL will be tested to 1500 psi (per BLM).

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

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

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

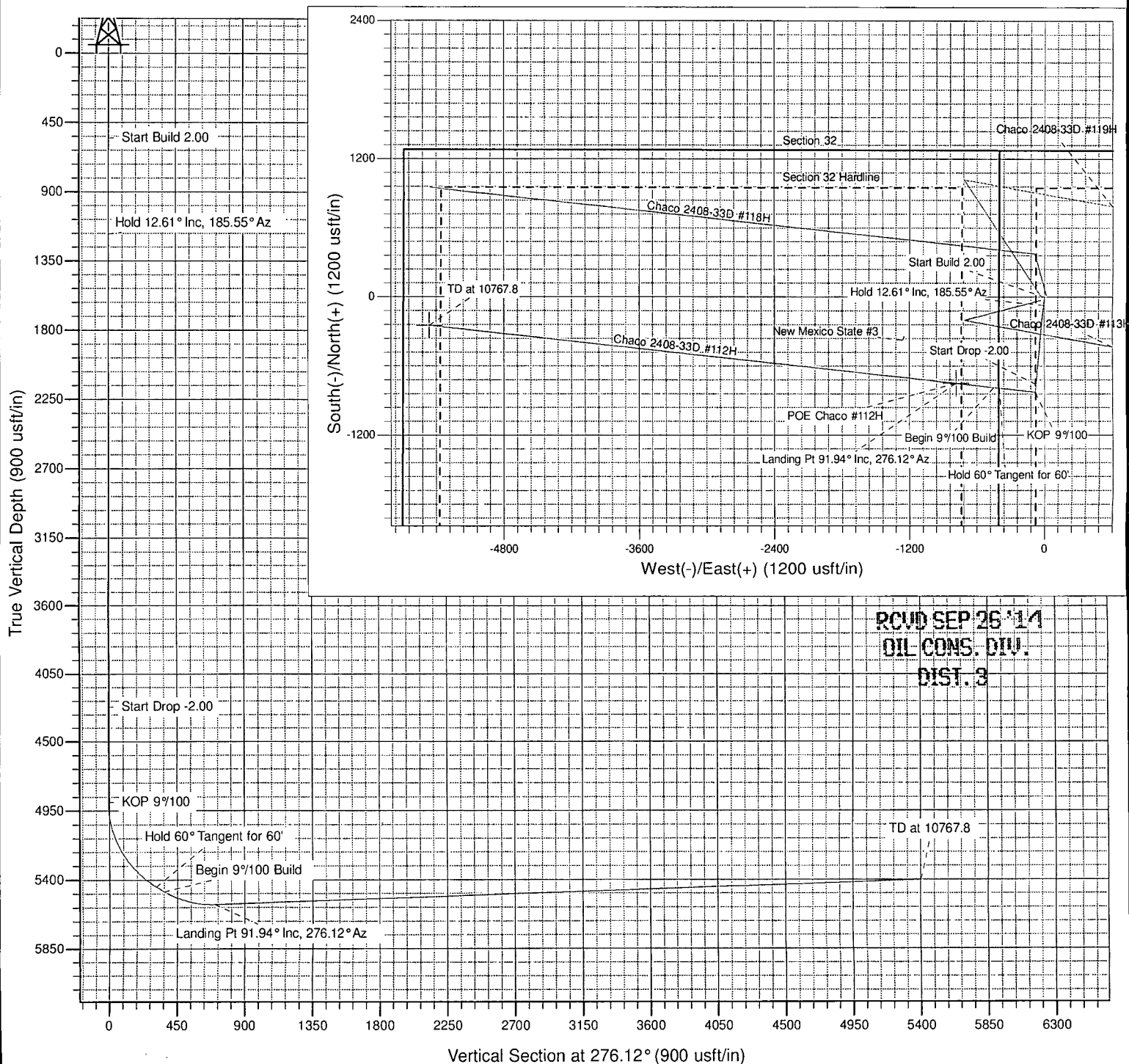
Well Name: Chaco 2408-33D #112H
 Surface Location: Chaco 2408-33D
 NAD 1927 (NADCON CONUS) , US State Plane 1927 (Exact solution) New Mexico West 3003
 Ground Elevation: 7020.0
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1919215.20 541008.80 36.274570 -107.694210 112H
 WELL @ 7034.0usft (Original Well Elev)

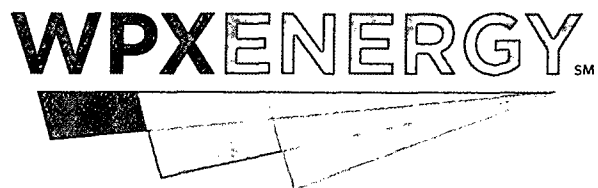


Project: SJ 32-24N-08W
 Site: Chaco 2408-33D
 Well: Chaco 2408-33D #112H
 Design #1 29Aug14 kjs

ANNOTATIONS									
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSection	Departure	Annotation	
550.0	550.0	0.00	0.00	0.0	0.0	0.0	0.0	Start Build 2.00	
1175.5	1180.6	12.61	185.55	-68.8	-6.7	9.8	69.1	Hold 12.61° Inc, 185.55° Az	
4269.2	4350.8	12.61	185.55	-757.7	-73.6	108.1	761.3	Start Drop -2.00	
4894.7	4981.3	0.00	0.00	-826.5	-80.3	117.9	830.4	KOP 9°/100	
5446.0	5648.0	60.00	276.12	-792.6	-396.8	432.5	1148.7	Hold 60° Tangent for 60'	
5476.0	5708.0	60.00	276.12	-787.0	-448.5	483.9	1200.7	Begin 9°/100 Build	
5561.0	6062.9	91.94	276.12	-750.8	-786.3	819.8	1540.5	Landing Pt 91.94° Inc, 276.12° Az	
5402.0	10767.8	91.94	276.12	-249.4	-5461.8	5467.4	6242.7	TD at 10767.8	

DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
TD / PBHL Chaco #112H	5402.0	-249.4	-5461.8	1918957.91	535547.41	36.273883	-107.712739
POE Chaco #112H	5561.0	-750.8	-786.3	1918463.22	540223.59	36.272507	-107.696877





SAN JUAN BASIN

SJ 32-24N-08W

Chaco 2408-33D

Chaco 2408-33D #112H - Slot 112H

Wellbore #1

Plan: Design #1 29Aug14 kjs

Standard Planning Report - Geographic

03 September, 2014



WPX
Planning Report - Geographic

Database:	COMPASS-SANJUAN	Local Co-ordinate Reference:	Well Chaco 2408-33D #112H - Slot 112H
Company:	SAN JUAN BASIN	TVD Reference:	WELL @ 7034.0usft (Original Well Elev)
Project:	SJ 32-24N-08W	MD Reference:	WELL @ 7034.0usft (Original Well Elev)
Site:	Chaco 2408-33D	North Reference:	True
Well:	Chaco 2408-33D #112H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 29Aug14 kjs		

Project:	SJ 32-24N-08W, San Juan County, NM		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico West 3003		

Site:	Chaco 2408-33D		
Site Position:		Northing:	1,919,215.20 usft
From:	Map	Easting:	541,008.80 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in
		Latitude:	36.274570
		Longitude:	-107.694210
		Grid Convergence:	0.08 °

Well:	Chaco 2408-33D #112H - Slot 112H		
Well Position	+N-S	0.0 usft	Northing:
	+E-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	36.274570
		Longitude:	-107.694210
		Ground Level:	7,020.0 usft

Wellbore:	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	8/29/2014	9.42
			Dip Angle
			(°)
			63.00
			Field Strength
			(nT)
			50,156

Design:	Design #1 29Aug14 kjs		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.0
Vertical Section:	Depth From (TVD)	+N-S	+E-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			276.12

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
550.0	0.00	0.00	550.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,180.6	12.61	185.55	1,175.5	-68.8	-6.7	2.00	2.00	0.00	185.55	
4,350.8	12.61	185.55	4,269.2	-757.7	-73.6	0.00	0.00	0.00	0.00	
4,981.3	0.00	0.00	4,894.7	-826.5	-80.3	2.00	-2.00	0.00	180.00	
5,648.0	60.00	276.12	5,446.0	-792.6	-396.8	9.00	9.00	0.00	276.12	
5,708.0	60.00	276.12	5,476.0	-787.0	-448.5	0.00	0.00	0.00	0.00	
6,062.9	91.94	276.12	5,561.0	-750.8	-786.3	9.00	9.00	0.00	0.00	
10,767.8	91.94	276.12	5,402.0	-249.4	-5,461.8	0.00	0.00	0.00	0.00	TD / PBHL Chaco #11



WPX
Planning Report - Geographic

Database:	COMPASS-SANJUAN	Local Co-ordinate Reference:	Well Chaco 2408-33D #112H - Slot 112H
Company:	SAN JUAN BASIN	TVD Reference:	WELL @ 7034.0usft (Original Well Elev)
Project:	SJ 32-24N-08W	MD Reference:	WELL @ 7034.0usft (Original Well Elev)
Site:	Chaco 2408-33D	North Reference:	True
Well:	Chaco 2408-33D #112H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 29Aug14 kjs		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	1,919,215.20	541,008.80	36.274570	-107.694210
200.0	0.00	0.00	200.0	0.0	0.0	1,919,215.20	541,008.80	36.274570	-107.694210
400.0	0.00	0.00	400.0	0.0	0.0	1,919,215.20	541,008.80	36.274570	-107.694210
550.0	0.00	0.00	550.0	0.0	0.0	1,919,215.20	541,008.80	36.274570	-107.694210
Start Build 2.00									
600.0	1.00	185.55	600.0	-0.4	0.0	1,919,214.77	541,008.76	36.274569	-107.694210
800.0	5.00	185.55	799.7	-10.9	-1.1	1,919,204.35	541,007.76	36.274540	-107.694214
1,000.0	9.00	185.55	998.2	-35.1	-3.4	1,919,180.09	541,005.44	36.274474	-107.694222
1,180.6	12.61	185.55	1,175.5	-68.8	-6.7	1,919,146.40	541,002.22	36.274381	-107.694233
Hold 12.61° Inc, 185.55° Az									
1,200.0	12.61	185.55	1,194.5	-73.0	-7.1	1,919,142.18	541,001.81	36.274370	-107.694234
1,400.0	12.61	185.55	1,389.6	-116.5	-11.3	1,919,098.71	540,997.65	36.274250	-107.694249
1,600.0	12.61	185.55	1,584.8	-159.9	-15.5	1,919,055.24	540,993.49	36.274131	-107.694263
1,800.0	12.61	185.55	1,780.0	-203.4	-19.8	1,919,011.77	540,989.33	36.274011	-107.694277
2,000.0	12.61	185.55	1,975.2	-246.9	-24.0	1,918,968.31	540,985.17	36.273892	-107.694292
2,200.0	12.61	185.55	2,170.3	-290.3	-28.2	1,918,924.84	540,981.01	36.273773	-107.694306
2,400.0	12.61	185.55	2,365.5	-333.8	-32.4	1,918,881.37	540,976.85	36.273653	-107.694320
2,600.0	12.61	185.55	2,560.7	-377.2	-36.7	1,918,837.90	540,972.69	36.273534	-107.694335
2,800.0	12.61	185.55	2,755.9	-420.7	-40.9	1,918,794.44	540,968.53	36.273414	-107.694349
3,000.0	12.61	185.55	2,951.0	-464.2	-45.1	1,918,750.97	540,964.37	36.273295	-107.694363
3,200.0	12.61	185.55	3,146.2	-507.6	-49.3	1,918,707.50	540,960.21	36.273176	-107.694378
3,400.0	12.61	185.55	3,341.4	-551.1	-53.5	1,918,664.03	540,956.05	36.273056	-107.694392
3,600.0	12.61	185.55	3,536.6	-594.6	-57.8	1,918,620.56	540,951.89	36.272937	-107.694406
3,800.0	12.61	185.55	3,731.7	-638.0	-62.0	1,918,577.10	540,947.73	36.272817	-107.694421
4,000.0	12.61	185.55	3,926.9	-681.5	-66.2	1,918,533.63	540,943.57	36.272698	-107.694435
4,200.0	12.61	185.55	4,122.1	-724.9	-70.4	1,918,490.16	540,939.41	36.272579	-107.694449
4,350.8	12.61	185.55	4,269.2	-757.7	-73.6	1,918,457.39	540,936.27	36.272489	-107.694460
Start Drop -2.00									
4,400.0	11.63	185.55	4,317.3	-768.0	-74.6	1,918,447.10	540,935.29	36.272460	-107.694463
4,600.0	7.63	185.55	4,514.5	-801.3	-77.8	1,918,413.82	540,932.10	36.272369	-107.694474
4,800.0	3.63	185.55	4,713.5	-820.8	-79.7	1,918,394.30	540,930.24	36.272315	-107.694481
4,981.3	0.00	0.00	4,894.7	-826.5	-80.3	1,918,388.59	540,929.69	36.272300	-107.694483
KOP 9°/100									
5,000.0	1.68	276.12	4,913.4	-826.5	-80.6	1,918,388.62	540,929.42	36.272300	-107.694484
5,200.0	19.68	276.12	5,109.1	-822.5	-117.3	1,918,392.50	540,892.71	36.272310	-107.694608
5,400.0	37.68	276.12	5,283.8	-812.3	-212.3	1,918,402.55	540,797.66	36.272338	-107.694931
5,600.0	55.68	276.12	5,420.5	-796.9	-356.4	1,918,417.80	540,653.55	36.272381	-107.695419
5,648.0	60.00	276.12	5,446.0	-792.6	-396.8	1,918,422.07	540,613.15	36.272393	-107.695556
Hold 60° Tangent for 60'									
5,708.0	60.00	276.12	5,476.0	-787.0	-448.5	1,918,427.54	540,561.47	36.272408	-107.695732
Begin 9°/100 Build									
5,800.0	68.28	276.12	5,516.1	-778.2	-530.7	1,918,436.24	540,479.22	36.272432	-107.696011
6,000.0	86.28	276.12	5,560.0	-757.5	-723.9	1,918,456.67	540,286.01	36.272489	-107.696666
6,062.8	91.93	276.12	5,561.0	-750.8	-786.3	1,918,463.27	540,223.60	36.272508	-107.696878
POE Chaco #112H									
6,062.9	91.94	276.12	5,561.0	-750.8	-786.3	1,918,463.28	540,223.54	36.272508	-107.696878
Landing Pt 91.94° Inc, 276.12° Az									
6,200.0	91.94	276.12	5,556.3	-736.2	-922.6	1,918,477.70	540,087.23	36.272548	-107.697340
6,400.0	91.94	276.12	5,549.6	-714.9	-1,121.4	1,918,498.72	539,888.45	36.272606	-107.698014
6,600.0	91.94	276.12	5,542.8	-693.6	-1,320.1	1,918,519.75	539,689.68	36.272665	-107.698689
6,800.0	91.94	276.12	5,536.1	-672.2	-1,518.9	1,918,540.78	539,490.90	36.272723	-107.699363
7,000.0	91.94	276.12	5,529.3	-650.9	-1,717.6	1,918,561.80	539,292.12	36.272782	-107.700037
7,200.0	91.94	276.12	5,522.5	-629.6	-1,916.4	1,918,582.83	539,093.35	36.272840	-107.700711
7,400.0	91.94	276.12	5,515.8	-608.3	-2,115.1	1,918,603.85	538,894.57	36.272899	-107.701386

Database:	COMPASS-SANJUAN	Local Co-ordinate Reference:	Well Chaco 2408-33D #112H - Slot 112H
Company:	SAN JUAN BASIN	TVD Reference:	WELL @ 7034.0usft (Original Well Elev)
Project:	SJ 32-24N-08W	MD Reference:	WELL @ 7034.0usft (Original Well Elev)
Site:	Chaco 2408-33D	North Reference:	True
Well:	Chaco 2408-33D #112H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 29Aug14 kjs		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
7,600.0	91.94	276.12	5,509.0	-587.0	-2,313.9	1,918,624.88	538,695.79	36.272957	-107.702060
7,800.0	91.94	276.12	5,502.3	-565.7	-2,512.6	1,918,645.91	538,497.02	36.273016	-107.702734
8,000.0	91.94	276.12	5,495.5	-544.4	-2,711.3	1,918,666.93	538,298.24	36.273074	-107.703408
8,200.0	91.94	276.12	5,488.8	-523.1	-2,910.1	1,918,687.96	538,099.46	36.273133	-107.704083
8,400.0	91.94	276.12	5,482.0	-501.8	-3,108.8	1,918,708.99	537,900.69	36.273191	-107.704757
8,600.0	91.94	276.12	5,475.2	-480.4	-3,307.6	1,918,730.01	537,701.91	36.273250	-107.705431
8,800.0	91.94	276.12	5,468.5	-459.1	-3,506.3	1,918,751.04	537,503.13	36.273308	-107.706105
9,000.0	91.94	276.12	5,461.7	-437.8	-3,705.1	1,918,772.06	537,304.36	36.273367	-107.706780
9,200.0	91.94	276.12	5,455.0	-416.5	-3,903.8	1,918,793.09	537,105.58	36.273425	-107.707454
9,400.0	91.94	276.12	5,448.2	-395.2	-4,102.6	1,918,814.12	536,906.80	36.273484	-107.708128
9,600.0	91.94	276.12	5,441.5	-373.9	-4,301.3	1,918,835.14	536,708.02	36.273542	-107.708802
9,800.0	91.94	276.12	5,434.7	-352.6	-4,500.1	1,918,856.17	536,509.25	36.273601	-107.709477
10,000.0	91.94	276.12	5,427.9	-331.3	-4,698.8	1,918,877.19	536,310.47	36.273659	-107.710151
10,200.0	91.94	276.12	5,421.2	-309.9	-4,897.6	1,918,898.22	536,111.69	36.273717	-107.710825
10,400.0	91.94	276.12	5,414.4	-288.6	-5,096.3	1,918,919.25	535,912.92	36.273776	-107.711499
10,600.0	91.94	276.12	5,407.7	-267.3	-5,295.1	1,918,940.27	535,714.14	36.273834	-107.712174
10,767.8	91.94	276.12	5,402.0	-249.4	-5,461.8	1,918,957.91	535,547.41	36.273883	-107.712739

TD at 10767.8 - TD / PBHL Chaco #112H

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
TD / PBHL Chaco #112H	0.00	0.00	5,402.0	-249.4	-5,461.8	1,918,957.91	535,547.41	36.273883	-107.712739
- plan hits target center									
- Point									
POE Chaco #112H	0.00	0.00	5,561.0	-750.8	-786.3	1,918,463.23	540,223.60	36.272507	-107.696878
- plan misses target center by 0.1usft at 6062.8usft MD (5561.0 TVD, -750.8 N, -786.3 E)									
- Point									

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
550.0	550.0	0.0	0.0	Start Build 2.00
1,180.6	1,175.5	-68.8	-6.7	Hold 12.61° Inc, 185.55° Az
4,350.8	4,269.2	-757.7	-73.6	Start Drop -2.00
4,981.3	4,894.7	-826.5	-80.3	KOP 9°/100
5,648.0	5,446.0	-792.6	-396.8	Hold 60° Tangent for 60'
5,708.0	5,476.0	-787.0	-448.5	Begin 9°/100 Build
6,062.9	5,561.0	-750.8	-786.3	Landing Pt 91.94° Inc, 276.12° Az
10,767.8	5,402.0	-249.4	-5,461.8	TD at 10767.8

IV. COMPLETION

A. CBL

1. Run CCL for perforating.

B. PRESSURE TEST

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

C. STIMULATION

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

D. RUNNING TUBING

1. Production Tubing: Run 2-7/8", 6.5#, J-55, EUE tubing with a SN on top of bottom joint. Land tubing near Top of Liner point of curve (~5,800' MD).

- Although this horizontal well will be drilled past the applicable setbacks, an unorthodox location application is not required because the completed interval in this well, as defined by 19.15.16.7 B(1) NMAC, will be entirely within the applicable setbacks. This approach complies with all applicable rules, including 19.15.16.14 A(3) NMAC, 19.15.16.14 B(2) NMAC, 19.15.16.15 B(2) NMAC, and 19.15.16.15 B(4) NMAC.

NOTE:

Installation of RSI sleeves at Toe of Lateral.

Proposed Operations:

A 4-1/2" 11.6# N-80 Liner will be run to TD and landed +/- 150 ft. into the 7" 23# K-55 Intermediate casing (set at 6,063 ft. MD) with a Liner Hanger and pack-off assembly then cemented to +/- 300 ft above the liner hanger. TOL will be +/- 5,913 ft. (MD) +/- 78 degree angle. TOC: +/- 5,613 ft. (MD).

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

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

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

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

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary-Designate

Brett F. Woods, Ph.D.
Deputy Cabinet Secretary

Jami Bailey, Division Director
Oil Conservation Division



**New Mexico Oil Conservation Division Conditions of Approval
(C-101 Application for permit to drill)**

- ✓ Notify Aztec OCD 24hrs prior to casing & cement.
- ✓ Hold C-104 for directional survey & "As Drilled" Plat
- Hold C-104 for NSL, NSP, DHC
- Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- Regarding the use of a pit, closed loop system or below grade tank, the operator must comply with the following as applicable:
 - A pit requires a complete C-144 be submitted and approved prior to the construction or use of the pit, pursuant to 19.15.17.8.A
 - A closed loop system requires notification prior to use, pursuant to 19.15.17.9.A
 - A below grade tank requires a registration be filed prior to the construction or use of the below grade tank, pursuant to 19.15.17.8.C
- Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
- ✓ Regarding Hydraulic Fracturing, review EPA Underground Injection Control Guidance 84
- ✓ Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.
- ✓ Well-bore communication is regulated under 19.15.29 NMAC. This requires well-bore Communication to be reported in accordance with 19.15.29.8.