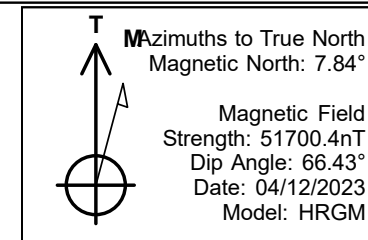


# PDC Energy Inc. DJ Basin



Spinney 01N  
 Spinney 03N66W09 1-8  
 North American Datum 1983 , US State Plane 1983, Colorado Northern Zone  
 Ground Elevation: 4861.0  
 +N/-S +E/-W Northing Easting Longitude Slot  
 0.0 0.0 1329185.91 3198980.18 40.234818 -104.787284  
 P272 - RKB 28.5' Well @ 4889.5ft (P272 - RKB 28.5')

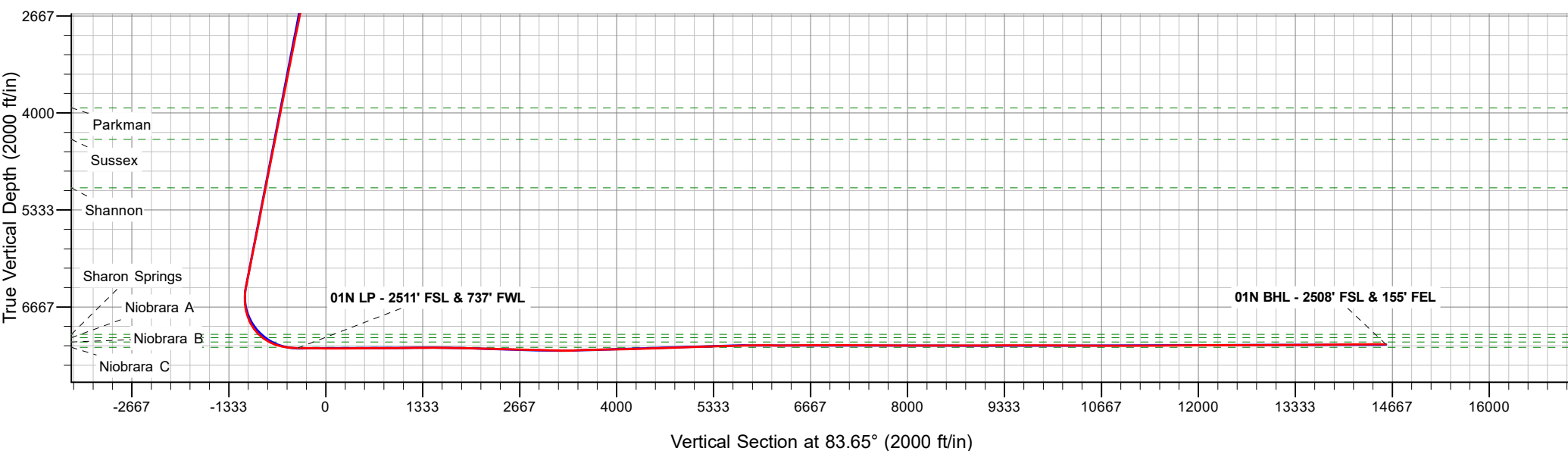
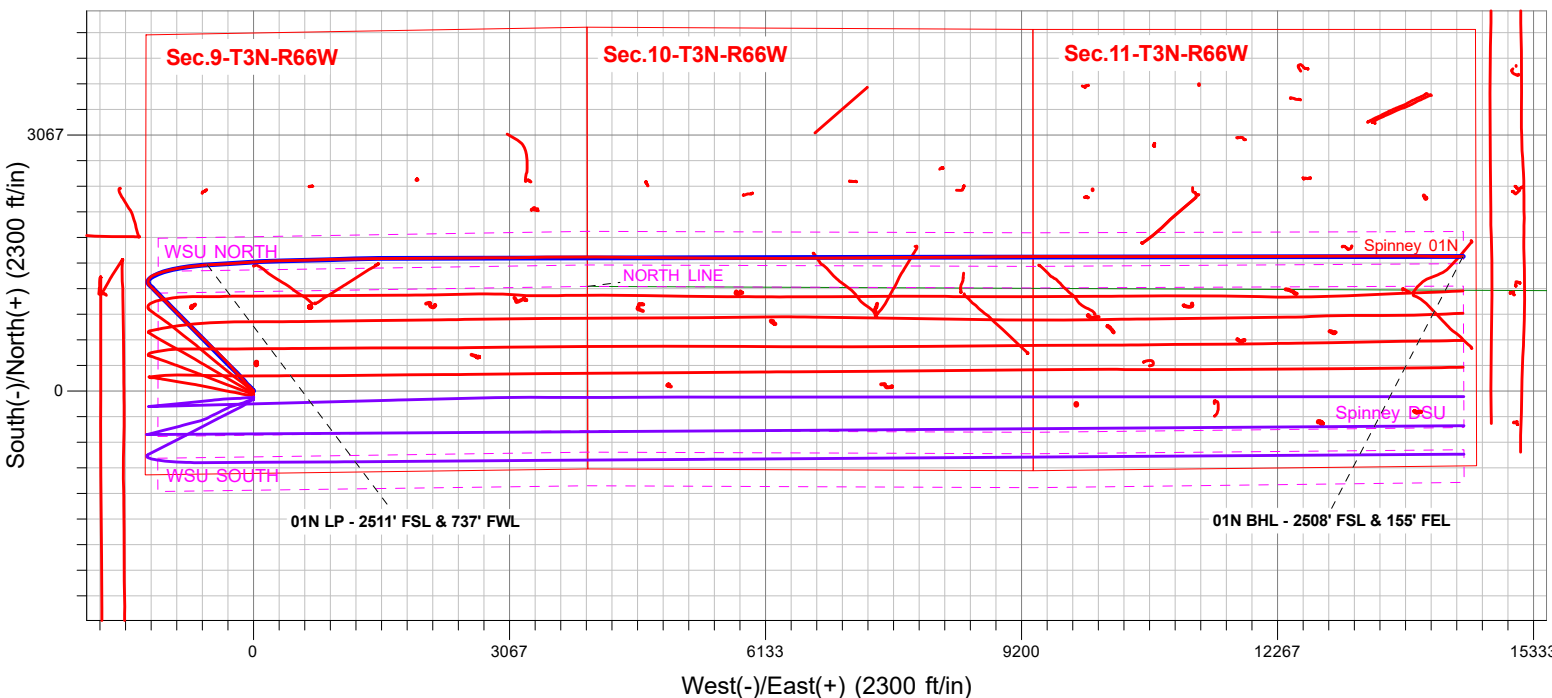
Spinney 03N66W09 1-8  
 Spinney 01N  
 Spinney 01N Final Surveys  
 16:43, May 31 2023



**ANNOTATIONS**

MD	TVD	Annotation
7960.4	7231.1	01N LP - 2511' FSL & 737' FWL
23008.0	7178.5	01N BHL - 2508' FSL & 155' FEL

**FINAL SURVEY**  
**Projected Bottom Hole Location**  
**23008.0' MD / 7178.5' TVD**  
**90.44° INC / 90.52° AZM**  
**2508' FSL / 155' FEL**





# **PDC Energy Inc. DJ Basin**

**SEC.9-T3N-R66W**

**Spinney 03N66W09 1-8**

**Spinney 01N**

**Spinney 01N Wellbore #1**

**Design: Spinney 01N Final Surveys**

## **Standard Survey Report**

**31 May, 2023**

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Spinney 01N
<b>Project:</b>	SEC.9-T3N-R66W	<b>TVD Reference:</b>	Well @ 4889.5ft (P272 - RKB 28.5')
<b>Site:</b>	Spinney 03N66W09 1-8	<b>MD Reference:</b>	Well @ 4889.5ft (P272 - RKB 28.5')
<b>Well:</b>	Spinney 01N	<b>North Reference:</b>	True
<b>Wellbore:</b>	Spinney 01N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Spinney 01N Final Surveys	<b>Database:</b>	US_EDM

<b>Project</b>	SEC.9-T3N-R66W, Weld County, CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

<b>Site</b>	Spinney 03N66W09 1-8				
<b>Site Position:</b>		<b>Northing:</b>	1,329,140.91 usft	<b>Latitude:</b>	40.234695
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,198,980.07 usft	<b>Longitude:</b>	-104.787286
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.46 °

<b>Well</b>	Spinney 01N					
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	1,329,185.91 usft	<b>Latitude:</b>	40.234819
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	3,198,980.18 usft	<b>Longitude:</b>	-104.787285
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	4,861.0 ft

<b>Wellbore</b>	Spinney 01N Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HRGM	04/12/2023	7.84	66.43	51,700.43211470

<b>Design</b>	Spinney 01N Final Surveys				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	83.65	

<b>Survey Program</b>	<b>Date</b>	05/31/2023			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
159.5	23,008.0	Survey #1 (Spinney 01N Wellbore #1)	MWD	MWD - Standard	

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
159.5	0.70	63.75	159.5	0.4	0.9	0.9	0.44	0.44	0.00
250.5	0.79	49.51	250.5	1.1	1.8	2.0	0.23	0.10	-15.65
342.5	1.14	333.92	342.5	2.3	1.9	2.2	1.32	0.38	-82.16
457.5	3.78	310.19	457.4	5.8	-1.5	-0.8	2.41	2.30	-20.63
543.5	4.57	312.30	543.1	9.9	-6.2	-5.0	0.94	0.92	2.45
628.5	6.16	317.93	627.8	15.6	-11.7	-9.9	1.97	1.87	6.62
713.5	7.47	316.52	712.2	23.0	-18.6	-15.9	1.55	1.54	-1.66
798.5	10.11	314.76	796.2	32.3	-27.7	-24.0	3.12	3.11	-2.07
883.5	12.57	317.23	879.5	44.3	-39.3	-34.1	2.95	2.89	2.91

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Spinney 01N
<b>Project:</b>	SEC.9-T3N-R66W	<b>TVD Reference:</b>	Well @ 4889.5ft (P272 - RKB 28.5')
<b>Site:</b>	Spinney 03N66W09 1-8	<b>MD Reference:</b>	Well @ 4889.5ft (P272 - RKB 28.5')
<b>Well:</b>	Spinney 01N	<b>North Reference:</b>	True
<b>Wellbore:</b>	Spinney 01N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Spinney 01N Final Surveys	<b>Database:</b>	US_EDM

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
972.5	14.16	315.64	966.1	59.2	-53.5	-46.6	1.83	1.79	-1.79
1,057.5	14.68	315.12	1,048.4	74.3	-68.3	-59.7	0.63	0.61	-0.61
1,093.3	15.46	315.12	1,083.0	80.9	-74.9	-65.5	2.18	2.18	0.00
<b>Fox Hills Aq Base</b>									
1,142.5	16.53	315.12	1,130.3	90.5	-84.5	-73.9	2.18	2.18	0.00
1,227.5	18.91	318.28	1,211.2	109.3	-102.2	-89.5	3.02	2.80	3.72
1,315.5	18.03	318.46	1,294.7	130.1	-120.7	-105.6	1.00	-1.00	0.20
1,400.5	19.26	318.10	1,375.2	150.4	-138.8	-121.3	1.45	1.45	-0.42
1,485.5	19.96	319.16	1,455.3	171.8	-157.6	-137.7	0.92	0.82	1.25
1,570.5	18.99	317.05	1,535.4	192.9	-176.5	-154.1	1.41	-1.14	-2.48
1,655.5	17.32	315.12	1,616.2	212.0	-194.9	-170.3	2.09	-1.96	-2.27
1,694.5	16.88	313.53	1,653.5	220.0	-203.1	-177.5	1.65	-1.13	-4.08
1,782.0	16.80	313.34	1,737.2	237.5	-221.5	-193.9	0.11	-0.09	-0.22
1,877.0	13.35	321.66	1,829.0	255.5	-238.3	-208.6	4.28	-3.63	8.76
1,972.0	16.57	324.66	1,920.7	275.2	-252.9	-221.0	3.49	3.39	3.16
2,067.0	16.59	318.22	2,011.8	296.3	-269.8	-235.4	1.93	0.02	-6.78
2,162.0	16.15	316.89	2,102.9	316.1	-287.9	-251.2	0.61	-0.46	-1.40
2,257.0	16.63	316.57	2,194.1	335.6	-306.2	-267.3	0.51	0.51	-0.34
2,351.0	17.27	316.24	2,284.0	355.4	-325.1	-283.9	0.69	0.68	-0.35
2,446.0	17.29	315.55	2,374.7	375.7	-344.8	-301.1	0.22	0.02	-0.73
2,541.0	16.87	314.12	2,465.5	395.4	-364.6	-318.6	0.63	-0.44	-1.51
2,636.0	17.41	314.27	2,556.3	414.9	-384.6	-336.4	0.57	0.57	0.16
2,731.0	18.17	313.90	2,646.7	435.1	-405.5	-354.9	0.81	0.80	-0.39
2,825.0	17.82	314.15	2,736.1	455.3	-426.4	-373.4	0.38	-0.37	0.27
2,920.0	17.86	314.29	2,826.6	475.6	-447.2	-391.9	0.06	0.04	0.15
3,015.0	17.66	314.49	2,917.0	495.8	-467.9	-410.3	0.22	-0.21	0.21
3,110.0	16.99	313.30	3,007.7	515.5	-488.3	-428.4	0.80	-0.71	-1.25
3,204.0	17.68	314.51	3,097.5	534.9	-508.5	-446.3	0.83	0.73	1.29
3,299.0	17.02	314.18	3,188.1	554.7	-528.7	-464.2	0.70	-0.69	-0.35
3,394.0	16.65	314.18	3,279.1	573.9	-548.5	-481.7	0.39	-0.39	0.00
3,489.0	16.83	313.39	3,370.0	592.8	-568.2	-499.2	0.31	0.19	-0.83
3,583.0	17.56	313.18	3,459.8	611.8	-588.5	-517.2	0.78	0.78	-0.22
3,678.0	17.76	314.01	3,550.4	631.7	-609.3	-535.8	0.34	0.21	0.87
3,773.0	16.95	314.26	3,641.0	651.5	-629.7	-553.8	0.86	-0.85	0.26
3,867.0	17.42	313.31	3,730.8	670.7	-649.7	-571.6	0.58	0.50	-1.01
3,962.0	17.47	313.96	3,821.5	690.3	-670.3	-589.9	0.21	0.05	0.68
4,057.0	17.46	313.87	3,912.1	710.1	-690.9	-608.2	0.03	-0.01	-0.09
4,074.7	17.52	313.82	3,929.0	713.8	-694.7	-611.6	0.33	0.32	-0.31
<b>Parkman</b>									
4,152.0	17.76	313.58	4,002.6	730.0	-711.6	-626.6	0.33	0.32	-0.30
4,247.0	17.51	315.77	4,093.2	750.2	-732.1	-644.7	0.75	-0.26	2.31
4,342.0	17.22	315.84	4,183.9	770.5	-751.9	-662.1	0.31	-0.31	0.07
4,436.0	17.73	315.23	4,273.5	790.7	-771.6	-679.5	0.58	0.54	-0.65
4,528.8	17.43	315.28	4,362.0	810.6	-791.4	-697.0	0.32	-0.32	0.05

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Spinney 01N
<b>Project:</b>	SEC.9-T3N-R66W	<b>TVD Reference:</b>	Well @ 4889.5ft (P272 - RKB 28.5')
<b>Site:</b>	Spinney 03N66W09 1-8	<b>MD Reference:</b>	Well @ 4889.5ft (P272 - RKB 28.5')
<b>Well:</b>	Spinney 01N	<b>North Reference:</b>	True
<b>Wellbore:</b>	Spinney 01N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Spinney 01N Final Surveys	<b>Database:</b>	US_EDM

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
<b>Sussex</b>									
4,532.0	17.42	315.28	4,365.0	811.3	-792.1	-697.5	0.32	-0.32	0.05
4,627.0	17.80	315.41	4,455.6	831.7	-812.3	-715.4	0.40	0.40	0.14
4,722.0	17.21	315.78	4,546.2	852.1	-832.3	-733.0	0.63	-0.62	0.39
4,816.0	17.92	315.16	4,635.8	872.3	-852.1	-750.5	0.78	0.76	-0.66
4,911.0	17.45	315.56	4,726.3	892.9	-872.4	-768.4	0.51	-0.49	0.42
5,005.0	17.96	314.75	4,815.9	913.1	-892.6	-786.2	0.60	0.54	-0.86
5,099.0	17.60	315.13	4,905.4	933.4	-912.9	-804.2	0.40	-0.38	0.40
5,193.0	18.03	315.11	4,994.9	953.8	-933.2	-822.1	0.46	0.46	-0.02
5,228.9	17.58	315.39	5,029.0	961.6	-940.9	-828.9	1.28	-1.25	0.78
<b>Shannon</b>									
5,288.0	16.84	315.88	5,085.5	974.1	-953.2	-839.7	1.28	-1.25	0.83
5,382.0	17.44	314.53	5,175.3	993.7	-972.7	-856.9	0.77	0.64	-1.44
5,477.0	17.62	314.77	5,265.9	1,013.8	-993.0	-874.9	0.20	0.19	0.25
5,570.0	17.09	314.88	5,354.7	1,033.4	-1,012.7	-892.3	0.57	-0.57	0.12
5,665.0	17.32	314.75	5,445.4	1,053.2	-1,032.6	-909.9	0.25	0.24	-0.14
5,760.0	17.68	315.49	5,536.0	1,073.4	-1,052.8	-927.7	0.45	0.38	0.78
5,855.0	17.61	314.81	5,626.6	1,093.9	-1,073.1	-945.6	0.23	-0.07	-0.72
5,949.0	17.61	315.08	5,716.1	1,113.9	-1,093.2	-963.4	0.09	0.00	0.29
6,043.0	17.29	314.47	5,805.8	1,133.8	-1,113.2	-981.1	0.39	-0.34	-0.65
6,138.0	17.66	314.68	5,896.4	1,153.8	-1,133.6	-999.1	0.40	0.39	0.22
6,233.0	17.73	314.64	5,986.9	1,174.1	-1,154.1	-1,017.3	0.07	0.07	-0.04
6,328.0	17.59	314.41	6,077.5	1,194.3	-1,174.6	-1,035.5	0.16	-0.15	-0.24
6,423.0	17.25	314.48	6,168.1	1,214.2	-1,195.0	-1,053.4	0.36	-0.36	0.07
6,517.0	17.76	314.75	6,257.8	1,234.1	-1,215.1	-1,071.2	0.55	0.54	0.29
6,612.0	17.29	314.65	6,348.3	1,254.2	-1,235.4	-1,089.2	0.50	-0.49	-0.11
6,707.0	15.92	321.96	6,439.4	1,274.4	-1,253.5	-1,105.0	2.63	-1.44	7.69
6,802.0	14.10	344.49	6,531.2	1,295.8	-1,264.6	-1,113.7	6.39	-1.92	23.72
6,896.0	14.16	12.70	6,622.5	1,318.1	-1,265.2	-1,111.7	7.26	0.06	30.01
6,991.0	18.26	32.23	6,713.8	1,342.1	-1,254.7	-1,098.6	7.12	4.32	20.56
7,086.0	23.31	50.64	6,802.6	1,366.6	-1,232.1	-1,073.6	8.63	5.32	19.38
7,180.0	28.44	65.69	6,887.3	1,387.7	-1,197.3	-1,036.6	8.83	5.46	16.01
7,274.0	36.80	69.04	6,966.4	1,407.0	-1,150.5	-988.0	9.10	8.89	3.56
7,369.0	45.80	74.15	7,037.7	1,426.5	-1,091.1	-926.7	10.11	9.47	5.38
7,375.9	46.38	74.37	7,042.5	1,427.9	-1,086.3	-921.8	8.75	8.46	3.12
<b>Sharon Springs</b>									
7,445.0	52.24	76.31	7,087.5	1,441.1	-1,035.6	-870.0	8.75	8.49	2.82
<b>Niobrara A</b>									
7,463.0	53.78	76.77	7,098.4	1,444.4	-1,021.6	-855.7	8.75	8.51	2.53
7,553.6	61.98	77.88	7,146.5	1,461.2	-946.8	-779.5	9.11	9.05	1.23
<b>Niobrara B</b>									
7,558.0	62.38	77.93	7,148.5	1,462.0	-943.0	-775.6	9.11	9.06	1.12
7,654.0	70.75	81.29	7,186.7	1,477.8	-856.4	-687.9	9.29	8.72	3.50
7,749.0	78.98	83.44	7,211.5	1,490.0	-765.6	-596.3	8.93	8.66	2.26

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Spinney 01N
<b>Project:</b>	SEC.9-T3N-R66W	<b>TVD Reference:</b>	Well @ 4889.5ft (P272 - RKB 28.5')
<b>Site:</b>	Spinney 03N66W09 1-8	<b>MD Reference:</b>	Well @ 4889.5ft (P272 - RKB 28.5')
<b>Well:</b>	Spinney 01N	<b>North Reference:</b>	True
<b>Wellbore:</b>	Spinney 01N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Spinney 01N Final Surveys	<b>Database:</b>	US_EDM

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
7,804.3	82.25	83.87	7,220.5	1,496.0	-711.4	-541.7	5.95	5.90	0.78	
<b>Niobrara C</b>										
7,843.0	84.53	84.17	7,225.0	1,500.0	-673.2	-503.3	5.95	5.90	0.77	
7,938.0	88.68	83.96	7,230.6	1,509.8	-578.9	-408.5	4.37	4.37	-0.22	
7,960.4	88.85	84.97	7,231.1	1,512.0	-556.6	-386.1	4.58	0.78	4.52	
<b>01N LP - 2511' FSL &amp; 737' FWL</b>										
8,033.0	89.42	88.25	7,232.2	1,516.2	-484.1	-313.6	4.58	0.78	4.52	
8,128.0	89.75	87.51	7,232.8	1,519.8	-389.2	-218.9	0.85	0.35	-0.78	
8,222.0	89.64	86.23	7,233.3	1,524.9	-295.3	-125.0	1.37	-0.12	-1.36	
8,317.0	89.53	86.13	7,234.0	1,531.2	-200.6	-30.1	0.16	-0.12	-0.11	
8,411.0	89.42	86.29	7,234.9	1,537.4	-106.8	63.8	0.21	-0.12	0.17	
8,506.0	90.35	85.81	7,235.1	1,544.0	-12.0	158.7	1.10	0.98	-0.51	
8,601.0	90.15	86.01	7,234.7	1,550.8	82.8	253.6	0.30	-0.21	0.21	
8,696.0	90.32	87.97	7,234.3	1,555.7	177.6	348.5	2.07	0.18	2.06	
8,791.0	90.64	88.27	7,233.5	1,558.9	272.6	443.2	0.46	0.34	0.32	
8,885.0	89.99	88.64	7,233.0	1,561.4	366.5	536.8	0.80	-0.69	0.39	
8,980.0	90.14	88.82	7,232.9	1,563.5	461.5	631.5	0.25	0.16	0.19	
9,075.0	89.94	88.57	7,232.8	1,565.7	556.5	726.1	0.34	-0.21	-0.26	
9,170.0	90.62	88.63	7,232.3	1,568.0	651.5	820.8	0.72	0.72	0.06	
9,265.0	90.57	88.71	7,231.3	1,570.2	746.4	915.4	0.10	-0.05	0.08	
9,360.0	90.76	88.77	7,230.2	1,572.3	841.4	1,010.0	0.21	0.20	0.06	
9,454.0	90.82	88.70	7,228.9	1,574.4	935.4	1,103.6	0.10	0.06	-0.07	
9,549.0	90.39	88.45	7,227.9	1,576.7	1,030.3	1,198.3	0.52	-0.45	-0.26	
9,644.0	90.72	88.66	7,227.0	1,579.1	1,125.3	1,292.9	0.41	0.35	0.22	
9,739.0	90.40	88.65	7,226.1	1,581.3	1,220.3	1,387.6	0.34	-0.34	-0.01	
9,834.0	90.25	88.59	7,225.5	1,583.6	1,315.2	1,482.2	0.17	-0.16	-0.06	
9,929.0	88.48	88.94	7,226.6	1,585.7	1,410.2	1,576.8	1.90	-1.86	0.37	
10,023.0	88.62	90.18	7,229.0	1,586.4	1,504.2	1,670.3	1.33	0.15	1.32	
10,117.0	89.05	88.93	7,230.9	1,587.1	1,598.1	1,763.8	1.41	0.46	-1.33	
10,212.0	89.96	88.78	7,231.7	1,589.0	1,693.1	1,858.4	0.97	0.96	-0.16	
10,307.0	88.65	89.85	7,232.9	1,590.2	1,788.1	1,952.9	1.78	-1.38	1.13	
10,402.0	88.63	89.88	7,235.1	1,590.4	1,883.1	2,047.3	0.04	-0.02	0.03	
10,497.0	88.61	89.63	7,237.4	1,590.8	1,978.0	2,141.7	0.26	-0.02	-0.26	
10,592.0	88.95	89.95	7,239.4	1,591.1	2,073.0	2,236.2	0.49	0.36	0.34	
10,687.0	87.92	89.74	7,242.0	1,591.4	2,168.0	2,330.6	1.11	-1.08	-0.22	
10,782.0	88.36	89.92	7,245.1	1,591.7	2,262.9	2,425.0	0.50	0.46	0.19	
10,876.0	88.36	89.90	7,247.8	1,591.8	2,356.9	2,518.4	0.02	0.00	-0.02	
10,971.0	88.52	90.04	7,250.4	1,591.9	2,451.9	2,612.8	0.22	0.17	0.15	
11,066.0	88.54	90.11	7,252.8	1,591.7	2,546.8	2,707.1	0.08	0.02	0.07	
11,161.0	88.55	89.85	7,255.2	1,591.8	2,641.8	2,801.5	0.27	0.01	-0.27	
11,255.0	89.76	87.85	7,256.6	1,593.7	2,735.8	2,895.1	2.49	1.29	-2.13	
11,350.0	88.65	89.36	7,257.9	1,596.0	2,830.7	2,989.8	1.97	-1.17	1.59	
11,445.0	88.36	89.93	7,260.4	1,596.6	2,925.7	3,084.2	0.67	-0.31	0.60	
11,539.0	88.71	89.95	7,262.8	1,596.7	3,019.7	3,177.6	0.37	0.37	0.02	

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Spinney 01N
<b>Project:</b>	SEC.9-T3N-R66W	<b>TVD Reference:</b>	Well @ 4889.5ft (P272 - RKB 28.5')
<b>Site:</b>	Spinney 03N66W09 1-8	<b>MD Reference:</b>	Well @ 4889.5ft (P272 - RKB 28.5')
<b>Well:</b>	Spinney 01N	<b>North Reference:</b>	True
<b>Wellbore:</b>	Spinney 01N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Spinney 01N Final Surveys	<b>Database:</b>	US_EDM

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
11,634.0	88.65	89.73	7,265.0	1,596.9	3,114.6	3,272.0	0.24	-0.06	-0.23	
11,729.0	91.87	88.95	7,264.6	1,598.0	3,209.6	3,366.6	3.49	3.39	-0.82	
11,824.0	92.06	89.10	7,261.3	1,599.6	3,304.5	3,461.1	0.25	0.20	0.16	
11,919.0	91.96	89.52	7,258.0	1,600.8	3,399.5	3,555.6	0.45	-0.11	0.44	
12,014.0	91.50	88.36	7,255.1	1,602.5	3,494.4	3,650.1	1.31	-0.48	-1.22	
12,109.0	91.49	88.52	7,252.6	1,605.1	3,589.3	3,744.8	0.17	-0.01	0.17	
12,204.0	91.29	89.46	7,250.3	1,606.8	3,684.3	3,839.3	1.01	-0.21	0.99	
12,299.0	91.53	89.80	7,248.0	1,607.4	3,779.3	3,933.8	0.44	0.25	0.36	
12,393.0	91.15	90.73	7,245.8	1,607.0	3,873.2	4,027.1	1.07	-0.40	0.99	
12,488.0	90.92	90.35	7,244.1	1,606.1	3,968.2	4,121.4	0.47	-0.24	-0.40	
12,583.0	91.22	90.55	7,242.3	1,605.3	4,063.2	4,215.7	0.38	0.32	0.21	
12,678.0	91.08	90.75	7,240.4	1,604.3	4,158.2	4,310.0	0.26	-0.15	0.21	
12,772.0	91.52	90.54	7,238.3	1,603.2	4,252.1	4,403.3	0.52	0.47	-0.22	
12,867.0	91.78	90.61	7,235.5	1,602.3	4,347.1	4,497.5	0.28	0.27	0.07	
12,962.0	91.79	90.69	7,232.6	1,601.2	4,442.1	4,591.8	0.08	0.01	0.08	
13,057.0	91.59	90.41	7,229.8	1,600.3	4,537.0	4,686.1	0.36	-0.21	-0.29	
13,152.0	91.84	90.46	7,226.9	1,599.5	4,632.0	4,780.4	0.27	0.26	0.05	
13,246.0	92.20	90.50	7,223.6	1,598.8	4,725.9	4,873.6	0.39	0.38	0.04	
13,341.0	92.41	90.83	7,219.8	1,597.7	4,820.8	4,967.9	0.41	0.22	0.35	
13,436.0	92.07	90.45	7,216.1	1,596.6	4,915.7	5,062.1	0.54	-0.36	-0.40	
13,531.0	91.56	90.56	7,213.1	1,595.8	5,010.7	5,156.3	0.55	-0.54	0.12	
13,626.0	92.35	90.52	7,209.8	1,594.9	5,105.6	5,250.6	0.83	0.83	-0.04	
13,721.0	91.73	90.47	7,206.5	1,594.0	5,200.6	5,344.9	0.65	-0.65	-0.05	
13,816.0	91.57	90.34	7,203.7	1,593.4	5,295.5	5,439.2	0.22	-0.17	-0.14	
13,911.0	92.23	90.23	7,200.6	1,592.9	5,390.5	5,533.5	0.70	0.69	-0.12	
14,006.0	91.59	90.12	7,197.4	1,592.6	5,485.4	5,627.8	0.68	-0.67	-0.12	
14,101.0	90.68	90.66	7,195.5	1,592.0	5,580.4	5,722.1	1.11	-0.96	0.57	
14,195.0	90.42	90.45	7,194.6	1,591.1	5,674.4	5,815.5	0.36	-0.28	-0.22	
14,290.0	90.22	90.33	7,194.1	1,590.4	5,769.4	5,909.8	0.25	-0.21	-0.13	
14,384.0	90.41	90.05	7,193.6	1,590.1	5,863.4	6,003.2	0.36	0.20	-0.30	
14,479.0	89.50	90.37	7,193.6	1,589.7	5,958.4	6,097.6	1.02	-0.96	0.34	
14,574.0	89.92	90.21	7,194.1	1,589.3	6,053.4	6,191.9	0.47	0.44	-0.17	
14,669.0	90.11	89.82	7,194.1	1,589.2	6,148.4	6,286.3	0.46	0.20	-0.41	
14,763.0	90.05	89.09	7,194.0	1,590.1	6,242.4	6,379.9	0.78	-0.06	-0.78	
14,858.0	90.15	89.99	7,193.8	1,590.9	6,337.4	6,474.4	0.95	0.11	0.95	
14,953.0	90.36	89.99	7,193.4	1,590.9	6,432.4	6,568.8	0.22	0.22	0.00	
15,048.0	89.95	89.72	7,193.1	1,591.2	6,527.4	6,663.2	0.52	-0.43	-0.28	
15,143.0	90.41	89.96	7,192.8	1,591.4	6,622.4	6,757.7	0.55	0.48	0.25	
15,237.0	90.17	89.82	7,192.4	1,591.6	6,716.4	6,851.1	0.30	-0.26	-0.15	
15,332.0	89.89	89.63	7,192.3	1,592.1	6,811.4	6,945.6	0.36	-0.29	-0.20	
15,426.0	89.89	89.70	7,192.5	1,592.6	6,905.4	7,039.1	0.07	0.00	0.07	
15,521.0	89.82	89.47	7,192.7	1,593.3	7,000.3	7,133.6	0.25	-0.07	-0.24	
15,616.0	89.75	89.35	7,193.1	1,594.3	7,095.3	7,228.1	0.15	-0.07	-0.13	

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Spinney 01N
<b>Project:</b>	SEC.9-T3N-R66W	<b>TVD Reference:</b>	Well @ 4889.5ft (P272 - RKB 28.5')
<b>Site:</b>	Spinney 03N66W09 1-8	<b>MD Reference:</b>	Well @ 4889.5ft (P272 - RKB 28.5')
<b>Well:</b>	Spinney 01N	<b>North Reference:</b>	True
<b>Wellbore:</b>	Spinney 01N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Spinney 01N Final Surveys	<b>Database:</b>	US_EDM

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
15,711.0	90.09	89.53	7,193.2	1,595.2	7,190.3	7,322.6	0.40	0.36	0.19	
15,806.0	89.92	89.60	7,193.2	1,595.9	7,285.3	7,417.1	0.19	-0.18	0.07	
15,900.0	89.50	89.46	7,193.7	1,596.7	7,379.3	7,510.6	0.47	-0.45	-0.15	
15,995.0	89.49	89.90	7,194.5	1,597.2	7,474.3	7,605.1	0.46	-0.01	0.46	
16,090.0	89.68	89.22	7,195.2	1,598.0	7,569.3	7,699.6	0.74	0.20	-0.72	
16,185.0	90.01	89.62	7,195.5	1,598.9	7,664.3	7,794.1	0.55	0.35	0.42	
16,280.0	89.81	89.67	7,195.6	1,599.5	7,759.3	7,888.6	0.22	-0.21	0.05	
16,375.0	90.02	89.78	7,195.8	1,600.0	7,854.3	7,983.0	0.25	0.22	0.12	
16,470.0	89.89	89.45	7,195.8	1,600.6	7,949.3	8,077.5	0.37	-0.14	-0.35	
16,565.0	89.92	89.58	7,196.0	1,601.4	8,044.3	8,172.0	0.14	0.03	0.14	
16,659.0	90.06	89.63	7,196.0	1,602.0	8,138.3	8,265.5	0.16	0.15	0.05	
16,754.0	90.12	89.89	7,195.9	1,602.4	8,233.3	8,360.0	0.28	0.06	0.27	
16,849.0	89.97	89.86	7,195.8	1,602.7	8,328.3	8,454.4	0.16	-0.16	-0.03	
16,944.0	90.05	89.76	7,195.8	1,603.0	8,423.3	8,548.9	0.13	0.08	-0.11	
17,039.0	90.15	89.76	7,195.6	1,603.4	8,518.3	8,643.3	0.11	0.11	0.00	
17,134.0	90.05	89.64	7,195.4	1,603.9	8,613.3	8,737.8	0.16	-0.11	-0.13	
17,228.0	90.15	89.48	7,195.3	1,604.6	8,707.3	8,831.3	0.20	0.11	-0.17	
17,323.0	90.23	89.49	7,194.9	1,605.4	8,802.3	8,925.8	0.08	0.08	0.01	
17,418.0	89.82	89.73	7,194.9	1,606.1	8,897.3	9,020.3	0.50	-0.43	0.25	
17,512.0	90.24	89.30	7,194.9	1,606.9	8,991.3	9,113.8	0.64	0.45	-0.46	
17,607.0	91.02	89.03	7,193.8	1,608.3	9,086.3	9,208.3	0.87	0.82	-0.28	
17,702.0	89.90	89.03	7,193.1	1,609.9	9,181.2	9,302.9	1.18	-1.18	0.00	
17,797.0	90.18	88.81	7,193.0	1,611.7	9,276.2	9,397.5	0.37	0.29	-0.23	
17,891.0	89.75	90.20	7,193.0	1,612.5	9,370.2	9,491.0	1.55	-0.46	1.48	
17,986.0	89.90	89.91	7,193.3	1,612.4	9,465.2	9,585.4	0.34	0.16	-0.31	
18,081.0	89.55	90.05	7,193.8	1,612.4	9,560.2	9,679.9	0.40	-0.37	0.15	
18,176.0	89.72	90.02	7,194.4	1,612.4	9,655.2	9,774.3	0.18	0.18	-0.03	
18,271.0	89.47	89.84	7,195.1	1,612.5	9,750.2	9,868.7	0.32	-0.26	-0.19	
18,366.0	89.89	90.06	7,195.6	1,612.6	9,845.2	9,963.1	0.50	0.44	0.23	
18,461.0	89.93	90.31	7,195.7	1,612.3	9,940.2	10,057.5	0.27	0.04	0.26	
18,556.0	89.81	90.40	7,196.0	1,611.7	10,035.2	10,151.9	0.16	-0.13	0.09	
18,651.0	89.74	90.25	7,196.3	1,611.1	10,130.2	10,246.2	0.17	-0.07	-0.16	
18,745.0	89.85	90.43	7,196.7	1,610.6	10,224.2	10,339.6	0.22	0.12	0.19	
18,840.0	89.72	90.32	7,197.0	1,609.9	10,319.2	10,433.9	0.18	-0.14	-0.12	
18,935.0	89.99	90.04	7,197.3	1,609.6	10,414.2	10,528.3	0.41	0.28	-0.29	
19,029.0	89.72	90.02	7,197.5	1,609.6	10,508.2	10,621.7	0.29	-0.29	-0.02	
19,124.0	90.12	89.92	7,197.6	1,609.6	10,603.2	10,716.1	0.43	0.42	-0.11	
19,219.0	90.19	89.87	7,197.4	1,609.8	10,698.2	10,810.6	0.09	0.07	-0.05	
19,409.0	90.05	89.72	7,197.0	1,610.5	10,888.2	10,999.5	0.11	-0.07	-0.08	
19,503.0	90.26	90.01	7,196.7	1,610.7	10,982.2	11,092.9	0.38	0.22	0.31	
19,598.0	89.92	89.71	7,196.6	1,611.0	11,077.2	11,187.4	0.48	-0.36	-0.32	
19,693.0	90.14	89.67	7,196.5	1,611.5	11,172.2	11,281.9	0.24	0.23	-0.04	
19,788.0	90.12	89.59	7,196.3	1,612.1	11,267.2	11,376.3	0.09	-0.02	-0.08	
19,882.0	90.19	89.93	7,196.1	1,612.5	11,361.2	11,469.8	0.37	0.07	0.36	

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Spinney 01N
<b>Project:</b>	SEC.9-T3N-R66W	<b>TVD Reference:</b>	Well @ 4889.5ft (P272 - RKB 28.5')
<b>Site:</b>	Spinney 03N66W09 1-8	<b>MD Reference:</b>	Well @ 4889.5ft (P272 - RKB 28.5')
<b>Well:</b>	Spinney 01N	<b>North Reference:</b>	True
<b>Wellbore:</b>	Spinney 01N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Spinney 01N Final Surveys	<b>Database:</b>	US_EDM

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
19,977.0	90.12	90.03	7,195.8	1,612.5	11,456.2	11,564.2	0.13	-0.07	0.11
20,072.0	90.29	90.32	7,195.5	1,612.2	11,551.2	11,658.6	0.35	0.18	0.31
20,167.0	90.40	90.17	7,194.9	1,611.8	11,646.2	11,753.0	0.20	0.12	-0.16
20,261.0	90.29	90.33	7,194.3	1,611.4	11,740.2	11,846.4	0.21	-0.12	0.17
20,356.0	90.33	89.91	7,193.8	1,611.2	11,835.2	11,940.8	0.44	0.04	-0.44
20,451.0	90.31	89.93	7,193.3	1,611.3	11,930.2	12,035.2	0.03	-0.02	0.02
20,546.0	90.18	89.99	7,192.9	1,611.4	12,025.2	12,129.6	0.15	-0.14	0.06
20,641.0	90.40	90.26	7,192.4	1,611.2	12,120.2	12,224.0	0.37	0.23	0.28
20,736.0	90.24	89.84	7,191.9	1,611.1	12,215.2	12,318.4	0.47	-0.17	-0.44
20,830.0	90.15	89.91	7,191.5	1,611.3	12,309.2	12,411.9	0.12	-0.10	0.07
20,925.0	90.17	89.80	7,191.3	1,611.6	12,404.2	12,506.3	0.12	0.02	-0.12
21,020.0	90.37	89.71	7,190.8	1,612.0	12,499.2	12,600.8	0.23	0.21	-0.09
21,115.0	90.26	89.86	7,190.3	1,612.3	12,594.2	12,695.2	0.20	-0.12	0.16
21,210.0	90.29	89.49	7,189.9	1,612.9	12,689.2	12,789.7	0.39	0.03	-0.39
21,305.0	90.32	89.91	7,189.3	1,613.4	12,784.2	12,884.2	0.44	0.03	0.44
21,400.0	90.29	89.32	7,188.8	1,614.0	12,879.2	12,978.6	0.62	-0.03	-0.62
21,495.0	90.43	89.64	7,188.2	1,614.9	12,974.2	13,073.2	0.37	0.15	0.34
21,590.0	90.48	89.79	7,187.5	1,615.3	13,069.2	13,167.6	0.17	0.05	0.16
21,685.0	90.23	89.66	7,186.9	1,615.8	13,164.2	13,262.1	0.30	-0.26	-0.14
21,780.0	90.24	89.72	7,186.5	1,616.3	13,259.2	13,356.6	0.06	0.01	0.06
21,874.0	90.09	89.39	7,186.2	1,617.0	13,353.1	13,450.1	0.39	-0.16	-0.35
21,969.0	90.19	89.75	7,186.0	1,617.7	13,448.1	13,544.6	0.39	0.11	0.38
22,064.0	90.39	89.95	7,185.5	1,618.0	13,543.1	13,639.0	0.30	0.21	0.21
22,158.0	90.37	90.00	7,184.9	1,618.0	13,637.1	13,732.4	0.06	-0.02	0.05
22,347.0	90.40	90.17	7,183.6	1,617.8	13,826.1	13,920.2	0.09	0.02	0.09
22,442.0	90.46	91.31	7,182.9	1,616.5	13,921.1	14,014.5	1.20	0.06	1.20
22,632.0	90.40	90.67	7,181.5	1,613.2	14,111.1	14,202.9	0.34	-0.03	-0.34
22,727.0	90.53	89.78	7,180.7	1,612.9	14,206.1	14,297.3	0.95	0.14	-0.94
22,822.0	90.44	90.52	7,179.9	1,612.6	14,301.1	14,391.7	0.78	-0.09	0.78
23,008.0	90.44	90.52	7,178.5	1,610.9	14,487.1	14,576.4	0.00	0.00	0.00
<b>01N BHL - 2508' FSL &amp; 155' FEL</b>									

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Spinney 01N
<b>Project:</b>	SEC.9-T3N-R66W	<b>TVD Reference:</b>	Well @ 4889.5ft (P272 - RKB 28.5')
<b>Site:</b>	Spinney 03N66W09 1-8	<b>MD Reference:</b>	Well @ 4889.5ft (P272 - RKB 28.5')
<b>Well:</b>	Spinney 01N	<b>North Reference:</b>	True
<b>Wellbore:</b>	Spinney 01N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Spinney 01N Final Surveys	<b>Database:</b>	US_EDM

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,093.3	1,083.0	Fox Hills Aq Base			
4,074.7	3,929.0	Parkman			
4,528.8	4,362.0	Sussex			
5,228.9	5,029.0	Shannon			
7,375.9	7,042.5	Sharon Springs			
7,445.0	7,087.5	Niobrara A			
7,553.6	7,146.5	Niobrara B			
7,804.3	7,220.5	Niobrara C			

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
7,960.4	7,231.1	1,512.0	-556.6	01N LP - 2511' FSL & 737' FWL
23,008.0	7,178.5	1,610.9	14,487.1	01N BHL - 2508' FSL & 155' FEL

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_