

District I
1625 N. French Drive, Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

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

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

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

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

AS DRILLED

OIL CONS. DIV DIST. 3

WELL LOCATION AND ACREAGE DEDICATION PLAT

NOV 19 2014

*API Number 30-039-31224	*Pool Code 98088	*Pool Name CHACO NE HZ (OIL)
*Property Code 313800	*Property Name NE CHACO COM	*Well Number 184H
*GRID No. 120782	*Operator Name WPX ENERGY PRODUCTION, LLC	*Elevation 6991'

10 Surface Location

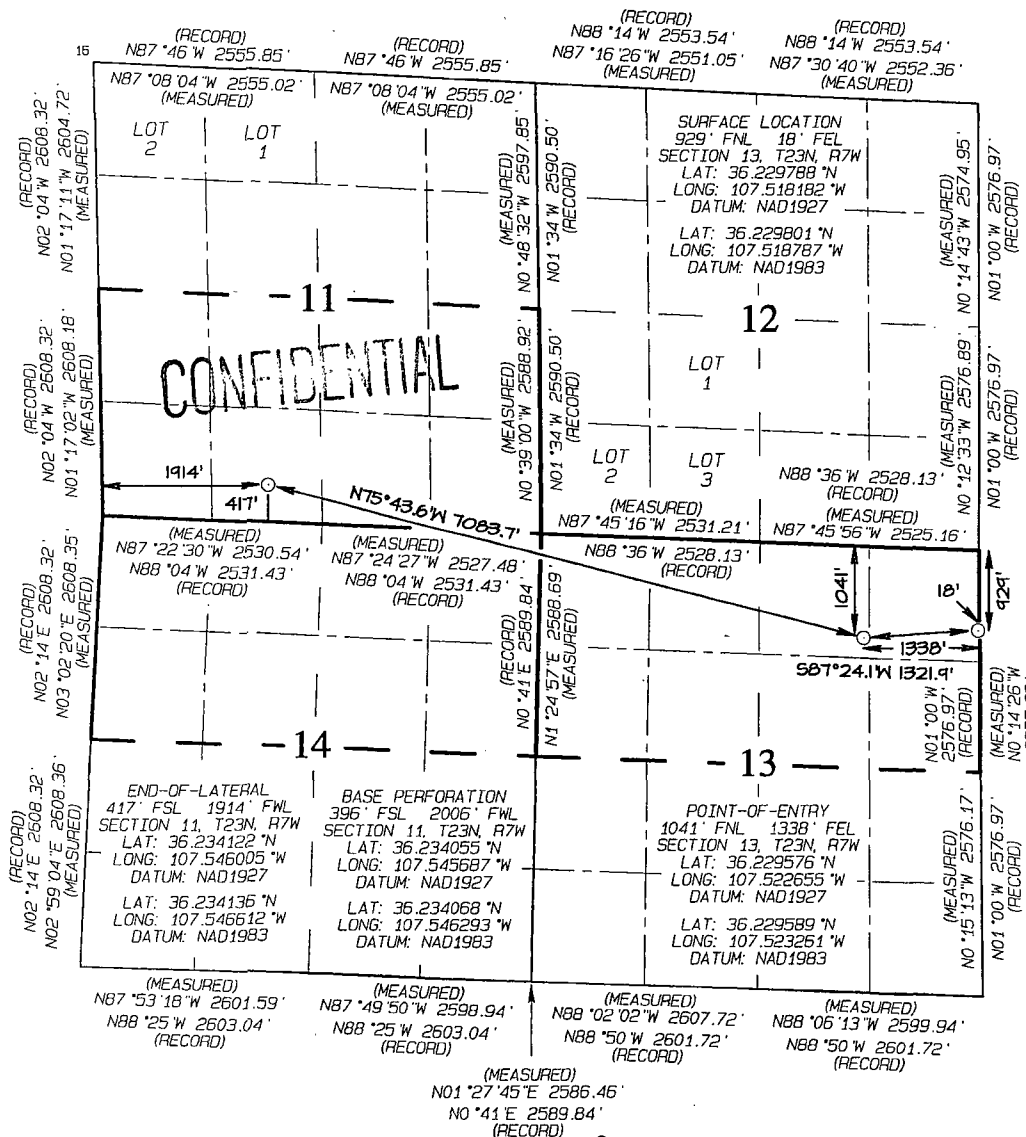
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	13	23N	7W		929	NORTH	18	EAST	RIO ARriba

11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	11	23N	7W		417	SOUTH	1914	WEST	RIO ARriba

12 Dedicated Acres 960.00	N/2 - Sections 13 & 14 S/2 - Section 11	13 Joint or Infill	14 Consolidation Code	15 Order No. R-13817-A project area 9,232.3 acres
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NO ALLOWABLE WILL BE ASSIGNED
TO THIS COMPLETION UNTIL ALL
INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN
APPROVED BY THE DIVISION



17 OPERATOR CERTIFICATION

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

Signature: *Lacey Granillo* Date: 11/18/14
Printed Name: LACEY GRANILLO
lacey.granillo@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: NOVEMBER 14, 2014
Date of Survey: MARCH 4, 2013

Signature and Seal of Professional Surveyor



JASON C. EDWARDS
Certificate Number 15269

WPXENERGY

Project: Rio Arriba Co., NM
 Site: Sec.13-T23N-T7W
 Well: Chaco 2307-13A 184H
 Wellbore: Wellbore #1
 Design: Wellbore #1



WELL DETAILS: Chaco 2307-13A 184H

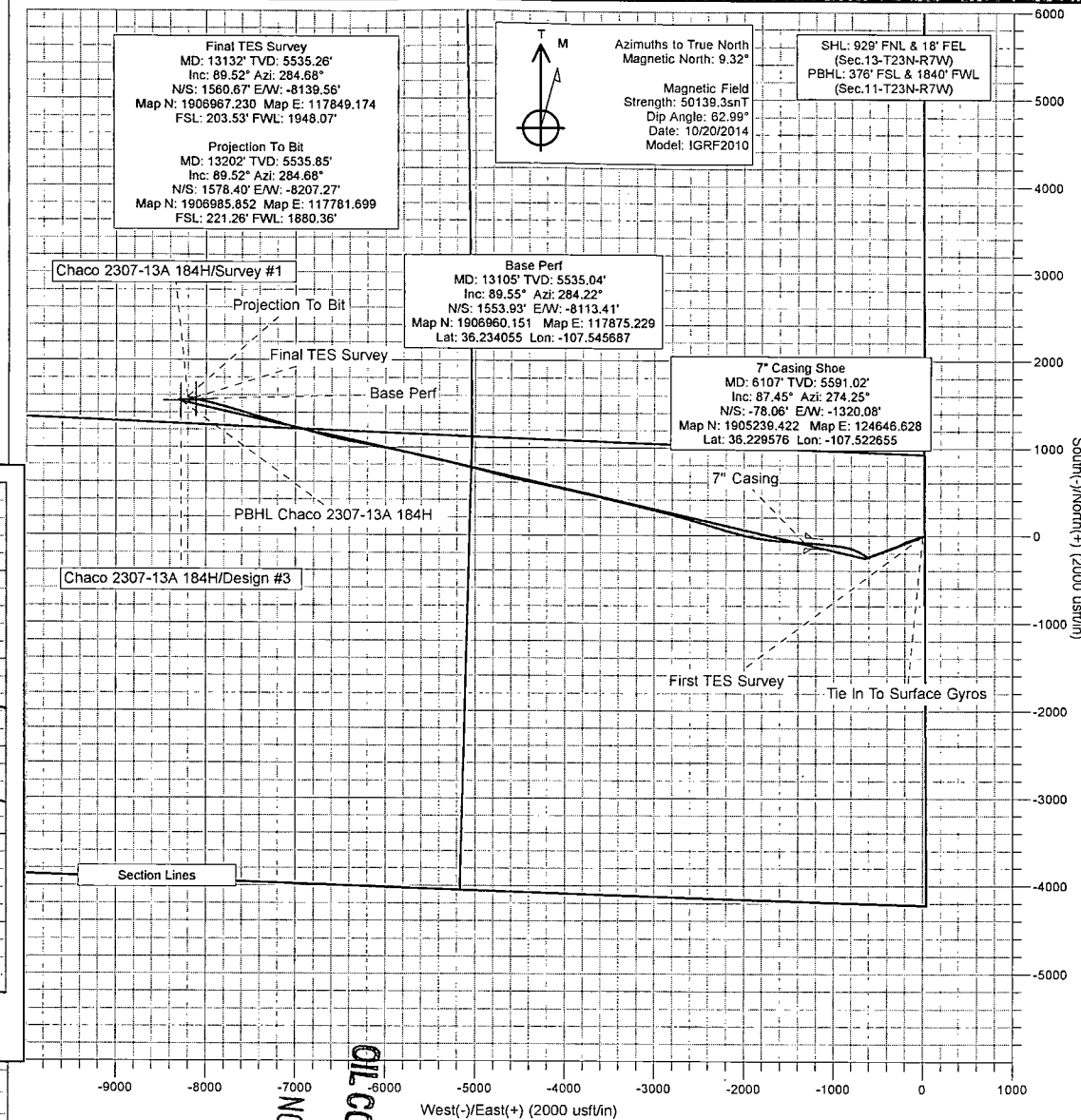
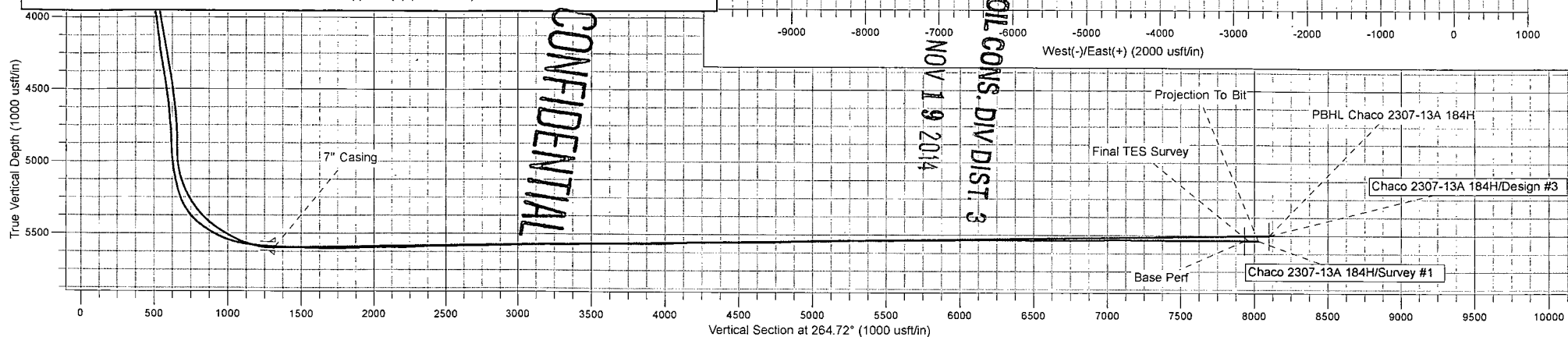
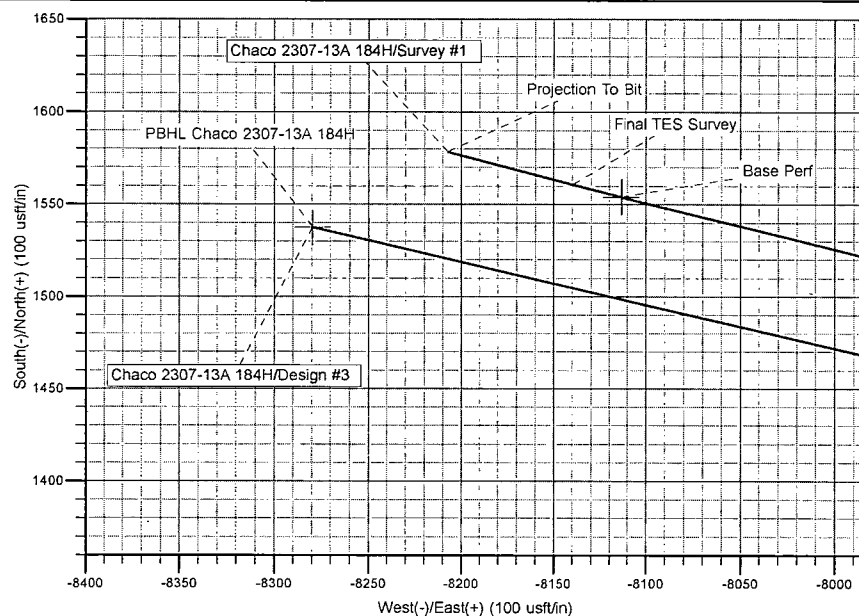
	Ground Level:						
	6991.00						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot	
0.00	0.00	1905300.203132	125967.615185	36.229790	-107.518180		

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
PBHL Chaco 2307-13A 184H	5499.00	1537.56	-8279.57	36.234010	-107.546250	Point
Base Perf	5535.04	1553.93	-8113.41	36.234055	-107.545687	Point

Survey: Survey #1 (Chaco 2307-13A 184H/Wellbore #1)

Created By: M. Ramich Date: 14:21, November 13 2014



OIL CONS. DIV DIST. 3
 NOV 19 2014

CONFIDENTIAL

WPXENERGY



WPX Energy Production, LLC

Rio Arriba Co., NM

Sec.13-T23N-T7W

Chaco 2307-13A 184H

Wellbore #1

Survey: Survey #1

Standard Survey Report

11 November, 2014

CONFIDENTIAL





Terrapin Energy Services

Survey Report



Company:	WPX Energy Production, LLC	Local Co-ordinate Reference:	Well Chaco 2307-13A 184H
Project:	Rio Arriba Co., NM	TVD Reference:	Elev @ 7005.00usft
Site:	Sec.13-T23N-T7W	MD Reference:	Elev @ 7005.00usft
Well:	Chaco 2307-13A 184H	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project: Rio Arriba Co., NM			
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Ground Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico Central 3002		

Site		Sec.13-T23N-T7W						
Site Position:		Northing:	1,905,300.203132	usft	Latitude:	36.229790		
From:	Lat/Long	Easting:	125,967.615185	usft	Longitude:	-107.518180		
Position Uncertainty:	0.00	usft	Slot Radius:	13-3/16	"	Grid Convergence:	-0.75	°

Well	Chaco 2307-13A 184H					
Well Position	+N/-S	0.00 usft	Northing:	1,905,300.203132 usft	Latitude:	36.229790
	+E/-W	0.00 usft	Easting:	125,967.615185 usft	Longitude:	-107.518180
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,991.00 usft

Wellbore #1					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/20/14	9.32	62.99	50,139

Design		Wellbore #1			
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	264.72	

Survey Program:		Date	11/10/14		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
433.00	13,202.00	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

CONFIDENTIAL

Survey	Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
	364.00	0.34	179.45	363.99	-2.79	0.59	-0.33	0.00	0.00	0.00
Tie In To Surface Gyros										
	433.00	0.75	258.17	432.99	-3.09	0.15	0.14	1.10	0.59	114.09
First TES Survey										
	495.00	1.27	245.09	494.98	-3.46	-0.87	1.19	0.91	0.84	-21.10
	558.00	2.20	257.16	557.95	-4.02	-2.68	3.04	1.58	1.48	19.16
	621.00	3.13	262.43	620.88	-4.52	-5.57	5.96	1.53	1.48	8.37
	685.00	4.72	259.90	684.73	-5.21	-9.89	10.33	2.50	2.48	-3.95
	748.00	5.58	263.05	747.47	-6.04	-15.48	15.97	1.44	1.37	5.00
	811.00	6.52	257.84	810.12	-7.16	-22.02	22.59	1.73	1.49	-8.27



Company:	WPX Energy Production, LLC	Local Co-ordinate Reference:	Well Chaco 2307-13A 184H
Project:	Rio Arriba Co., NM	TVD Reference:	Elev @ 7005.00usft
Site:	Sec.13-T23N-T7W	MD Reference:	Elev @ 7005.00usft
Well:	Chaco 2307-13A 184H	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
874.00	8.55	253.13	872.57	-9.27	-30.00	30.73	3.37	3.22	-7.48
938.00	8.62	250.44	935.86	-12.26	-39.07	40.04	0.64	0.11	-4.20
1,000.00	9.56	248.44	997.08	-15.71	-48.24	49.48	1.60	1.52	-3.23
1,063.00	11.09	248.45	1,059.06	-19.85	-58.74	60.32	2.43	2.43	0.02
1,126.00	11.62	247.61	1,120.82	-24.50	-70.24	72.20	0.88	0.84	-1.33
1,189.00	12.05	247.53	1,182.48	-29.43	-82.19	84.55	0.68	0.68	-0.13
1,252.00	11.35	249.20	1,244.18	-34.14	-94.06	96.80	1.23	-1.11	2.65
1,315.00	11.02	248.72	1,305.98	-38.53	-105.46	108.56	0.54	-0.52	-0.76
1,376.00	11.01	247.19	1,365.85	-42.90	-116.27	119.72	0.48	-0.02	-2.51
1,437.00	11.12	247.23	1,425.72	-47.44	-127.06	130.89	0.18	0.18	0.07
1,498.00	11.07	249.98	1,485.58	-51.72	-137.99	142.16	0.87	-0.08	4.51
1,559.00	11.08	252.44	1,545.45	-55.49	-149.08	153.55	0.77	0.02	4.03
1,620.00	10.35	252.84	1,605.38	-58.88	-159.90	164.64	1.20	-1.20	0.66
1,681.00	9.49	251.29	1,665.47	-62.11	-169.90	174.90	1.48	-1.41	-2.54
1,742.00	9.30	250.38	1,725.65	-65.38	-179.31	184.56	0.40	-0.31	-1.49
1,802.00	9.06	246.79	1,784.88	-68.87	-188.21	193.76	1.03	-0.40	-5.98
1,864.00	8.84	247.16	1,846.13	-72.64	-197.09	202.94	0.37	-0.35	0.60
1,925.00	8.65	243.99	1,906.42	-76.47	-205.53	211.70	0.85	-0.31	-5.20
1,986.00	8.55	241.75	1,966.73	-80.63	-213.65	220.17	0.57	-0.16	-3.67
2,047.00	8.59	238.24	2,027.05	-85.17	-221.52	228.42	0.86	0.07	-5.75
2,108.00	7.65	238.59	2,087.44	-89.69	-228.86	236.14	1.54	-1.54	0.57
2,168.00	8.58	237.32	2,146.84	-94.18	-236.03	243.70	1.58	1.55	-2.12
2,229.00	8.63	245.56	2,207.15	-98.53	-244.03	252.07	2.02	0.08	13.51
2,292.00	7.57	243.23	2,269.53	-102.36	-252.04	260.39	1.76	-1.68	-3.70
2,355.00	6.76	241.47	2,332.03	-106.00	-259.00	267.66	1.33	-1.29	-2.79
2,418.00	6.65	238.83	2,394.60	-109.66	-265.38	274.35	0.52	-0.17	-4.19
2,481.00	7.68	242.01	2,457.11	-113.52	-272.22	281.52	1.75	1.63	5.05
2,512.00	7.59	241.88	2,487.83	-115.46	-275.85	285.31	0.30	-0.29	-0.42
2,575.00	8.28	244.00	2,550.23	-119.41	-283.60	293.39	1.19	1.10	3.37
2,638.00	8.81	246.49	2,612.53	-123.32	-292.10	302.22	1.03	0.84	3.95
2,702.00	8.42	249.86	2,675.81	-126.89	-300.99	311.40	1.00	-0.61	5.27
2,765.00	8.92	249.26	2,738.09	-130.21	-309.89	320.57	0.81	0.79	-0.95
2,829.00	9.36	248.14	2,801.28	-133.90	-319.36	330.34	0.74	0.69	-1.75
2,892.00	8.85	246.53	2,863.48	-137.74	-328.56	339.85	0.90	-0.81	-2.56
2,955.00	8.90	244.92	2,925.73	-141.74	-337.42	349.04	0.40	0.08	-2.56
3,019.00	9.45	251.98	2,988.91	-145.46	-346.90	358.82	1.96	0.86	11.03
3,082.00	9.72	255.10	3,051.03	-148.43	-356.96	369.11	0.93	0.43	4.95
3,146.00	9.39	251.42	3,114.15	-151.48	-367.13	379.52	1.08	-0.52	-5.75
3,209.00	9.43	250.00	3,176.30	-154.88	-376.85	389.51	0.37	0.06	-2.25
3,272.00	10.36	251.27	3,238.36	-158.47	-387.07	400.02	1.52	1.48	2.02
3,336.00	10.44	252.36	3,301.31	-162.07	-398.04	411.28	0.33	0.13	1.70
3,399.00	10.04	250.31	3,363.31	-165.65	-408.65	422.17	0.86	-0.63	-3.25
3,463.00	9.44	248.70	3,426.38	-169.44	-418.80	432.62	1.03	-0.94	-2.52



Company:	WPX Energy Production, LLC	Local Co-ordinate Reference:	Well Chaco 2307-13A 184H
Project:	Rio Arriba Co., NM	TVD Reference:	Elev @ 7005.00usft
Site:	Sec 13-T23N-T7W	MD Reference:	Elev @ 7005.00usft
Well:	Chaco 2307-13A 184H	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,526.00	9.63	249.92	3,488.51	-173.12	-428.56	442.68	0.44	0.30	1.94
3,589.00	9.83	252.03	3,550.61	-176.59	-438.62	453.02	0.65	0.32	3.35
3,652.00	9.30	249.36	3,612.73	-180.05	-448.50	463.18	1.10	-0.84	-4.24
3,716.00	8.91	247.13	3,675.92	-183.80	-457.91	472.89	0.82	-0.61	-3.48
3,779.00	8.73	246.52	3,738.18	-187.60	-466.79	482.08	0.32	-0.29	-0.97
3,842.00	7.53	254.29	3,800.55	-190.62	-475.15	490.68	2.58	-1.90	12.33
3,906.00	7.43	255.12	3,864.00	-192.82	-483.18	498.89	0.23	-0.16	1.30
3,970.00	8.45	251.49	3,927.39	-195.37	-491.64	507.55	1.78	1.59	-5.67
4,033.00	7.45	248.02	3,989.78	-198.37	-499.82	515.96	1.76	-1.59	-5.51
4,097.00	7.82	248.81	4,053.22	-201.50	-507.73	524.13	0.60	0.58	1.23
4,160.00	7.45	242.70	4,115.66	-204.92	-515.35	532.03	1.42	-0.59	-9.70
4,223.00	7.68	241.46	4,178.11	-208.81	-522.68	539.69	0.45	0.37	-1.97
4,286.00	9.14	250.77	4,240.43	-212.46	-531.10	548.41	3.16	2.32	14.78
4,349.00	9.10	250.48	4,302.64	-215.78	-540.52	558.10	0.10	-0.06	-0.46
4,412.00	9.21	249.33	4,364.83	-219.22	-549.94	567.79	0.34	0.17	-1.83
4,476.00	9.31	249.31	4,428.00	-222.86	-559.57	577.72	0.16	0.16	-0.03
4,539.00	8.75	249.29	4,490.22	-226.35	-568.82	587.25	0.89	-0.89	-0.03
4,602.00	7.49	243.20	4,552.59	-229.90	-576.97	595.69	2.42	-2.00	-9.67
4,665.00	5.96	240.38	4,615.15	-233.37	-583.48	602.49	2.48	-2.43	-4.48
4,728.00	5.66	234.60	4,677.83	-236.78	-588.85	608.16	1.04	-0.48	-9.17
4,791.00	4.58	234.40	4,740.58	-240.05	-593.43	613.02	1.71	-1.71	-0.32
4,854.00	3.49	233.23	4,803.42	-242.66	-597.01	616.82	1.73	-1.73	-1.86
4,918.00	2.63	243.51	4,867.33	-244.48	-599.89	619.85	1.59	-1.34	16.06
4,981.00	2.93	256.70	4,930.25	-245.50	-602.75	622.80	1.12	0.48	20.94
5,044.00	6.66	289.96	4,993.03	-244.62	-607.75	627.70	7.15	5.92	52.79
5,107.00	11.01	304.32	5,055.28	-239.98	-616.16	635.64	7.69	6.90	22.79
5,170.00	14.34	305.75	5,116.73	-232.03	-627.46	646.16	5.31	5.29	2.27
5,234.00	17.88	307.95	5,178.21	-221.35	-641.65	659.30	5.61	5.53	3.44
5,297.00	24.52	305.24	5,236.92	-207.84	-659.97	676.31	10.65	10.54	-4.30
5,361.00	31.32	299.19	5,293.45	-192.05	-685.37	700.15	11.50	10.63	-9.45
5,424.00	38.59	294.36	5,345.06	-175.93	-717.62	730.77	12.34	11.54	-7.67
5,487.00	45.72	291.83	5,391.73	-159.42	-756.50	767.97	11.63	11.32	-4.02
5,550.00	53.25	287.38	5,432.64	-143.47	-801.60	811.41	13.10	11.95	-7.06
5,613.00	58.38	281.67	5,468.05	-130.49	-852.02	860.42	11.06	8.14	-9.06
5,676.00	60.01	279.92	5,500.31	-120.36	-905.17	912.41	3.52	2.59	-2.78
5,739.00	67.19	276.21	5,528.31	-112.50	-961.00	967.28	12.56	11.40	-5.89
5,802.00	73.87	276.09	5,549.30	-106.15	-1,020.02	1,025.46	10.60	10.60	-0.19
5,865.00	78.29	275.52	5,564.45	-99.97	-1,080.85	1,085.46	7.07	7.02	-0.90
5,929.00	81.19	275.57	5,575.85	-93.88	-1,143.52	1,147.31	4.53	4.53	0.08
5,992.00	84.98	275.53	5,583.44	-87.83	-1,205.76	1,208.72	6.02	6.02	-0.06
6,156.00	88.51	273.70	5,592.75	-74.67	-1,368.93	1,369.99	2.42	2.15	-1.12
6,219.00	87.89	273.61	5,594.73	-70.65	-1,431.77	1,432.19	0.99	-0.98	-0.14
6,283.00	88.15	273.78	5,596.94	-66.53	-1,495.60	1,495.37	0.49	0.41	0.27
6,347.00	87.89	274.40	5,599.15	-61.97	-1,559.40	1,558.48	1.05	-0.41	0.97



Terrapin Energy Services

Survey Report



Company:	WPX Energy Production, LLC	Local Co-ordinate Reference:	Well Chaco 2307-13A-184H
Project:	Rio Arriba Co., NM	TVD Reference:	Elev @ 7005.00usft
Site:	Sec.13-T23N-T7W	MD Reference:	Elev @ 7005.00usft
Well:	Chaco 2307-13A 184H	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
6,410.00	88.15	275.36	5,601.32	-56.61	-1,622.13	1,620.45	1.58	0.41	1.52	
6,474.00	89.47	276.16	5,602.65	-50.19	-1,685.79	1,683.25	2.41	2.06	1.25	
6,537.00	90.17	276.68	5,602.85	-43.15	-1,748.40	1,744.94	1.38	1.11	0.83	
6,601.00	91.01	278.79	5,602.19	-34.53	-1,811.81	1,807.29	3.55	1.31	3.30	
6,665.00	92.28	280.46	5,600.36	-23.84	-1,874.88	1,869.10	3.28	1.98	2.61	
6,729.00	92.64	282.40	5,597.61	-11.17	-1,937.55	1,930.34	3.08	0.56	3.03	
6,792.00	92.06	282.84	5,595.02	2.59	-1,998.97	1,990.24	1.16	-0.92	0.70	
6,856.00	89.16	284.86	5,594.34	17.90	-2,061.10	2,050.69	5.52	-4.53	3.16	
6,920.00	90.13	286.44	5,594.74	35.17	-2,122.72	2,110.46	2.90	1.52	2.47	
6,984.00	90.31	286.53	5,594.49	53.33	-2,184.09	2,169.90	0.31	0.28	0.14	
7,048.00	92.07	287.05	5,593.17	71.81	-2,245.35	2,229.19	2.87	2.75	0.81	
7,112.00	92.81	286.88	5,590.44	90.47	-2,306.50	2,288.37	1.19	1.16	-0.27	
7,176.00	91.85	286.88	5,587.84	109.03	-2,367.70	2,347.59	1.50	-1.50	0.00	
7,240.00	91.14	286.88	5,586.17	127.61	-2,428.92	2,406.84	1.11	-1.11	0.00	
7,303.00	90.21	286.70	5,585.43	145.81	-2,489.23	2,465.22	1.50	-1.48	-0.29	
7,367.00	91.23	286.61	5,584.62	164.15	-2,550.54	2,524.58	1.60	1.59	-0.14	
7,431.00	90.62	286.35	5,583.59	182.30	-2,611.90	2,584.01	1.04	-0.95	-0.41	
7,495.00	89.43	285.74	5,583.56	199.99	-2,673.40	2,643.62	2.09	-1.86	-0.95	
7,559.00	91.89	285.56	5,582.82	217.25	-2,735.02	2,703.39	3.85	3.84	-0.28	
7,623.00	91.85	285.65	5,580.74	234.46	-2,796.63	2,763.15	0.15	-0.06	0.14	
7,687.00	90.92	284.33	5,579.19	251.01	-2,858.43	2,823.17	2.52	-1.45	-2.06	
7,750.00	90.18	283.80	5,578.58	266.32	-2,919.54	2,882.61	1.44	-1.17	-0.84	
7,814.00	92.02	284.24	5,577.36	281.82	-2,981.62	2,942.99	2.96	2.88	0.69	
7,877.00	91.71	284.15	5,575.31	297.26	-3,042.66	3,002.36	0.51	-0.49	-0.14	
7,941.00	91.01	282.75	5,573.79	312.14	-3,104.89	3,062.95	2.45	-1.09	-2.19	
8,004.00	90.92	282.40	5,572.72	325.86	-3,166.37	3,122.90	0.57	-0.14	-0.56	
8,067.00	91.58	285.03	5,571.35	340.79	-3,227.55	3,182.45	4.30	1.05	4.17	
8,131.00	90.62	284.15	5,570.12	356.91	-3,289.48	3,242.63	2.03	-1.50	-1.38	
8,191.00	90.04	283.63	5,569.78	371.31	-3,347.72	3,299.30	1.30	-0.97	-0.87	
8,252.00	89.47	283.36	5,570.04	385.54	-3,407.03	3,357.05	1.03	-0.93	-0.44	
8,313.00	91.14	284.33	5,569.71	400.14	-3,466.26	3,414.68	3.17	2.74	1.59	
8,374.00	91.45	283.98	5,568.33	415.05	-3,525.39	3,472.18	0.77	0.51	-0.57	
8,435.00	90.92	284.07	5,567.07	429.83	-3,584.56	3,529.74	0.88	-0.87	0.15	
8,496.00	90.75	283.19	5,566.18	444.21	-3,643.84	3,587.44	1.47	-0.28	-1.44	
8,556.00	90.26	283.71	5,565.65	458.16	-3,702.19	3,644.26	1.19	-0.82	0.87	
8,617.00	88.99	282.48	5,566.05	471.98	-3,761.60	3,702.14	2.90	-2.08	-2.02	
8,678.00	89.21	282.48	5,567.01	485.16	-3,821.15	3,760.23	0.36	0.36	0.00	
8,739.00	90.29	283.80	5,567.28	499.03	-3,880.55	3,818.10	2.80	1.77	2.16	
8,801.00	90.48	282.47	5,566.86	513.12	-3,940.92	3,876.92	2.17	0.31	-2.15	
8,862.00	90.61	282.13	5,566.28	526.11	-4,000.52	3,935.07	0.60	0.21	-0.56	
8,923.00	92.55	283.98	5,564.60	539.88	-4,059.92	3,992.94	4.39	3.18	3.03	
8,983.00	92.28	282.57	5,562.07	553.65	-4,118.26	4,049.77	2.39	-0.45	-2.35	
9,044.00	92.29	282.75	5,559.64	567.01	-4,177.73	4,107.76	0.30	0.02	0.30	



Terrapin Energy Services
Survey Report



Company:	WPX Energy Production, LLC	Local Co-ordinate Reference:	Well Chaco 2307-13A 184H
Project:	Rio Arriba, Co., NM	TVD Reference:	Elev @ 7005.00usft
Site:	Sec.13-T23N-T7W	MD Reference:	Elev @ 7005.00usft
Well:	Chaco 2307-13A 184H	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey	Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
	9,105.00	91.80	282.57	5,557.46	580.37	-4,237.21	4,165.75	0.86	-0.80	-0.30
	9,165.00	91.45	281.08	5,555.76	592.66	-4,295.91	4,223.07	2.55	-0.58	-2.48
	9,226.00	91.18	280.55	5,554.36	604.10	-4,355.81	4,281.66	0.97	-0.44	-0.87
	9,287.00	90.74	281.96	5,553.34	616.00	-4,415.63	4,340.13	2.42	-0.72	2.31
	9,348.00	88.90	280.99	5,553.53	628.14	-4,475.40	4,398.54	3.41	-3.02	-1.59
	9,408.00	88.77	283.19	5,554.75	640.70	-4,534.06	4,455.78	3.67	-0.22	3.67
	9,470.00	90.57	285.30	5,555.11	655.96	-4,594.14	4,514.21	4.47	2.90	3.40
	9,531.00	91.71	285.74	5,553.89	672.28	-4,652.91	4,571.22	2.00	1.87	0.72
	9,591.00	90.26	285.82	5,552.86	688.59	-4,710.64	4,627.20	2.42	-2.42	0.13
	9,652.00	88.81	284.33	5,553.36	704.45	-4,769.53	4,684.39	3.41	-2.38	-2.44
	9,713.00	91.80	284.77	5,553.03	719.78	-4,828.57	4,741.76	4.95	4.90	0.72
	9,774.00	93.38	285.30	5,550.28	735.58	-4,887.42	4,798.90	2.73	2.59	0.87
	9,835.00	92.50	284.15	5,547.15	751.07	-4,946.33	4,856.14	2.37	-1.44	-1.89
	9,895.00	92.50	284.42	5,544.53	765.86	-5,004.42	4,912.62	0.45	0.00	0.45
	9,956.00	92.20	284.68	5,542.03	781.17	-5,063.42	4,969.96	0.65	-0.49	0.43
	10,018.00	88.46	283.89	5,541.67	796.46	-5,123.49	5,028.36	6.17	-6.03	-1.27
	10,079.00	91.10	283.19	5,541.91	810.74	-5,182.79	5,086.10	4.48	4.33	-1.15
	10,140.00	89.65	283.45	5,541.51	824.80	-5,242.14	5,143.91	2.41	-2.38	0.43
	10,202.00	90.97	284.33	5,541.17	839.68	-5,302.33	5,202.46	2.56	2.13	1.42
	10,264.00	90.48	283.54	5,540.39	854.61	-5,362.50	5,261.00	1.50	-0.79	-1.27
	10,325.00	90.00	283.63	5,540.13	868.94	-5,421.79	5,318.72	0.80	-0.79	0.15
	10,387.00	90.18	282.84	5,540.03	883.13	-5,482.14	5,377.51	1.31	0.29	-1.27
	10,449.00	90.13	283.01	5,539.87	897.00	-5,542.57	5,436.41	0.29	-0.08	0.27
	10,511.00	91.19	285.21	5,539.15	912.11	-5,602.69	5,494.88	3.94	1.71	3.55
	10,572.00	90.35	281.87	5,538.33	926.39	-5,661.98	5,552.60	5.65	-1.38	-5.48
	10,633.00	90.44	281.96	5,537.91	938.98	-5,721.67	5,610.88	0.21	0.15	0.15
	10,695.00	90.35	281.25	5,537.48	951.46	-5,782.40	5,670.20	1.15	-0.15	-1.15
	10,758.00	90.61	282.66	5,536.96	964.50	-5,844.03	5,730.37	2.28	0.41	2.24
	10,822.00	90.70	282.84	5,536.22	978.63	-5,906.45	5,791.22	0.31	0.14	0.28
	10,885.00	90.22	282.57	5,535.72	992.48	-5,967.90	5,851.14	0.87	-0.76	-0.43
	10,948.00	90.44	281.17	5,535.36	1,005.44	-6,029.55	5,911.33	2.25	0.35	-2.22
	11,011.00	90.83	281.69	5,534.66	1,017.93	-6,091.30	5,971.66	1.03	0.62	0.83
	11,075.00	90.26	280.20	5,534.05	1,030.08	-6,154.13	6,033.11	2.49	-0.89	-2.33
	11,138.00	90.66	280.55	5,533.54	1,041.42	-6,216.10	6,093.77	0.84	0.63	0.56
	11,201.00	89.47	280.20	5,533.47	1,052.77	-6,278.06	6,154.43	1.97	-1.89	-0.56
	11,264.00	89.38	280.20	5,534.10	1,063.92	-6,340.07	6,215.14	0.14	-0.14	0.00
	11,321.00	90.57	281.25	5,534.13	1,074.53	-6,396.07	6,269.93	2.78	2.09	1.84
	11,384.00	89.78	279.85	5,533.94	1,086.06	-6,458.00	6,330.53	2.55	-1.25	-2.22
	11,447.00	89.34	282.40	5,534.42	1,098.22	-6,519.81	6,390.96	4.11	-0.70	4.05
	11,511.00	88.68	285.12	5,535.53	1,113.44	-6,581.96	6,451.44	4.37	-1.03	4.25
	11,574.00	91.49	287.58	5,535.43	1,131.17	-6,642.40	6,510.00	5.93	4.46	3.90
	11,637.00	90.48	286.88	5,534.35	1,149.83	-6,702.56	6,568.18	1.95	-1.60	-1.11
	11,700.00	88.59	286.26	5,534.86	1,167.79	-6,762.94	6,626.65	3.16	-3.00	-0.98



Company:	WPX Energy Production, LLC	Local Co-ordinate Reference:	Well Chaco 2307-13A 184H
Project:	Rio Arriba Co., NM	TVD Reference:	Elev @ 7005.00usft
Site:	Sec.13-T23N-T7W	MD Reference:	Elev @ 7005.00usft
Well:	Chaco 2307-13A 184H	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,764.00	88.95	286.88	5,536.23	1,186.04	-6,824.27	6,686.04	1.12	0.56	0.97
11,828.00	91.05	284.86	5,536.23	1,203.54	-6,885.82	6,745.72	4.55	3.28	-3.16
11,892.00	91.45	285.30	5,534.84	1,220.19	-6,947.60	6,805.70	0.93	0.63	0.69
11,956.00	89.34	285.30	5,534.40	1,237.07	-7,009.33	6,865.61	3.30	-3.30	0.00
12,020.00	91.49	286.18	5,533.93	1,254.43	-7,070.92	6,925.35	3.63	3.36	1.38
12,084.00	90.70	286.00	5,532.71	1,272.17	-7,132.41	6,984.93	1.27	-1.23	-0.28
12,148.00	90.83	286.97	5,531.86	1,290.33	-7,193.77	7,044.36	1.53	0.20	1.52
12,211.00	89.21	285.56	5,531.83	1,307.97	-7,254.24	7,102.96	3.41	-2.57	-2.24
12,275.00	90.18	287.76	5,532.18	1,326.32	-7,315.55	7,162.32	3.76	1.52	3.44
12,338.00	89.25	287.76	5,532.49	1,345.53	-7,375.55	7,220.29	1.48	-1.48	0.00
12,401.00	90.26	287.23	5,532.76	1,364.47	-7,435.63	7,278.37	1.81	1.60	-0.84
12,464.00	89.25	287.85	5,533.03	1,383.46	-7,495.70	7,336.44	1.88	-1.60	0.98
12,528.00	88.06	287.93	5,534.53	1,403.11	-7,556.59	7,395.26	1.86	-1.86	0.13
12,591.00	89.38	286.00	5,535.94	1,421.49	-7,616.83	7,453.55	3.71	2.10	-3.06
12,655.00	90.13	286.00	5,536.21	1,439.13	-7,678.35	7,513.18	1.17	1.17	0.00
12,718.00	90.88	285.91	5,535.66	1,456.45	-7,738.92	7,571.90	1.20	1.19	-0.14
12,782.00	90.48	285.30	5,534.90	1,473.66	-7,800.56	7,631.69	1.14	-0.63	-0.95
12,846.00	90.09	284.59	5,534.58	1,490.16	-7,862.39	7,691.74	1.27	-0.61	-1.11
12,910.00	89.69	284.51	5,534.70	1,506.24	-7,924.34	7,751.94	0.64	-0.63	-0.13
12,974.00	90.44	284.33	5,534.63	1,522.18	-7,986.32	7,812.19	1.21	1.17	-0.28
13,038.00	89.65	283.80	5,534.58	1,537.73	-8,048.40	7,872.58	1.49	-1.23	-0.83
13,101.00	89.56	284.15	5,535.01	1,552.95	-8,109.53	7,932.05	0.57	-0.14	0.56
13,132.00	89.52	284.68	5,535.26	1,560.67	-8,139.56	7,961.24	1.71	-0.13	1.71
Final TES Survey									
13,202.00	89.52	284.68	5,535.85	1,578.40	-8,207.27	8,027.03	0.00	0.00	0.00
Projection To Bit									

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
6,107.00	5,591.02	7" Casing	7	8-3/4

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
364.00	363.99	-2.79	0.59	Tie In To Surface Gyros
433.00	432.99	-3.09	0.15	First TES Survey
13,132.00	5,535.26	1,560.67	-8,139.56	Final TES Survey
13,202.00	5,535.85	1,578.40	-8,207.27	Projection To Bit

Checked By: _____ Approved By: _____ Date: _____