

WPX Energy, Permian

Eddy County, New Mexico (NAD 83)

Dalmatian/Shepherd 3-2-23-27 Fee Pad

Shepherd 3-2-23-27 Fee 401H

Wellbore #1

Design: Actual

WPX Final Survey Report

10 April, 2019

RECEIVED

APR 25 2019

DISTRICT II-ARTESIA O.C.D.

Scientific Drilling, Intl
WPX Final Survey Report

Company:	WPX Energy, Permian	Local Co-ordinate Reference:	Well Shepherd 3-2-23-27 Fee 401H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	GL 3112 + KB 26 = @ 3138.00usft (HP 265)
Site:	Dalmatian/Shepherd 3-2-23-27 Fee Pad	MD Reference:	GL 3112 + KB 26 = @ 3138.00usft (HP 265)
Well:	Shepherd 3-2-23-27 Fee 401H	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	Dalmatian/Shepherd 3-2-23-27 Fee Pad		
Site Position:		Northing:	485,066.30 usft
From:	Map	Easting:	587,845.30 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32.333429
		Longitude:	-104.182755
		Grid Convergence:	0.08 °

Well		Shepherd 3-2-23-27 Fee 401H				
Well Position	+N/-S	0.00 usft	Northing:	485,091.60 usft	Latitude:	32.333499
	+E/-W	0.00 usft	Easting:	587,845.90 usft	Longitude:	-104.182753
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,112.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	3/11/2019	7.23	60.03	47,921

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	89.50

Scientific Drilling, Intl
WPX Final Survey Report

Company:	WPX Energy, Permian	Local Co-ordinate Reference:	Well Shepherd 3-2-23-27 Fee 401H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	GL 3112 + KB 26 = @ 3138.00usft (HP 265)
Site:	Dalmatian/Shepherd 3-2-23-27 Fee Pad	MD Reference:	GL 3112 + KB 26 = @ 3138.00usft (HP 265)
Well:	Shepherd 3-2-23-27 Fee 401H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	Midland District

Survey Program		Date	4/8/2019		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
179.00	349.00	SDI MWD - Surface (Wellbore #1)	MWD+HRGM	OWSG MWD + HRGM	
510.00	8,495.00	SDI MWD - Intermediate (Wellbore #1)	MWD+HRGM	OWSG MWD + HRGM	
8,549.00	9,307.00	SDI MWD - Curve (Wellbore #1)	MWD+HRGM	OWSG MWD + HRGM	
9,365.00	19,249.00	SDI MWD - Lateral (Wellbore #1)	MWD+HRGM	OWSG MWD + HRGM	

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)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	485,091.60	587,845.90	
179.00	0.46	8.95	179.00	0.71	0.11	0.12	0.72	8.95	485,092.31	587,846.01	
240.00	1.17	17.86	239.99	1.54	0.34	0.35	1.58	12.45	485,093.14	587,846.24	
331.00	1.08	58.70	330.98	2.87	1.36	1.38	3.18	25.30	485,094.47	587,847.26	
349.00	1.16	74.41	348.97	3.01	1.68	1.71	3.45	29.14	485,094.61	587,847.58	
510.00	1.62	96.06	509.93	3.21	5.51	5.54	6.38	59.79	485,094.81	587,851.41	
606.00	1.71	97.92	605.88	2.87	8.28	8.30	8.76	70.89	485,094.47	587,854.18	
698.00	0.94	79.79	697.86	2.81	10.38	10.41	10.76	74.84	485,094.41	587,856.28	
790.00	0.76	43.90	789.85	3.39	11.55	11.58	12.03	73.66	485,094.99	587,857.45	
883.00	0.87	47.17	882.84	4.31	12.49	12.53	13.22	70.96	485,095.91	587,858.39	
975.00	0.84	49.09	974.83	5.23	13.52	13.56	14.49	68.85	485,096.83	587,859.42	
1,068.00	0.76	47.72	1,067.82	6.09	14.49	14.54	15.71	67.20	485,097.69	587,860.39	
1,160.00	0.73	78.03	1,159.81	6.62	15.51	15.57	16.87	66.89	485,098.22	587,861.41	
1,252.00	0.48	117.03	1,251.81	6.57	16.43	16.48	17.69	68.21	485,098.17	587,862.33	
1,344.00	0.64	172.05	1,343.81	5.88	16.84	16.89	17.84	70.75	485,097.48	587,862.74	
1,437.00	0.76	163.98	1,436.80	4.78	17.08	17.13	17.74	74.38	485,096.38	587,862.98	
1,531.00	0.60	198.94	1,530.79	3.71	17.10	17.13	17.50	77.75	485,095.31	587,863.00	
1,626.00	0.69	230.92	1,625.79	2.88	16.49	16.52	16.74	80.09	485,094.48	587,862.39	
1,720.00	0.58	198.23	1,719.78	2.07	15.90	15.92	16.04	82.58	485,093.67	587,861.80	
1,815.00	0.18	350.01	1,814.78	1.76	15.73	15.74	15.83	83.61	485,093.36	587,861.63	

Scientific Drilling, Intl
WPX Final Survey Report

Company:	WPX Energy, Permian	Local Co-ordinate Reference:	Well Shepherd 3-2-23-27 Fee 401H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	GL 3112 + KB 26 = @ 3138.00usft (HP 265)
Site:	Dalmatian/Shepherd 3-2-23-27 Fee, Pad	MD Reference:	GL 3112 + KB 26 = @ 3138.00usft (HP 265)
Well:	Shepherd 3-2-23-27 Fee, 401H	North Reference:	Grid
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)	
1,909.00	0.78	334.62	1,908.78	2.49	15.43	15.45	15.63	80.85	485,094.09	587,861.33	
2,004.00	0.83	332.74	2,003.77	3.68	14.83	14.87	15.28	76.06	485,095.28	587,860.73	
2,028.00	0.83	330.26	2,027.76	3.99	14.67	14.70	15.20	74.80	485,095.59	587,860.57	
2,144.00	0.76	319.73	2,143.75	5.30	13.75	13.80	14.74	68.92	485,096.90	587,859.65	
2,238.00	1.39	323.26	2,237.74	6.69	12.67	12.73	14.33	62.16	485,098.29	587,858.57	
2,333.00	4.44	318.03	2,332.60	10.35	9.52	9.61	14.06	42.61	485,101.95	587,855.42	
2,427.00	6.83	316.65	2,426.14	17.12	3.25	3.40	17.43	10.75	485,108.72	587,849.15	
2,522.00	9.74	313.98	2,520.14	26.81	-6.41	-6.18	27.57	346.55	485,118.41	587,839.49	
2,617.00	12.15	312.01	2,613.41	39.08	-19.63	-19.29	43.73	333.34	485,130.68	587,826.27	
2,711.00	14.22	303.18	2,704.93	52.03	-36.64	-36.19	63.63	324.84	485,143.63	587,809.26	
2,806.00	15.75	296.65	2,796.70	64.20	-57.93	-57.38	86.47	317.94	485,155.80	587,787.97	
2,901.00	15.16	295.04	2,888.27	75.24	-80.71	-80.06	110.34	312.99	485,166.84	587,765.19	
2,995.00	15.10	293.16	2,979.01	85.26	-103.11	-102.36	133.79	309.59	485,176.86	587,742.79	
3,090.00	15.69	295.28	3,070.60	95.61	-126.10	-125.26	158.25	307.17	485,187.21	587,719.80	
3,185.00	16.73	298.39	3,161.83	107.59	-149.74	-148.81	184.39	305.70	485,199.19	587,696.16	
3,279.00	16.49	297.58	3,251.90	120.20	-173.47	-172.42	211.05	304.72	485,211.80	587,672.43	
3,374.00	16.68	296.29	3,342.95	132.49	-197.65	-196.49	237.94	303.83	485,224.09	587,648.25	
3,469.00	16.62	296.92	3,433.97	144.68	-221.98	-220.72	264.97	303.09	485,236.28	587,623.92	
3,564.00	15.90	302.49	3,525.18	157.82	-245.07	-243.70	291.49	302.78	485,249.42	587,600.83	
3,658.00	15.92	300.89	3,615.57	171.35	-267.00	-265.50	317.25	302.69	485,262.95	587,578.90	
3,753.00	16.18	301.41	3,706.87	184.94	-289.48	-287.86	343.51	302.57	485,276.54	587,556.42	
3,848.00	16.13	308.08	3,798.13	199.98	-311.16	-309.42	369.88	302.73	485,291.58	587,534.74	
3,943.00	16.37	307.21	3,889.33	216.21	-332.21	-330.32	396.37	303.06	485,307.81	587,513.69	
4,037.00	16.39	304.89	3,979.52	231.81	-353.64	-351.62	422.84	303.24	485,323.41	587,492.26	
4,132.00	15.80	302.50	4,070.80	246.43	-375.54	-373.39	449.17	303.27	485,338.03	587,470.36	
4,227.00	15.02	303.77	4,162.38	260.22	-396.68	-394.41	474.42	303.26	485,351.82	587,449.22	
4,321.00	15.65	311.69	4,253.04	275.42	-416.28	-413.88	499.15	303.49	485,367.02	587,429.62	

Scientific Drilling, Intl
WPX Final Survey Report

Company:	WPX Energy, Permian	Local Co-ordinate Reference:	Well Shepherd 3-2-23-27 Fee 401H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	GL 3112 + KB 26 = @ 3138.00usft (HP 265)
Site:	Dalmatian/Shepherd 3-2-23-27 Fee Pad	MD Reference:	GL 3112 + KB 26 = @ 3138.00usft (HP 265)
Well:	Shepherd 3-2-23-27 Fee 401H	North Reference:	Grid
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)
4,416.00	15.41	310.68	4,344.57	292.17	-435.42	-432.87	524.36	303.86	485,383.77	587,410.48
4,510.00	17.17	314.91	4,434.80	310.11	-454.72	-452.01	550.40	304.29	485,401.71	587,391.18
4,605.00	16.88	313.59	4,525.64	329.52	-474.64	-471.77	577.81	304.77	485,421.12	587,371.26
4,700.00	16.01	312.38	4,616.75	347.86	-494.31	-491.27	604.44	305.14	485,439.46	587,351.59
4,795.00	15.98	313.14	4,708.07	365.63	-513.53	-510.34	630.40	305.45	485,457.23	587,332.37
4,889.00	17.46	314.53	4,798.10	384.37	-533.02	-529.67	657.16	305.80	485,475.97	587,312.88
4,984.00	16.97	313.08	4,888.84	403.84	-553.31	-549.79	685.01	306.12	485,495.44	587,292.59
5,079.00	16.72	310.02	4,979.77	422.09	-573.90	-570.22	712.41	306.33	485,513.69	587,272.00
5,173.00	17.13	306.87	5,069.70	439.09	-595.33	-591.50	739.75	306.41	485,530.69	587,250.57
5,268.00	16.67	305.51	5,160.59	455.40	-617.62	-613.64	767.36	306.40	485,547.00	587,228.28
5,363.00	16.36	303.69	5,251.68	470.74	-639.84	-635.73	794.35	306.34	485,562.34	587,206.06
5,457.00	15.74	303.00	5,342.01	485.03	-661.55	-657.32	820.30	306.25	485,576.63	587,184.35
5,552.00	15.24	302.00	5,433.56	498.66	-682.94	-678.59	845.62	306.14	485,590.26	587,162.96
5,647.00	15.94	308.51	5,525.07	513.40	-703.74	-699.26	871.11	306.11	485,605.00	587,142.16
5,741.00	17.27	312.20	5,615.15	530.81	-724.18	-719.55	897.89	306.24	485,622.41	587,121.72
5,836.00	17.12	312.55	5,705.91	549.74	-744.93	-740.13	925.81	306.43	485,641.34	587,100.97
5,931.00	13.96	310.36	5,797.42	566.62	-763.97	-759.02	951.16	306.56	485,658.22	587,081.93
6,025.00	12.68	310.57	5,888.89	580.67	-780.44	-775.38	972.77	306.65	485,672.27	587,065.46
6,120.00	12.75	308.64	5,981.56	594.00	-796.55	-791.37	993.65	306.71	485,685.60	587,049.35
6,215.00	16.85	307.06	6,073.39	608.85	-815.74	-810.43	1,017.90	306.74	485,700.45	587,030.16
6,310.00	15.62	307.27	6,164.60	624.90	-836.90	-831.45	1,044.46	306.75	485,716.50	587,009.00
6,404.00	15.14	304.73	6,255.24	639.55	-857.06	-851.48	1,069.38	306.73	485,731.15	586,988.84
6,499.00	14.86	304.11	6,347.00	653.45	-877.34	-871.64	1,093.95	306.68	485,745.05	586,968.56
6,594.00	15.00	305.95	6,438.79	667.50	-897.38	-891.56	1,118.41	306.64	485,759.10	586,948.52
6,688.00	14.87	309.20	6,529.62	682.27	-916.58	-910.63	1,142.63	306.66	485,773.87	586,929.32
6,739.00	14.19	313.79	6,578.99	690.73	-926.16	-920.14	1,155.37	306.72	485,782.33	586,919.74
6,833.00	12.28	317.72	6,670.49	706.10	-941.20	-935.05	1,176.62	306.88	485,797.70	586,904.70

Scientific Drilling, Intl
WPX Final Survey Report

Company:	WPX Energy, Permian	Local Co-ordinate Reference:	Well Shepherd 3-2-23-27 Fee 401H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	GL 3112 + KB 26 = @ 3138.00usft (HP 265)
Site:	Dalmatian/Shepherd 3-2-23-27 Fee Pad	MD Reference:	GL 3112 + KB 26 = @ 3138.00usft (HP 265)
Well:	Shepherd 3-2-23-27 Fee 401H	North Reference:	Grid
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)
6,928.00	9.83	314.91	6,763.72	719.30	-953.75	-947.47	1,194.58	307.02	485,810.90	586,892.15
7,023.00	8.21	311.26	6,857.54	729.50	-964.59	-958.23	1,209.38	307.10	485,821.10	586,881.31
7,118.00	5.97	310.36	6,951.81	737.17	-973.45	-967.03	1,221.08	307.14	485,828.77	586,872.45
7,212.00	4.72	305.18	7,045.40	742.57	-980.34	-973.87	1,229.83	307.14	485,834.17	586,865.56
7,307.00	4.80	302.99	7,140.07	746.98	-986.87	-980.36	1,237.70	307.12	485,838.58	586,859.03
7,402.00	4.70	304.41	7,234.75	751.35	-993.41	-986.86	1,245.55	307.10	485,842.95	586,852.49
7,496.00	4.56	306.64	7,328.44	755.75	-999.59	-993.00	1,253.13	307.09	485,847.35	586,846.31
7,591.00	3.55	303.56	7,423.20	759.63	-1,005.07	-998.45	1,259.85	307.08	485,851.23	586,840.83
7,686.00	2.88	293.96	7,518.05	762.23	-1,009.70	-1,003.06	1,265.11	307.05	485,853.83	586,836.20
7,780.00	2.53	283.30	7,611.95	763.66	-1,013.88	-1,007.22	1,269.31	306.99	485,855.26	586,832.02
7,875.00	2.99	290.16	7,706.84	765.00	-1,018.25	-1,011.57	1,273.60	306.92	485,856.60	586,827.65
7,969.00	2.80	277.75	7,800.72	766.16	-1,022.82	-1,016.14	1,277.95	306.84	485,857.76	586,823.08
8,064.00	3.12	265.65	7,895.59	766.27	-1,027.70	-1,021.02	1,281.93	306.71	485,857.87	586,818.20
8,159.00	3.33	262.27	7,990.44	765.71	-1,033.01	-1,026.33	1,285.85	306.55	485,857.31	586,812.89
8,254.00	2.89	251.56	8,085.30	764.58	-1,038.02	-1,031.35	1,289.21	306.37	485,856.18	586,807.88
8,348.00	2.55	210.63	8,179.21	762.03	-1,041.33	-1,034.69	1,290.37	306.20	485,853.63	586,804.57
8,443.00	3.17	194.24	8,274.09	757.66	-1,043.05	-1,036.45	1,289.19	305.99	485,849.26	586,802.85
8,495.00	2.99	195.76	8,326.01	754.96	-1,043.78	-1,037.19	1,288.19	305.88	485,846.56	586,802.12
8,549.00	3.06	194.09	8,379.94	752.21	-1,044.51	-1,037.95	1,287.18	305.76	485,843.81	586,801.39
8,644.00	10.16	169.14	8,474.26	741.51	-1,043.55	-1,037.08	1,280.17	305.40	485,833.11	586,802.35
8,739.00	19.74	143.22	8,566.03	720.36	-1,032.32	-1,026.04	1,258.81	304.91	485,811.96	586,813.58
8,782.00	22.18	142.66	8,606.18	708.09	-1,023.05	-1,016.87	1,244.20	304.69	485,799.69	586,822.85
8,833.00	24.30	127.79	8,653.08	693.99	-1,008.91	-1,002.85	1,224.55	304.52	485,785.59	586,836.99
8,880.00	25.64	115.19	8,695.72	683.73	-992.05	-986.08	1,204.84	304.57	485,775.33	586,853.85
8,928.00	26.52	101.83	8,738.87	677.10	-972.15	-966.24	1,184.71	304.86	485,768.70	586,873.75
8,976.00	28.81	91.86	8,781.40	674.53	-950.08	-944.20	1,165.18	305.37	485,766.13	586,895.82
9,023.00	33.55	84.33	8,821.61	675.45	-925.82	-919.93	1,146.02	306.11	485,767.05	586,920.08

Scientific Drilling, Intl
WPX Final Survey Report

Company: WPX Energy, Permian		Local Co-ordinate Reference: Well Shepherd 3-2-23-27 Fee 401H	
Project: Eddy County, New Mexico (NAD 83)		TVD Reference: GL 3112 + KB 26 = @ 3138.00usft (HP 265)	
Site: Dalmatian/Shepherd 3-2-23-27 Fee Pad		MD Reference: GL 3112 + KB 26 = @ 3138.00usft (HP 265)	
Well: Shepherd 3-2-23-27 Fee 401H		North Reference: Grid	
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)
9,117.00	43.97	75.14	8,894.87	686.42	-868.22	-862.24	1,106.79	308.33	485,778.02	586,977.68
9,127.40	45.33	75.55	8,902.27	688.27	-861.15	-855.15	1,102.41	308.63	485,779.87	586,984.75
Shep401H FTP										
9,141.96	47.23	76.09	8,912.33	690.85	-850.95	-844.93	1,096.08	309.07	485,782.45	586,994.95
FTP Actual@ 9194.96' MD, 328' FWL, 416' FSL										
9,212.00	56.43	78.30	8,955.57	702.97	-797.30	-791.18	1,062.95	311.40	485,794.57	587,048.60
9,307.00	70.70	80.82	8,997.76	718.23	-713.85	-707.59	1,012.64	315.18	485,809.83	587,132.05
9,365.00	79.31	83.67	9,012.76	725.76	-658.39	-652.07	979.90	317.79	485,817.36	587,187.51
9,460.00	80.76	84.65	9,029.20	735.27	-565.31	-558.92	927.47	322.45	485,826.87	587,280.59
9,554.00	81.48	84.98	9,043.71	743.67	-472.82	-466.35	881.25	327.55	485,835.27	587,373.08
9,649.00	84.65	86.23	9,055.18	750.89	-378.81	-372.28	841.03	333.23	485,842.49	587,467.09
9,744.00	88.79	85.50	9,060.61	757.73	-284.23	-277.65	809.28	339.44	485,849.33	587,561.67
9,839.00	88.79	84.36	9,062.62	766.12	-189.62	-182.97	789.24	346.10	485,857.72	587,656.28
9,933.00	91.71	85.83	9,062.21	774.16	-95.98	-89.27	780.08	352.93	485,865.76	587,749.92
10,028.00	90.77	89.40	9,060.15	778.11	-1.10	5.64	778.11	359.92	485,869.71	587,844.80
10,122.00	89.66	89.51	9,059.80	779.00	92.89	99.64	784.52	6.80	485,870.60	587,938.79
10,217.00	87.48	88.41	9,062.17	780.73	187.84	194.60	803.00	13.53	485,872.33	588,033.74
10,312.00	88.56	88.31	9,065.45	783.44	282.74	289.52	832.90	19.84	485,875.04	588,128.64
10,407.00	87.75	88.84	9,068.51	785.80	377.66	384.46	871.85	25.67	485,877.40	588,223.56
10,501.00	88.66	89.64	9,071.45	787.05	471.61	478.41	917.53	30.93	485,878.65	588,317.51
10,596.00	87.18	89.69	9,074.90	787.61	566.54	573.35	970.20	35.73	485,879.21	588,412.44
10,691.00	87.65	88.69	9,079.19	788.95	661.43	668.25	1,029.53	39.98	485,880.55	588,507.33
10,786.00	89.73	90.26	9,081.36	789.82	756.39	763.21	1,093.59	43.76	485,881.42	588,602.29
10,881.00	89.06	91.08	9,082.36	788.71	851.38	858.19	1,160.56	47.19	485,880.31	588,697.28
10,976.00	86.77	90.21	9,085.82	787.64	946.31	953.10	1,231.21	50.23	485,879.24	588,792.21
11,071.00	87.28	89.99	9,090.75	787.47	1,041.18	1,047.97	1,305.43	52.90	485,879.07	588,887.08
11,165.00	90.07	89.85	9,092.92	787.60	1,135.14	1,141.93	1,381.62	55.25	485,879.20	588,981.04

Scientific Drilling, Intl
WPX Final Survey Report

Company:	WPX Energy, Permian	Local Co-ordinate Reference:	Well Shepherd 3-2-23-27 Fee 401H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	GL 3112 + KB 26 = @ 3138.00usft (HP 265)
Site:	Dalmatian/Shepherd 3-2-23-27 Fee Pad	MD Reference:	GL 3112 + KB 26 = @ 3138.00usft (HP 265)
Well:	Shepherd 3-2-23-27 Fee 401H	North Reference:	Grid
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)
11,260.00	87.55	89.59	9,094.89	788.07	1,230.11	1,236.90	1,460.90	57.35	485,879.67	589,076.01
11,355.00	88.72	90.00	9,097.99	788.41	1,325.06	1,331.85	1,541.87	59.25	485,880.01	589,170.96
11,450.00	87.01	88.73	9,101.52	789.46	1,419.98	1,426.77	1,624.68	60.93	485,881.06	589,265.88
11,545.00	87.38	87.51	9,106.17	792.57	1,514.82	1,521.63	1,709.63	62.38	485,884.17	589,360.72
11,639.00	87.32	88.43	9,110.52	795.90	1,608.66	1,615.50	1,794.78	63.68	485,887.50	589,454.56
11,734.00	88.49	88.82	9,113.99	798.17	1,703.56	1,710.42	1,881.28	64.90	485,889.77	589,549.46
11,829.00	88.79	88.09	9,116.25	800.74	1,798.50	1,805.38	1,968.70	66.00	485,892.34	589,644.40
11,924.00	87.52	87.18	9,119.31	804.65	1,893.37	1,900.27	2,057.26	66.98	485,896.25	589,739.27
12,019.00	88.89	86.61	9,122.28	809.80	1,988.18	1,995.13	2,146.77	67.84	485,901.40	589,834.08
12,114.00	91.14	87.42	9,122.26	814.74	2,083.04	2,090.03	2,236.71	68.64	485,906.34	589,928.94
12,209.00	91.18	89.85	9,120.33	817.01	2,177.99	2,184.99	2,326.19	69.44	485,908.61	590,023.89
12,304.00	92.12	90.15	9,117.60	817.01	2,272.95	2,279.95	2,415.33	70.23	485,908.61	590,118.85
12,398.00	88.66	91.74	9,116.96	815.46	2,366.92	2,373.90	2,503.45	70.99	485,907.06	590,212.82
12,493.00	88.96	91.75	9,118.93	812.56	2,461.85	2,468.80	2,592.48	71.73	485,904.16	590,307.75
12,588.00	89.36	91.42	9,120.32	809.94	2,556.81	2,563.73	2,682.02	72.42	485,901.54	590,402.71
12,683.00	87.92	90.06	9,122.58	808.71	2,651.77	2,658.68	2,772.34	73.04	485,900.31	590,497.67
12,778.00	91.34	90.65	9,123.19	808.12	2,746.75	2,753.65	2,863.16	73.61	485,899.72	590,592.65
12,872.00	91.04	90.98	9,121.24	806.78	2,840.72	2,847.61	2,953.06	74.15	485,898.38	590,686.62
12,967.00	89.53	91.12	9,120.77	805.04	2,935.70	2,942.57	3,044.08	74.67	485,896.64	590,781.60
13,062.00	88.99	91.08	9,121.99	803.22	3,030.67	3,037.52	3,135.30	75.16	485,894.82	590,876.57
13,157.00	90.20	90.87	9,122.67	801.60	3,125.65	3,132.49	3,226.81	75.62	485,893.20	590,971.55
13,252.00	90.17	90.28	9,122.36	800.65	3,220.65	3,227.47	3,318.68	76.04	485,892.25	591,066.55
13,346.00	88.69	90.36	9,123.29	800.12	3,314.64	3,321.45	3,409.84	76.43	485,891.72	591,160.54
13,441.00	88.46	89.84	9,125.66	799.96	3,409.61	3,416.42	3,502.20	76.80	485,891.56	591,255.51
13,536.00	87.82	90.78	9,128.74	799.45	3,504.56	3,511.36	3,594.58	77.15	485,891.05	591,350.46
13,631.00	88.29	90.11	9,131.96	798.71	3,599.50	3,606.29	3,687.05	77.49	485,890.31	591,445.40
13,726.00	91.04	89.61	9,132.52	798.94	3,694.49	3,701.27	3,779.89	77.80	485,890.54	591,540.39

Scientific Drilling, Intl
WPX Final Survey Report

Company:	WPX Energy, Permian	Local Co-ordinate Reference:	Well Shepherd 3-2-23-27 Fee 401H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	GL 3112 + KB 26 = @ 3138.00usft (HP 265)
Site:	Dalmatian/Shepherd 3-2-23-27 Fee Pad	MD Reference:	GL 3112 + KB 26 = @ 3138.00usft (HP 265)
Well:	Shepherd 3-2-23-27 Fee 401H	North Reference:	Grid
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)
13,821.00	90.20	90.47	9,131.49	798.87	3,789.48	3,796.26	3,872.77	78.10	485,890.47	591,635.38
13,930.00	88.26	90.59	9,132.96	797.87	3,898.46	3,905.23	3,979.27	78.43	485,889.47	591,744.36
14,011.00	86.38	90.21	9,136.74	797.30	3,979.37	3,986.13	4,058.45	78.67	485,888.90	591,825.27
14,105.00	89.93	89.83	9,139.77	797.27	4,073.30	4,080.06	4,150.59	78.93	485,888.87	591,919.20
14,200.00	89.43	89.59	9,140.30	797.75	4,168.30	4,175.06	4,243.95	79.17	485,889.35	592,014.20
14,295.00	87.41	88.87	9,142.92	799.02	4,263.25	4,270.02	4,337.48	79.38	485,890.62	592,109.15
14,390.00	87.68	87.39	9,146.99	802.12	4,358.11	4,364.90	4,431.31	79.57	485,893.72	592,204.01
14,485.00	88.69	87.99	9,150.00	805.95	4,452.98	4,459.80	4,525.33	79.74	485,897.55	592,298.88
14,580.00	88.39	89.65	9,152.42	807.90	4,547.93	4,554.76	4,619.13	79.93	485,899.50	592,393.83
14,675.00	87.62	90.40	9,155.73	807.86	4,642.87	4,649.70	4,712.63	80.13	485,899.46	592,488.77
14,769.00	87.95	89.97	9,159.36	807.56	4,736.80	4,743.62	4,805.14	80.32	485,899.16	592,582.70
14,864.00	87.11	90.28	9,163.45	807.35	4,831.71	4,838.53	4,898.70	80.51	485,898.95	592,677.61
14,959.00	87.05	90.06	9,168.29	807.07	4,926.58	4,933.40	4,992.25	80.70	485,898.67	592,772.48
15,054.00	89.23	88.92	9,171.38	807.92	5,021.52	5,028.34	5,086.10	80.86	485,899.52	592,867.42
15,149.00	91.58	89.45	9,170.70	809.27	5,116.50	5,123.33	5,180.11	81.01	485,900.87	592,962.40
15,244.00	89.63	89.89	9,169.70	809.82	5,211.49	5,218.32	5,274.04	81.17	485,901.42	593,057.39
15,339.00	91.11	89.47	9,169.09	810.35	5,306.49	5,313.31	5,368.00	81.32	485,901.95	593,152.39
15,433.00	87.65	90.55	9,170.11	810.33	5,400.46	5,407.29	5,460.92	81.47	485,901.93	593,246.36
15,528.00	85.61	91.42	9,175.69	808.70	5,495.28	5,502.09	5,554.47	81.63	485,900.30	593,341.18
15,623.00	84.13	90.53	9,184.18	807.09	5,589.88	5,596.67	5,647.85	81.78	485,898.69	593,435.78
15,718.00	83.97	90.26	9,194.03	806.44	5,684.37	5,691.15	5,741.29	81.93	485,898.04	593,530.27
15,813.00	85.92	89.90	9,202.40	806.31	5,778.99	5,785.77	5,834.97	82.06	485,897.91	593,624.89
15,908.00	86.61	90.04	9,208.59	806.36	5,873.79	5,880.56	5,928.88	82.18	485,897.96	593,719.69
16,002.00	88.12	90.05	9,212.91	806.28	5,967.69	5,974.46	6,021.91	82.31	485,897.88	593,813.59
16,097.00	87.86	88.74	9,216.24	807.28	6,062.62	6,069.39	6,116.14	82.42	485,898.88	593,908.52
16,192.00	88.96	88.48	9,218.88	809.59	6,157.56	6,164.35	6,210.55	82.51	485,901.19	594,003.46
16,287.00	87.56	88.68	9,221.76	811.94	6,252.48	6,259.29	6,304.98	82.60	485,903.54	594,098.38

Scientific Drilling, Intl
WPX Final Survey Report

Company:	WPX Energy, Permian	Local Co-ordinate Reference:	Well Shepherd 3-2-23-27 Fee 401H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	GL 3112 + KB 26 = @ 3138.00usft (HP 265)
Site:	Dalmatian/Shepherd 3-2-23-27 Fee Pad	MD Reference:	GL 3112 + KB 26 = @ 3138.00usft (HP 265)
Well:	Shepherd 3-2-23-27 Fee 401H	North Reference:	Grid
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)
16,382.00	87.49	87.96	9,225.87	814.72	6,347.35	6,354.18	6,399.43	82.69	485,906.32	594,193.25
16,477.00	89.50	88.13	9,228.36	817.96	6,442.26	6,449.11	6,493.98	82.76	485,909.56	594,288.16
16,572.00	89.03	86.89	9,229.58	822.09	6,537.16	6,544.04	6,588.65	82.83	485,913.69	594,383.06
16,666.00	89.70	88.33	9,230.62	826.01	6,631.07	6,637.98	6,682.32	82.90	485,917.61	594,476.97
16,761.00	89.73	89.71	9,231.10	827.63	6,726.05	6,732.97	6,776.78	82.99	485,919.23	594,571.95
16,856.00	89.63	89.37	9,231.63	828.40	6,821.05	6,827.97	6,871.17	83.08	485,920.00	594,666.95
16,951.00	88.93	88.30	9,232.82	830.33	6,916.02	6,922.96	6,965.68	83.15	485,921.93	594,761.92
17,045.00	89.80	87.38	9,233.86	833.87	7,009.94	7,016.91	7,059.37	83.22	485,925.47	594,855.84
17,140.00	90.20	90.30	9,233.86	835.79	7,104.91	7,111.89	7,153.90	83.29	485,927.39	594,950.81
17,235.00	87.39	89.20	9,235.86	836.21	7,199.88	7,206.86	7,248.28	83.38	485,927.81	595,045.78
17,330.00	89.53	92.12	9,238.41	835.11	7,294.82	7,301.79	7,342.47	83.47	485,926.71	595,140.72
17,424.00	88.32	90.56	9,240.18	832.92	7,388.78	7,395.72	7,435.57	83.57	485,924.52	595,234.68
17,519.00	89.66	90.20	9,241.85	832.29	7,483.76	7,490.69	7,529.90	83.65	485,923.89	595,329.66
17,614.00	90.00	89.35	9,242.13	832.66	7,578.76	7,585.69	7,624.36	83.73	485,924.26	595,424.66
17,709.00	88.05	89.01	9,243.75	834.02	7,673.73	7,680.67	7,718.92	83.80	485,925.62	595,519.63
17,803.00	88.69	89.49	9,246.42	835.25	7,767.68	7,774.63	7,812.46	83.86	485,926.85	595,613.58
17,898.00	88.83	89.69	9,248.48	835.93	7,862.66	7,869.61	7,906.97	83.93	485,927.53	595,708.56
17,993.00	86.31	88.31	9,252.51	837.58	7,957.55	7,964.51	8,001.51	83.99	485,929.18	595,803.45
18,088.00	88.38	90.09	9,256.91	838.91	8,052.43	8,059.40	8,096.01	84.05	485,930.51	595,898.33
18,183.00	87.75	89.09	9,260.11	839.59	8,147.37	8,154.34	8,190.51	84.12	485,931.19	595,993.27
18,278.00	88.86	90.21	9,262.92	840.16	8,242.32	8,249.30	8,285.03	84.18	485,931.76	596,088.22
18,373.00	87.75	89.40	9,265.73	840.49	8,337.28	8,344.25	8,379.53	84.24	485,932.09	596,183.18
18,467.00	90.13	88.76	9,267.47	842.00	8,431.24	8,438.22	8,473.18	84.30	485,933.60	596,277.14
18,562.00	91.34	88.68	9,266.26	844.12	8,526.21	8,533.21	8,567.89	84.35	485,935.72	596,372.11
18,656.00	89.83	88.29	9,265.30	846.60	8,620.17	8,627.18	8,661.64	84.39	485,938.20	596,466.07
18,751.00	87.88	87.65	9,267.19	849.97	8,715.08	8,722.13	8,756.43	84.43	485,941.57	596,560.98
18,846.00	87.68	86.61	9,270.87	854.72	8,809.89	8,816.97	8,851.26	84.46	485,946.32	596,655.79

Scientific Drilling, Intl

WPX Final Survey Report

Company:	WPX Energy, Permian	Local Co-ordinate Reference:	Well Shepherd 3-2-23-27 Fee 401H
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	GL 3112 + KB 26 = @ 3138.00usft (HP 265)
Site:	Dalmatian/Shepherd 3-2-23-27 Fee Pad	MD Reference:	GL 3112 + KB 26 = @ 3138.00usft (HP 265)
Well:	Shepherd 3-2-23-27 Fee 401H	North Reference:	Grid
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)
18,941.00	86.95	86.10	9,275.32	860.75	8,904.59	8,911.72	8,946.10	84.48	485,952.35	596,750.49
19,035.00	86.62	85.44	9,280.60	867.68	8,998.19	9,005.38	9,039.93	84.49	485,959.28	596,844.09
19,130.00	86.64	84.56	9,286.18	875.94	9,092.66	9,099.92	9,134.76	84.50	485,967.54	596,938.56
19,134.00	86.65	84.52	9,286.41	876.32	9,096.64	9,103.90	9,138.75	84.50	485,967.92	596,942.54
Shep401H LTP										
19,150.26	86.68	84.35	9,287.36	877.90	9,112.80	9,120.06	9,154.98	84.50	485,969.50	596,958.70
LTP Actual@ 19150.26' MD, 334' FEL, 546' FSL										
19,176.00	86.74	84.08	9,288.84	880.49	9,138.36	9,145.65	9,180.68	84.50	485,972.09	596,984.26
SDI MWD										
19,233.49	86.74	84.08	9,292.11	886.41	9,195.45	9,202.79	9,238.08	84.49	485,978.01	597,041.35
Shep401H BHL										
19,249.00	86.74	84.08	9,292.99	888.00	9,210.86	9,218.21	9,253.56	84.49	485,979.60	597,056.76
Bit Projection										

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
9,141.96	8,912.33	690.85	-850.95	FTP Actual@ 9194.96' MD, 328' FWL, 416' FSL
19,150.26	9,287.36	877.90	9,112.80	LTP Actual@ 19150.26' MD, 334' FEL, 546' FSL
19,176.00	9,288.84	880.49	9,138.36	SDI MWD
19,249.00	9,292.99	888.00	9,210.86	Bit Projection

Checked By: _____ Approved By: _____ Date: _____