

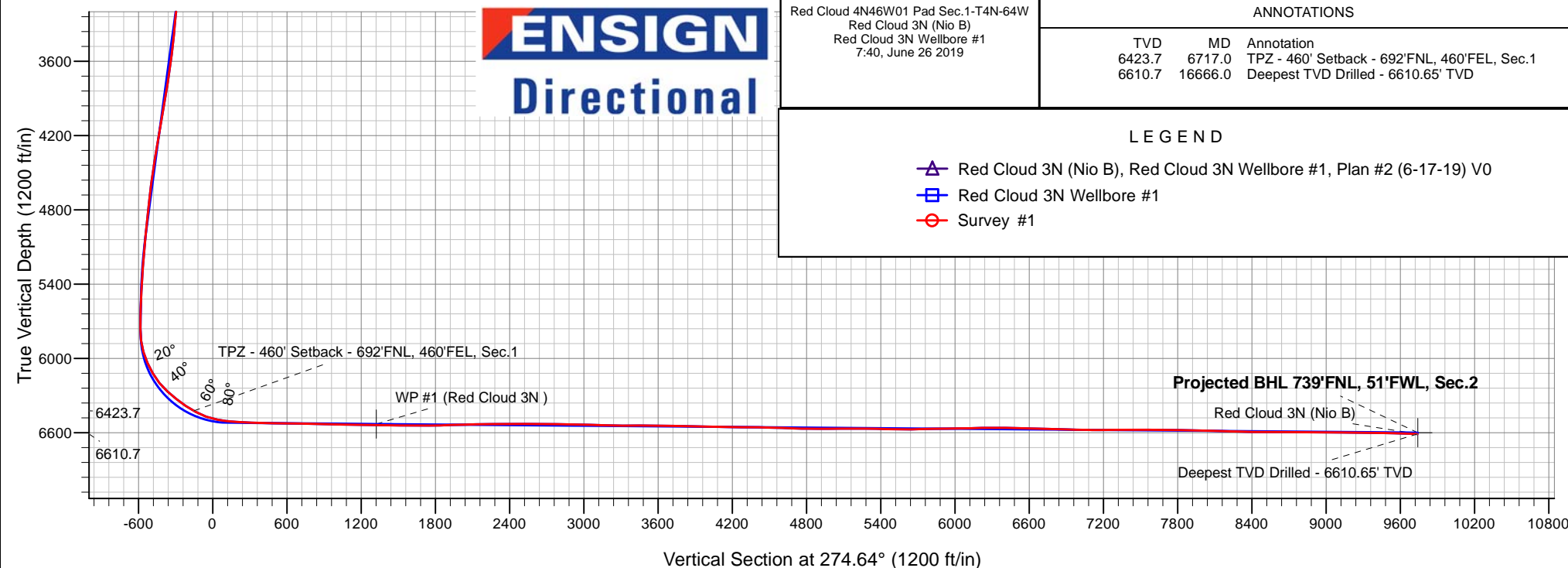
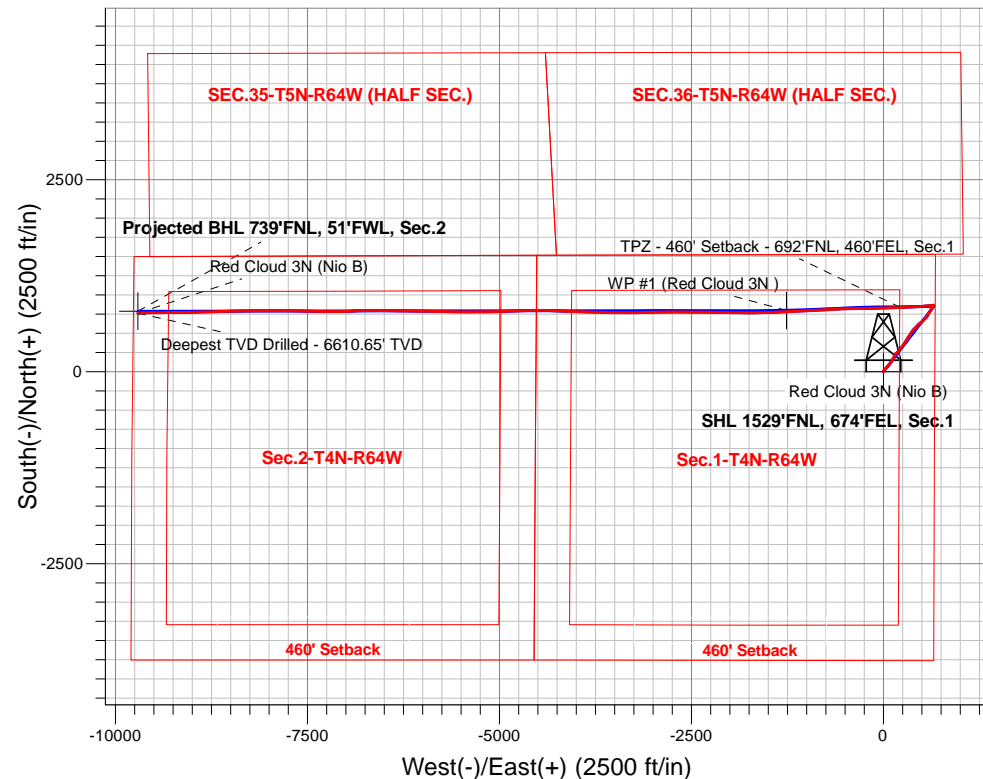
# PDC Energy Inc. DJ Basin

Well Name: **Red Cloud 3N (Nio B)**

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 1369932.64280975.25 40.344482 -104.491953  
Original Well Elev WELL @ 4625.0ft (Original Well Elev)

## FINAL SURVEY

**Projected Bottom Hole Location**  
**16,666'MD 6611'TVD 763'N & 9708'W of SHL**  
**88.08 degree Incl @ 268.44 degree AZM**





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

**SEC.1-T4N-R64W**

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

**Red Cloud 3N (Nio B)**

**Red Cloud 3N Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**26 June, 2019**

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Red Cloud 3N (Nio B)
<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 3N (Nio B)	<b>North Reference:</b>	True
<b>Wellbore:</b>	Red Cloud 3N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Red Cloud 3N 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 3N (Nio B)					
Well Position	+N/-S	0.0 ft	Northing:	1,369,932.64 usft	Latitude:	40.344482
	+E/-W	0.0 ft	Easting:	3,280,975.26 usft	Longitude:	-104.491954
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,602.0 ft

<b>Wellbore</b>	Red Cloud 3N 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	6/17/2019	8.08	66.88	52,145

<b>Design</b>	Red Cloud 3N 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	274.64	

<b>Survey Program</b>	<b>Date</b>	6/26/2019			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
155.0	16,666.0	Survey #1 (Red Cloud 3N 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	
1.0	0.00	325.21	1.0	0.0	0.0	0.0	0.38	0.38	0.00	
<b>SHL 1529'FNL, 674'FEL, Sec.1</b>										
155.0	0.59	325.21	155.0	0.7	-0.5	0.5	0.38	0.38	0.00	
250.0	0.43	340.49	250.0	1.4	-0.9	1.0	0.22	-0.17	16.08	
346.0	0.35	340.49	346.0	2.0	-1.1	1.2	0.08	-0.08	0.00	
441.0	0.27	357.61	441.0	2.5	-1.2	1.4	0.13	-0.08	18.02	
536.0	2.38	26.02	536.0	4.5	-0.3	0.7	2.26	2.22	29.91	
630.0	4.75	32.07	629.8	9.6	2.6	-1.8	2.55	2.52	6.44	
725.0	7.05	37.70	724.3	17.5	8.3	-6.8	2.49	2.42	5.93	
821.0	9.99	41.86	819.2	28.4	17.4	-15.1	3.13	3.06	4.33	

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Red Cloud 3N (Nio B)
<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 3N (Nio B)	<b>North Reference:</b>	True
<b>Wellbore:</b>	Red Cloud 3N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Red Cloud 3N 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)
915.0	11.21	41.15	911.6	41.3	28.9	-25.4	1.31	1.30	-0.76
1,010.0	11.27	41.78	1,004.8	55.2	41.1	-36.5	0.14	0.06	0.66
1,201.0	11.69	39.66	1,191.9	84.0	65.9	-58.9	0.31	0.22	-1.11
1,296.0	12.03	38.04	1,284.9	99.2	78.2	-69.9	0.50	0.36	-1.71
1,392.0	12.68	37.43	1,378.7	115.5	90.7	-81.1	0.69	0.68	-0.64
1,487.0	11.66	35.84	1,471.6	131.5	102.7	-91.7	1.13	-1.07	-1.67
1,618.0	12.46	30.37	1,599.7	154.5	117.6	-104.7	1.06	0.61	-4.18
1,771.0	12.12	23.83	1,749.2	183.4	132.4	-117.2	0.94	-0.22	-4.27
1,865.0	13.48	31.37	1,840.8	201.8	142.1	-125.3	2.29	1.45	8.02
1,960.0	12.91	30.25	1,933.3	220.4	153.2	-134.9	0.66	-0.60	-1.18
2,055.0	13.97	43.39	2,025.7	237.9	166.4	-146.7	3.39	1.12	13.83
2,245.0	11.49	43.26	2,211.1	268.3	195.2	-172.9	1.31	-1.31	-0.07
2,339.0	12.59	41.64	2,303.0	282.8	208.4	-184.9	1.22	1.17	-1.72
2,434.0	13.06	37.16	2,395.6	299.1	221.8	-196.9	1.16	0.49	-4.72
2,529.0	12.09	35.69	2,488.3	315.8	234.1	-207.8	1.08	-1.02	-1.55
2,623.0	14.19	34.92	2,579.9	333.2	246.4	-218.7	2.24	2.23	-0.82
2,718.0	15.76	34.88	2,671.7	353.3	260.4	-231.0	1.65	1.65	-0.04
2,812.0	15.57	34.01	2,762.2	374.3	274.8	-243.6	0.32	-0.20	-0.93
2,907.0	14.89	33.66	2,853.8	395.0	288.7	-255.8	0.72	-0.72	-0.37
3,001.0	14.46	33.30	2,944.8	414.8	301.8	-267.3	0.47	-0.46	-0.38
3,095.0	13.29	30.88	3,036.0	433.9	313.8	-277.7	1.39	-1.24	-2.57
3,189.0	12.99	35.38	3,127.6	451.8	325.5	-287.9	1.13	-0.32	4.79
3,284.0	11.49	35.15	3,220.4	468.3	337.1	-298.2	1.58	-1.58	-0.24
3,379.0	10.50	31.53	3,313.6	483.4	347.1	-306.9	1.27	-1.04	-3.81
3,474.0	12.17	33.79	3,406.8	499.1	357.2	-315.7	1.82	1.76	2.38
3,570.0	13.76	34.42	3,500.3	516.9	369.3	-326.3	1.66	1.66	0.66
3,664.0	14.16	37.31	3,591.6	535.3	382.5	-338.0	0.85	0.43	3.07
3,760.0	14.56	42.52	3,684.6	553.5	397.8	-351.8	1.41	0.42	5.43
3,855.0	13.65	42.15	3,776.7	570.6	413.4	-366.0	0.96	-0.96	-0.39
3,950.0	12.67	42.83	3,869.2	586.6	428.0	-379.2	1.04	-1.03	0.72
4,045.0	14.75	46.92	3,961.5	602.5	443.9	-393.8	2.41	2.19	4.31
4,140.0	14.92	48.67	4,053.3	618.8	462.0	-410.4	0.50	0.18	1.84
4,234.0	14.21	48.73	4,144.3	634.4	479.7	-426.9	0.76	-0.76	0.06
4,330.0	13.74	48.95	4,237.5	649.7	497.2	-443.0	0.49	-0.49	0.23
4,425.0	13.14	47.81	4,329.9	664.3	513.7	-458.3	0.69	-0.63	-1.20
4,520.0	12.41	47.50	4,422.5	678.5	529.2	-472.6	0.77	-0.77	-0.33
4,615.0	12.21	46.40	4,515.3	692.3	544.0	-486.3	0.32	-0.21	-1.16
4,711.0	13.27	35.46	4,609.0	708.3	557.8	-498.7	2.74	1.10	-11.40
4,806.0	13.55	31.81	4,701.4	726.6	569.9	-509.4	0.94	0.29	-3.84
4,901.0	12.81	31.32	4,793.9	745.1	581.3	-519.2	0.79	-0.78	-0.52
4,996.0	14.05	33.78	4,886.3	763.7	593.2	-529.5	1.44	1.31	2.59
5,090.0	13.16	32.05	4,977.7	782.2	605.2	-540.0	1.04	-0.95	-1.84
5,185.0	11.59	31.56	5,070.4	799.5	615.9	-549.3	1.66	-1.65	-0.52

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Red Cloud 3N (Nio B)
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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 3N (Nio B)	<b>North Reference:</b>	True
<b>Wellbore:</b>	Red Cloud 3N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Red Cloud 3N 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)	
5,280.0	10.23	30.76	5,163.7	814.9	625.2	-557.3	1.44	-1.43	-0.84	
5,375.0	8.54	31.03	5,257.4	828.2	633.2	-564.2	1.78	-1.78	0.28	
5,469.0	7.14	33.17	5,350.6	839.1	640.0	-570.1	1.52	-1.49	2.28	
5,564.0	4.94	38.10	5,445.0	847.2	645.7	-575.2	2.38	-2.32	5.19	
5,659.0	3.97	41.40	5,539.7	852.9	650.4	-579.4	1.06	-1.02	3.47	
5,783.0	2.98	23.88	5,663.5	859.1	654.6	-583.0	1.16	-0.80	-14.13	
5,878.0	2.73	22.86	5,758.4	863.4	656.5	-584.5	0.27	-0.26	-1.07	
5,974.0	7.14	265.46	5,854.2	865.1	651.4	-579.4	9.10	4.59	-122.29	
6,069.0	17.13	265.87	5,946.9	863.6	631.5	-559.6	10.52	10.52	0.43	
6,164.0	23.25	265.37	6,036.0	861.1	598.8	-527.3	6.44	6.44	-0.53	
6,259.0	31.42	261.52	6,120.4	855.9	555.6	-484.6	8.79	8.60	-4.05	
6,355.0	38.51	266.93	6,199.0	850.6	500.9	-430.5	8.05	7.39	5.64	
6,450.0	48.08	267.06	6,268.1	847.2	435.9	-366.0	10.07	10.07	0.14	
6,545.0	52.66	266.35	6,328.7	843.0	362.9	-293.6	4.86	4.82	-0.75	
6,640.0	56.61	268.40	6,383.6	839.4	285.5	-216.7	4.51	4.16	2.16	
6,717.0	60.60	267.04	6,423.7	836.8	219.9	-151.5	5.39	5.18	-1.77	
TPZ - 460' Setback - 692'FNL, 460'FEL, Sec.1										
6,734.0	61.48	266.75	6,432.0	836.0	205.0	-136.8	5.39	5.19	-1.68	
6,829.0	69.12	266.68	6,471.6	831.1	118.9	-51.4	8.04	8.04	-0.07	
6,925.0	81.02	268.40	6,496.3	827.1	26.4	40.5	12.52	12.40	1.79	
7,010.7	83.41	269.63	6,507.9	825.7	-58.5	125.0	3.13	2.79	1.43	
LPL 685'FNL, 737'FEL, Sec.1										
7,020.0	83.67	269.76	6,509.0	825.6	-67.7	134.2	3.13	2.79	1.42	
7,115.0	88.50	269.75	6,515.5	825.2	-162.5	228.6	5.08	5.08	-0.01	
7,211.0	87.93	269.21	6,518.5	824.3	-258.4	324.2	0.82	-0.59	-0.56	
7,306.0	87.68	269.38	6,522.1	823.2	-353.4	418.7	0.32	-0.26	0.18	
7,402.0	89.68	267.92	6,524.3	820.9	-449.3	514.2	2.58	2.08	-1.52	
7,498.0	88.92	267.60	6,525.5	817.2	-545.2	609.5	0.86	-0.79	-0.33	
7,593.0	89.10	267.66	6,527.1	813.2	-640.1	703.7	0.20	0.19	0.06	
7,688.0	89.16	266.84	6,528.6	808.7	-735.0	797.9	0.87	0.06	-0.86	
7,784.0	88.82	266.86	6,530.3	803.4	-830.8	893.0	0.35	-0.35	0.02	
7,880.0	88.47	266.68	6,532.5	798.0	-926.7	988.1	0.41	-0.36	-0.19	
7,976.0	88.12	266.15	6,535.4	792.0	-1,022.4	1,083.1	0.66	-0.36	-0.55	
8,071.0	89.23	266.36	6,537.6	785.8	-1,117.2	1,177.0	1.19	1.17	0.22	
8,167.0	89.94	267.77	6,538.3	780.9	-1,213.1	1,272.2	1.64	0.74	1.47	
8,215.7	89.75	268.37	6,538.4	779.2	-1,261.7	1,320.6	1.30	-0.39	1.24	
WP #1 (Red Cloud 3N )										
8,262.0	89.57	268.95	6,538.7	778.2	-1,308.0	1,366.6	1.30	-0.39	1.24	
8,358.0	88.92	268.30	6,539.9	775.9	-1,404.0	1,462.1	0.96	-0.68	-0.68	
8,453.0	88.40	268.53	6,542.2	773.2	-1,498.9	1,556.5	0.60	-0.55	0.24	
8,549.0	90.40	267.90	6,543.2	770.2	-1,594.9	1,651.9	2.18	2.08	-0.66	
8,644.0	89.66	267.94	6,543.1	766.8	-1,689.8	1,746.2	0.78	-0.78	0.04	
8,739.0	92.37	270.94	6,541.4	765.9	-1,784.8	1,840.8	4.25	2.85	3.16	
8,835.0	91.90	270.76	6,537.9	767.3	-1,880.7	1,936.5	0.52	-0.49	-0.19	

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<b>Well:</b>	Red Cloud 3N (Nio B)	<b>North Reference:</b>	True
<b>Wellbore:</b>	Red Cloud 3N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Red Cloud 3N 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)	
8,930.0	91.42	270.95	6,535.1	768.7	-1,975.6	2,031.3	0.54	-0.51	0.20	
9,025.0	91.21	271.13	6,532.9	770.4	-2,070.6	2,126.1	0.29	-0.22	0.19	
9,121.0	91.11	270.96	6,531.0	772.2	-2,166.6	2,221.9	0.21	-0.10	-0.18	
9,216.0	90.89	271.07	6,529.3	773.9	-2,261.5	2,316.7	0.26	-0.23	0.12	
9,311.0	89.44	270.80	6,529.1	775.4	-2,356.5	2,411.5	1.55	-1.53	-0.28	
9,407.0	89.36	270.82	6,530.1	776.8	-2,452.5	2,507.2	0.09	-0.08	0.02	
9,502.0	89.55	270.43	6,531.0	777.8	-2,547.5	2,602.0	0.46	0.20	-0.41	
9,598.0	89.76	269.79	6,531.5	778.0	-2,643.5	2,697.7	0.70	0.22	-0.67	
9,693.0	89.97	269.52	6,531.8	777.4	-2,738.5	2,792.3	0.36	0.22	-0.28	
9,789.0	88.67	269.51	6,532.9	776.6	-2,834.5	2,888.0	1.35	-1.35	-0.01	
9,884.0	88.72	269.03	6,535.1	775.4	-2,929.4	2,982.5	0.51	0.05	-0.51	
9,980.0	88.47	268.46	6,537.4	773.3	-3,025.4	3,078.0	0.65	-0.26	-0.59	
10,075.0	88.31	267.94	6,540.1	770.3	-3,120.3	3,172.3	0.57	-0.17	-0.55	
10,171.0	88.78	269.26	6,542.5	768.0	-3,216.2	3,267.8	1.46	0.49	1.38	
10,266.0	89.80	270.39	6,543.7	767.7	-3,311.2	3,362.4	1.60	1.07	1.19	
10,362.0	89.62	269.78	6,544.2	767.8	-3,407.2	3,458.1	0.66	-0.19	-0.64	
10,457.0	90.16	270.85	6,544.4	768.3	-3,502.2	3,552.9	1.26	0.57	1.13	
10,553.0	89.73	271.60	6,544.5	770.4	-3,598.2	3,648.7	0.90	-0.45	0.78	
10,744.0	88.92	271.60	6,546.7	775.7	-3,789.1	3,839.4	0.42	-0.42	0.00	
10,839.0	88.25	271.78	6,549.1	778.5	-3,884.0	3,934.3	0.73	-0.71	0.19	
10,935.0	87.82	271.51	6,552.4	781.3	-3,979.9	4,030.1	0.53	-0.45	-0.28	
11,031.0	89.54	271.94	6,554.6	784.2	-4,075.9	4,125.9	1.85	1.79	0.45	
11,126.0	89.49	272.36	6,555.4	787.7	-4,170.8	4,220.8	0.45	-0.05	0.44	
11,222.0	89.44	272.94	6,556.3	792.2	-4,266.7	4,316.8	0.61	-0.05	0.60	
11,318.0	89.13	272.66	6,557.5	796.9	-4,362.6	4,412.7	0.44	-0.32	-0.29	
11,413.0	88.31	269.44	6,559.6	798.6	-4,457.5	4,507.5	3.50	-0.86	-3.39	
11,508.0	88.42	269.02	6,562.3	797.3	-4,552.5	4,602.0	0.46	0.12	-0.44	
11,604.0	87.70	268.84	6,565.5	795.5	-4,648.4	4,697.5	0.77	-0.75	-0.19	
11,700.0	89.51	267.11	6,567.9	792.1	-4,744.3	4,792.8	2.61	1.89	-1.80	
11,795.0	89.33	267.46	6,568.8	787.6	-4,839.2	4,887.0	0.41	-0.19	0.37	
11,890.0	90.64	268.91	6,568.9	784.6	-4,934.1	4,981.4	2.06	1.38	1.53	
11,986.0	90.31	269.47	6,568.1	783.3	-5,030.1	5,077.0	0.68	-0.34	0.58	
12,081.0	89.99	269.06	6,567.8	782.1	-5,125.1	5,171.6	0.55	-0.34	-0.43	
12,177.0	89.66	269.51	6,568.1	780.9	-5,221.1	5,267.1	0.58	-0.34	0.47	
12,272.0	89.08	269.67	6,569.2	780.2	-5,316.1	5,361.8	0.63	-0.61	0.17	
12,368.0	88.83	269.86	6,570.9	779.8	-5,412.1	5,457.4	0.33	-0.26	0.20	
12,463.0	88.45	269.57	6,573.2	779.3	-5,507.1	5,552.0	0.50	-0.40	-0.31	
12,559.0	91.51	270.78	6,573.2	779.6	-5,603.0	5,647.7	3.43	3.19	1.26	
12,654.0	91.48	270.12	6,570.7	780.3	-5,698.0	5,742.4	0.70	-0.03	-0.69	
12,750.0	90.98	270.33	6,568.7	780.7	-5,794.0	5,838.1	0.56	-0.52	0.22	
12,846.0	90.76	270.96	6,567.2	781.8	-5,890.0	5,933.9	0.70	-0.23	0.66	
12,942.0	90.98	272.06	6,565.7	784.3	-5,985.9	6,029.7	1.17	0.23	1.15	
13,037.0	90.67	271.80	6,564.4	787.5	-6,080.9	6,124.6	0.43	-0.33	-0.27	

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Red Cloud 3N (Nio B)
<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 3N (Nio B)	<b>North Reference:</b>	True
<b>Wellbore:</b>	Red Cloud 3N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Red Cloud 3N 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)	
13,133.0	90.31	272.28	6,563.6	790.9	-6,176.8	6,220.5	0.62	-0.38	0.50	
13,228.0	90.43	271.94	6,562.9	794.4	-6,271.7	6,315.4	0.38	0.13	-0.36	
13,325.0	90.72	271.70	6,562.0	797.5	-6,368.7	6,412.3	0.39	0.30	-0.25	
13,420.0	88.36	269.40	6,562.7	798.4	-6,463.6	6,507.0	3.47	-2.48	-2.42	
13,515.0	88.12	269.40	6,565.7	797.4	-6,558.6	6,601.6	0.25	-0.25	0.00	
13,611.0	87.59	269.48	6,569.2	796.5	-6,654.5	6,697.1	0.56	-0.55	0.08	
13,707.0	89.48	268.97	6,571.7	795.2	-6,750.5	6,792.7	2.04	1.97	-0.53	
13,802.0	88.55	267.06	6,573.3	791.9	-6,845.4	6,887.0	2.24	-0.98	-2.01	
13,898.0	88.72	268.12	6,575.6	787.9	-6,941.3	6,982.3	1.12	0.18	1.10	
13,994.0	88.86	267.47	6,577.6	784.2	-7,037.2	7,077.6	0.69	0.15	-0.68	
14,090.0	90.29	270.03	6,578.4	782.1	-7,133.2	7,173.0	3.05	1.49	2.67	
14,185.0	90.50	271.19	6,577.7	783.1	-7,228.2	7,267.8	1.24	0.22	1.22	
14,280.0	89.84	270.79	6,577.4	784.7	-7,323.1	7,362.6	0.81	-0.69	-0.42	
14,376.0	91.00	270.93	6,576.7	786.2	-7,419.1	7,458.4	1.22	1.21	0.15	
14,472.0	89.36	271.41	6,576.4	788.2	-7,515.1	7,554.2	1.78	-1.71	0.50	
14,568.0	89.31	271.36	6,577.5	790.5	-7,611.1	7,650.1	0.07	-0.05	-0.05	
14,663.0	89.32	271.07	6,578.7	792.5	-7,706.0	7,744.9	0.31	0.01	-0.31	
14,758.0	89.30	270.17	6,579.8	793.5	-7,801.0	7,839.6	0.95	-0.02	-0.95	
14,853.0	88.67	270.09	6,581.5	793.7	-7,896.0	7,934.3	0.67	-0.66	-0.08	
14,949.0	88.33	269.65	6,584.0	793.5	-7,992.0	8,030.0	0.58	-0.35	-0.46	
15,045.0	87.71	269.56	6,587.3	792.8	-8,087.9	8,125.5	0.65	-0.65	-0.09	
15,140.0	89.27	269.61	6,589.8	792.2	-8,182.9	8,220.1	1.64	1.64	0.05	
15,235.0	88.66	269.65	6,591.5	791.5	-8,277.9	8,314.7	0.64	-0.64	0.04	
15,330.0	88.64	269.57	6,593.8	790.9	-8,372.8	8,409.4	0.09	-0.02	-0.08	
15,425.0	90.22	268.17	6,594.7	789.0	-8,467.8	8,503.9	2.22	1.66	-1.47	
15,521.0	89.69	267.82	6,594.8	785.7	-8,563.7	8,599.2	0.66	-0.55	-0.36	
15,616.0	89.85	267.58	6,595.2	781.9	-8,658.7	8,693.5	0.30	0.17	-0.25	
15,712.0	89.22	269.14	6,596.0	779.1	-8,754.6	8,788.9	1.75	-0.66	1.63	
15,807.0	89.31	268.47	6,597.2	777.1	-8,849.6	8,883.4	0.71	0.09	-0.71	
15,902.0	89.52	268.21	6,598.2	774.4	-8,944.5	8,977.9	0.35	0.22	-0.27	
15,997.0	89.80	269.67	6,598.7	772.6	-9,039.5	9,072.4	1.56	0.29	1.54	
16,093.0	89.41	269.67	6,599.4	772.1	-9,135.5	9,168.0	0.41	-0.41	0.00	
16,189.0	89.72	269.50	6,600.1	771.4	-9,231.5	9,263.7	0.37	0.32	-0.18	
16,285.0	89.09	269.28	6,601.1	770.3	-9,327.5	9,359.2	0.70	-0.66	-0.23	
16,380.0	89.13	269.36	6,602.6	769.2	-9,422.5	9,453.8	0.09	0.04	0.08	
16,475.0	88.40	268.89	6,604.6	767.8	-9,517.4	9,548.4	0.91	-0.77	-0.49	
16,608.0	88.08	268.44	6,608.7	764.7	-9,650.3	9,680.6	0.42	-0.24	-0.34	
16,666.0	88.08	268.44	6,610.7	763.1	-9,708.3	9,738.2	0.00	0.00	0.00	
Deepest TVD Drilled - 6610.65' TVD - Projected BHL 739'FNL, 51'FWL, Sec.2										

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Red Cloud 3N (Nio B)
<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 3N (Nio B)	<b>North Reference:</b>	True
<b>Wellbore:</b>	Red Cloud 3N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Red Cloud 3N 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, 674'FEL - survey hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,369,932.65	3,280,975.26	40.344482	-104.491954
WP #1 (Red Cloud 3N ) - survey misses target center by 21.1ft at 8215.8ft MD (6538.4 TVD, 779.2 N, -1261.8 E) - Point	0.00	0.00	6,530.0	798.6	-1,262.3	1,370,716.81	3,279,704.00	40.346674	-104.496482
Projected BHL 739'FNL, - survey misses target center by 26.4ft at 16666.0ft MD (6610.7 TVD, 763.1 N, -9708.3 E) - Point	0.00	0.00	6,600.0	787.2	-9,709.4	1,370,609.39	3,271,257.99	40.346638	-104.526787

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
6,717.0	6,423.7	836.8	219.9	TPZ - 460' Setback - 692'FNL, 460'FEL, Sec.1
16,666.0	6,610.7	763.1	-9,708.3	Deepest TVD Drilled - 6610.65' TVD

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