

NM OIL CONSERVATION
ARTESIA DISTRICT

FEB 12 2019

RECEIVED

WPX Energy

Eddy County, New Mexico (NAD 83)
Dalmatian/Shepherd 3-2-23-27 Fee Pad
Shepherd 3-2-23-27 Fee 401H
API: ???
Wellbore #1

30.015-45744

Plan: Plan #3

Standard Planning Report

23 January, 2019



www.scientificdrilling.com

Scientific Drilling, Intl

Planning Report

Database: Midland District
 Company: WPX Energy
 Project: Eddy County, New Mexico (NAD 83)
 Site: Dalmatian/Shepherd 3-2-23-27 Fee Pad
 Well: Shepherd 3-2-23-27 Fee 401H
 Wellbore: Wellbore #1
 Design: Plan #3

Local Co-ordinate Reference: Well Shepherd 3-2-23-27 Fee 401H
 TVD Reference: GL 3112 + KB 26 = @ 3138.00usft (HP 265)
 MD Reference: GL 3112 + KB 26 = @ 3138.00usft (HP 265)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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	Latitude: 32.333429
From:	Map	Easting:	587,845.30 usft	Longitude: -104.182755
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.08 °

Well	Shepherd 3-2-23-27 Fee 401H			
Well Position	+N/-S	25.30 usft	Northing:	485,091.60 usft
	+E/-W	0.60 usft	Easting:	587,845.90 usft
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	1/23/2019	7.27	60.05	47,927

Design	Plan #3			
Audit Notes:				
Version:	Phase:	PLAN	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

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,195.00	0.00	0.00	2,195.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,832.03	12.74	306.39	2,826.80	41.85	-56.78	2.00	2.00	0.00	306.39	
7,965.88	12.74	306.39	7,834.24	713.55	-968.22	0.00	0.00	0.00	0.00	
8,602.92	0.00	0.00	8,466.04	755.40	-1,025.00	2.00	-2.00	0.00	180.00	
9,502.92	90.00	89.51	9,039.00	760.27	-452.06	10.00	10.00	9.95	89.51	
19,169.83	90.00	89.51	9,039.00	842.50	9,214.50	0.00	0.00	0.00	0.00	Shep401H BHL

Scientific Drilling, Intl

Planning Report

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

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
416.00	0.00	0.00	416.00	0.00	0.00	0.00	0.00	0.00	0.00
Salado									
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
735.00	0.00	0.00	735.00	0.00	0.00	0.00	0.00	0.00	0.00
Castile									
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,095.00	0.00	0.00	2,095.00	0.00	0.00	0.00	0.00	0.00	0.00
Bell Canyon (Base of Salt) - 9 5/8"									
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,195.00	0.00	0.00	2,195.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.10	306.39	2,200.00	0.00	0.00	0.00	2.00	2.00	0.00
2,300.00	2.10	306.39	2,299.98	1.14	-1.55	-1.54	2.00	2.00	0.00
2,400.00	4.10	306.39	2,399.83	4.35	-5.90	-5.86	2.00	2.00	0.00
2,500.00	6.10	306.39	2,499.42	9.62	-13.06	-12.97	2.00	2.00	0.00
2,600.00	8.10	306.39	2,598.65	16.96	-23.01	-22.86	2.00	2.00	0.00
2,700.00	10.10	306.39	2,697.39	26.34	-35.74	-35.51	2.00	2.00	0.00
2,800.00	12.10	306.39	2,795.51	37.76	-51.24	-50.91	2.00	2.00	0.00
2,832.03	12.74	306.39	2,826.80	41.85	-56.78	-56.42	2.00	2.00	0.00
2,900.00	12.74	306.39	2,893.09	50.74	-68.85	-68.41	0.00	0.00	0.00
3,000.00	12.74	306.39	2,990.63	63.82	-86.60	-86.05	0.00	0.00	0.00
3,078.30	12.74	306.39	3,067.00	74.07	-100.50	-99.86	0.00	0.00	0.00
Cherry Canyon									
3,100.00	12.74	306.39	3,088.17	76.91	-104.36	-103.68	0.00	0.00	0.00
3,200.00	12.74	306.39	3,185.70	89.99	-122.11	-121.32	0.00	0.00	0.00
3,300.00	12.74	306.39	3,283.24	103.07	-139.86	-138.96	0.00	0.00	0.00
3,400.00	12.74	306.39	3,380.78	116.16	-157.62	-156.60	0.00	0.00	0.00
3,500.00	12.74	306.39	3,478.32	129.24	-175.37	-174.24	0.00	0.00	0.00
3,600.00	12.74	306.39	3,575.85	142.33	-193.12	-191.88	0.00	0.00	0.00
3,700.00	12.74	306.39	3,673.39	155.41	-210.88	-209.52	0.00	0.00	0.00
3,800.00	12.74	306.39	3,770.93	168.49	-228.63	-227.16	0.00	0.00	0.00
3,900.00	12.74	306.39	3,868.47	181.58	-246.38	-244.80	0.00	0.00	0.00
4,000.00	12.74	306.39	3,966.01	194.66	-264.14	-262.44	0.00	0.00	0.00
4,028.70	12.74	306.39	3,994.00	198.42	-269.23	-267.50	0.00	0.00	0.00
Brushy Canyon									
4,100.00	12.74	306.39	4,063.54	207.75	-281.89	-280.08	0.00	0.00	0.00

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Well:	Shepherd 3-2-23-27 Fee 401H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,200.00	12.74	306.39	4,161.08	220.83	-299.64	-297.72	0.00	0.00	0.00
4,300.00	12.74	306.39	4,258.62	233.91	-317.40	-315.36	0.00	0.00	0.00
4,400.00	12.74	306.39	4,356.16	247.00	-335.15	-333.00	0.00	0.00	0.00
4,500.00	12.74	306.39	4,453.69	260.08	-352.90	-350.64	0.00	0.00	0.00
4,600.00	12.74	306.39	4,551.23	273.17	-370.66	-368.27	0.00	0.00	0.00
4,700.00	12.74	306.39	4,648.77	286.25	-388.41	-385.91	0.00	0.00	0.00
4,800.00	12.74	306.39	4,746.31	299.33	-406.16	-403.55	0.00	0.00	0.00
4,900.00	12.74	306.39	4,843.85	312.42	-423.92	-421.19	0.00	0.00	0.00
5,000.00	12.74	306.39	4,941.38	325.50	-441.67	-438.83	0.00	0.00	0.00
5,100.00	12.74	306.39	5,038.92	338.58	-459.42	-456.47	0.00	0.00	0.00
5,200.00	12.74	306.39	5,136.46	351.67	-477.18	-474.11	0.00	0.00	0.00
5,300.00	12.74	306.39	5,234.00	364.75	-494.93	-491.75	0.00	0.00	0.00
5,400.00	12.74	306.39	5,331.54	377.84	-512.68	-509.39	0.00	0.00	0.00
5,500.00	12.74	306.39	5,429.07	390.92	-530.44	-527.03	0.00	0.00	0.00
5,600.00	12.74	306.39	5,526.61	404.00	-548.19	-544.67	0.00	0.00	0.00
5,625.00	12.74	306.39	5,551.00	407.28	-552.63	-549.08	0.00	0.00	0.00
Bone Spring									
5,700.00	12.74	306.39	5,624.15	417.09	-565.95	-562.31	0.00	0.00	0.00
5,800.00	12.74	306.39	5,721.69	430.17	-583.70	-579.95	0.00	0.00	0.00
5,900.00	12.74	306.39	5,819.22	443.26	-601.45	-597.59	0.00	0.00	0.00
6,000.00	12.74	306.39	5,916.76	456.34	-619.21	-615.23	0.00	0.00	0.00
6,063.81	12.74	306.39	5,979.00	464.69	-630.53	-626.48	0.00	0.00	0.00
Avalon									
6,100.00	12.74	306.39	6,014.30	469.42	-636.96	-632.87	0.00	0.00	0.00
6,200.00	12.74	306.39	6,111.84	482.51	-654.71	-650.50	0.00	0.00	0.00
6,300.00	12.74	306.39	6,209.38	495.59	-672.47	-668.14	0.00	0.00	0.00
6,400.00	12.74	306.39	6,306.91	508.67	-690.22	-685.78	0.00	0.00	0.00
6,500.00	12.74	306.39	6,404.45	521.76	-707.97	-703.42	0.00	0.00	0.00
6,600.00	12.74	306.39	6,501.99	534.84	-725.73	-721.06	0.00	0.00	0.00
6,609.24	12.74	306.39	6,511.00	536.05	-727.37	-722.69	0.00	0.00	0.00
1st Bone Spring Sand									
6,700.00	12.74	306.39	6,599.53	547.93	-743.48	-738.70	0.00	0.00	0.00
6,800.00	12.74	306.39	6,697.06	561.01	-761.23	-756.34	0.00	0.00	0.00
6,832.74	12.74	306.39	6,729.00	565.29	-767.05	-762.12	0.00	0.00	0.00
2nd Bone Spring Lime									
6,900.00	12.74	306.39	6,794.60	574.09	-778.99	-773.98	0.00	0.00	0.00
7,000.00	12.74	306.39	6,892.14	587.18	-796.74	-791.62	0.00	0.00	0.00
7,100.00	12.74	306.39	6,989.68	600.26	-814.49	-809.26	0.00	0.00	0.00
7,200.00	12.74	306.39	7,087.22	613.35	-832.25	-826.90	0.00	0.00	0.00
7,232.59	12.74	306.39	7,119.00	617.61	-838.03	-832.65	0.00	0.00	0.00
2nd Bone Spring Sand									
7,300.00	12.74	306.39	7,184.75	626.43	-850.00	-844.54	0.00	0.00	0.00
7,400.00	12.74	306.39	7,282.29	639.51	-867.75	-862.18	0.00	0.00	0.00
7,420.21	12.74	306.39	7,302.00	642.16	-871.34	-865.74	0.00	0.00	0.00
3rd Bone Spring Lime									
7,500.00	12.74	306.39	7,379.83	652.60	-885.51	-879.82	0.00	0.00	0.00
7,600.00	12.74	306.39	7,477.37	665.68	-903.26	-897.46	0.00	0.00	0.00
7,700.00	12.74	306.39	7,574.91	678.77	-921.01	-915.09	0.00	0.00	0.00
7,800.00	12.74	306.39	7,672.44	691.85	-938.77	-932.73	0.00	0.00	0.00
7,900.00	12.74	306.39	7,769.98	704.93	-956.52	-950.37	0.00	0.00	0.00
7,965.88	12.74	306.39	7,834.24	713.55	-968.22	-962.00	0.00	0.00	0.00
8,000.00	12.06	306.39	7,867.56	717.90	-974.12	-967.85	2.00	-2.00	0.00
8,100.00	10.06	306.39	7,965.70	729.28	-989.56	-983.20	2.00	-2.00	0.00

Scientific Drilling, Intl

Planning Report

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Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,200.00	8.06	306.39	8,064.45	738.62	-1,002.23	-995.79	2.00	-2.00	0.00
8,300.00	6.06	306.39	8,163.69	745.91	-1,012.12	-1,005.61	2.00	-2.00	0.00
8,400.00	4.06	306.39	8,263.29	751.14	-1,019.22	-1,012.67	2.00	-2.00	0.00
8,500.00	2.06	306.39	8,363.14	754.30	-1,023.51	-1,016.93	2.00	-2.00	0.00
8,602.92	0.00	0.00	8,466.04	755.40	-1,025.00	-1,018.41	2.00	-2.00	0.00
KOP									
8,650.00	4.71	89.51	8,513.07	755.42	-1,023.07	-1,016.48	10.00	10.00	0.00
8,700.00	9.71	89.51	8,562.66	755.47	-1,016.80	-1,010.21	10.00	10.00	0.00
8,724.80	12.19	89.51	8,587.00	755.51	-1,012.09	-1,005.50	10.00	10.00	0.00
3rd Bone Spring Sand									
8,750.00	14.71	89.51	8,611.51	755.56	-1,006.23	-999.64	10.00	10.00	0.00
8,800.00	19.71	89.51	8,659.26	755.69	-991.44	-984.85	10.00	10.00	0.00
8,850.00	24.71	89.51	8,705.53	755.85	-972.55	-965.96	10.00	10.00	0.00
8,900.00	29.71	89.51	8,749.99	756.04	-949.69	-943.10	10.00	10.00	0.00
8,950.00	34.71	89.51	8,792.28	756.27	-923.05	-916.46	10.00	10.00	0.00
9,000.00	39.71	89.51	8,832.09	756.52	-892.83	-886.24	10.00	10.00	0.00
9,050.00	44.71	89.51	8,869.11	756.81	-859.25	-852.66	10.00	10.00	0.00
9,060.14	45.72	89.51	8,876.26	756.87	-852.05	-845.46	10.00	10.00	0.00
Shep401H FTP									
9,100.00	49.71	89.51	8,903.07	757.12	-822.57	-815.98	10.00	10.00	0.00
9,131.88	52.90	89.51	8,923.00	757.33	-797.69	-791.10	10.00	10.00	0.00
Wolfcamp Top									
9,150.00	54.71	89.51	8,933.70	757.46	-783.07	-776.48	10.00	10.00	0.00
9,188.75	58.58	89.51	8,955.00	757.73	-750.71	-744.12	10.00	10.00	0.00
WC_X									
9,200.00	59.71	89.51	8,960.77	757.82	-741.05	-734.46	10.00	10.00	0.00
9,250.00	64.71	89.51	8,984.08	758.19	-696.84	-690.24	10.00	10.00	0.00
9,300.00	69.71	89.51	9,003.44	758.58	-650.76	-644.16	10.00	10.00	0.00
9,350.00	74.71	89.51	9,018.71	758.99	-603.17	-596.56	10.00	10.00	0.00
9,363.01	76.01	89.51	9,022.00	759.10	-590.58	-583.98	10.00	10.00	0.00
WC_Y									
9,400.00	79.71	89.51	9,029.78	759.40	-554.42	-547.82	10.00	10.00	0.00
9,401.24	79.83	89.51	9,030.00	759.41	-553.20	-546.60	10.00	10.00	0.00
Top Target									
9,450.00	84.71	89.51	9,036.56	759.82	-504.90	-498.30	10.00	10.00	0.00
9,502.92	90.00	89.51	9,039.00	760.27	-452.06	-445.45	10.00	10.00	0.00
Landing Point									
9,600.00	90.00	89.51	9,039.00	761.10	-354.98	-348.37	0.00	0.00	0.00
9,700.00	90.00	89.51	9,039.00	761.95	-254.99	-248.37	0.00	0.00	0.00
9,800.00	90.00	89.51	9,039.00	762.80	-154.99	-148.37	0.00	0.00	0.00
9,900.00	90.00	89.51	9,039.00	763.65	-55.00	-48.37	0.00	0.00	0.00
10,000.00	90.00	89.51	9,039.00	764.50	45.00	51.63	0.00	0.00	0.00
10,100.00	90.00	89.51	9,039.00	765.35	145.00	151.63	0.00	0.00	0.00
10,200.00	90.00	89.51	9,039.00	766.20	244.99	251.63	0.00	0.00	0.00
10,300.00	90.00	89.51	9,039.00	767.05	344.99	351.63	0.00	0.00	0.00
10,400.00	90.00	89.51	9,039.00	767.90	444.99	451.63	0.00	0.00	0.00
10,500.00	90.00	89.51	9,039.00	768.75	544.98	551.63	0.00	0.00	0.00
10,600.00	90.00	89.51	9,039.00	769.61	644.98	651.63	0.00	0.00	0.00
10,700.00	90.00	89.51	9,039.00	770.46	744.98	751.63	0.00	0.00	0.00
10,800.00	90.00	89.51	9,039.00	771.31	844.97	851.63	0.00	0.00	0.00
10,900.00	90.00	89.51	9,039.00	772.16	944.97	951.63	0.00	0.00	0.00
11,000.00	90.00	89.51	9,039.00	773.01	1,044.96	1,051.63	0.00	0.00	0.00
11,100.00	90.00	89.51	9,039.00	773.86	1,144.96	1,151.63	0.00	0.00	0.00

Scientific Drilling, Intl Planning Report

Database: Midland District
Company: WPX Energy
Project: Eddy County, New Mexico (NAD 83)
Site: Dalmatian/Shepherd 3-2-23-27 Fee Pad
Well: Shepherd 3-2-23-27 Fee 401H
Wellbore: Wellbore #1
Design: Plan #3

Local Co-ordinate Reference: Well Shepherd 3-2-23-27 Fee 401H
TVD Reference: GL 3112 + KB 26 = @ 3138.00usft (HP 265)
MD Reference: GL 3112 + KB 26 = @ 3138.00usft (HP 265)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,200.00	90.00	89.51	9,039.00	774.71	1,244.96	1,251.63	0.00	0.00	0.00
11,300.00	90.00	89.51	9,039.00	775.56	1,344.95	1,351.63	0.00	0.00	0.00
11,400.00	90.00	89.51	9,039.00	776.41	1,444.95	1,451.63	0.00	0.00	0.00
11,500.00	90.00	89.51	9,039.00	777.26	1,544.95	1,551.63	0.00	0.00	0.00
11,600.00	90.00	89.51	9,039.00	778.11	1,644.94	1,651.63	0.00	0.00	0.00
11,700.00	90.00	89.51	9,039.00	778.96	1,744.94	1,751.63	0.00	0.00	0.00
11,800.00	90.00	89.51	9,039.00	779.81	1,844.94	1,851.63	0.00	0.00	0.00
11,900.00	90.00	89.51	9,039.00	780.66	1,944.93	1,951.63	0.00	0.00	0.00
12,000.00	90.00	89.51	9,039.00	781.51	2,044.93	2,051.63	0.00	0.00	0.00
12,100.00	90.00	89.51	9,039.00	782.36	2,144.92	2,151.63	0.00	0.00	0.00
12,200.00	90.00	89.51	9,039.00	783.21	2,244.92	2,251.63	0.00	0.00	0.00
12,300.00	90.00	89.51	9,039.00	784.07	2,344.92	2,351.63	0.00	0.00	0.00
12,400.00	90.00	89.51	9,039.00	784.92	2,444.91	2,451.63	0.00	0.00	0.00
12,500.00	90.00	89.51	9,039.00	785.77	2,544.91	2,551.63	0.00	0.00	0.00
12,600.00	90.00	89.51	9,039.00	786.62	2,644.91	2,651.63	0.00	0.00	0.00
12,700.00	90.00	89.51	9,039.00	787.47	2,744.90	2,751.63	0.00	0.00	0.00
12,800.00	90.00	89.51	9,039.00	788.32	2,844.90	2,851.63	0.00	0.00	0.00
12,900.00	90.00	89.51	9,039.00	789.17	2,944.90	2,951.63	0.00	0.00	0.00
13,000.00	90.00	89.51	9,039.00	790.02	3,044.89	3,051.63	0.00	0.00	0.00
13,100.00	90.00	89.51	9,039.00	790.87	3,144.89	3,151.63	0.00	0.00	0.00
13,200.00	90.00	89.51	9,039.00	791.72	3,244.89	3,251.63	0.00	0.00	0.00
13,300.00	90.00	89.51	9,039.00	792.57	3,344.88	3,351.63	0.00	0.00	0.00
13,400.00	90.00	89.51	9,039.00	793.42	3,444.88	3,451.63	0.00	0.00	0.00
13,500.00	90.00	89.51	9,039.00	794.27	3,544.87	3,551.63	0.00	0.00	0.00
13,600.00	90.00	89.51	9,039.00	795.12	3,644.87	3,651.63	0.00	0.00	0.00
13,700.00	90.00	89.51	9,039.00	795.97	3,744.87	3,751.63	0.00	0.00	0.00
13,800.00	90.00	89.51	9,039.00	796.82	3,844.86	3,851.63	0.00	0.00	0.00
13,900.00	90.00	89.51	9,039.00	797.68	3,944.86	3,951.63	0.00	0.00	0.00
14,000.00	90.00	89.51	9,039.00	798.53	4,044.86	4,051.63	0.00	0.00	0.00
14,100.00	90.00	89.51	9,039.00	799.38	4,144.85	4,151.63	0.00	0.00	0.00
14,200.00	90.00	89.51	9,039.00	800.23	4,244.85	4,251.63	0.00	0.00	0.00
14,300.00	90.00	89.51	9,039.00	801.08	4,344.85	4,351.63	0.00	0.00	0.00
14,400.00	90.00	89.51	9,039.00	801.93	4,444.84	4,451.63	0.00	0.00	0.00
14,500.00	90.00	89.51	9,039.00	802.78	4,544.84	4,551.63	0.00	0.00	0.00
14,600.00	90.00	89.51	9,039.00	803.63	4,644.83	4,651.63	0.00	0.00	0.00
14,700.00	90.00	89.51	9,039.00	804.48	4,744.83	4,751.63	0.00	0.00	0.00
14,800.00	90.00	89.51	9,039.00	805.33	4,844.83	4,851.63	0.00	0.00	0.00
14,900.00	90.00	89.51	9,039.00	806.18	4,944.82	4,951.63	0.00	0.00	0.00
15,000.00	90.00	89.51	9,039.00	807.03	5,044.82	5,051.63	0.00	0.00	0.00
15,100.00	90.00	89.51	9,039.00	807.88	5,144.82	5,151.63	0.00	0.00	0.00
15,200.00	90.00	89.51	9,039.00	808.73	5,244.81	5,251.63	0.00	0.00	0.00
15,300.00	90.00	89.51	9,039.00	809.58	5,344.81	5,351.63	0.00	0.00	0.00
15,400.00	90.00	89.51	9,039.00	810.43	5,444.81	5,451.63	0.00	0.00	0.00
15,500.00	90.00	89.51	9,039.00	811.28	5,544.80	5,551.63	0.00	0.00	0.00
15,600.00	90.00	89.51	9,039.00	812.14	5,644.80	5,651.63	0.00	0.00	0.00
15,700.00	90.00	89.51	9,039.00	812.99	5,744.79	5,751.63	0.00	0.00	0.00
15,800.00	90.00	89.51	9,039.00	813.84	5,844.79	5,851.63	0.00	0.00	0.00
15,900.00	90.00	89.51	9,039.00	814.69	5,944.79	5,951.63	0.00	0.00	0.00
16,000.00	90.00	89.51	9,039.00	815.54	6,044.78	6,051.63	0.00	0.00	0.00
16,100.00	90.00	89.51	9,039.00	816.39	6,144.78	6,151.63	0.00	0.00	0.00
16,200.00	90.00	89.51	9,039.00	817.24	6,244.78	6,251.63	0.00	0.00	0.00
16,300.00	90.00	89.51	9,039.00	818.09	6,344.77	6,351.63	0.00	0.00	0.00
16,400.00	90.00	89.51	9,039.00	818.94	6,444.77	6,451.63	0.00	0.00	0.00
16,500.00	90.00	89.51	9,039.00	819.79	6,544.77	6,551.63	0.00	0.00	0.00

Scientific Drilling, Intl

Planning Report

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

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
16,600.00	90.00	89.51	9,039.00	820.64	6,644.76	6,651.63	0.00	0.00	0.00
16,700.00	90.00	89.51	9,039.00	821.49	6,744.76	6,751.63	0.00	0.00	0.00
16,800.00	90.00	89.51	9,039.00	822.34	6,844.75	6,851.63	0.00	0.00	0.00
16,900.00	90.00	89.51	9,039.00	823.19	6,944.75	6,951.63	0.00	0.00	0.00
17,000.00	90.00	89.51	9,039.00	824.04	7,044.75	7,051.63	0.00	0.00	0.00
17,100.00	90.00	89.51	9,039.00	824.89	7,144.74	7,151.63	0.00	0.00	0.00
17,200.00	90.00	89.51	9,039.00	825.74	7,244.74	7,251.63	0.00	0.00	0.00
17,300.00	90.00	89.51	9,039.00	826.60	7,344.74	7,351.63	0.00	0.00	0.00
17,400.00	90.00	89.51	9,039.00	827.45	7,444.73	7,451.63	0.00	0.00	0.00
17,500.00	90.00	89.51	9,039.00	828.30	7,544.73	7,551.63	0.00	0.00	0.00
17,600.00	90.00	89.51	9,039.00	829.15	7,644.73	7,651.63	0.00	0.00	0.00
17,700.00	90.00	89.51	9,039.00	830.00	7,744.72	7,751.63	0.00	0.00	0.00
17,800.00	90.00	89.51	9,039.00	830.85	7,844.72	7,851.63	0.00	0.00	0.00
17,900.00	90.00	89.51	9,039.00	831.70	7,944.72	7,951.63	0.00	0.00	0.00
18,000.00	90.00	89.51	9,039.00	832.55	8,044.71	8,051.63	0.00	0.00	0.00
18,100.00	90.00	89.51	9,039.00	833.40	8,144.71	8,151.63	0.00	0.00	0.00
18,200.00	90.00	89.51	9,039.00	834.25	8,244.70	8,251.63	0.00	0.00	0.00
18,300.00	90.00	89.51	9,039.00	835.10	8,344.70	8,351.63	0.00	0.00	0.00
18,400.00	90.00	89.51	9,039.00	835.95	8,444.70	8,451.63	0.00	0.00	0.00
18,500.00	90.00	89.51	9,039.00	836.80	8,544.69	8,551.63	0.00	0.00	0.00
18,600.00	90.00	89.51	9,039.00	837.65	8,644.69	8,651.63	0.00	0.00	0.00
18,700.00	90.00	89.51	9,039.00	838.50	8,744.69	8,751.63	0.00	0.00	0.00
18,800.00	90.00	89.51	9,039.00	839.35	8,844.68	8,851.63	0.00	0.00	0.00
18,900.00	90.00	89.51	9,039.00	840.20	8,944.68	8,951.63	0.00	0.00	0.00
19,000.00	90.00	89.51	9,039.00	841.06	9,044.68	9,051.63	0.00	0.00	0.00
19,069.83	90.00	89.51	9,039.00	841.65	9,114.50	9,121.46	0.00	0.00	0.00
Shep401H LTP									
19,100.00	90.00	89.51	9,039.00	841.91	9,144.67	9,151.63	0.00	0.00	0.00
19,169.83	90.00	89.51	9,039.00	842.50	9,214.50	9,221.46	0.00	0.00	0.00
Shep401H BHL									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (bearing)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Shep401H FTP	0.00	0.00	8,876.00	755.40	-851.80	485,847.00	586,994.10	32.335579	-104.185508
- hit/miss target									
- Shape									
- plan misses target center by 1.51usft at 9060.13usft MD (8876.25 TVD, 756.87 N, -852.06 E)									
- Point									
Shep401H LTP	0.00	0.00	9,039.00	841.70	9,114.50	485,933.30	596,960.40	32.335774	-104.153239
- plan misses target center by 0.05usft at 19069.83usft MD (9039.00 TVD, 841.65 N, 9114.50 E)									
- Point									
Shep401H BHL	0.00	0.00	9,039.00	842.50	9,214.50	485,934.10	597,060.40	32.335776	-104.152915
- plan hits target center									
- Point									

Scientific Drilling, Intl

Planning Report

Database: Midland District
Company: WPX Energy
Project: Eddy County, New Mexico (NAD 83)
Site: Dalmatian/Shepherd 3-2-23-27 Fee Pad
Well: Shepherd 3-2-23-27 Fee 401H
Wellbore: Wellbore #1
Design: Plan #3

Local Co-ordinate Reference: Well Shepherd 3-2-23-27 Fee 401H
TVD Reference: GL 3112 + KB 26 = @ 3138.00usft (HP 265)
MD Reference: GL 3112 + KB 26 = @ 3138.00usft (HP 265)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
2,095.00	2,095.00	9 5/8"	9-5/8	12-1/4

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (bearing)
416.00	416.00	Salado			
735.00	735.00	Castile			
2,095.00	2,095.00	Bell Canyon (Base of Salt)			
3,078.30	3,067.00	Cherry Canyon			
4,028.70	3,994.00	Brushy Canyon			
5,625.00	5,551.00	Bone Spring			
6,063.81	5,979.00	Avalon			
6,609.24	6,511.00	1st Bone Spring Sand			
6,832.74	6,729.00	2nd Bone Spring Lime			
7,232.59	7,119.00	2nd Bone Spring Sand			
7,420.21	7,302.00	3rd Bone Spring Lime			
8,724.80	8,587.00	3rd Bone Spring Sand			
9,131.88	8,923.00	Wolfcamp Top			
9,188.75	8,955.00	WC_X			
9,363.01	9,022.00	WC_Y			
9,401.24	9,030.00	Top Target			
9,502.92	9,039.00	Landing Point			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,602.92	8,466.04	755.40	-1,025.00	KOP