

PDC Energy Inc. DJ Basin

Well Name: **Red Cloud 0N (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 1369932.798281020.19 40.344481 -104.491792

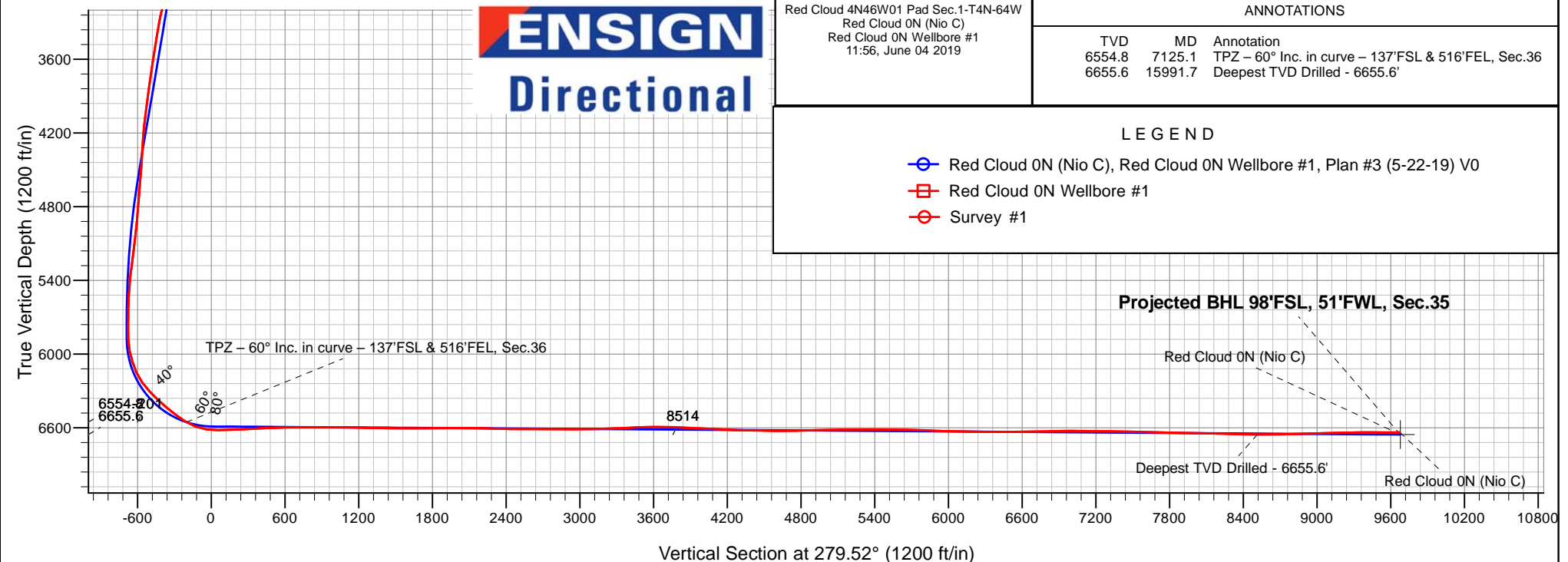
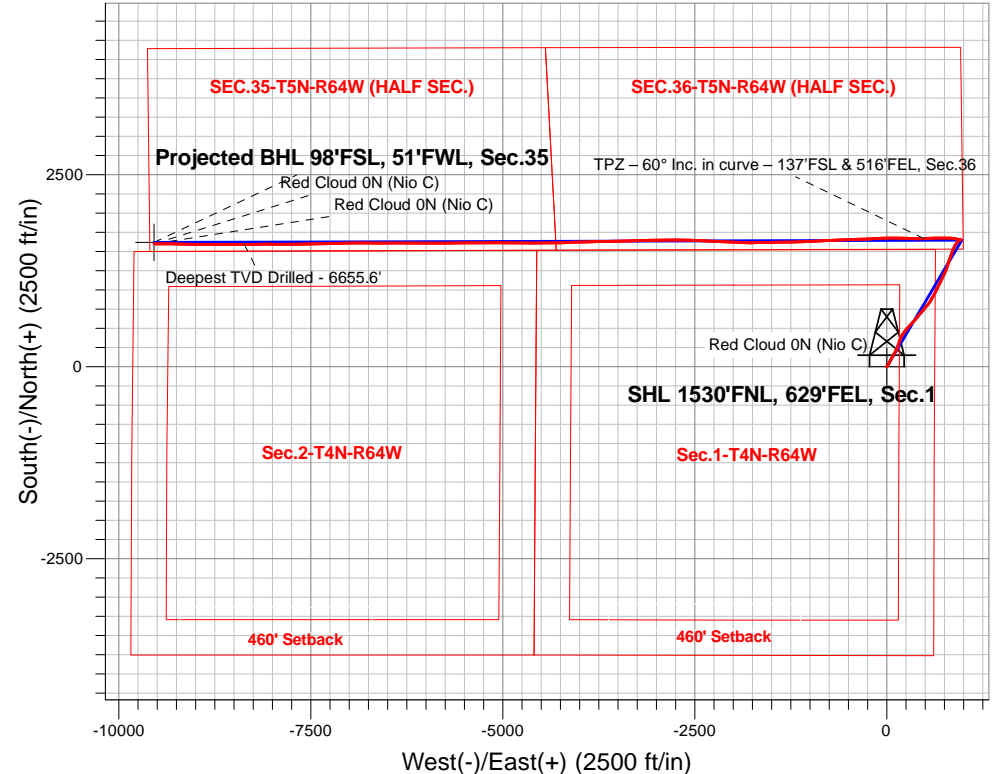
Original Well Elev WELL @ 4625.0ft (Original Well Elev)

FINAL SURVEY

Projected Bottom Hole Location

17,167'MD 6638'TVD 1601'N & 9541'W of SHL

90.48 degree Incl @ 269.86 degree AZM





PDC Energy Inc. DJ Basin

SEC.1-T4N-R64W

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

Red Cloud 0N (Nio C)

Red Cloud 0N Wellbore #1

Survey: Survey #1

Standard Survey Report

04 June, 2019

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Red Cloud 0N (Nio C)
Project:	SEC.1-T4N-R64W	TVD Reference:	WELL @ 4625.0ft (Original Well Elev)
Site:	Red Cloud 4N46W01 Pad Sec.1-T4N-64W	MD Reference:	WELL @ 4625.0ft (Original Well Elev)
Well:	Red Cloud 0N (Nio C)	North Reference:	True
Wellbore:	Red Cloud 0N Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Red Cloud 0N Wellbore #1	Database:	US_EDM

Project	SEC.1-T4N-R64W, Weld County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	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 0N (Nio C)					
Well Position	+N/-S	0.0 ft	Northing:	1,369,932.79 usft	Latitude:	40.344481
	+E/-W	0.0 ft	Easting:	3,281,020.19 usft	Longitude:	-104.491793
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,602.0 ft

Wellbore	Red Cloud 0N Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	5/22/2019	8.10	66.88	52,153

Design	Red Cloud 0N Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	279.52	

Survey Program	Date	6/4/2019			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
154.0	17,167.0	Survey #1 (Red Cloud 0N Wellbore #1)	MWD	MWD - Standard	

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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
154.0	0.39	269.07	154.0	0.0	-0.5	0.5	0.25	0.25	0.00	
249.0	2.00	35.12	249.0	1.3	0.1	0.1	2.37	1.69	132.68	
343.0	4.42	38.31	342.8	5.5	3.3	-2.3	2.58	2.57	3.39	
438.0	6.96	33.12	437.4	13.2	8.7	-6.4	2.73	2.67	-5.46	
533.0	9.29	32.10	531.4	24.5	15.9	-11.7	2.46	2.45	-1.07	
628.0	10.52	28.74	625.0	38.6	24.2	-17.5	1.43	1.29	-3.54	
724.0	13.62	27.51	718.8	56.4	33.6	-23.8	3.24	3.23	-1.28	
818.0	15.86	26.66	809.7	77.7	44.5	-31.0	2.39	2.38	-0.90	
913.0	18.33	30.86	900.5	102.1	58.0	-40.3	2.91	2.60	4.42	

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Wellbore:	Red Cloud 0N Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Red Cloud 0N Wellbore #1	Database:	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)	
1,007.0	18.30	30.19	989.8	127.5	73.0	-50.9	0.23	-0.03	-0.71	
1,102.0	18.22	28.06	1,080.0	153.5	87.5	-60.9	0.71	-0.08	-2.24	
1,197.0	17.78	27.45	1,170.3	179.5	101.1	-70.0	0.50	-0.46	-0.64	
1,291.0	18.20	26.40	1,259.8	205.4	114.3	-78.7	0.56	0.45	-1.12	
1,385.0	18.11	23.74	1,349.1	231.9	126.7	-86.6	0.89	-0.10	-2.83	
1,480.0	16.62	22.70	1,439.7	258.0	137.9	-93.3	1.60	-1.57	-1.09	
1,630.0	13.96	17.64	1,584.4	295.0	151.6	-100.7	1.98	-1.77	-3.37	
1,771.0	14.50	18.24	1,721.1	328.0	162.3	-105.8	0.40	0.38	0.43	
1,865.0	15.11	19.12	1,812.0	350.7	170.0	-109.6	0.69	0.65	0.94	
1,960.0	16.33	25.32	1,903.4	374.5	179.8	-115.3	2.18	1.28	6.53	
2,055.0	15.82	23.94	1,994.7	398.4	190.8	-122.2	0.67	-0.54	-1.45	
2,151.0	17.60	35.05	2,086.7	422.3	204.4	-131.7	3.80	1.85	11.57	
2,245.0	19.91	36.75	2,175.7	446.7	222.1	-145.2	2.53	2.46	1.81	
2,340.0	23.32	40.99	2,264.0	473.9	244.2	-162.4	3.95	3.59	4.46	
2,434.0	25.99	41.91	2,349.4	503.3	270.1	-183.1	2.87	2.84	0.98	
2,529.0	25.37	41.70	2,435.0	533.9	297.6	-205.1	0.66	-0.65	-0.22	
2,623.0	26.51	41.47	2,519.6	564.7	324.9	-226.9	1.22	1.21	-0.24	
2,718.0	27.39	41.60	2,604.2	596.9	353.4	-249.8	0.93	0.93	0.14	
2,812.0	27.49	41.27	2,687.7	629.4	382.1	-272.7	0.19	0.11	-0.35	
2,907.0	27.41	40.58	2,772.0	662.5	410.8	-295.5	0.35	-0.08	-0.73	
3,024.0	27.28	40.58	2,875.9	703.3	445.7	-323.2	0.11	-0.11	0.00	
3,119.0	26.85	40.16	2,960.5	736.2	473.7	-345.4	0.50	-0.45	-0.44	
3,213.0	26.13	39.30	3,044.6	768.5	500.5	-366.5	0.87	-0.77	-0.91	
3,308.0	26.64	36.38	3,129.7	801.8	526.4	-386.5	1.47	0.54	-3.07	
3,403.0	26.88	35.03	3,214.6	836.6	551.4	-405.3	0.69	0.25	-1.42	
3,498.0	25.85	35.09	3,299.7	871.1	575.6	-423.5	1.08	-1.08	0.06	
3,593.0	26.76	27.34	3,384.9	907.0	597.3	-439.0	3.74	0.96	-8.16	
3,688.0	26.74	27.48	3,469.7	945.0	617.0	-452.2	0.07	-0.02	0.15	
3,783.0	27.11	26.65	3,554.4	983.3	636.6	-465.1	0.56	0.39	-0.87	
3,879.0	27.16	26.91	3,639.8	1,022.4	656.3	-478.1	0.13	0.05	0.27	
3,974.0	27.04	27.15	3,724.4	1,060.9	676.0	-491.1	0.17	-0.13	0.25	
4,069.0	26.38	26.49	3,809.3	1,099.1	695.3	-503.8	0.76	-0.69	-0.69	
4,163.0	25.51	25.84	3,893.8	1,136.0	713.4	-515.6	0.97	-0.93	-0.69	
4,258.0	24.74	25.54	3,979.8	1,172.3	730.9	-526.8	0.82	-0.81	-0.32	
4,354.0	24.84	25.44	4,067.0	1,208.6	748.2	-537.9	0.11	0.10	-0.10	
4,449.0	24.67	20.30	4,153.2	1,245.3	763.7	-547.1	2.27	-0.18	-5.41	
4,543.0	23.91	18.87	4,238.9	1,281.7	776.6	-553.8	1.02	-0.81	-1.52	
4,639.0	23.11	18.14	4,326.9	1,318.0	788.8	-559.8	0.89	-0.83	-0.76	
4,734.0	21.68	17.59	4,414.8	1,352.4	799.9	-565.1	1.52	-1.51	-0.58	
4,830.0	24.16	20.06	4,503.2	1,387.8	812.0	-571.2	2.77	2.58	2.57	
4,924.0	24.41	20.13	4,588.9	1,424.1	825.3	-578.3	0.27	0.27	0.07	
5,019.0	23.31	20.01	4,675.8	1,460.2	838.5	-585.3	1.16	-1.16	-0.13	
5,114.0	22.56	20.30	4,763.2	1,495.0	851.2	-592.1	0.80	-0.79	0.31	
5,209.0	21.71	20.14	4,851.2	1,528.6	863.6	-598.8	0.90	-0.89	-0.17	

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Survey										
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5,303.0	19.08	26.57	4,939.4	1,558.6	876.5	-606.5	3.67	-2.80	6.84	
5,398.0	16.25	35.30	5,029.9	1,583.4	891.1	-616.8	4.07	-2.98	9.19	
5,493.0	15.59	34.20	5,121.2	1,604.8	905.9	-627.9	0.76	-0.69	-1.16	
5,588.0	13.87	40.13	5,213.1	1,624.0	920.5	-639.0	2.41	-1.81	6.24	
5,683.0	10.73	50.97	5,305.9	1,638.3	934.7	-650.7	4.09	-3.31	11.41	
5,778.0	8.13	55.97	5,399.6	1,647.7	947.1	-661.4	2.87	-2.74	5.26	
5,873.0	4.53	63.71	5,494.1	1,653.1	956.0	-669.3	3.89	-3.79	8.15	
5,969.0	1.58	77.10	5,589.9	1,655.1	960.7	-673.6	3.14	-3.07	13.95	
6,064.0	1.00	148.84	5,684.9	1,654.6	962.4	-675.4	1.67	-0.61	75.52	
6,159.0	0.91	154.70	5,779.9	1,653.2	963.2	-676.4	0.14	-0.09	6.17	
6,254.0	1.19	286.56	5,874.9	1,652.8	962.6	-675.8	2.02	0.29	138.80	
6,350.0	11.39	276.14	5,970.2	1,654.1	952.2	-665.3	10.65	10.63	-10.85	
6,445.0	17.73	281.62	6,062.1	1,658.1	928.6	-641.5	6.82	6.67	5.77	
6,540.0	23.39	282.36	6,151.0	1,665.0	896.0	-608.2	5.96	5.96	0.78	
6,635.0	35.97	276.64	6,233.4	1,672.3	849.7	-561.3	13.56	13.24	-6.02	
6,729.0	43.60	270.71	6,305.6	1,675.9	789.8	-501.6	9.06	8.12	-6.31	
6,824.0	47.13	270.35	6,372.3	1,676.5	722.2	-434.8	3.73	3.72	-0.38	
6,920.0	50.63	268.11	6,435.4	1,675.5	649.9	-363.7	4.05	3.65	-2.33	
7,015.0	53.48	267.71	6,493.9	1,672.8	575.0	-290.3	3.02	3.00	-0.42	
7,110.0	58.38	265.62	6,547.1	1,668.2	496.5	-213.6	5.47	5.16	-2.20	
7,125.1	59.99	266.27	6,554.8	1,667.3	483.6	-201.0	11.32	10.69	4.33	
TPZ – 60° Inc. in curve – 137'FSL & 516'FEL, Sec.36										
7,206.0	68.69	269.46	6,589.8	1,664.6	410.8	-129.7	11.32	10.75	3.94	
7,301.0	82.75	273.83	6,613.2	1,667.4	319.0	-38.7	15.45	14.80	4.60	
7,397.0	90.15	272.79	6,619.1	1,672.9	223.4	56.5	7.78	7.71	-1.08	
7,493.0	92.16	270.61	6,617.2	1,675.7	127.5	151.6	3.09	2.09	-2.27	
7,588.0	93.07	269.19	6,612.9	1,675.6	32.6	245.1	1.77	0.96	-1.49	
7,684.0	92.65	267.12	6,608.1	1,672.5	-63.2	339.1	2.20	-0.44	-2.16	
7,780.0	93.01	267.67	6,603.3	1,668.1	-159.0	432.9	0.68	0.38	0.57	
7,875.0	91.22	267.85	6,599.8	1,664.4	-253.9	525.8	1.89	-1.88	0.19	
7,971.0	90.49	267.66	6,598.4	1,660.7	-349.8	619.8	0.79	-0.76	-0.20	
8,066.0	90.38	267.37	6,597.7	1,656.5	-444.7	712.7	0.33	-0.12	-0.31	
8,162.0	90.09	267.36	6,597.3	1,652.1	-540.6	806.5	0.30	-0.30	-0.01	
8,257.0	89.98	267.70	6,597.2	1,648.0	-635.5	899.5	0.38	-0.12	0.36	
8,353.0	89.51	267.70	6,597.6	1,644.2	-731.4	993.4	0.49	-0.49	0.00	
8,448.0	89.60	267.27	6,598.4	1,640.0	-826.3	1,086.3	0.46	0.09	-0.45	
8,544.0	89.05	267.20	6,599.5	1,635.4	-922.2	1,180.1	0.58	-0.57	-0.07	
8,639.0	88.94	266.85	6,601.2	1,630.4	-1,017.1	1,272.9	0.39	-0.12	-0.37	
8,734.0	89.23	267.57	6,602.7	1,625.8	-1,112.0	1,365.7	0.82	0.31	0.76	
8,830.0	89.38	269.48	6,603.9	1,623.4	-1,207.9	1,459.9	2.00	0.16	1.99	
8,925.0	89.38	269.30	6,604.9	1,622.3	-1,302.9	1,553.4	0.19	0.00	-0.19	
9,021.0	89.72	268.41	6,605.6	1,620.4	-1,398.9	1,647.7	0.99	0.35	-0.93	
9,116.0	91.03	268.26	6,605.0	1,617.7	-1,493.8	1,740.9	1.39	1.38	-0.16	

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9,211.0	90.06	269.49	6,604.1	1,615.8	-1,588.8	1,834.3	1.65	-1.02	1.29
9,306.0	90.00	269.68	6,604.1	1,615.1	-1,683.8	1,927.8	0.21	-0.06	0.20
9,402.0	90.33	269.38	6,603.8	1,614.3	-1,779.8	2,022.4	0.46	0.34	-0.31
9,497.0	89.29	272.60	6,604.1	1,616.0	-1,874.8	2,116.3	3.56	-1.09	3.39
9,593.0	89.05	272.74	6,605.5	1,620.4	-1,970.7	2,211.6	0.29	-0.25	0.15
9,688.0	88.73	272.48	6,607.3	1,624.8	-2,065.5	2,305.9	0.43	-0.34	-0.27
9,784.0	88.15	271.83	6,609.9	1,628.4	-2,161.4	2,401.1	0.91	-0.60	-0.68
9,879.0	90.31	272.68	6,611.2	1,632.1	-2,256.4	2,495.3	2.44	2.27	0.89
9,975.0	89.99	273.16	6,611.0	1,637.0	-2,352.2	2,590.7	0.60	-0.33	0.50
10,070.0	89.81	272.63	6,611.1	1,641.8	-2,447.1	2,685.0	0.59	-0.19	-0.56
10,166.0	88.45	272.85	6,612.6	1,646.4	-2,543.0	2,780.4	1.44	-1.42	0.23
10,261.0	90.70	270.92	6,613.3	1,649.5	-2,637.9	2,874.5	3.12	2.37	-2.03
10,357.0	91.18	270.26	6,611.7	1,650.5	-2,733.9	2,969.3	0.85	0.50	-0.69
10,452.0	90.93	269.55	6,610.0	1,650.3	-2,828.9	3,063.0	0.79	-0.26	-0.75
10,644.0	91.32	268.77	6,606.2	1,647.5	-3,020.8	3,251.8	0.45	0.20	-0.41
10,739.0	92.07	268.02	6,603.4	1,644.9	-3,115.7	3,345.0	1.12	0.79	-0.79
10,834.0	93.02	268.19	6,599.2	1,641.7	-3,210.6	3,438.0	1.02	1.00	0.18
10,930.0	91.32	268.96	6,595.5	1,639.3	-3,306.5	3,532.2	1.94	-1.77	0.80
11,026.0	89.80	268.83	6,594.6	1,637.5	-3,402.5	3,626.5	1.59	-1.58	-0.14
11,121.0	89.81	268.46	6,594.9	1,635.2	-3,497.4	3,719.8	0.39	0.01	-0.39
11,217.0	88.16	268.78	6,596.6	1,632.9	-3,593.4	3,814.1	1.75	-1.72	0.33
11,313.0	86.91	268.84	6,600.8	1,630.9	-3,689.3	3,908.3	1.30	-1.30	0.06
11,408.0	86.78	269.04	6,606.0	1,629.2	-3,784.1	4,001.5	0.25	-0.14	0.21
11,503.0	86.49	268.24	6,611.6	1,626.9	-3,878.9	4,094.7	0.89	-0.31	-0.84
11,599.0	87.75	268.46	6,616.4	1,624.2	-3,974.8	4,188.7	1.33	1.31	0.23
11,695.0	88.48	267.75	6,619.5	1,621.0	-4,070.7	4,282.8	1.06	0.76	-0.74
11,790.0	88.87	267.39	6,621.7	1,617.0	-4,165.6	4,375.7	0.56	0.41	-0.38
11,885.0	88.99	269.59	6,623.5	1,614.5	-4,260.5	4,468.9	2.32	0.13	2.32
11,981.0	89.15	268.58	6,625.1	1,612.9	-4,356.5	4,563.3	1.07	0.17	-1.05
12,076.0	90.25	268.14	6,625.6	1,610.2	-4,451.4	4,656.5	1.25	1.16	-0.46
12,172.0	90.90	270.84	6,624.6	1,609.4	-4,547.4	4,751.0	2.89	0.68	2.81
12,267.0	91.42	270.98	6,622.7	1,610.9	-4,642.4	4,844.9	0.57	0.55	0.15
12,363.0	92.65	270.83	6,619.3	1,612.4	-4,738.3	4,939.8	1.29	1.28	-0.16
12,458.0	90.27	269.76	6,616.9	1,612.9	-4,833.3	5,033.5	2.75	-2.51	-1.13
12,554.0	90.28	269.73	6,616.4	1,612.4	-4,929.3	5,128.1	0.03	0.01	-0.03
12,649.0	90.73	270.11	6,615.6	1,612.3	-5,024.3	5,221.8	0.62	0.47	0.40
12,745.0	89.43	270.59	6,615.4	1,612.9	-5,120.3	5,316.6	1.44	-1.35	0.50
12,841.0	89.90	270.62	6,616.0	1,613.9	-5,216.2	5,411.4	0.49	0.49	0.03
12,937.0	90.71	269.75	6,615.5	1,614.2	-5,312.2	5,506.1	1.24	0.84	-0.91
13,032.0	89.34	269.51	6,615.4	1,613.6	-5,407.2	5,599.7	1.46	-1.44	-0.25
13,128.0	88.44	268.90	6,617.3	1,612.3	-5,503.2	5,694.1	1.13	-0.94	-0.64
13,223.0	87.97	268.61	6,620.3	1,610.2	-5,598.1	5,787.4	0.58	-0.49	-0.31
13,320.0	87.07	268.35	6,624.5	1,607.6	-5,695.0	5,882.5	0.97	-0.93	-0.27
13,415.0	89.29	270.75	6,627.5	1,606.9	-5,790.0	5,976.0	3.44	2.34	2.53

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Red Cloud 0N (Nio C)
Project:	SEC.1-T4N-R64W	TVD Reference:	WELL @ 4625.0ft (Original Well Elev)
Site:	Red Cloud 4N46W01 Pad Sec.1-T4N-64W	MD Reference:	WELL @ 4625.0ft (Original Well Elev)
Well:	Red Cloud 0N (Nio C)	North Reference:	True
Wellbore:	Red Cloud 0N Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Red Cloud 0N Wellbore #1	Database:	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)
13,511.0	88.66	270.88	6,629.2	1,608.3	-5,885.9	6,070.9	0.67	-0.66	0.14
13,606.0	88.75	270.63	6,631.3	1,609.5	-5,980.9	6,164.8	0.28	0.09	-0.26
13,702.0	88.87	270.00	6,633.3	1,610.0	-6,076.9	6,259.5	0.67	0.13	-0.66
13,798.0	89.70	269.83	6,634.5	1,609.9	-6,172.9	6,354.2	0.88	0.86	-0.18
13,893.0	90.64	269.56	6,634.3	1,609.4	-6,267.9	6,447.8	1.03	0.99	-0.28
13,990.0	89.99	270.10	6,633.7	1,609.1	-6,364.9	6,543.4	0.87	-0.67	0.56
14,180.0	92.11	269.71	6,630.2	1,608.8	-6,554.8	6,730.7	1.13	1.12	-0.21
14,276.0	90.45	270.73	6,628.1	1,609.2	-6,650.8	6,825.4	2.03	-1.73	1.06
14,371.0	90.97	270.27	6,626.9	1,610.0	-6,745.8	6,919.2	0.73	0.55	-0.48
14,467.0	90.22	270.17	6,625.9	1,610.4	-6,841.8	7,013.9	0.79	-0.78	-0.10
14,563.0	88.70	269.19	6,626.8	1,609.8	-6,937.8	7,108.5	1.88	-1.58	-1.02
14,658.0	89.23	268.85	6,628.5	1,608.2	-7,032.7	7,201.9	0.66	0.56	-0.36
14,754.0	90.17	268.76	6,629.0	1,606.2	-7,128.7	7,296.2	0.98	0.98	-0.09
14,849.0	88.31	269.36	6,630.3	1,604.6	-7,223.7	7,389.6	2.06	-1.96	0.63
14,944.0	88.79	268.82	6,632.7	1,603.1	-7,318.6	7,483.0	0.76	0.51	-0.57
15,040.0	88.47	267.94	6,635.0	1,600.4	-7,414.6	7,577.2	0.98	-0.33	-0.92
15,135.0	89.06	267.56	6,637.1	1,596.7	-7,509.5	7,670.2	0.74	0.62	-0.40
15,230.0	88.35	269.75	6,639.2	1,594.5	-7,604.4	7,763.4	2.42	-0.75	2.31
15,325.0	89.22	269.73	6,641.2	1,594.0	-7,699.4	7,857.0	0.92	0.92	-0.02
15,420.0	88.49	270.60	6,643.1	1,594.3	-7,794.4	7,950.7	1.20	-0.77	0.92
15,516.0	89.11	270.50	6,645.1	1,595.2	-7,890.3	8,045.5	0.65	0.65	-0.10
15,611.0	89.06	270.14	6,646.6	1,595.8	-7,985.3	8,139.3	0.38	-0.05	-0.38
15,707.0	88.64	269.13	6,648.6	1,595.1	-8,081.3	8,233.9	1.14	-0.44	-1.05
15,802.0	87.80	269.10	6,651.5	1,593.7	-8,176.2	8,327.2	0.88	-0.88	-0.03
15,897.0	88.92	268.84	6,654.2	1,592.0	-8,271.2	8,420.6	1.21	1.18	-0.27
15,991.7	89.49	268.81	6,655.6	1,590.0	-8,365.9	8,513.6	0.60	0.60	-0.03
Deepest TVD Drilled - 6655.6'									
15,992.0	89.49	268.81	6,655.6	1,590.0	-8,366.2	8,513.9	0.60	0.60	-0.03
16,089.0	91.38	270.76	6,654.8	1,589.7	-8,463.2	8,609.5	2.80	1.95	2.01
16,184.0	91.20	270.31	6,652.7	1,590.5	-8,558.1	8,703.3	0.51	-0.19	-0.47
16,280.0	90.38	269.02	6,651.4	1,590.0	-8,654.1	8,797.9	1.59	-0.85	-1.34
16,375.0	91.70	270.54	6,649.6	1,589.6	-8,749.1	8,891.5	2.12	1.39	1.60
16,470.0	91.40	270.88	6,647.1	1,590.8	-8,844.0	8,985.4	0.48	-0.32	0.36
16,566.0	91.48	270.03	6,644.6	1,591.6	-8,940.0	9,080.1	0.89	0.08	-0.89
16,661.0	91.72	271.39	6,642.0	1,592.7	-9,035.0	9,174.0	1.45	0.25	1.43
16,756.0	91.71	271.13	6,639.2	1,594.8	-9,129.9	9,267.9	0.27	-0.01	-0.27
16,852.0	90.24	271.85	6,637.5	1,597.3	-9,225.9	9,363.0	1.71	-1.53	0.75
16,947.0	89.49	271.20	6,637.7	1,599.8	-9,320.8	9,457.1	1.04	-0.79	-0.68
17,042.0	89.89	270.11	6,638.3	1,600.9	-9,415.8	9,550.9	1.22	0.42	-1.15
17,109.0	90.48	269.86	6,638.0	1,600.9	-9,482.8	9,617.0	0.96	0.88	-0.37
17,167.0	90.48	269.86	6,637.6	1,600.8	-9,540.8	9,674.2	0.00	0.00	0.00

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Red Cloud 0N (Nio C)
Project:	SEC.1-T4N-R64W	TVD Reference:	WELL @ 4625.0ft (Original Well Elev)
Site:	Red Cloud 4N46W01 Pad Sec.1-T4N-64W	MD Reference:	WELL @ 4625.0ft (Original Well Elev)
Well:	Red Cloud 0N (Nio C)	North Reference:	True
Wellbore:	Red Cloud 0N Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Red Cloud 0N Wellbore #1	Database:	US_EDM

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
SHL 1530'FNL, 629'FEL	0.00	0.00	1.0	0.0	0.0	1,369,932.80	3,281,020.19	40.344481	-104.491793
- survey hits target center									
- Point									
Target BHL 115'FSL, 50'	0.00	0.00	6,655.0	1,617.9	-9,541.6	1,371,442.06	3,271,461.21	40.348917	-104.526025
- survey misses target center by 24.5ft at 17167.0ft MD (6637.6 TVD, 1600.8 N, -9540.8 E)									
- Point									

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
7,125.1	6,554.8	1,667.3	483.6	TPZ – 60° Inc. in curve – 137'FSL & 516'FEL, Sec.36
15,991.7	6,655.6	1,590.0	-8,365.9	Deepest TVD Drilled - 6655.6'

Checked By: _____	Approved By: _____	Date: _____
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