

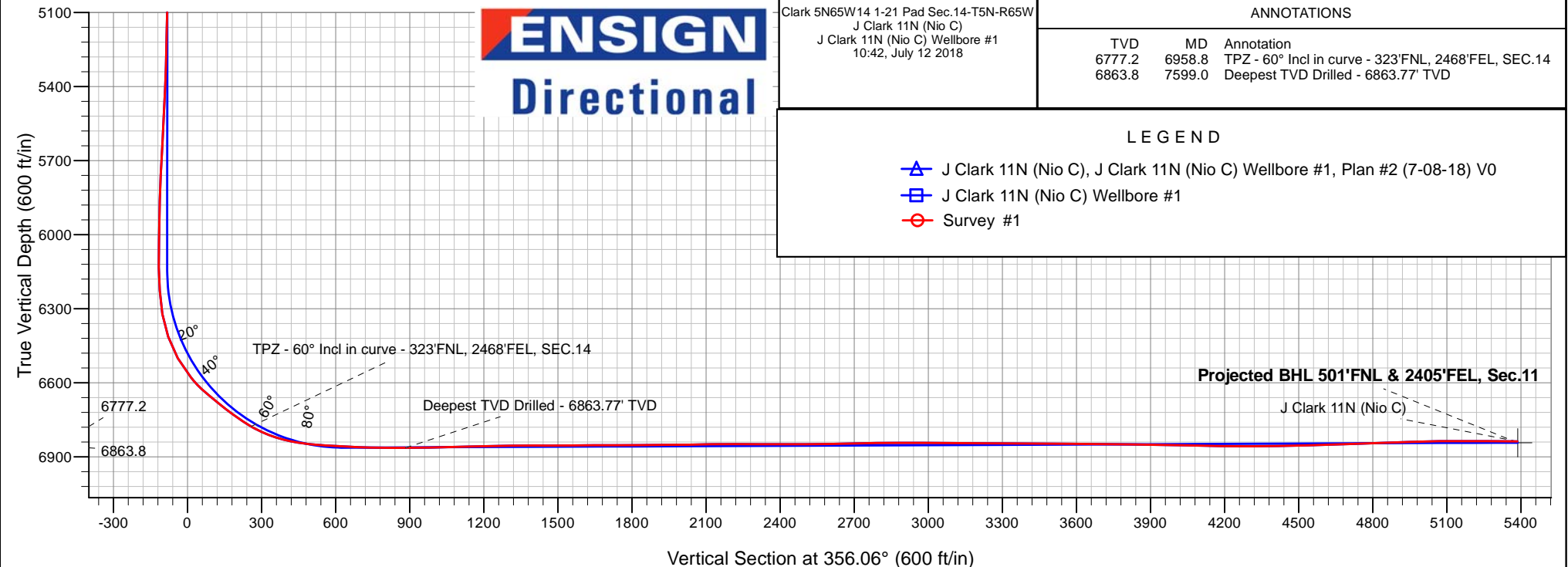
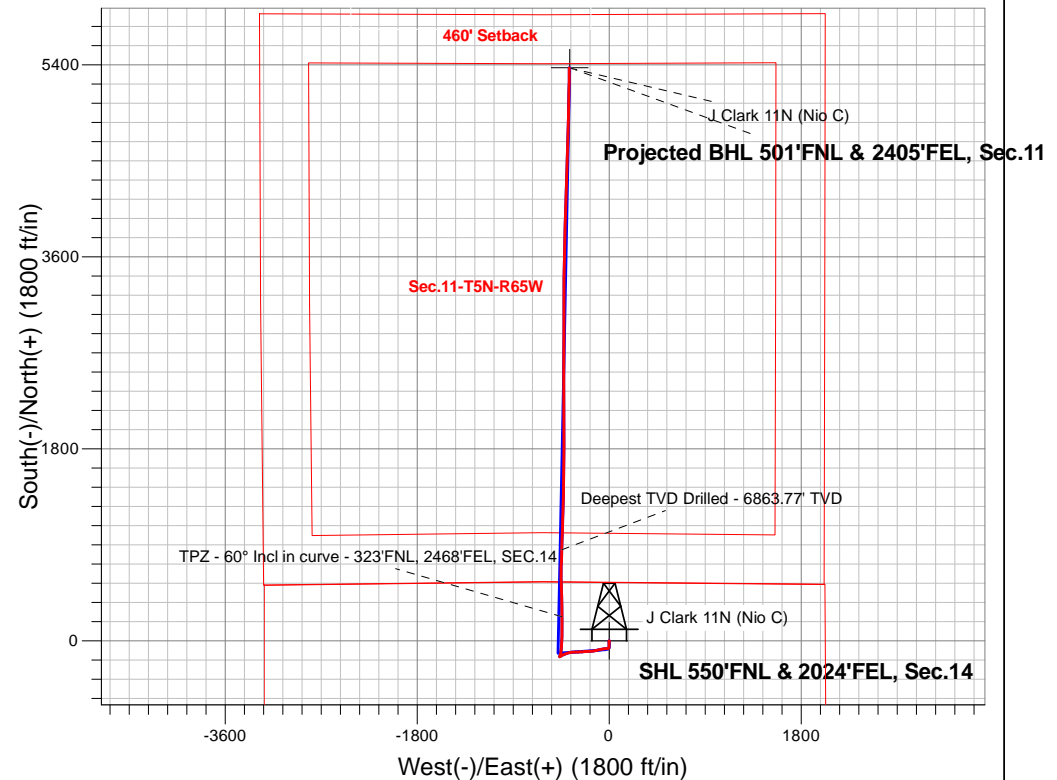
PDC Energy Inc. DJ Basin

Well Name: **J Clark 11N (Nio C)**

Surface Location: Clark 5N65W14 1-21 Pad Sec.14-T5N-R65W
North American Datum 1983 , US State Plane 1983, Colorado Northern Zone
Ground Elevation: 4615.0
+N/-S+E/-W Northing Easting Latitude Longitude Slot
0.0 0.0 1391636.25 3242740.94 40.405168 -104.628351
Original Well Elev WELL @ 4638.0ft (Original Well Elev)

FINAL SURVEY

Projected Bottom Hole Location
12,119'MD 6838'TVD 5372'N & 375'W of SHL
89.3 degree Incl @ 0.20 degree AZM





PDC Energy Inc. DJ Basin

SEC.14-T5N-R65W

Clark 5N65W14 1-21 Pad Sec.14-T5N-R65W

J Clark 11N (Nio C)

J Clark 11N (Nio C) Wellbore #1

Survey: Survey #1

Standard Survey Report

12 July, 2018

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well J Clark 11N (Nio C)
Project:	SEC.14-T5N-R65W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site:	Clark 5N65W14 1-21 Pad Sec.14-T5N-R65W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Well:	J Clark 11N (Nio C)	North Reference:	True
Wellbore:	J Clark 11N (Nio C) Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	J Clark 11N (Nio C) Wellbore #1	Database:	US_EDM

Project	SEC.14-T5N-R65W, Weld County, Colorado		
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		Clark 5N65W14 1-21 Pad Sec.14-T5N-R65W			
Site Position:		Northing:	1,391,636.42 usft	Latitude:	40.405168
From:	Lat/Long	Easting:	3,242,770.94 usft	Longitude:	-104.628243
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.56 °

Well	J Clark 11N (Nio C)					
Well Position	+N/-S	0.0 ft	Northing:	1,391,636.25 usft	Latitude:	40.405168
	+E/-W	0.0 ft	Easting:	3,242,740.94 usft	Longitude:	-104.628351
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,615.0 ft

Wellbore	J Clark 11N (Nio C) Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	7/8/2018	8.10	66.87	52,232

Design	J Clark 11N (Nio C) 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	356.06	

Survey Program	Date	7/12/2018			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
152.0	12,119.0	Survey #1 (J Clark 11N (Nio C) Wellbore #	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	
1.0	0.01	232.40	1.0	0.0	0.0	0.0	0.53	0.53	0.00	
SHL 550'FNL & 2024'FEL, Sec.14										
152.0	0.80	232.40	152.0	-0.6	-0.8	-0.6	0.53	0.53	0.00	
248.0	1.10	236.30	248.0	-1.6	-2.1	-1.4	0.32	0.31	4.06	
343.0	0.60	177.40	343.0	-2.6	-2.9	-2.4	0.99	-0.53	-62.00	
438.0	0.40	149.80	438.0	-3.4	-2.7	-3.2	0.32	-0.21	-29.05	
534.0	0.40	125.50	534.0	-3.8	-2.2	-3.7	0.18	0.00	-25.31	
629.0	0.50	145.20	629.0	-4.4	-1.7	-4.2	0.19	0.11	20.74	
724.0	0.30	198.60	724.0	-4.9	-1.6	-4.8	0.42	-0.21	56.21	
820.0	0.40	195.30	820.0	-5.5	-1.7	-5.4	0.11	0.10	-3.44	

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Site:	Clark 5N65W14 1-21 Pad Sec.14-T5N-R65W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Well:	J Clark 11N (Nio C)	North Reference:	True
Wellbore:	J Clark 11N (Nio C) Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	J Clark 11N (Nio C) 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)
915.0	0.40	201.60	915.0	-6.1	-2.0	-6.0	0.05	0.00	6.63
1,010.0	0.40	188.80	1,010.0	-6.8	-2.1	-6.6	0.09	0.00	-13.47
1,106.0	0.20	190.90	1,106.0	-7.3	-2.2	-7.1	0.21	-0.21	2.19
1,201.0	0.10	170.50	1,201.0	-7.5	-2.2	-7.3	0.12	-0.11	-21.47
1,296.0	0.20	256.30	1,296.0	-7.6	-2.4	-7.5	0.23	0.11	90.32
1,392.0	0.80	135.00	1,392.0	-8.1	-2.1	-8.0	0.96	0.63	-126.35
1,487.0	1.80	166.80	1,486.9	-10.1	-1.3	-10.0	1.26	1.05	33.47
1,630.0	3.60	182.50	1,629.8	-16.7	-0.9	-16.6	1.35	1.26	10.98
1,771.0	3.30	178.40	1,770.5	-25.2	-1.0	-25.1	0.28	-0.21	-2.91
1,867.0	4.60	182.80	1,866.3	-31.8	-1.1	-31.7	1.39	1.35	4.58
1,963.0	4.60	182.80	1,962.0	-39.5	-1.5	-39.3	0.00	0.00	0.00
2,057.0	4.40	178.60	2,055.7	-46.9	-1.6	-46.7	0.41	-0.21	-4.47
2,152.0	4.10	180.70	2,150.4	-53.9	-1.6	-53.7	0.36	-0.32	2.21
2,248.0	3.60	180.40	2,246.2	-60.4	-1.6	-60.1	0.52	-0.52	-0.31
2,344.0	3.60	205.30	2,342.0	-66.1	-2.9	-65.8	1.62	0.00	25.94
2,439.0	3.40	234.70	2,436.8	-70.4	-6.5	-69.8	1.88	-0.21	30.95
2,535.0	3.20	264.00	2,532.7	-72.4	-11.5	-71.4	1.75	-0.21	30.52
2,630.0	4.40	271.90	2,627.5	-72.5	-17.8	-71.1	1.38	1.26	8.32
2,726.0	6.60	264.90	2,723.0	-72.9	-26.9	-70.9	2.39	2.29	-7.29
2,822.0	8.10	264.90	2,818.2	-74.0	-39.2	-71.1	1.56	1.56	0.00
2,917.0	7.70	264.20	2,912.3	-75.2	-52.2	-71.5	0.43	-0.42	-0.74
3,013.0	7.60	261.20	3,007.5	-76.8	-64.8	-72.2	0.43	-0.10	-3.13
3,109.0	6.90	257.40	3,102.7	-79.1	-76.8	-73.6	0.88	-0.73	-3.96
3,204.0	7.70	257.50	3,197.0	-81.7	-88.5	-75.4	0.84	0.84	0.11
3,300.0	7.60	256.10	3,292.1	-84.6	-101.0	-77.5	0.22	-0.10	-1.46
3,395.0	7.00	251.40	3,386.3	-88.0	-112.6	-80.0	0.89	-0.63	-4.95
3,490.0	8.10	261.20	3,480.5	-90.8	-124.7	-82.1	1.78	1.16	10.32
3,586.0	7.90	261.90	3,575.6	-92.8	-137.9	-83.1	0.23	-0.21	0.73
3,682.0	7.70	261.60	3,670.7	-94.7	-150.8	-84.1	0.21	-0.21	-0.31
3,777.0	8.10	265.80	3,764.8	-96.1	-163.7	-84.6	0.74	0.42	4.42
3,873.0	8.70	266.70	3,859.8	-97.0	-177.7	-84.6	0.64	0.63	0.94
3,968.0	8.00	264.90	3,953.7	-98.0	-191.5	-84.6	0.79	-0.74	-1.89
4,063.0	7.50	264.40	4,047.9	-99.2	-204.2	-84.9	0.53	-0.53	-0.53
4,159.0	7.70	266.90	4,143.0	-100.2	-216.9	-85.0	0.40	0.21	2.60
4,254.0	8.30	264.70	4,237.1	-101.1	-230.1	-85.1	0.71	0.63	-2.32
4,350.0	7.70	262.10	4,332.2	-102.7	-243.4	-85.7	0.73	-0.63	-2.71
4,445.0	9.50	271.90	4,426.1	-103.3	-257.5	-85.3	2.44	1.89	10.32
4,541.0	8.80	268.80	4,520.9	-103.2	-272.8	-84.2	0.89	-0.73	-3.23
4,637.0	7.70	267.40	4,615.9	-103.6	-286.5	-83.7	1.16	-1.15	-1.46
4,732.0	8.40	268.30	4,710.0	-104.1	-299.8	-83.3	0.75	0.74	0.95
4,828.0	9.80	266.90	4,804.7	-104.7	-315.0	-82.9	1.48	1.46	-1.46
4,924.0	9.30	267.20	4,899.4	-105.6	-330.9	-82.6	0.52	-0.52	0.31
5,020.0	8.70	265.30	4,994.2	-106.5	-345.9	-82.5	0.70	-0.63	-1.98

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Wellbore:	J Clark 11N (Nio C) Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	J Clark 11N (Nio C) 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)
5,115.0	7.60	262.50	5,088.3	-108.0	-359.3	-83.0	1.23	-1.16	-2.95
5,211.0	8.00	257.20	5,183.4	-110.3	-372.1	-84.4	0.86	0.42	-5.52
5,306.0	7.90	254.50	5,277.5	-113.5	-384.8	-86.8	0.41	-0.11	-2.84
5,402.0	7.10	250.90	5,372.7	-117.2	-396.8	-89.6	0.97	-0.83	-3.75
5,497.0	10.30	249.80	5,466.5	-122.0	-410.3	-93.6	3.37	3.37	-1.16
5,593.0	9.30	247.50	5,561.1	-128.0	-425.5	-98.4	1.12	-1.04	-2.40
5,689.0	8.10	244.50	5,656.0	-133.8	-438.8	-103.4	1.34	-1.25	-3.13
5,784.0	7.00	241.90	5,750.2	-139.5	-449.9	-108.2	1.21	-1.16	-2.74
5,880.0	3.60	236.40	5,845.8	-143.9	-457.6	-112.1	3.58	-3.54	-5.73
5,975.0	1.80	238.40	5,940.7	-146.3	-461.4	-114.3	1.90	-1.89	2.11
6,071.0	1.60	236.60	6,036.6	-147.8	-463.8	-115.6	0.22	-0.21	-1.88
6,166.0	1.30	264.90	6,131.6	-148.7	-466.0	-116.3	0.81	-0.32	29.79
6,261.0	4.70	31.00	6,226.5	-145.4	-465.0	-113.1	5.86	3.58	132.74
6,357.0	10.50	22.00	6,321.6	-133.9	-459.7	-102.0	6.15	6.04	-9.38
6,452.0	19.60	7.70	6,413.3	-110.1	-454.3	-78.6	10.28	9.58	-15.05
6,548.0	29.20	6.00	6,500.6	-70.7	-449.7	-39.7	10.03	10.00	-1.77
6,643.0	39.70	2.30	6,578.9	-17.2	-446.1	13.5	11.27	11.05	-3.89
6,739.0	50.10	1.40	6,646.8	50.4	-443.9	80.8	10.85	10.83	-0.94
6,835.0	52.30	0.70	6,706.9	125.2	-442.6	155.3	2.36	2.29	-0.73
6,930.0	56.70	358.30	6,762.1	202.5	-443.3	232.5	5.07	4.63	-2.53
6,958.8	60.00	358.91	6,777.2	227.1	-443.9	257.0	11.59	11.45	2.13
TPZ - 60° Incl in curve - 323°FNL, 2468°FEL, SEC.14									
7,026.0	67.70	0.20	6,806.8	287.3	-444.3	317.2	11.59	11.46	1.92
7,122.0	77.70	358.40	6,835.3	378.9	-445.5	408.6	10.57	10.42	-1.88
7,217.0	84.90	357.20	6,849.7	472.6	-449.1	502.4	7.68	7.58	-1.26
7,313.0	87.10	0.70	6,856.4	568.4	-450.8	598.0	4.30	2.29	3.65
7,348.5	87.14	0.59	6,858.1	603.8	-450.4	633.3	0.33	0.11	-0.32
LPL 50°FSL & 2487°FEL, Sec.11									
7,408.0	87.20	0.40	6,861.1	663.2	-449.9	692.6	0.33	0.11	-0.32
7,504.0	89.70	1.60	6,863.7	759.2	-448.2	788.2	2.89	2.60	1.25
7,599.0	90.20	1.80	6,863.8	854.1	-445.4	882.7	0.57	0.53	0.21
Deepest TVD Drilled - 6863.77' TVD									
7,695.0	91.00	1.90	6,862.8	950.1	-442.3	978.2	0.84	0.83	0.10
7,790.0	91.70	1.60	6,860.5	1,045.0	-439.4	1,072.7	0.80	0.74	-0.32
7,886.0	91.90	1.40	6,857.5	1,140.9	-436.9	1,168.2	0.29	0.21	-0.21
7,981.0	90.30	1.90	6,855.7	1,235.9	-434.2	1,262.8	1.76	-1.68	0.53
8,077.0	90.20	1.80	6,855.3	1,331.8	-431.1	1,358.3	0.15	-0.10	-0.10
8,173.0	90.40	1.60	6,854.8	1,427.8	-428.2	1,453.8	0.29	0.21	-0.21
8,268.0	90.40	0.90	6,854.1	1,522.7	-426.2	1,548.4	0.74	0.00	-0.74
8,364.0	90.10	0.70	6,853.7	1,618.7	-424.8	1,644.1	0.38	-0.31	-0.21
8,459.0	90.30	0.00	6,853.3	1,713.7	-424.2	1,738.8	0.77	0.21	-0.74
8,555.0	90.40	359.70	6,852.8	1,809.7	-424.5	1,834.6	0.33	0.10	-0.31
8,651.0	90.60	359.30	6,851.9	1,905.7	-425.3	1,930.4	0.47	0.21	-0.42
8,746.0	90.70	359.00	6,850.8	2,000.7	-426.7	2,025.3	0.33	0.11	-0.32

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8,842.0	91.20	359.00	6,849.3	2,096.7	-428.4	2,121.2	0.52	0.52	0.00
8,938.0	89.20	1.10	6,848.9	2,192.7	-428.3	2,216.9	3.02	-2.08	2.19
9,034.0	90.00	0.90	6,849.6	2,288.6	-426.7	2,312.6	0.86	0.83	-0.21
9,129.0	90.10	0.50	6,849.5	2,383.6	-425.5	2,407.2	0.43	0.11	-0.42
9,225.0	90.30	0.00	6,849.2	2,479.6	-425.1	2,503.0	0.56	0.21	-0.52
9,321.0	90.90	359.70	6,848.2	2,575.6	-425.3	2,598.8	0.70	0.63	-0.31
9,416.0	91.50	359.50	6,846.2	2,670.6	-426.0	2,693.6	0.67	0.63	-0.21
9,512.0	90.50	0.00	6,844.5	2,766.6	-426.4	2,789.4	1.16	-1.04	0.52
9,607.0	90.20	0.90	6,843.9	2,861.6	-425.7	2,884.1	1.00	-0.32	0.95
9,702.0	90.00	0.20	6,843.8	2,956.6	-424.8	2,978.8	0.77	-0.21	-0.74
9,798.0	89.60	0.00	6,844.1	3,052.6	-424.6	3,074.5	0.47	-0.42	-0.21
9,894.0	89.30	359.30	6,845.0	3,148.6	-425.2	3,170.3	0.79	-0.31	-0.73
9,989.0	89.60	0.20	6,845.9	3,243.6	-425.6	3,265.1	1.00	0.32	0.95
10,085.0	89.80	0.90	6,846.4	3,339.6	-424.7	3,360.8	0.76	0.21	0.73
10,180.0	89.70	0.20	6,846.8	3,434.6	-423.8	3,455.6	0.74	-0.11	-0.74
10,276.0	89.70	0.00	6,847.3	3,530.6	-423.6	3,551.3	0.21	0.00	-0.21
10,371.0	89.50	2.10	6,848.0	3,625.5	-421.8	3,645.9	2.22	-0.21	2.21
10,466.0	89.30	2.10	6,849.0	3,720.5	-418.4	3,740.4	0.21	-0.21	0.00
10,562.0	89.30	2.10	6,850.2	3,816.4	-414.8	3,835.9	0.00	0.00	0.00
10,657.0	88.90	1.90	6,851.7	3,911.3	-411.5	3,930.4	0.47	-0.42	-0.21
10,752.0	89.20	1.10	6,853.2	4,006.3	-409.0	4,024.9	0.90	0.32	-0.84
10,848.0	88.70	0.70	6,855.0	4,102.2	-407.5	4,120.6	0.67	-0.52	-0.42
10,944.0	89.30	0.50	6,856.7	4,198.2	-406.5	4,216.2	0.66	0.63	-0.21
11,039.0	90.20	2.80	6,857.1	4,293.2	-403.8	4,310.8	2.60	0.95	2.42
11,134.0	90.10	2.50	6,856.8	4,388.1	-399.4	4,405.1	0.33	-0.11	-0.32
11,230.0	92.10	2.70	6,855.0	4,484.0	-395.1	4,500.5	2.09	2.08	0.21
11,325.0	92.30	2.30	6,851.4	4,578.8	-390.9	4,594.8	0.47	0.21	-0.42
11,420.0	91.70	1.40	6,848.0	4,673.7	-387.8	4,689.3	1.14	-0.63	-0.95
11,516.0	91.50	0.90	6,845.4	4,769.6	-385.9	4,784.9	0.56	-0.21	-0.52
11,612.0	91.50	0.50	6,842.8	4,865.6	-384.7	4,880.5	0.42	0.00	-0.42
11,707.0	92.40	0.50	6,839.6	4,960.5	-383.9	4,975.2	0.95	0.95	0.00
11,803.0	90.90	2.10	6,836.8	5,056.5	-381.7	5,070.7	2.28	-1.56	1.67
11,898.0	89.60	1.80	6,836.4	5,151.4	-378.5	5,165.2	1.40	-1.37	-0.32
11,994.0	89.80	0.90	6,836.9	5,247.4	-376.2	5,260.8	0.96	0.21	-0.94
12,061.0	89.30	0.20	6,837.5	5,314.4	-375.6	5,327.6	1.28	-0.75	-1.04
12,119.0	89.30	0.20	6,838.2	5,372.4	-375.4	5,385.5	0.00	0.00	0.00
BHL 500'FNL & 2400'FEL, Sec.11									

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well J Clark 11N (Nio C)
Project:	SEC.14-T5N-R65W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site:	Clark 5N65W14 1-21 Pad Sec.14-T5N-R65W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Well:	J Clark 11N (Nio C)	North Reference:	True
Wellbore:	J Clark 11N (Nio C) Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	J Clark 11N (Nio C) Wellbore #1	Database:	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 550'FNL & 2024'FE - survey hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,391,636.27	3,242,740.94	40.405168	-104.628351
BHL 500'FNL & 2400'FE - survey misses target center by 7.3ft at 12119.0ft MD (6838.2 TVD, 5372.4 N, -375.4 E) - Point	0.00	0.00	6,843.0	5,373.8	-370.1	1,397,005.96	3,242,318.08	40.419919	-104.629680

Survey Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
6,958.8	6,777.2	227.1	-443.9	TPZ - 60° Incl in curve - 323'FNL, 2468'FEL, SEC.14	
7,599.0	6,863.8	854.1	-445.4	Deepest TVD Drilled - 6863.77' TVD	

Checked By: _____	Approved By: _____	Date: _____
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