

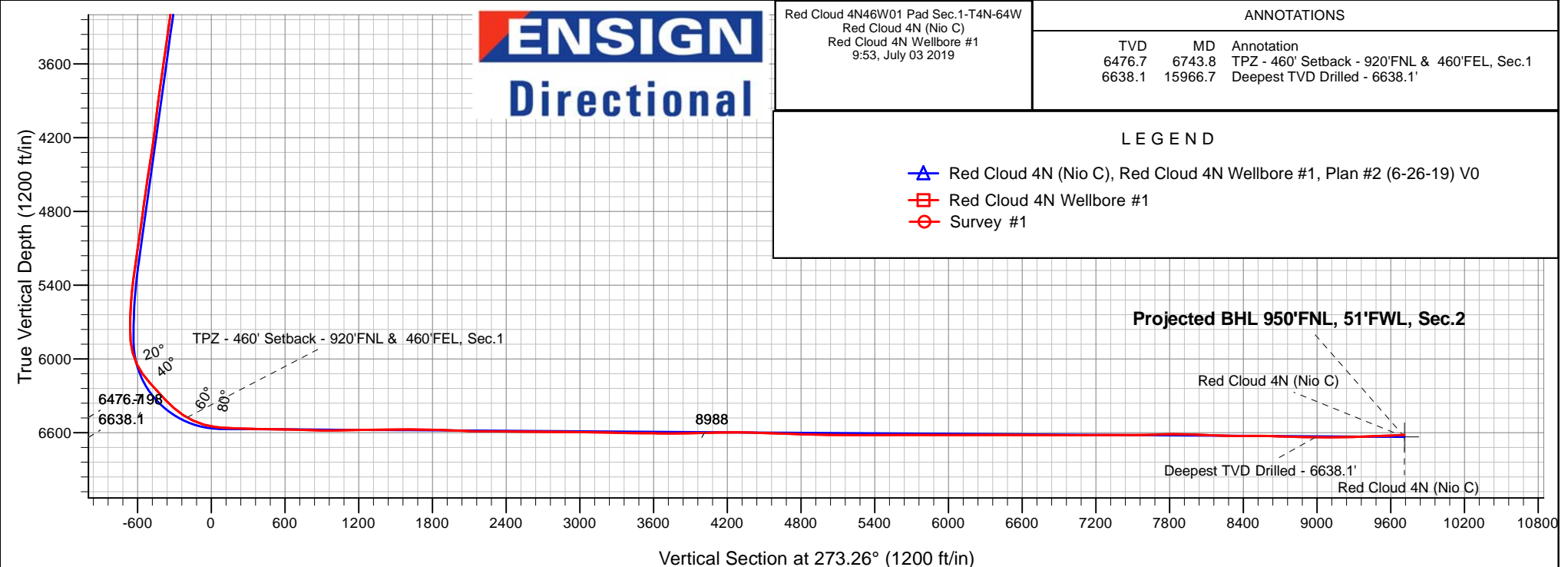
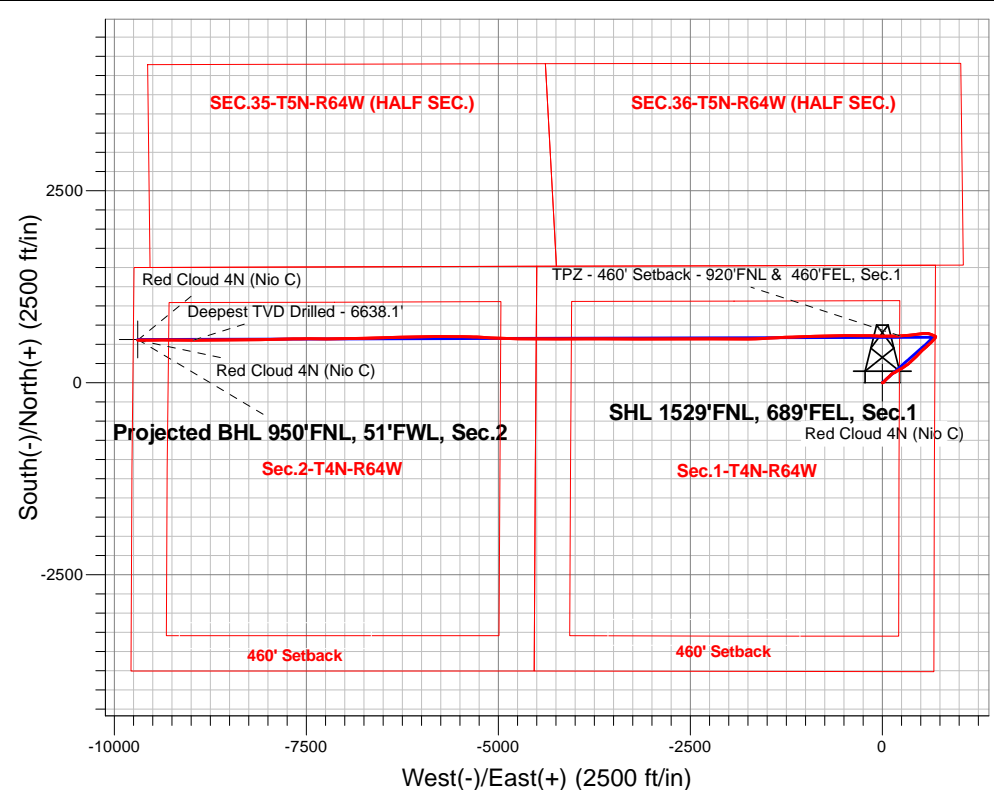
# PDC Energy Inc. DJ Basin

Well Name: **Red Cloud 4N (Nio C)**

Surface Location: Red Cloud 4N46W01 Pad Sec.1-T4N-64W  
North American Datum 1983 , US State Plane 1983, Colorado Northern Zone  
Ground Elevation: 4602.0  
+N/-S +E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 1369932.62 3280960.23 40.344483 -104.492007  
Original Well Elev WELL @ 4625.0ft (Original Well Elev)

## FINAL SURVEY

**Projected Bottom Hole Location**  
**16,693'MD 6618'TVD 552'N & 9697'W of SHL**  
**93.10 degree Incl @ 269.64 degree AZM**





## **PDC Energy Inc. DJ Basin**

**SEC.1-T4N-R64W**

**Red Cloud 4N46W01 Pad Sec.1-T4N-64W**

**Red Cloud 4N (Nio C)**

**Red Cloud 4N Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**03 July, 2019**

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Red Cloud 4N (Nio C)
<b>Project:</b>	SEC.1-T4N-R64W	<b>TVD Reference:</b>	WELL @ 4625.0ft (Original Well Elev)
<b>Site:</b>	Red Cloud 4N46W01 Pad Sec.1-T4N-64W	<b>MD Reference:</b>	WELL @ 4625.0ft (Original Well Elev)
<b>Well:</b>	Red Cloud 4N (Nio C)	<b>North Reference:</b>	True
<b>Wellbore:</b>	Red Cloud 4N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Red Cloud 4N Wellbore #1	<b>Database:</b>	US_EDM

<b>Project</b>	SEC.1-T4N-R64W, 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		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site	Red Cloud 4N46W01 Pad Sec.1-T4N-64W				
Site Position:		Northing:	1,369,932.80 usft	Latitude:	40.344481
From:	Lat/Long	Easting:	3,281,020.19 usft	Longitude:	-104.491793
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.65 °

Well	Red Cloud 4N (Nio C)					
Well Position	+N-S	0.0 ft	Northing:	1,369,932.62 usft	Latitude:	40.344483
	+E-W	0.0 ft	Easting:	3,280,960.23 usft	Longitude:	-104.492008
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,602.0 ft

<b>Wellbore</b>	Red Cloud 4N 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>
	HDGM	6/26/2019	8.08	66.88	52,142

<b>Design</b>	Red Cloud 4N Wellbore #1				
<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	273.26	

<b>Survey Program</b>	<b>Date</b>	7/3/2019			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
155.0	16,693.0	Survey #1 (Red Cloud 4N Wellbore #1)	MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
155.0	0.16	134.42	155.0	-0.2	0.2	-0.2	0.10	0.10	0.00	
250.0	0.28	141.18	250.0	-0.4	0.4	-0.4	0.13	0.13	7.12	
346.0	0.27	129.63	346.0	-0.8	0.7	-0.8	0.06	-0.01	-12.03	
441.0	0.50	137.87	441.0	-1.2	1.2	-1.2	0.25	0.24	8.67	
536.0	0.59	142.41	536.0	-1.9	1.7	-1.8	0.11	0.09	4.78	
630.0	1.74	86.80	630.0	-2.2	3.5	-3.6	1.58	1.22	-59.16	
725.0	3.45	57.40	724.9	-0.6	7.3	-7.3	2.23	1.80	-30.95	
821.0	5.00	55.13	820.6	3.4	13.2	-13.0	1.62	1.61	-2.36	
915.0	7.10	42.95	914.1	10.0	20.5	-19.9	2.61	2.23	-12.96	

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Red Cloud 4N (Nio C)
<b>Project:</b>	SEC.1-T4N-R64W	<b>TVD Reference:</b>	WELL @ 4625.0ft (Original Well Elev)
<b>Site:</b>	Red Cloud 4N46W01 Pad Sec.1-T4N-64W	<b>MD Reference:</b>	WELL @ 4625.0ft (Original Well Elev)
<b>Well:</b>	Red Cloud 4N (Nio C)	<b>North Reference:</b>	True
<b>Wellbore:</b>	Red Cloud 4N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Red Cloud 4N Wellbore #1	<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)	
1,010.0	7.47	42.92	1,008.3	18.8	28.7	-27.6	0.39	0.39	-0.03	
1,106.0	7.10	40.52	1,103.5	27.9	36.8	-35.2	0.50	-0.39	-2.50	
1,201.0	8.37	42.25	1,197.7	37.4	45.3	-43.1	1.36	1.34	1.82	
1,296.0	8.67	43.45	1,291.6	47.8	54.8	-52.0	0.37	0.32	1.26	
1,392.0	9.47	46.80	1,386.4	58.4	65.6	-62.1	1.00	0.83	3.49	
1,487.0	9.14	49.17	1,480.2	68.7	77.0	-73.0	0.53	-0.35	2.49	
1,630.0	8.24	47.68	1,621.5	83.0	93.2	-88.3	0.65	-0.63	-1.04	
1,770.0	7.79	42.72	1,760.2	96.8	107.0	-101.3	0.59	-0.32	-3.54	
1,865.0	7.75	42.19	1,854.3	106.2	115.7	-109.5	0.09	-0.04	-0.56	
1,960.0	9.26	55.14	1,948.3	115.3	126.3	-119.5	2.56	1.59	13.63	
2,055.0	12.68	64.43	2,041.5	124.2	141.9	-134.6	4.04	3.60	9.78	
2,151.0	12.19	62.78	2,135.3	133.4	160.5	-152.6	0.63	-0.51	-1.72	
2,245.0	11.71	60.97	2,227.2	142.6	177.6	-169.2	0.65	-0.51	-1.93	
2,339.0	11.09	59.89	2,319.4	151.7	193.8	-184.8	0.70	-0.66	-1.15	
2,434.0	12.69	61.17	2,412.3	161.4	210.8	-201.3	1.71	1.68	1.35	
2,529.0	12.09	59.01	2,505.1	171.5	228.5	-218.4	0.80	-0.63	-2.27	
2,623.0	12.19	58.50	2,597.0	181.8	245.4	-234.7	0.16	0.11	-0.54	
2,718.0	12.25	57.95	2,689.9	192.3	262.5	-251.1	0.14	0.06	-0.58	
2,812.0	12.10	57.30	2,781.8	203.0	279.2	-267.2	0.22	-0.16	-0.69	
3,001.0	11.80	54.28	2,966.7	224.9	311.6	-298.3	0.37	-0.16	-1.60	
3,095.0	10.90	52.70	3,058.8	235.9	326.5	-312.5	1.01	-0.96	-1.68	
3,189.0	10.82	51.71	3,151.1	246.8	340.5	-325.9	0.22	-0.09	-1.05	
3,284.0	10.12	50.26	3,244.6	257.7	353.9	-338.7	0.79	-0.74	-1.53	
3,379.0	11.05	49.47	3,337.9	268.9	367.2	-351.3	0.99	0.98	-0.83	
3,474.0	11.72	46.88	3,431.1	281.4	381.2	-364.6	0.89	0.71	-2.73	
3,570.0	12.02	47.28	3,525.0	294.9	395.6	-378.2	0.32	0.31	0.42	
3,760.0	11.87	44.48	3,710.9	322.2	423.9	-404.9	0.32	-0.08	-1.47	
3,855.0	11.70	45.04	3,803.9	336.0	437.5	-417.7	0.22	-0.18	0.59	
4,045.0	11.32	42.05	3,990.1	363.5	463.7	-442.2	0.37	-0.20	-1.57	
4,140.0	10.89	40.67	4,083.3	377.2	475.7	-453.5	0.53	-0.45	-1.45	
4,234.0	10.83	42.60	4,175.6	390.4	487.5	-464.5	0.39	-0.06	2.05	
4,330.0	12.39	48.25	4,269.7	403.9	501.3	-477.5	2.01	1.63	5.89	
4,425.0	12.52	48.57	4,362.4	417.5	516.6	-492.0	0.15	0.14	0.34	
4,520.0	12.05	48.94	4,455.2	430.9	531.8	-506.5	0.50	-0.49	0.39	
4,615.0	11.73	49.35	4,548.2	443.7	546.6	-520.5	0.35	-0.34	0.43	
4,711.0	11.27	48.86	4,642.3	456.2	561.1	-534.2	0.49	-0.48	-0.51	
4,806.0	10.87	47.13	4,735.5	468.4	574.7	-547.1	0.55	-0.42	-1.82	
4,901.0	10.76	45.69	4,828.8	480.7	587.6	-559.3	0.31	-0.12	-1.52	
5,090.0	12.43	47.22	5,014.0	506.8	615.1	-585.3	0.90	0.88	0.81	
5,185.0	12.39	46.62	5,106.7	520.8	630.0	-599.4	0.14	-0.04	-0.63	
5,280.0	11.92	44.85	5,199.6	534.7	644.4	-612.9	0.63	-0.49	-1.86	
5,375.0	11.36	44.07	5,292.7	548.4	657.8	-625.5	0.61	-0.59	-0.82	
5,469.0	10.98	44.57	5,384.9	561.4	670.5	-637.5	0.42	-0.40	0.53	
5,564.0	9.53	37.24	5,478.4	574.1	681.6	-647.9	2.05	-1.53	-7.72	

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Red Cloud 4N (Nio C)
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<b>Site:</b>	Red Cloud 4N46W01 Pad Sec.1-T4N-64W	<b>MD Reference:</b>	WELL @ 4625.0ft (Original Well Elev)
<b>Well:</b>	Red Cloud 4N (Nio C)	<b>North Reference:</b>	True
<b>Wellbore:</b>	Red Cloud 4N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Red Cloud 4N Wellbore #1	<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)
5,659.0	8.49	27.20	5,572.2	586.6	689.6	-655.1	1.98	-1.09	-10.57
5,755.0	4.70	18.47	5,667.5	596.7	694.1	-659.0	4.07	-3.95	-9.09
5,850.0	0.59	309.59	5,762.4	600.7	694.9	-659.6	4.76	-4.33	-72.51
5,945.0	4.48	296.01	5,857.3	602.6	691.2	-655.8	4.11	4.09	-14.29
6,040.0	16.37	295.28	5,950.6	610.0	675.7	-639.9	12.52	12.52	-0.77
6,136.0	27.52	294.71	6,039.5	625.1	643.2	-606.6	11.62	11.61	-0.59
6,231.0	34.60	280.62	6,120.9	639.3	596.7	-559.3	10.64	7.45	-14.83
6,326.0	43.43	263.72	6,194.9	640.7	537.4	-500.1	14.49	9.29	-17.79
6,421.0	42.10	262.28	6,264.6	632.8	473.4	-436.6	1.74	-1.40	-1.52
6,516.0	43.64	263.85	6,334.2	625.0	409.2	-373.0	1.97	1.62	1.65
6,611.0	49.75	263.33	6,399.4	617.3	340.6	-304.9	6.44	6.43	-0.55
6,706.0	56.08	266.28	6,456.6	610.5	265.1	-230.0	7.11	6.66	3.11
6,743.8	59.76	266.91	6,476.7	608.6	233.2	-198.2	9.83	9.73	1.66
TPZ - 460' Setback - 920'FNL & 460'FEL, Sec.1									
6,801.0	65.33	267.77	6,503.1	606.3	182.5	-147.7	9.83	9.74	1.51
6,896.0	74.20	269.36	6,535.9	604.1	93.5	-59.0	9.47	9.34	1.67
6,991.0	83.33	272.69	6,554.4	605.8	0.4	34.0	10.21	9.61	3.51
7,087.0	86.67	272.29	6,562.8	609.9	-95.1	129.6	3.50	3.48	-0.42
7,182.0	88.80	270.61	6,566.5	612.3	-190.0	224.5	2.85	2.24	-1.77
7,278.0	88.86	270.30	6,568.5	613.1	-286.0	320.4	0.33	0.06	-0.32
7,373.0	88.82	270.12	6,570.4	613.5	-381.0	415.2	0.19	-0.04	-0.19
7,469.0	88.71	269.29	6,572.5	613.0	-476.9	511.0	0.87	-0.11	-0.86
7,564.0	88.68	268.87	6,574.6	611.4	-571.9	605.7	0.44	-0.03	-0.44
7,660.0	88.32	268.69	6,577.1	609.4	-667.8	701.4	0.42	-0.38	-0.19
7,756.0	88.05	268.36	6,580.2	606.9	-763.8	797.0	0.44	-0.28	-0.34
7,852.0	89.20	267.87	6,582.5	603.8	-859.7	892.6	1.30	1.20	-0.51
7,947.0	90.66	268.67	6,582.6	600.9	-954.6	987.3	1.75	1.54	0.84
8,071.0	90.92	268.02	6,580.9	597.3	-1,078.6	1,110.8	0.56	0.21	-0.52
8,167.0	91.14	267.48	6,579.2	593.6	-1,174.5	1,206.3	0.61	0.23	-0.56
8,262.0	91.17	267.38	6,577.2	589.3	-1,269.4	1,300.8	0.11	0.03	-0.11
8,358.0	91.24	266.68	6,575.2	584.3	-1,365.2	1,396.2	0.73	0.07	-0.73
8,453.0	90.45	267.65	6,573.8	579.6	-1,460.1	1,490.7	1.32	-0.83	1.02
8,549.0	89.57	266.33	6,573.8	574.6	-1,555.9	1,586.1	1.65	-0.92	-1.38
8,644.0	89.43	267.74	6,574.6	569.7	-1,650.8	1,680.5	1.49	-0.15	1.48
8,740.0	88.42	270.02	6,576.4	567.8	-1,746.8	1,776.2	2.60	-1.05	2.38
8,835.0	88.28	270.07	6,579.2	567.9	-1,841.7	1,871.0	0.16	-0.15	0.05
8,931.0	87.92	269.92	6,582.4	567.9	-1,937.7	1,966.8	0.41	-0.38	-0.16
9,026.0	87.62	270.03	6,586.1	567.8	-2,032.6	2,061.6	0.34	-0.32	0.12
9,121.0	88.90	270.38	6,588.9	568.2	-2,127.6	2,156.4	1.40	1.35	0.37
9,216.0	89.86	271.17	6,590.0	569.4	-2,222.5	2,251.3	1.31	1.01	0.83
9,311.0	89.71	270.57	6,590.3	570.9	-2,317.5	2,346.2	0.65	-0.16	-0.63
9,407.0	89.50	269.58	6,591.0	571.0	-2,413.5	2,442.1	1.05	-0.22	-1.03
9,502.0	89.36	269.22	6,591.9	570.0	-2,508.5	2,536.9	0.41	-0.15	-0.38

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<b>Site:</b>	Red Cloud 4N46W01 Pad Sec.1-T4N-64W	<b>MD Reference:</b>	WELL @ 4625.0ft (Original Well Elev)
<b>Well:</b>	Red Cloud 4N (Nio C)	<b>North Reference:</b>	True
<b>Wellbore:</b>	Red Cloud 4N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Red Cloud 4N Wellbore #1	<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)
9,598.0	89.45	268.71	6,592.9	568.3	-2,604.5	2,632.6	0.54	0.09	-0.53
9,693.0	89.48	270.74	6,593.8	567.8	-2,699.5	2,727.4	2.14	0.03	2.14
9,789.0	89.85	270.55	6,594.4	568.9	-2,795.5	2,823.3	0.43	0.39	-0.20
9,884.0	89.69	270.35	6,594.8	569.7	-2,890.5	2,918.2	0.27	-0.17	-0.21
9,980.0	89.55	270.05	6,595.4	570.0	-2,986.5	3,014.1	0.34	-0.15	-0.31
10,075.0	88.82	269.44	6,596.7	569.6	-3,081.5	3,108.9	1.00	-0.77	-0.64
10,171.0	88.13	268.17	6,599.3	567.6	-3,177.4	3,204.5	1.51	-0.72	-1.32
10,267.0	88.31	269.31	6,602.3	565.5	-3,273.3	3,300.2	1.20	0.19	1.19
10,362.0	89.16	270.86	6,604.4	565.6	-3,368.3	3,395.0	1.86	0.89	1.63
10,457.0	89.83	271.00	6,605.2	567.1	-3,463.3	3,489.9	0.72	0.71	0.15
10,553.0	89.72	271.01	6,605.6	568.8	-3,559.3	3,585.9	0.12	-0.11	0.01
10,649.0	89.90	270.69	6,605.9	570.2	-3,655.3	3,681.8	0.38	0.19	-0.33
10,744.0	90.15	270.03	6,605.9	570.8	-3,750.3	3,776.7	0.74	0.26	-0.69
10,839.0	90.57	269.70	6,605.3	570.6	-3,845.3	3,871.5	0.56	0.44	-0.35
10,935.0	91.15	269.86	6,603.8	570.2	-3,941.2	3,967.3	0.63	0.60	0.17
11,031.0	91.69	269.40	6,601.5	569.6	-4,037.2	4,063.1	0.74	0.56	-0.48
11,127.0	90.48	269.72	6,599.6	568.9	-4,133.2	4,158.9	1.30	-1.26	0.33
11,222.0	91.04	269.22	6,598.4	568.0	-4,228.2	4,253.6	0.79	0.59	-0.53
11,318.0	88.42	270.98	6,598.8	568.2	-4,324.2	4,349.5	3.29	-2.73	1.83
11,413.0	88.28	270.74	6,601.6	569.6	-4,419.1	4,444.4	0.29	-0.15	-0.25
11,509.0	88.28	270.31	6,604.4	570.5	-4,515.1	4,540.2	0.45	0.00	-0.45
11,604.0	88.20	269.81	6,607.4	570.6	-4,610.0	4,635.0	0.53	-0.08	-0.53
11,700.0	87.97	269.35	6,610.6	569.9	-4,706.0	4,730.8	0.54	-0.24	-0.48
11,795.0	87.63	272.05	6,614.2	571.0	-4,800.9	4,825.6	2.86	-0.36	2.84
11,891.0	89.40	273.11	6,616.7	575.4	-4,896.7	4,921.5	2.15	1.84	1.10
11,986.0	89.43	272.89	6,617.7	580.3	-4,991.6	5,016.5	0.23	0.03	-0.23
12,082.0	89.43	272.62	6,618.6	584.9	-5,087.5	5,112.5	0.28	0.00	-0.28
12,177.0	89.54	272.78	6,619.5	589.4	-5,182.4	5,207.5	0.20	0.12	0.17
12,273.0	89.29	272.71	6,620.5	594.0	-5,278.3	5,303.5	0.27	-0.26	-0.07
12,368.0	90.57	271.26	6,620.6	597.3	-5,373.2	5,398.5	2.04	1.35	-1.53
12,464.0	90.19	271.17	6,619.9	599.3	-5,469.2	5,494.4	0.41	-0.40	-0.09
12,559.0	90.51	270.49	6,619.4	600.7	-5,564.2	5,589.3	0.79	0.34	-0.72
12,655.0	90.18	270.37	6,618.8	601.4	-5,660.2	5,685.2	0.37	-0.34	-0.13
12,751.0	90.02	269.99	6,618.6	601.7	-5,756.2	5,781.1	0.43	-0.17	-0.40
12,846.0	89.72	269.08	6,618.8	601.0	-5,851.2	5,875.9	1.01	-0.32	-0.96
12,942.0	89.34	268.57	6,619.6	599.0	-5,947.1	5,971.6	0.66	-0.40	-0.53
13,038.0	90.52	268.68	6,619.7	596.7	-6,043.1	6,067.3	1.23	1.23	0.11
13,133.0	90.50	268.50	6,618.9	594.4	-6,138.1	6,161.9	0.19	-0.02	-0.19
13,229.0	90.31	268.62	6,618.2	592.0	-6,234.0	6,257.6	0.23	-0.20	0.13
13,325.0	89.99	268.22	6,618.0	589.3	-6,330.0	6,353.3	0.53	-0.33	-0.42
13,420.0	89.54	267.56	6,618.4	585.8	-6,424.9	6,447.9	0.84	-0.47	-0.69
13,516.0	89.17	267.66	6,619.4	581.8	-6,520.8	6,543.4	0.40	-0.39	0.10
13,612.0	89.64	269.67	6,620.4	579.6	-6,616.8	6,639.1	2.15	0.49	2.09
13,707.0	89.53	269.44	6,621.1	578.8	-6,711.8	6,733.9	0.27	-0.12	-0.24

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Red Cloud 4N (Nio C)
<b>Project:</b>	SEC.1-T4N-R64W	<b>TVD Reference:</b>	WELL @ 4625.0ft (Original Well Elev)
<b>Site:</b>	Red Cloud 4N46W01 Pad Sec.1-T4N-64W	<b>MD Reference:</b>	WELL @ 4625.0ft (Original Well Elev)
<b>Well:</b>	Red Cloud 4N (Nio C)	<b>North Reference:</b>	True
<b>Wellbore:</b>	Red Cloud 4N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Red Cloud 4N Wellbore #1	<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)
13,803.0	90.52	268.69	6,621.1	577.3	-6,807.8	6,829.6	1.29	1.03	-0.78
13,899.0	90.23	268.27	6,620.4	574.7	-6,903.8	6,925.3	0.53	-0.30	-0.44
13,995.0	90.19	268.23	6,620.1	571.8	-6,999.7	7,020.9	0.06	-0.04	-0.04
14,090.0	90.04	270.08	6,619.9	570.4	-7,094.7	7,115.6	1.95	-0.16	1.95
14,185.0	89.95	270.46	6,619.9	570.8	-7,189.7	7,210.5	0.41	-0.09	0.40
14,281.0	90.03	270.70	6,619.9	571.8	-7,285.7	7,306.4	0.26	0.08	0.25
14,376.0	90.23	270.15	6,619.7	572.5	-7,380.7	7,401.3	0.62	0.21	-0.58
14,472.0	90.42	269.45	6,619.2	572.2	-7,476.7	7,497.1	0.76	0.20	-0.73
14,568.0	90.79	269.35	6,618.2	571.2	-7,572.7	7,592.9	0.40	0.39	-0.10
14,663.0	91.12	269.36	6,616.6	570.1	-7,667.7	7,687.7	0.35	0.35	0.01
14,759.0	91.56	268.72	6,614.3	568.5	-7,763.6	7,783.4	0.81	0.46	-0.67
14,854.0	90.49	268.64	6,612.6	566.3	-7,858.6	7,878.1	1.13	-1.13	-0.08
14,949.0	87.27	268.46	6,614.5	563.9	-7,953.5	7,972.7	3.39	-3.39	-0.19
15,045.0	87.01	267.99	6,619.3	560.9	-8,049.3	8,068.2	0.56	-0.27	-0.49
15,140.0	88.44	269.25	6,623.0	558.6	-8,144.2	8,162.8	2.01	1.51	1.33
15,236.0	89.31	269.53	6,624.9	557.6	-8,240.2	8,258.6	0.95	0.91	0.29
15,331.0	89.58	269.30	6,625.9	556.7	-8,335.2	8,353.4	0.37	0.28	-0.24
15,426.0	89.64	268.90	6,626.5	555.2	-8,430.2	8,448.1	0.43	0.06	-0.42
15,521.0	89.83	268.37	6,626.9	552.9	-8,525.2	8,542.8	0.59	0.20	-0.56
15,617.0	88.45	270.11	6,628.4	551.6	-8,621.1	8,638.6	2.31	-1.44	1.81
15,712.0	88.21	270.23	6,631.1	551.9	-8,716.1	8,733.4	0.28	-0.25	0.13
15,808.0	88.17	269.80	6,634.2	551.9	-8,812.0	8,829.2	0.45	-0.04	-0.45
15,902.0	88.40	269.51	6,637.0	551.4	-8,906.0	8,922.9	0.39	0.24	-0.31
15,966.7	89.64	270.51	6,638.1	551.4	-8,970.7	8,987.5	2.46	1.92	1.54
<b>Deepest TVD Drilled - 6638.1'</b>									
15,998.0	90.24	270.99	6,638.1	551.8	-9,002.0	9,018.8	2.46	1.92	1.54
16,094.0	90.71	270.68	6,637.3	553.2	-9,098.0	9,114.7	0.59	0.49	-0.32
16,189.0	91.00	270.39	6,635.9	554.1	-9,193.0	9,209.6	0.43	0.31	-0.31
16,285.0	91.29	269.85	6,634.0	554.3	-9,288.9	9,305.4	0.64	0.30	-0.56
16,380.0	92.18	269.57	6,631.1	553.8	-9,383.9	9,400.2	0.98	0.94	-0.29
16,475.0	91.91	269.79	6,627.7	553.3	-9,478.8	9,495.0	0.37	-0.28	0.23
16,571.0	92.37	269.88	6,624.1	553.0	-9,574.8	9,590.7	0.49	0.48	0.09
16,635.0	93.10	269.64	6,621.1	552.7	-9,638.7	9,654.5	1.20	1.14	-0.38
16,693.0	93.10	269.64	6,618.0	552.4	-9,696.6	9,712.3	0.00	0.00	0.00

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Red Cloud 4N (Nio C)
<b>Project:</b>	SEC.1-T4N-R64W	<b>TVD Reference:</b>	WELL @ 4625.0ft (Original Well Elev)
<b>Site:</b>	Red Cloud 4N46W01 Pad Sec.1-T4N-64W	<b>MD Reference:</b>	WELL @ 4625.0ft (Original Well Elev)
<b>Well:</b>	Red Cloud 4N (Nio C)	<b>North Reference:</b>	True
<b>Wellbore:</b>	Red Cloud 4N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Red Cloud 4N Wellbore #1	<b>Database:</b>	US_EDM

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL 1529'FNL, 689'FEL - survey hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,369,932.63	3,280,960.23	40.344483	-104.492008
BHL 940'FNL, 50'FWL, 5 - survey misses target center by 19.6ft at 16692.6ft MD (6618.0 TVD, 552.4 N, -9696.2 E) - Point	0.00	0.00	6,635.0	562.1	-9,697.2	1,370,384.41	3,271,257.74	40.346020	-104.526796

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
+N/-S (ft)	+E/-W (ft)			
6,743.8	6,476.7	608.6	233.2	TPZ - 460' Setback - 920'FNL & 460'FEL, Sec.1
15,966.7	6,638.1	551.4	-8,970.7	Deepest TVD Drilled - 6638.1'

Checked By: _____	Approved By: _____	Date: _____
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