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DISTRICT II-ARTESIA O.C.D.

WPX Energy

Eddy County, New Mexico (NAD 83)

Frontier 32-23-26 State Pad

Frontier 32-23-26 State 431H

Wellbore #1

Design: Actual

WPX Final Survey Report

10 December, 2018

Scientific Drilling, Intl
WPX Final Survey Report

Company:	WPX Energy	Local Co-ordinate Reference:	Well Frontier 32-23-26 State 431H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	GL 3437 + RKB 26 = @ 3463.00usft (HP 265)
Site:	Frontier 32-23-26 State Pad	MD Reference:	GL 3437 + RKB 26 = @ 3463.00usft (HP 265)
Well:	Frontier 32-23-26 State 431H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	Midland District

Project	Eddy County, New Mexico (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Frontier 32-23-26 State Pad		
Site Position:		Northing:	456,164.70 usft
From:	Map	Easting:	549,203.30 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	32.254070
		Longitude:	-104.307888
		Grid Convergence:	0.01

Well	Frontier 32-23-26 State 431H					
Well Position	+N/-S:	0.00 usft	Northing:	456,164.70 usft	Latitude:	32.254070
	+E/-W:	0.00 usft	Easting:	549,203.30 usft	Longitude:	-104.307888
Position Uncertainty	0.00 usft		Wellhead Elevation:	0.00 usft	Ground Level:	3,437.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	11/25/2018	7.37	59.92	47,874

Design	Actual			
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 (bearing)
	0.00	0.00	0.00	269.62

Scientific Drilling, Intl

WPX Final Survey Report

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 Wellbore: Wellbore #1
 Design: Actual

Local Co-ordinate Reference: Well Frontier 32-23-26 State 431H
 TVD Reference: GL 3437 + RKB 26 = @ 3463.00usft (HP 265)
 MD Reference: GL 3437 + RKB 26 = @ 3463.00usft (HP 265)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: Midland District

Survey Program		Date	12/10/2018		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
204.00	350.00	SDI MWD - Surface (Wellbore #1)	MWD+HRGM	OWSG MWD + HRGM	
512.00	8,236.00	SDI MWD - Intermediate (Wellbore #1)	MWD+HRGM	OWSG MWD + HRGM	
8,355.00	9,091.00	SDI MWD - Curve (Wellbore #1)	MWD+HRGM	OWSG MWD + HRGM	
9,199.00	13,682.00	SDI MWD - Lateral (Wellbore #1)	MWD+HRGM	OWSG MWD + HRGM	

MD (usft)	Inc (°)	Azi (azimuth) (bearing)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	Closure Distance (usft)	Closure Azimuth (bearing)	Northing (usft)	Easting (usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	456,164.70	549,203.30
204.00	0.05	207.53	204.00	-0.08	-0.04	0.04	0.09	207.53	456,164.62	549,203.26
267.00	0.21	202.06	267.00	-0.21	-0.10	0.10	0.23	204.81	456,164.49	549,203.20
350.00	0.21	220.96	350.00	-0.47	-0.25	0.26	0.53	208.59	456,164.23	549,203.05
512.00	0.65	254.12	511.99	-0.94	-1.33	1.34	1.63	234.75	456,163.76	549,201.97
605.00	0.72	253.99	604.99	-1.25	-2.40	2.41	2.71	242.55	456,163.45	549,200.90
697.00	0.92	251.85	696.98	-1.64	-3.66	3.67	4.01	245.90	456,163.06	549,199.64
790.00	0.86	253.67	789.97	-2.07	-5.04	5.05	5.45	247.71	456,162.63	549,198.26
882.00	1.16	243.66	881.95	-2.67	-6.54	6.55	7.06	247.76	456,162.03	549,196.76
975.00	1.41	245.99	974.93	-3.56	-8.42	8.45	9.14	247.11	456,161.14	549,194.88
1,067.00	0.56	238.97	1,066.91	-4.25	-9.84	9.87	10.72	246.65	456,160.45	549,193.46
1,160.00	0.97	66.77	1,159.91	-4.17	-9.51	9.54	10.38	246.31	456,160.53	549,193.79
1,252.00	0.39	76.34	1,251.90	-3.79	-8.49	8.51	9.30	245.94	456,160.91	549,194.81
1,347.00	0.05	144.66	1,346.90	-3.75	-8.15	8.18	8.97	245.30	456,160.95	549,195.15
1,442.00	0.24	181.14	1,441.90	-3.98	-8.13	8.16	9.05	243.91	456,160.72	549,195.17
1,536.00	0.30	250.98	1,535.90	-4.26	-8.37	8.40	9.39	243.03	456,160.44	549,194.93
1,631.00	0.23	205.05	1,630.90	-4.51	-8.68	8.71	9.79	242.54	456,160.19	549,194.62
1,726.00	0.39	209.82	1,725.90	-4.97	-8.93	8.96	10.21	240.91	456,159.73	549,194.37
1,745.00	0.69	243.54	1,744.90	-5.07	-9.06	9.09	10.38	240.76	456,159.63	549,194.24
1,917.00	0.69	230.50	1,916.89	-6.19	-10.79	10.83	12.44	240.14	456,158.51	549,192.51

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Site: Frontier 32-23-26 State Pad
Well: Frontier 32-23-26 State 431H
Wellbore: Wellbore #1
Design: Actual

Local Co-ordinate Reference: Well Frontier 32-23-26 State 431H
TVD Reference: GL 3437 + RKB 26 = @ 3463.00usft (HP 265)
MD Reference: GL 3437 + RKB 26 = @ 3463.00usft (HP 265)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland District

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (bearing)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	Closure Distance (usft)	Closure Azimuth (bearing)	Northing (usft)	Easting (usft)	
2,012.00	0.55	235.43	2,011.88	-6.82	-11.60	11.65	13.46	239.57	456,157.88	549,191.70	
2,106.00	0.76	243.98	2,105.88	-7.34	-12.53	12.58	14.53	239.63	456,157.36	549,190.77	
2,201.00	0.97	248.45	2,200.86	-7.92	-13.85	13.90	15.95	240.25	456,156.78	549,189.45	
2,296.00	0.57	228.61	2,295.86	-8.52	-14.95	15.01	17.21	240.31	456,156.18	549,188.35	
2,391.00	0.59	203.99	2,390.85	-9.28	-15.50	15.57	18.07	239.09	456,155.42	549,187.80	
2,485.00	0.67	196.27	2,484.85	-10.25	-15.86	15.92	18.88	237.11	456,154.45	549,187.44	
2,580.00	0.88	193.22	2,579.84	-11.50	-16.18	16.25	19.85	234.60	456,153.20	549,187.12	
2,675.00	0.76	199.68	2,674.83	-12.80	-16.56	16.64	20.93	232.29	456,151.90	549,186.74	
2,770.00	0.79	195.27	2,769.82	-14.03	-16.94	17.03	21.99	230.38	456,150.67	549,186.36	
2,864.00	0.77	198.51	2,863.81	-15.25	-17.31	17.41	23.07	228.63	456,149.45	549,185.99	
2,959.00	1.81	116.26	2,958.79	-16.52	-16.17	16.28	23.12	224.39	456,148.18	549,187.13	
3,054.00	2.61	105.01	3,053.72	-17.74	-12.74	12.85	21.84	215.67	456,146.96	549,190.56	
3,148.00	3.58	97.41	3,147.58	-18.68	-7.76	7.88	20.22	202.56	456,146.02	549,195.54	
3,243.00	4.30	91.14	3,242.36	-19.13	-1.26	1.38	19.17	183.75	456,145.57	549,202.04	
3,338.00	5.90	79.02	3,336.98	-18.27	7.10	-6.98	19.60	158.76	456,146.43	549,210.40	
3,432.00	6.54	72.58	3,430.43	-15.75	16.95	-16.85	23.14	132.89	456,148.95	549,220.25	
3,527.00	5.84	71.67	3,524.87	-12.61	26.70	-26.62	29.53	115.28	456,152.09	549,230.00	
3,621.00	5.05	70.67	3,618.45	-9.73	35.14	-35.08	36.47	105.48	456,154.97	549,238.44	
3,716.00	5.43	66.49	3,713.05	-6.56	43.21	-43.17	43.71	98.63	456,158.14	549,246.51	
3,811.00	6.51	60.01	3,807.54	-2.07	52.00	-51.98	52.04	92.28	456,162.63	549,255.30	
3,905.00	6.14	60.06	3,900.96	3.10	60.97	-60.99	61.05	87.09	456,167.80	549,264.27	
4,000.00	5.64	60.48	3,995.46	7.94	69.43	-69.49	69.89	83.48	456,172.64	549,272.73	
4,095.00	6.14	61.77	4,089.96	12.64	77.97	-78.05	78.99	80.79	456,177.34	549,281.27	
4,190.00	7.48	61.24	4,184.29	18.02	87.87	-87.99	89.70	78.41	456,182.72	549,291.17	
4,284.00	6.87	58.97	4,277.55	23.86	98.05	-98.21	100.91	76.32	456,188.56	549,301.35	
4,378.00	5.91	58.48	4,370.97	29.29	106.99	-107.19	110.93	74.69	456,193.99	549,310.29	
4,473.00	5.23	58.02	4,465.52	34.14	114.84	-115.06	119.80	73.44	456,198.84	549,318.14	

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 Design: Actual

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Survey										
MD (usft)	Inc (°)	Azi (azimuth) (bearing)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	Closure Distance (usft)	Closure Azimuth (bearing)	Northing (usft)	Easting (usft)
4,568.00	5.53	67.74	4,560.10	38.17	122.75	-123.00	128.54	72.73	456,202.87	549,326.05
4,662.00	6.40	70.01	4,653.59	41.67	131.86	-132.13	138.29	72.46	456,206.37	549,335.16
4,757.00	5.67	69.16	4,748.06	45.15	141.22	-141.52	148.27	72.27	456,209.85	549,344.52
4,852.00	5.27	71.71	4,842.63	48.19	149.75	-150.07	157.31	72.16	456,212.89	549,353.05
4,946.00	5.56	76.31	4,936.21	50.62	158.27	-158.61	166.17	72.26	456,215.32	549,361.57
5,041.00	6.70	82.52	5,030.67	52.43	168.24	-168.58	176.22	72.69	456,217.13	549,371.54
5,136.00	5.71	80.97	5,125.11	53.90	178.40	-178.76	186.37	73.19	456,218.60	549,381.70
5,230.00	5.70	82.61	5,218.64	55.23	187.65	-188.01	195.61	73.60	456,219.93	549,390.95
5,325.00	5.38	82.49	5,313.20	56.42	196.74	-197.11	204.67	74.00	456,221.12	549,400.04
5,419.00	4.47	82.70	5,406.85	57.46	204.75	-205.12	212.66	74.32	456,222.16	549,408.05
5,514.00	4.37	73.13	5,501.57	58.96	211.88	-212.27	219.94	74.44	456,223.68	549,415.18
5,608.00	4.60	64.72	5,595.28	61.63	218.72	-219.12	227.24	74.26	456,226.33	549,422.02
5,703.00	5.89	66.39	5,689.89	65.21	226.63	-227.06	235.83	73.95	456,229.91	549,429.93
5,797.00	5.22	63.74	5,783.44	69.04	234.88	-235.34	244.82	73.62	456,233.74	549,438.18
5,892.00	3.47	70.86	5,878.17	71.89	241.48	-241.95	251.95	73.42	456,236.59	549,444.78
5,986.00	2.33	86.22	5,972.05	72.95	246.07	-246.55	256.66	73.49	456,237.65	549,449.37
6,081.00	3.20	81.26	6,066.94	73.48	250.62	-251.10	261.17	73.66	456,238.18	549,453.92
6,175.00	4.64	76.87	6,160.71	74.74	256.91	-257.40	267.57	73.78	456,239.44	549,460.21
6,270.00	4.42	75.64	6,255.42	76.52	264.20	-264.70	275.06	73.85	456,241.22	549,467.50
6,365.00	3.24	76.96	6,350.20	78.04	270.36	-270.88	281.40	73.90	456,242.74	549,473.66
6,459.00	2.64	72.20	6,444.08	79.30	275.01	-275.53	286.22	73.92	456,244.00	549,478.31
6,554.00	1.74	68.22	6,539.01	80.50	278.44	-278.96	289.84	73.87	456,245.20	549,481.74
6,649.00	1.46	60.73	6,633.97	81.63	280.83	-281.37	292.45	73.79	456,246.33	549,484.13
6,728.00	1.35	52.45	6,712.95	82.69	282.45	-282.99	294.30	73.68	456,247.39	549,485.75
6,838.00	0.98	68.62	6,822.92	83.82	284.35	-284.90	296.45	73.58	456,248.52	549,487.65
6,933.00	0.67	76.40	6,917.91	84.25	285.65	-286.20	297.81	73.57	456,248.95	549,488.95
7,028.00	0.26	47.67	7,012.91	84.52	286.35	-286.90	298.56	73.55	456,249.22	549,489.65

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Site:	Frontier 32-23-26 State Pad	MD Reference:	GL 3437 + RKB 26 = @ 3463.00usft (HP 265)
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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	Midland District

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (bearing)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	Closure Distance (usft)	Closure Azimuth (bearing)	Northing (usft)	Easting (usft)	
7,122.00	0.37	26.10	7,106.91	84.94	286.64	-287.19	298.96	73.49	456,249.64	549,489.94	
7,217.00	0.11	266.33	7,201.91	85.21	286.68	-287.24	299.08	73.45	456,249.91	549,489.98	
7,312.00	0.60	290.67	7,296.91	85.38	286.12	-286.68	298.59	73.39	456,250.08	549,489.42	
7,406.00	0.17	182.90	7,390.91	85.41	285.66	-286.22	298.15	73.35	456,250.11	549,488.96	
7,501.00	0.55	127.14	7,485.90	85.00	286.01	-286.57	298.38	73.45	456,249.70	549,489.31	
7,596.00	1.30	147.32	7,580.89	83.81	286.96	-287.51	298.95	73.72	456,248.51	549,490.26	
7,690.00	2.16	146.48	7,674.85	81.44	288.51	-289.05	299.79	74.24	456,246.14	549,491.81	
7,785.00	3.04	123.59	7,769.75	78.55	291.60	-292.11	302.00	74.92	456,243.25	549,494.90	
7,880.00	1.67	114.87	7,864.67	76.58	294.95	-295.46	304.73	75.45	456,241.28	549,498.25	
7,974.00	0.44	82.89	7,958.65	76.05	296.56	-297.05	306.15	75.62	456,240.75	549,499.86	
8,069.00	0.59	79.72	8,053.65	76.18	297.40	-297.90	307.00	75.63	456,240.88	549,500.70	
8,164.00	1.25	127.47	8,148.64	75.64	298.70	-299.20	308.13	75.79	456,240.34	549,502.00	
8,236.00	1.41	150.42	8,220.62	74.39	299.76	-300.25	308.85	76.06	456,239.09	549,503.06	
8,357.00	3.03	252.22	8,341.55	72.12	297.45	-297.92	306.07	76.37	456,236.82	549,500.75	
8,451.00	11.89	269.05	8,434.67	71.19	285.38	-285.84	294.13	75.99	456,235.89	549,488.68	
8,546.00	22.43	267.23	8,525.32	70.15	257.41	-257.87	266.80	74.76	456,234.85	549,460.71	
8,641.00	35.33	269.04	8,608.33	68.81	211.65	-212.10	222.56	71.99	456,233.51	549,414.95	
8,736.00	42.61	273.52	8,682.15	70.33	152.00	-152.46	167.48	65.17	456,235.03	549,355.30	
8,830.00	50.71	273.76	8,746.61	74.87	83.83	-84.32	112.26	48.30	456,239.37	549,287.13	
8,925.00	59.93	271.94	8,800.61	78.48	5.89	-6.41	78.71	4.29	456,243.18	549,209.19	
8,933.12	60.64	271.96	8,804.64	78.72	-1.16	0.64	78.73	359.15	456,243.42	549,202.14	
FTP Actual 8933.12' MD - Frontier431H FTP											
9,020.00	68.21	272.13	8,842.12	81.52	-79.42	78.88	113.81	315.75	456,246.22	549,123.88	
9,091.00	73.20	272.48	8,865.57	84.22	-146.36	145.80	168.86	299.92	456,248.92	549,056.94	
9,199.00	79.67	273.04	8,890.89	89.28	-251.17	250.57	266.56	289.57	456,253.98	548,952.13	
9,221.00	82.58	272.52	8,894.28	90.33	-272.88	272.27	287.44	288.32	456,255.03	548,930.42	
9,316.00	89.36	270.87	8,900.96	93.13	-367.54	366.91	379.16	284.22	456,257.83	548,835.76	

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Well: Frontier 32-23-26 State 431H
Wellbore: Wellbore #1
Design: Actual

Local Co-ordinate Reference: Well Frontier 32-23-26 State 431H
TVD Reference: GL 3437 + RKB 26 = @ 3463.00usft (HP 265)
MD Reference: GL 3437 + RKB 26 = @ 3463.00usft (HP 265)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland District

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,933.12	8,804.64	78.72	-1.16	FTP Actual 8933.12' MD
13,580.55	8,846.80	89.17	-4,628.68	LTP Actual 13580.55' MD
13,608.00	8,846.25	90.48	-4,656.10	SDI MWD
13,682.00	8,845.17	93.78	-4,730.01	Bit Projection

Checked By: _____ Approved By: _____ Date: _____