

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-045-35549		*Pool Code 97232		*Pool Name BASIN MANCOS	
*Property Code 313712		*Property Name CHACO 2308-24H			*Well Number 154H
*GRID No. 120782		*Operator Name WPX ENERGY PRODUCTION, LLC			*Elevation 6894'

¹⁰ Surface Location

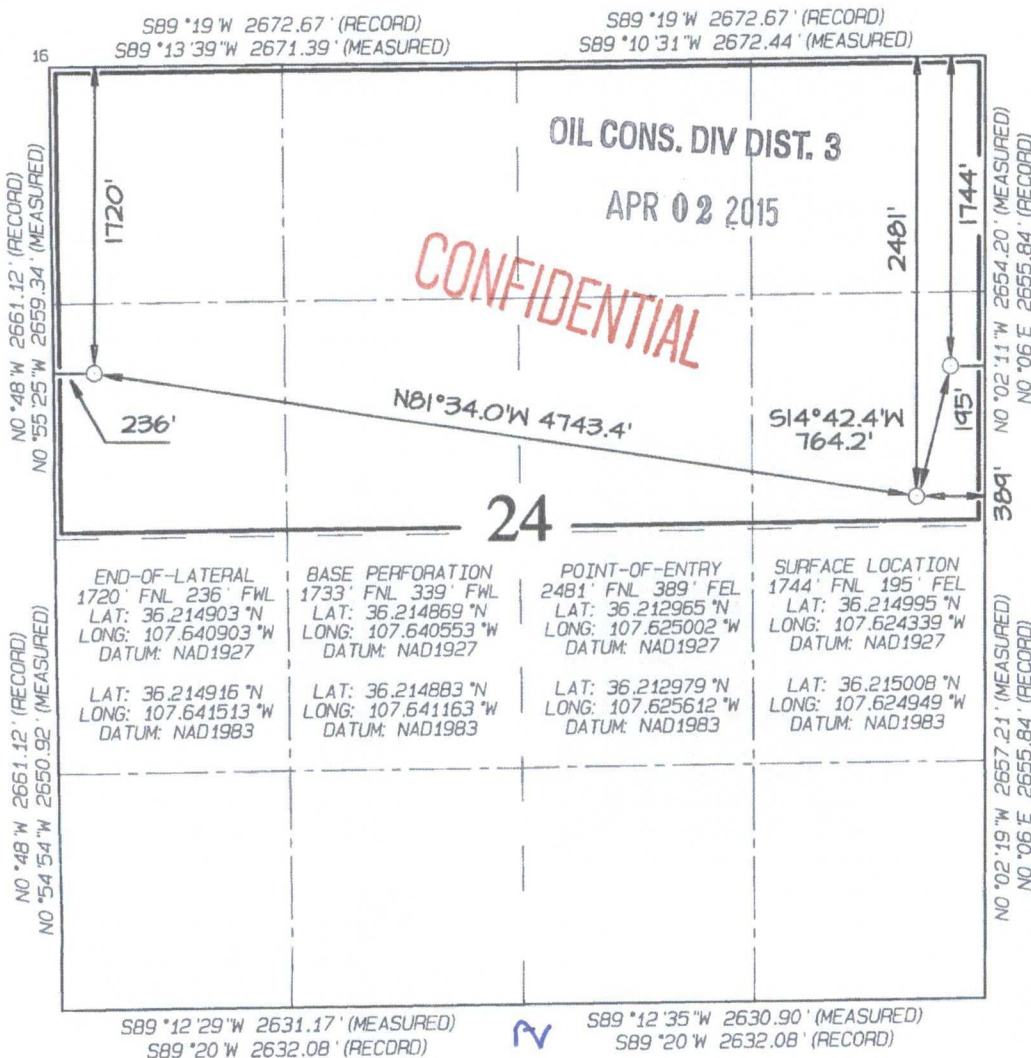
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	24	23N	8W		1744	NORTH	195	EAST	SAN JUAN

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	24	23N	8W		1720	NORTH	236	WEST	SAN JUAN

¹² Dedicated Acres 320.0 Acres N/2 - Section 24		¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. NSL-PENDING 7282 approved 3-19-15
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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: 4-1-15

Printed Name: 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: MARCH 19, 2015
Survey Date: SEPTEMBER 12, 2013

Signature and Seal of Professional Surveyor

JASON C. EDWARDS
NEW MEXICO
REGISTERED PROFESSIONAL SURVEYOR
15269

JASON C. EDWARDS
Certificate Number 15269



WELL DETAILS: Chaco 2308-24H 154H

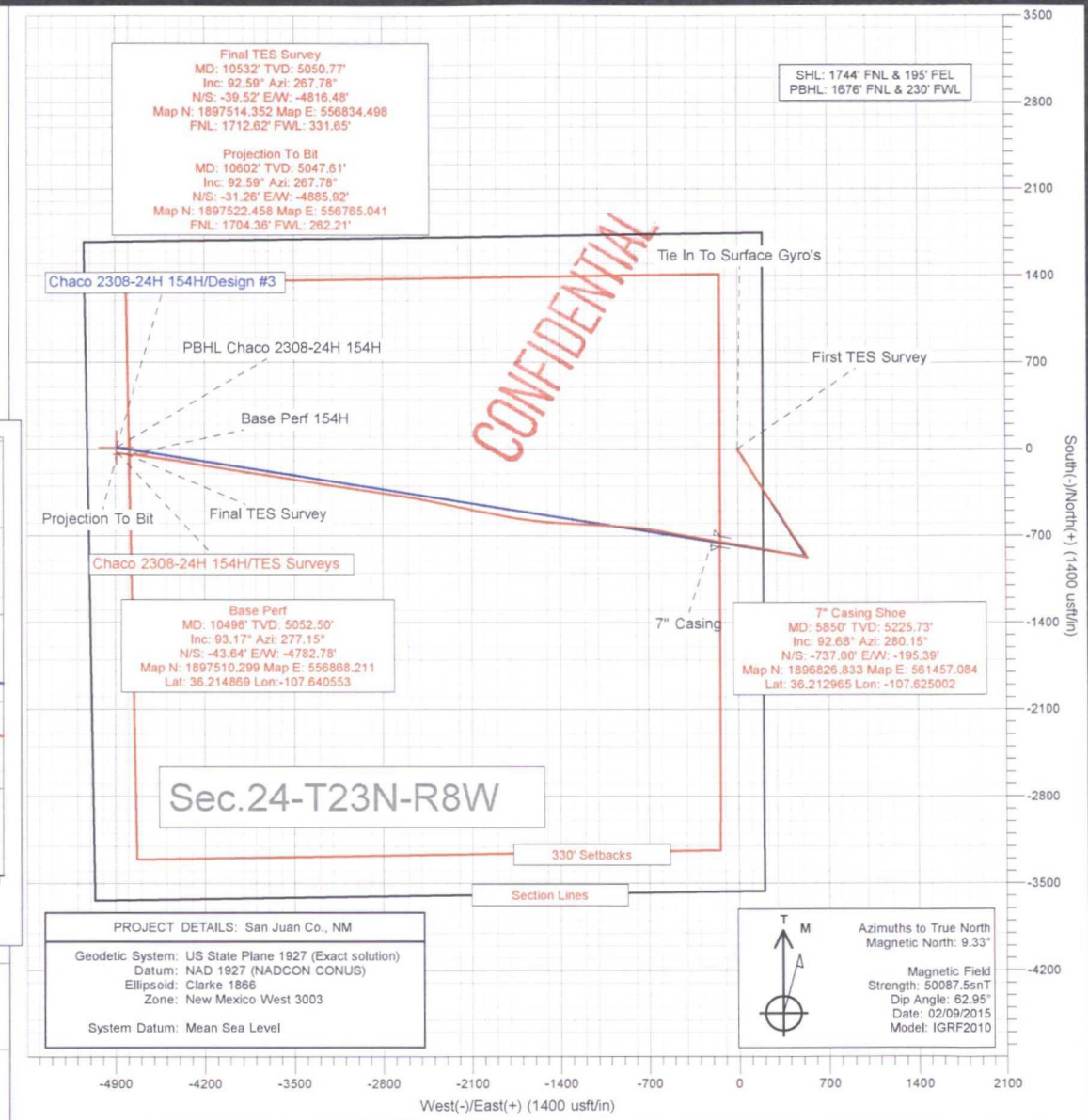
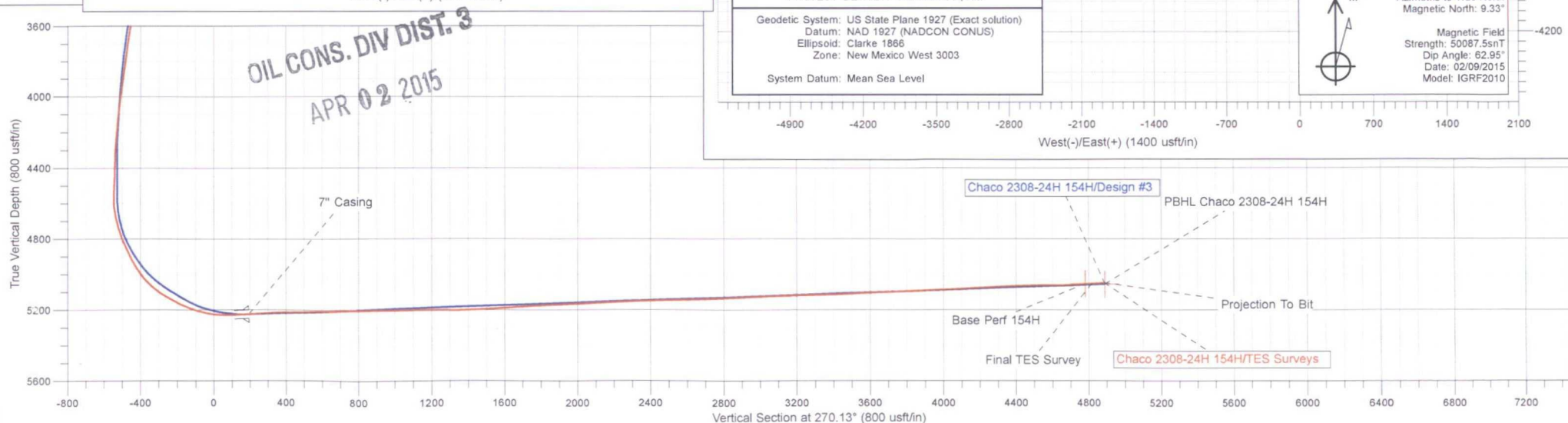
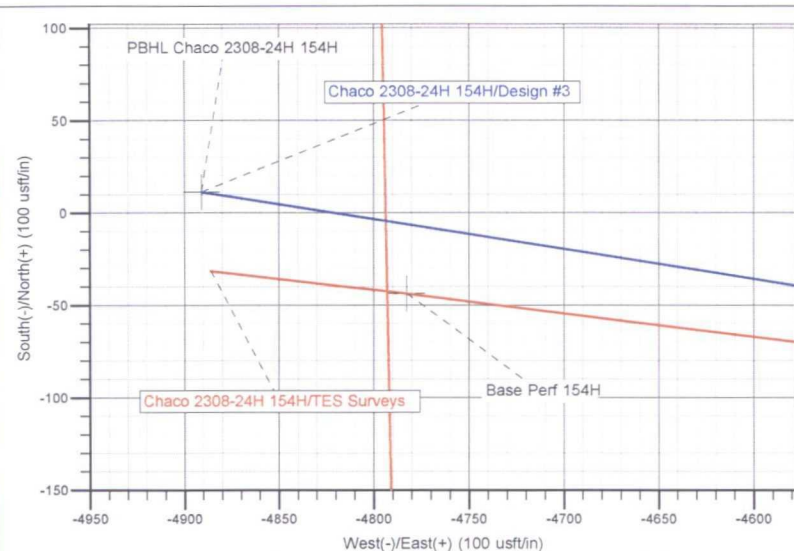
Ground Level:		Northing		Easting		Latitude		Longitude		Slot
+N/-S	+E/-W									
0.00	0.00	1897564.250544	561650.881881	36.214990	-107.624340					

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Base Perf 154H	5052.50	-43.64	-4782.78	36.214869	-107.640553	Point
PBHL Chaco 2308-24H 154H	5055.00	11.34	-4890.94	36.215020	-107.640920	Point

Survey: TES Surveys (Chaco 2308-24H 154H/Wellbore #1)

Created By: M. Ramich Date: 14:40, February 16 2015



PROJECT DETAILS: San Juan Co., NM
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico West 3003
System Datum: Mean Sea Level

Azimuths to True North
Magnetic North: 9.33°
Magnetic Field
Strength: 50087.5nT
Dip Angle: 62.95°
Date: 02/09/2015
Model: IGRF2010

WPXENERGY



WPX Energy Production, LLC

San Juan Co., NM

Sec.24-T23N-R8W

Chaco 2308-24H 154H

Wellbore #1

Survey: TES Surveys

CONFIDENTIAL

Standard Survey Report

16 February, 2015





Terrapin Energy Services

Survey Report



Company:	WPX Energy Production, LLC	Local Co-ordinate Reference:	Well Chaco 2308-24H 154H
Project:	San Juan Co., NM	TVD Reference:	Elev @ 6910.00usft
Site:	Sec.24-T23N-R8W	MD Reference:	Elev @ 6910.00usft
Well:	Chaco 2308-24H 154H	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project	San Juan Co., 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	Sec.24-T23N-R8W		
Site Position:		Northing:	1,897,589.731413 usft
From:	Lat/Long	Easting:	561,650.826967 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	36.215060
		Longitude:	-107.624340
		Grid Convergence:	0.12 °

Well	Chaco 2308-24H 154H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	36.214990
		Longitude:	-107.624340
		Ground Level:	6,896.00 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2010	02/09/15	9.33
			Dip Angle (°)
			62.95
			Field Strength (nT)
			50,087

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)
	5,055.00	0.00	0.00
			Direction (°)
			270.13

Survey Program	Date 02/16/15		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
64.00	364.00	Survey #1 (Wellbore #1)	GYRO
479.00	10,602.00	TES Surveys (Wellbore #1)	MWD
			Description
			Gyro-compassing and drop
			MWD - Standard

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	0.05	250.94	364.00	0.72	-0.66	0.66	0.00	0.00	0.00
Tie In To Surface Gyro's									
479.00	0.05	193.95	479.00	0.66	-0.72	0.72	0.04	0.00	-49.56
First TES Survey									
541.00	0.76	167.16	541.00	0.23	-0.63	0.63	1.15	1.15	-43.21
602.00	3.24	162.39	601.95	-1.81	-0.02	0.02	4.07	4.07	-7.82
662.00	3.99	159.97	661.83	-5.38	1.21	-1.22	1.28	1.25	-4.03
723.00	4.41	152.18	722.67	-9.45	3.03	-3.05	1.16	0.69	-12.77
784.00	5.82	147.46	783.43	-14.13	5.79	-5.82	2.41	2.31	-7.74



Terrapin Energy Services

Survey Report



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Site:	Sec.24-T23N-R8W	MD Reference:	Elev @ 6910.00usft
Well:	Chaco 2308-24H 154H	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)
844.00	6.58	145.68	843.07	-19.54	9.36	-9.41	1.31	1.27	-2.97
905.00	7.00	147.95	903.65	-25.58	13.30	-13.36	0.82	0.69	3.72
965.00	7.82	149.36	963.15	-32.19	17.32	-17.40	1.40	1.37	2.35
1,026.00	8.89	149.42	1,023.50	-39.81	21.84	-21.93	1.75	1.75	0.10
1,086.00	9.83	149.98	1,082.70	-48.24	26.76	-26.87	1.57	1.57	0.93
1,147.00	11.60	150.08	1,142.63	-58.07	32.42	-32.56	2.90	2.90	0.16
1,208.00	12.52	147.64	1,202.29	-68.97	39.02	-39.18	1.72	1.51	-4.00
1,267.00	13.42	146.38	1,259.78	-80.07	46.24	-46.42	1.60	1.53	-2.14
1,329.00	15.32	146.44	1,319.84	-92.89	54.75	-54.96	3.06	3.06	0.10
1,390.00	16.61	146.37	1,378.48	-106.86	64.03	-64.28	2.11	2.11	-0.11
1,450.00	16.71	145.54	1,435.96	-121.12	73.66	-73.94	0.43	0.17	-1.38
1,511.00	18.68	148.43	1,494.08	-136.67	83.74	-84.06	3.54	3.23	4.74
1,572.00	19.54	150.05	1,551.71	-153.83	93.95	-94.30	1.66	1.41	2.66
1,633.00	20.15	149.55	1,609.09	-171.73	104.36	-104.76	1.04	1.00	-0.82
1,694.00	20.82	149.34	1,666.23	-190.11	115.22	-115.66	1.10	1.10	-0.34
1,756.00	19.99	149.30	1,724.34	-208.70	126.25	-126.73	1.34	-1.34	-0.06
1,817.00	19.95	148.00	1,781.68	-226.49	137.08	-137.61	0.73	-0.07	-2.13
1,877.00	19.37	147.97	1,838.18	-243.61	147.79	-148.35	0.97	-0.97	-0.05
1,940.00	18.69	147.20	1,897.73	-260.95	158.79	-159.40	1.15	-1.08	-1.22
2,004.00	18.07	146.04	1,958.47	-277.80	169.89	-170.54	1.12	-0.97	-1.81
2,067.00	18.54	146.73	2,018.28	-294.28	180.85	-181.53	0.82	0.75	1.10
2,130.00	18.90	149.12	2,077.95	-311.41	191.58	-192.30	1.34	0.57	3.79
2,194.00	18.83	148.66	2,138.51	-329.13	202.27	-203.03	0.26	-0.11	-0.72
2,257.00	18.63	150.21	2,198.18	-346.55	212.56	-213.36	0.85	-0.32	2.46
2,320.00	18.65	148.74	2,257.87	-363.89	222.78	-223.63	0.75	0.03	-2.33
2,383.00	18.52	148.85	2,317.59	-381.07	233.19	-234.07	0.21	-0.21	0.17
2,446.00	18.58	148.32	2,377.31	-398.17	243.63	-244.56	0.28	0.10	-0.84
2,509.00	19.04	148.57	2,436.95	-415.48	254.26	-255.23	0.74	0.73	0.40
2,572.00	19.09	146.48	2,496.49	-432.84	265.31	-266.31	1.09	0.08	-3.32
2,636.00	19.51	145.10	2,556.90	-450.33	277.21	-278.25	0.97	0.66	-2.16
2,699.00	20.02	145.03	2,616.19	-467.79	289.41	-290.49	0.81	0.81	-0.11
2,762.00	19.22	146.78	2,675.53	-485.31	301.27	-302.39	1.58	-1.27	2.78
2,826.00	18.85	145.74	2,736.03	-502.66	312.86	-314.02	0.78	-0.58	-1.63
2,890.00	18.74	147.62	2,796.62	-519.89	324.19	-325.39	0.96	-0.17	2.94
2,953.00	18.42	148.84	2,856.33	-536.96	334.76	-336.00	0.80	-0.51	1.94
3,017.00	18.38	150.26	2,917.06	-554.37	344.99	-346.28	0.70	-0.06	2.22
3,081.00	18.03	150.89	2,977.86	-571.78	354.82	-356.14	0.63	-0.55	0.98
3,145.00	17.64	149.43	3,038.78	-588.79	364.57	-365.93	0.93	-0.61	-2.28
3,208.00	17.59	150.08	3,098.83	-605.26	374.17	-375.57	0.32	-0.08	1.03
3,271.00	16.49	148.28	3,159.06	-621.11	383.62	-385.06	1.94	-1.75	-2.86
3,335.00	16.69	148.35	3,220.40	-636.66	393.22	-394.69	0.31	0.31	0.11
3,398.00	16.84	148.03	3,280.72	-652.11	402.80	-404.31	0.28	0.24	-0.51
3,462.00	16.32	148.74	3,342.06	-667.66	412.37	-413.92	0.87	-0.81	1.11



Terrapin Energy Services
Survey Report



Company:	WPX Energy Production, LLC	Local Co-ordinate Reference:	Well Chaco 2308-24H 154H
Project:	San Juan Co., NM	TVD Reference:	Elev @ 6910.00usft
Site:	Sec.24-T23N-R8W	MD Reference:	Elev @ 6910.00usft
Well:	Chaco 2308-24H 154H	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)	
3,526.00	16.34	148.55	3,403.48	-683.02	421.73	-423.32	0.09	0.03	-0.30	
3,589.00	16.17	146.79	3,463.96	-697.92	431.16	-432.78	0.83	-0.27	-2.79	
3,653.00	15.79	146.68	3,525.49	-712.66	440.83	-442.48	0.60	-0.59	-0.17	
3,716.00	15.11	143.77	3,586.21	-726.44	450.39	-452.07	1.64	-1.08	-4.62	
3,780.00	14.69	144.16	3,648.06	-739.75	460.07	-461.78	0.67	-0.66	0.61	
3,844.00	14.28	149.07	3,710.03	-753.10	468.88	-470.62	2.02	-0.64	7.67	
3,907.00	13.88	148.15	3,771.13	-766.18	476.86	-478.64	0.73	-0.63	-1.46	
3,971.00	13.59	147.42	3,833.30	-779.04	484.96	-486.77	0.53	-0.45	-1.14	
4,034.00	13.37	145.39	3,894.57	-791.27	493.08	-494.92	0.83	-0.35	-3.22	
4,098.00	12.70	147.31	3,956.92	-803.28	501.09	-502.95	1.25	-1.05	3.00	
4,162.00	13.10	146.66	4,019.30	-815.26	508.87	-510.76	0.66	0.63	-1.02	
4,225.00	12.36	148.34	4,080.75	-826.97	516.34	-518.25	1.31	-1.17	2.67	
4,288.00	11.50	148.09	4,142.39	-838.04	523.19	-525.14	1.37	-1.37	-0.40	
4,351.00	9.86	153.34	4,204.30	-848.19	528.93	-530.90	3.02	-2.60	8.33	
4,415.00	7.26	156.69	4,267.58	-856.80	532.99	-534.98	4.13	-4.06	5.23	
4,479.00	4.80	152.83	4,331.22	-862.90	535.82	-537.82	3.89	-3.84	-6.03	
4,542.00	3.24	144.47	4,394.07	-866.69	538.06	-540.06	2.64	-2.48	-13.27	
4,606.00	2.58	121.10	4,457.99	-868.91	540.34	-542.35	2.10	-1.03	-36.52	
4,701.00	2.33	130.57	4,552.90	-871.27	543.64	-545.66	0.50	-0.26	9.97	
4,764.00	4.47	266.08	4,615.84	-872.27	542.16	-544.18	10.07	3.40	215.10	
4,827.00	12.34	281.95	4,678.12	-871.04	533.11	-535.13	12.91	12.49	25.19	
4,890.00	16.22	282.11	4,739.17	-867.80	517.91	-519.93	6.16	6.16	0.25	
4,953.00	21.54	281.17	4,798.75	-863.71	497.95	-499.95	8.46	8.44	-1.49	
5,016.00	24.68	284.62	4,856.69	-858.15	473.87	-475.86	5.43	4.98	5.48	
5,080.00	27.66	282.46	4,914.13	-851.57	446.43	-448.40	4.89	4.66	-3.38	
5,143.00	32.23	280.02	4,968.71	-845.49	415.59	-417.55	7.51	7.25	-3.87	
5,206.00	39.16	280.31	5,019.84	-839.00	379.43	-381.38	11.00	11.00	0.46	
5,269.00	46.33	280.93	5,066.08	-831.11	337.44	-339.36	11.40	11.38	0.98	
5,333.00	56.45	280.80	5,105.96	-821.70	288.38	-290.29	15.81	15.81	-0.20	
5,397.00	61.69	279.56	5,138.85	-812.01	234.37	-236.25	8.35	8.19	-1.94	
5,460.00	63.34	279.51	5,167.92	-802.76	179.25	-181.11	2.62	2.62	-0.08	
5,523.00	69.74	278.94	5,192.99	-793.50	122.24	-124.08	10.19	10.16	-0.90	
5,586.00	75.32	280.99	5,211.90	-783.09	63.08	-64.89	9.38	8.86	3.25	
5,649.00	82.45	280.38	5,224.03	-771.64	2.37	-4.16	11.36	11.32	-0.97	
5,713.00	89.80	279.63	5,228.35	-760.56	-60.47	58.71	11.54	11.48	-1.17	
5,776.00	90.84	279.90	5,228.00	-749.87	-122.55	120.82	1.71	1.65	0.43	
5,917.00	94.35	280.38	5,221.62	-725.08	-261.19	259.51	2.51	2.49	0.34	
5,979.00	94.13	280.91	5,217.04	-713.66	-321.95	320.30	0.92	-0.35	0.85	
6,040.00	91.67	280.39	5,213.95	-702.40	-381.82	380.19	4.12	-4.03	-0.85	
6,102.00	91.63	280.47	5,212.16	-691.18	-442.77	441.17	0.14	-0.06	0.13	
6,163.00	91.45	280.74	5,210.53	-679.96	-502.71	501.13	0.53	-0.30	0.44	
6,224.00	91.41	280.47	5,209.00	-668.74	-562.65	561.10	0.45	-0.07	-0.44	
6,286.00	91.06	279.77	5,207.67	-657.85	-623.67	622.14	1.26	-0.56	-1.13	
6,347.00	90.40	279.15	5,206.89	-647.82	-683.83	682.33	1.48	-1.08	-1.02	



Terrapin Energy Services

Survey Report



Company:	WPX Energy Production, LLC	Local Co-ordinate Reference:	Well Chaco 2308-24H 154H
Project:	San Juan Co., NM	TVD Reference:	Elev @ 6910.00usft
Site:	Sec.24-T23N-R8W	MD Reference:	Elev @ 6910.00usft
Well:	Chaco 2308-24H 154H	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey										
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6,409.00	91.05	276.87	5,206.10	-639.18	-745.22	743.73	3.82	1.05	-3.68	
6,470.00	90.09	275.64	5,205.50	-632.54	-805.85	804.38	2.56	-1.57	-2.02	
6,531.00	89.96	274.58	5,205.47	-627.10	-866.61	865.15	1.75	-0.21	-1.74	
6,592.00	91.71	274.32	5,204.58	-622.37	-927.41	925.97	2.90	2.87	-0.43	
6,654.00	90.53	272.91	5,203.37	-618.46	-989.28	987.84	2.97	-1.90	-2.27	
6,715.00	90.79	271.95	5,202.67	-615.88	-1,050.22	1,048.79	1.63	0.43	-1.57	
6,775.00	91.27	273.44	5,201.59	-613.06	-1,110.14	1,108.71	2.61	0.80	2.48	
6,836.00	90.44	273.00	5,200.68	-609.63	-1,171.04	1,169.62	1.54	-1.36	-0.72	
6,897.00	89.25	273.09	5,200.84	-606.39	-1,231.95	1,230.54	1.96	-1.95	0.15	
6,958.00	88.59	272.04	5,201.99	-603.66	-1,292.87	1,291.47	2.03	-1.08	-1.72	
7,019.00	92.37	275.20	5,201.48	-599.81	-1,353.73	1,352.34	8.08	6.20	5.18	
7,080.00	91.98	274.14	5,199.17	-594.85	-1,414.48	1,413.10	1.85	-0.64	-1.74	
7,140.00	92.81	274.41	5,196.66	-590.38	-1,474.27	1,472.89	1.45	1.38	0.45	
7,200.00	94.04	276.25	5,193.08	-584.82	-1,533.90	1,532.54	3.68	2.05	3.07	
7,261.00	94.57	276.34	5,188.50	-578.15	-1,594.36	1,593.01	0.88	0.87	0.15	
7,321.00	94.22	278.28	5,183.90	-570.54	-1,653.69	1,652.36	3.28	-0.58	3.23	
7,382.00	92.90	278.72	5,180.11	-561.54	-1,713.90	1,712.60	2.28	-2.16	0.72	
7,442.00	93.60	278.36	5,176.71	-552.64	-1,773.14	1,771.86	1.31	1.17	-0.60	
7,503.00	92.81	281.35	5,173.30	-542.22	-1,833.14	1,831.88	5.06	-1.30	4.90	
7,563.00	92.34	281.79	5,170.60	-530.20	-1,891.86	1,890.63	1.07	-0.78	0.73	
7,624.00	92.77	281.53	5,167.88	-517.88	-1,951.54	1,950.34	0.82	0.70	-0.43	
7,685.00	92.50	281.53	5,165.08	-505.70	-2,011.25	2,010.07	0.44	-0.44	0.00	
7,746.00	92.29	281.79	5,162.53	-493.38	-2,070.94	2,069.79	0.55	-0.34	0.43	
7,807.00	92.29	281.70	5,160.09	-480.98	-2,130.61	2,129.49	0.15	0.00	-0.15	
7,868.00	92.42	281.35	5,157.59	-468.80	-2,190.33	2,189.24	0.61	0.21	-0.57	
7,929.00	92.51	281.35	5,154.96	-456.80	-2,250.08	2,249.02	0.15	0.15	0.00	
7,990.00	92.86	281.53	5,152.10	-444.72	-2,309.81	2,308.77	0.65	0.57	0.30	
8,051.00	92.86	281.54	5,149.06	-432.54	-2,369.50	2,368.49	0.02	0.00	0.02	
8,112.00	91.41	281.70	5,146.79	-420.26	-2,429.21	2,428.23	2.39	-2.38	0.26	
8,173.00	91.27	281.53	5,145.36	-407.98	-2,488.94	2,487.99	0.36	-0.23	-0.28	
8,234.00	90.97	280.91	5,144.17	-396.11	-2,548.76	2,547.84	1.13	-0.49	-1.02	
8,294.00	91.98	278.98	5,142.62	-385.76	-2,607.84	2,606.94	3.63	1.68	-3.22	
8,358.00	91.76	278.63	5,140.54	-375.96	-2,671.05	2,670.17	0.65	-0.34	-0.55	
8,421.00	92.77	278.80	5,138.05	-366.43	-2,733.27	2,732.42	1.63	1.60	0.27	
8,485.00	92.78	278.71	5,134.95	-356.70	-2,796.45	2,795.62	0.14	0.02	-0.14	
8,548.00	92.37	278.10	5,132.12	-347.50	-2,858.71	2,857.90	1.17	-0.65	-0.97	
8,611.00	92.15	277.92	5,129.63	-338.72	-2,921.05	2,920.26	0.45	-0.35	-0.29	
8,674.00	92.94	279.86	5,126.84	-329.00	-2,983.23	2,982.46	3.32	1.25	3.08	
8,737.00	92.72	279.51	5,123.73	-318.41	-3,045.26	3,044.51	0.66	-0.35	-0.56	
8,801.00	92.33	279.59	5,120.91	-307.81	-3,108.31	3,107.58	0.62	-0.61	0.13	
8,864.00	91.71	279.07	5,118.69	-297.60	-3,170.43	3,169.74	1.28	-0.98	-0.83	
8,927.00	91.32	278.80	5,117.02	-287.82	-3,232.65	3,231.97	0.75	-0.62	-0.43	
8,990.00	91.19	278.63	5,115.64	-278.27	-3,294.91	3,294.25	0.34	-0.21	-0.27	



Terrapin Energy Services
Survey Report



Company:	WPX Energy Production, LLC	Local Co-ordinate Reference:	Well Chaco 2308-24H 154H
Project:	San Juan Co., NM	TVD Reference:	Elev @ 6910.00usft
Site:	Sec.24-T23N-R8W	MD Reference:	Elev @ 6910.00usft
Well:	Chaco 2308-24H 154H	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)
9,053.00	91.27	278.45	5,114.29	-268.92	-3,357.19	3,356.56	0.31	0.13	-0.29
9,117.00	91.54	278.71	5,112.72	-259.38	-3,420.46	3,419.85	0.59	0.42	0.41
9,180.00	93.43	280.12	5,109.99	-249.08	-3,482.55	3,481.96	3.74	3.00	2.24
9,244.00	93.08	279.33	5,106.35	-238.29	-3,545.52	3,544.96	1.35	-0.55	-1.23
9,307.00	92.64	278.98	5,103.21	-228.28	-3,607.64	3,607.10	0.89	-0.70	-0.56
9,371.00	92.46	278.80	5,100.36	-218.40	-3,670.81	3,670.30	0.40	-0.28	-0.28
9,434.00	91.80	278.45	5,098.02	-208.95	-3,733.06	3,732.56	1.19	-1.05	-0.56
9,498.00	92.86	279.95	5,095.42	-198.73	-3,796.18	3,795.71	2.87	1.66	2.34
9,561.00	92.68	279.33	5,092.37	-188.19	-3,858.22	3,857.77	1.02	-0.29	-0.98
9,624.00	92.42	279.07	5,089.57	-178.13	-3,920.34	3,919.92	0.58	-0.41	-0.41
9,687.00	92.55	278.98	5,086.84	-168.26	-3,982.50	3,982.10	0.25	0.21	-0.14
9,750.00	93.08	279.51	5,083.74	-158.15	-4,044.61	4,044.23	1.19	0.84	0.84
9,813.00	92.77	279.94	5,080.53	-147.52	-4,106.62	4,106.27	0.84	-0.49	0.68
9,876.00	92.77	279.51	5,077.49	-136.89	-4,168.65	4,168.32	0.68	0.00	-0.68
9,939.00	93.21	280.38	5,074.20	-126.03	-4,230.61	4,230.31	1.55	0.70	1.38
10,003.00	92.77	280.38	5,070.86	-114.51	-4,293.48	4,293.20	0.69	-0.69	0.00
10,066.00	93.21	280.56	5,067.57	-103.08	-4,355.35	4,355.10	0.75	0.70	0.29
10,129.00	93.24	279.68	5,064.03	-92.03	-4,417.27	4,417.04	1.40	0.05	-1.40
10,192.00	90.88	277.66	5,061.77	-82.54	-4,479.50	4,479.30	4.93	-3.75	-3.21
10,255.00	90.18	277.40	5,061.18	-74.28	-4,541.95	4,541.77	1.19	-1.11	-0.41
10,319.00	90.00	276.96	5,061.08	-66.28	-4,605.45	4,605.29	0.74	-0.28	-0.69
10,383.00	93.07	277.22	5,059.37	-58.39	-4,668.93	4,668.78	4.81	4.80	0.41
10,447.00	93.74	277.57	5,055.57	-50.16	-4,732.29	4,732.16	1.18	1.05	0.55
10,510.00	93.03	277.05	5,051.85	-42.16	-4,794.67	4,794.56	1.40	-1.13	-0.83
10,532.00	92.59	276.78	5,050.77	-39.52	-4,816.48	4,816.38	2.35	-2.00	-1.23
Final TES Survey									
10,602.00	92.59	276.78	5,047.61	-31.26	-4,885.92	4,885.83	0.00	0.00	0.00
Projection To Bit									

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting		
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)	Latitude	Longitude
Base Perf 154H	0.00	0.00	5,052.50	-43.64	-4,782.78	1,897,510.302	556,868.20704	36.214869	-107.640554
						664	3		
- survey misses target center by 0.01usft at 10498.00usft MD (5052.50 TVD, -43.64 N, -4782.78 E)									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
5,850.00	5,225.73	7" Casing		7	8-3/4



Terrapin Energy Services

Survey Report



Company: WPX Energy Production, LLC
Project: San Juan Co., NM
Site: Sec.24-T23N-R8W
Well: Chaco 2308-24H 154H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Chaco 2308-24H 154H
TVD Reference: Elev @ 6910.00usft
MD Reference: Elev @ 6910.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
364.00	364.00	0.72	-0.66	Tie In To Surface Gyro's
479.00	479.00	0.66	-0.72	First TES Survey
10,532.00	5,050.77	-39.52	-4,816.48	Final TES Survey
10,602.00	5,047.61	-31.26	-4,885.92	Projection To Bit

Checked By: _____ Approved By: _____ Date: _____