

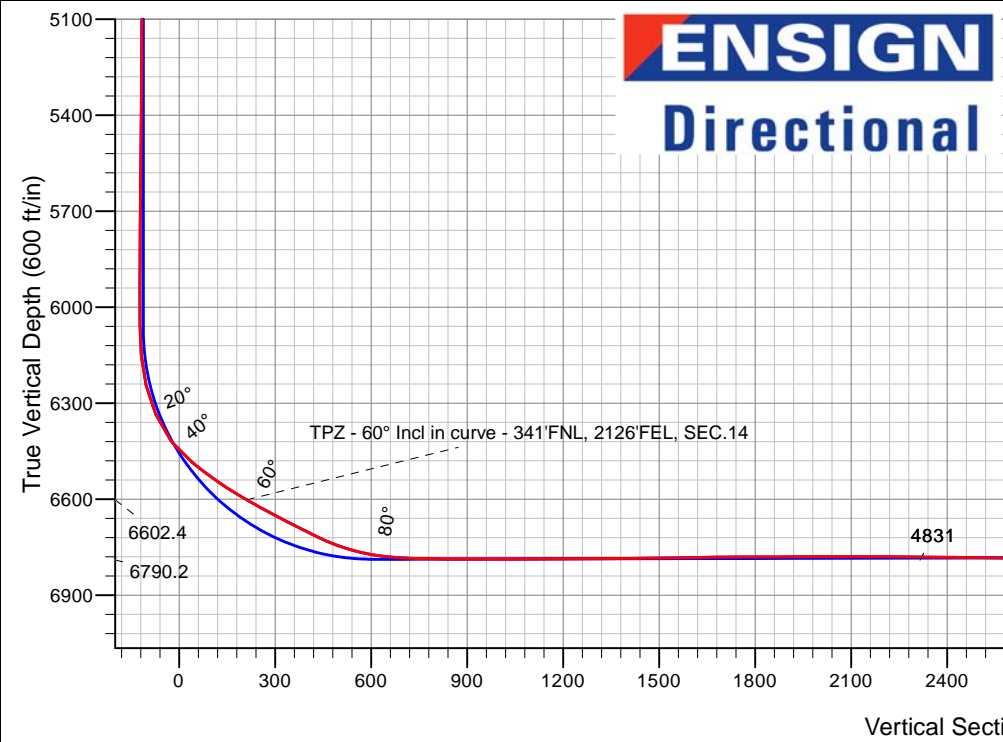
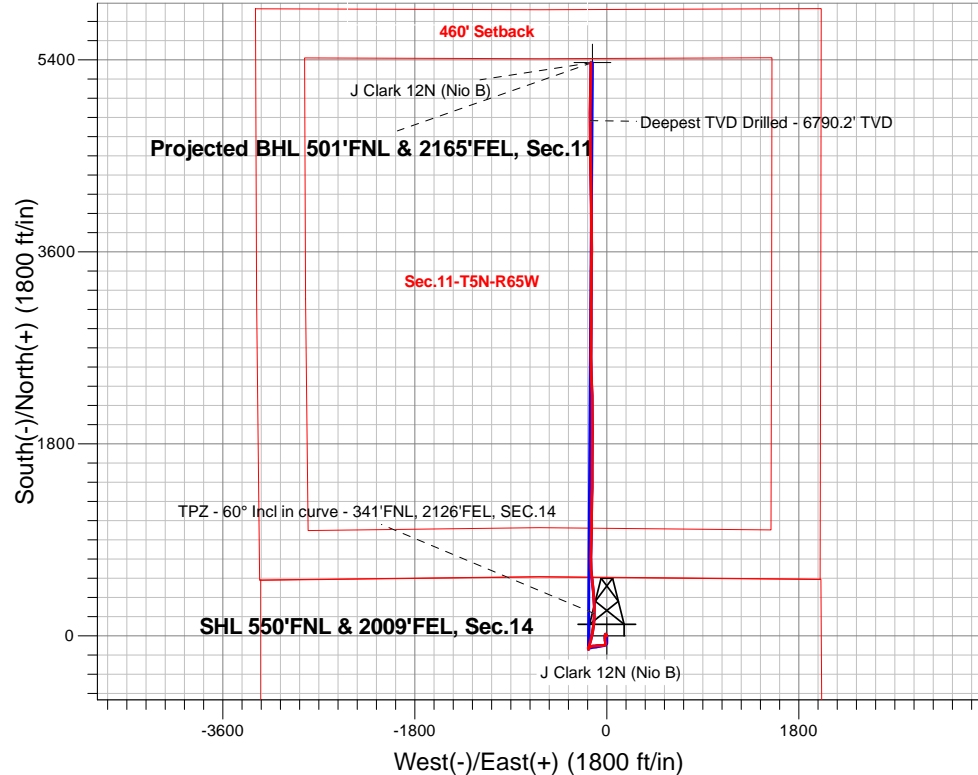
PDC Energy Inc. DJ Basin

Well Name: **J Clark 12N (Nio B)**

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 1391636.253242755.95 40.405168 -104.628297
 Original Well Elev WELL @ 4638.0ft (Original Well Elev)

FINAL SURVEY

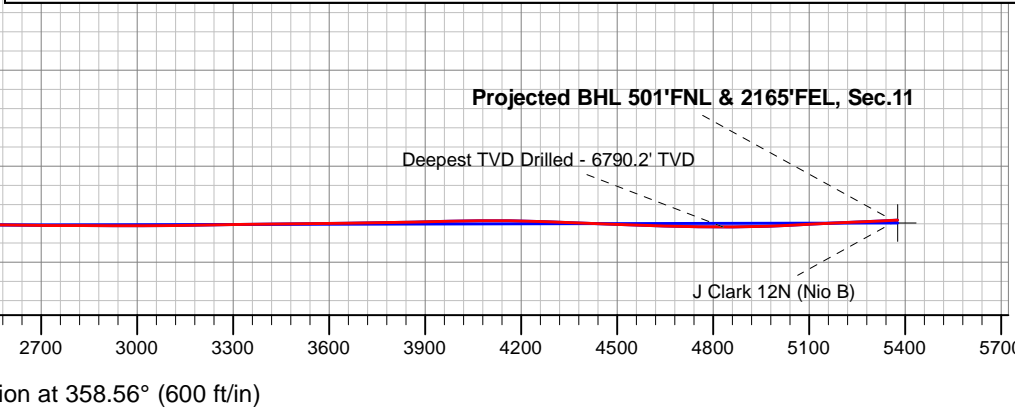
Projected Bottom Hole Location
11,966'MD 6769'TVD 5374'N & 150'W of SHL
92.8 degree Incl @ 0.20 degree AZM



Clark 5N65W14 1-21 Pad Sec.14-T5N-R65W
 J Clark 12N (Nio B)
 J Clark 12N (Nio B) Wellbore #1
 12:04, July 10 2018

ANNOTATIONS		
TVD	MD	Annotation
6602.4	6758.8	TPZ - 60° Incl in curve - 341'FNL, 2126'FEL, SEC.14
6790.2	11420.0	Deepest TVD Drilled - 6790.2' TVD

LEGEND	
	J Clark 12N (Nio B), J Clark 12N (Nio B) Wellbore #1, Plan #1 (7-03-18)R V0
	J Clark 12N (Nio B) Wellbore #1
	Survey #1





PDC Energy Inc. DJ Basin

SEC.14-T5N-R65W

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

J Clark 12N (Nio B)

J Clark 12N (Nio B) Wellbore #1

Survey: Survey #1

Standard Survey Report

10 July, 2018



Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well J Clark 12N (Nio B)
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 12N (Nio B)	North Reference:	True
Wellbore:	J Clark 12N (Nio B) Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	J Clark 12N (Nio B) 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 12N (Nio B)					
Well Position	+N/-S	0.0 ft	Northing:	1,391,636.26 usft	Latitude:	40.405168
	+E/-W	0.0 ft	Easting:	3,242,755.95 usft	Longitude:	-104.628297
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,615.0 ft

Wellbore	J Clark 12N (Nio B) Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	7/3/2018	8.10	66.88	52,233

Design	J Clark 12N (Nio B) 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	358.56	

Survey Program	Date	7/10/2018			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
152.0	11,966.0	Survey #1 (J Clark 12N (Nio B) 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	0.00	299.00	1.0	0.0	0.0	0.0	0.39	0.39	0.00	
SHL 550'FNL & 2009'FEL, Sec.14										
152.0	0.60	299.00	152.0	0.4	-0.7	0.4	0.39	0.39	0.00	
248.0	0.80	289.90	248.0	0.9	-1.8	0.9	0.24	0.21	-9.48	
343.0	0.90	290.20	343.0	1.3	-3.1	1.4	0.11	0.11	0.32	
438.0	1.20	323.50	438.0	2.4	-4.4	2.5	0.70	0.32	35.05	
534.0	1.60	346.30	533.9	4.5	-5.3	4.6	0.71	0.42	23.75	
629.0	1.50	338.20	628.9	7.0	-6.1	7.1	0.25	-0.11	-8.53	
724.0	1.20	334.70	723.9	9.0	-7.0	9.2	0.33	-0.32	-3.68	
820.0	1.00	343.50	819.9	10.7	-7.6	10.9	0.27	-0.21	9.17	

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well J Clark 12N (Nio B)
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 12N (Nio B)	North Reference:	True
Wellbore:	J Clark 12N (Nio B) Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	J Clark 12N (Nio B) 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	1.80	335.10	914.8	12.9	-8.5	13.1	0.87	0.84	-8.84	
1,010.0	0.60	302.50	1,009.8	14.5	-9.5	14.7	1.40	-1.26	-34.32	
1,106.0	0.40	287.90	1,105.8	14.9	-10.3	15.1	0.25	-0.21	-15.21	
1,201.0	0.50	284.60	1,200.8	15.1	-11.0	15.3	0.11	0.11	-3.47	
1,296.0	0.50	275.50	1,295.8	15.2	-11.8	15.5	0.08	0.00	-9.58	
1,392.0	0.70	279.70	1,391.8	15.3	-12.8	15.7	0.21	0.21	4.38	
1,487.0	0.50	282.30	1,486.8	15.5	-13.8	15.9	0.21	-0.21	2.74	
1,582.0	0.40	213.60	1,581.8	15.3	-14.4	15.7	0.54	-0.11	-72.32	
1,627.0	1.00	186.50	1,626.8	14.8	-14.5	15.2	1.49	1.33	-60.22	
1,771.0	3.60	190.00	1,770.7	9.1	-15.4	9.5	1.81	1.81	2.43	
1,867.0	5.30	192.70	1,866.4	1.8	-16.9	2.3	1.78	1.77	2.81	
1,963.0	4.60	184.10	1,962.0	-6.3	-18.2	-5.9	1.06	-0.73	-8.96	
2,057.0	3.80	177.90	2,055.7	-13.2	-18.3	-12.7	0.98	-0.85	-6.60	
2,152.0	3.60	175.10	2,150.6	-19.3	-18.0	-18.9	0.28	-0.21	-2.95	
2,248.0	4.00	179.30	2,246.3	-25.7	-17.7	-25.2	0.51	0.42	4.38	
2,344.0	5.70	176.10	2,342.0	-33.8	-17.3	-33.3	1.79	1.77	-3.33	
2,439.0	5.00	170.30	2,436.6	-42.6	-16.3	-42.1	0.93	-0.74	-6.11	
2,535.0	5.00	172.50	2,532.2	-50.8	-15.0	-50.4	0.20	0.00	2.29	
2,630.0	4.90	170.90	2,626.9	-59.0	-13.8	-58.6	0.18	-0.11	-1.68	
2,726.0	4.90	172.80	2,722.5	-67.1	-12.7	-66.7	0.17	0.00	1.98	
2,822.0	4.70	189.20	2,818.2	-75.0	-12.8	-74.7	1.44	-0.21	17.08	
2,917.0	4.60	213.20	2,912.9	-82.0	-15.5	-81.6	2.04	-0.11	25.26	
3,013.0	4.10	241.50	3,008.6	-86.9	-20.6	-86.4	2.27	-0.52	29.48	
3,109.0	5.70	262.30	3,104.3	-89.2	-28.4	-88.4	2.46	1.67	21.67	
3,204.0	6.90	266.70	3,198.7	-90.1	-38.7	-89.1	1.36	1.26	4.63	
3,300.0	8.40	271.60	3,293.8	-90.3	-51.5	-89.0	1.70	1.56	5.10	
3,395.0	8.50	268.30	3,387.8	-90.3	-65.5	-88.6	0.52	0.11	-3.47	
3,490.0	9.60	264.70	3,481.6	-91.2	-80.4	-89.2	1.30	1.16	-3.79	
3,586.0	9.90	264.70	3,576.2	-92.7	-96.6	-90.3	0.31	0.31	0.00	
3,682.0	10.00	264.70	3,670.8	-94.3	-113.1	-91.4	0.10	0.10	0.00	
3,777.0	9.90	264.70	3,764.4	-95.8	-129.4	-92.5	0.11	-0.11	0.00	
3,873.0	8.20	251.60	3,859.2	-98.7	-144.1	-95.1	2.77	-1.77	-13.65	
3,968.0	6.10	246.60	3,953.4	-102.9	-155.2	-98.9	2.30	-2.21	-5.26	
4,063.0	5.60	246.30	4,047.9	-106.7	-164.1	-102.6	0.53	-0.53	-0.32	
4,159.0	4.00	239.10	4,143.6	-110.3	-171.2	-106.0	1.78	-1.67	-7.50	
4,254.0	2.10	216.90	4,238.5	-113.4	-175.1	-109.0	2.32	-2.00	-23.37	
4,350.0	1.00	134.30	4,334.4	-115.4	-175.6	-111.0	2.30	-1.15	-86.04	
4,445.0	1.10	114.40	4,429.4	-116.4	-174.2	-112.0	0.40	0.11	-20.95	
4,541.0	0.70	107.40	4,525.4	-116.9	-172.8	-112.5	0.43	-0.42	-7.29	
4,637.0	0.50	126.20	4,621.4	-117.3	-171.9	-113.0	0.29	-0.21	19.58	
4,732.0	0.40	143.30	4,716.4	-117.9	-171.3	-113.5	0.18	-0.11	18.00	
4,828.0	0.40	170.30	4,812.4	-118.5	-171.1	-114.1	0.19	0.00	28.13	
4,924.0	0.40	176.00	4,908.4	-119.1	-171.0	-114.8	0.04	0.00	5.94	

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Well:	J Clark 12N (Nio B)	North Reference:	True
Wellbore:	J Clark 12N (Nio B) Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	J Clark 12N (Nio B) 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)	
5,020.0	0.60	179.10	5,004.4	-120.0	-171.0	-115.6	0.21	0.21	3.23	
5,115.0	0.40	173.50	5,099.4	-120.8	-170.9	-116.4	0.22	-0.21	-5.89	
5,211.0	0.20	187.60	5,195.4	-121.3	-170.9	-116.9	0.22	-0.21	14.69	
5,306.0	0.40	199.70	5,290.4	-121.8	-171.0	-117.4	0.22	0.21	12.74	
5,402.0	0.40	175.10	5,386.4	-122.4	-171.1	-118.1	0.18	0.00	-25.63	
5,497.0	0.70	187.40	5,481.4	-123.3	-171.2	-119.0	0.34	0.32	12.95	
5,593.0	0.60	188.10	5,577.4	-124.4	-171.3	-120.0	0.10	-0.10	0.73	
5,689.0	0.40	172.30	5,673.4	-125.2	-171.3	-120.9	0.25	-0.21	-16.46	
5,784.0	0.40	200.80	5,768.4	-125.9	-171.4	-121.5	0.21	0.00	30.00	
5,880.0	0.40	230.60	5,864.4	-126.4	-171.8	-122.0	0.21	0.00	31.04	
5,975.0	0.40	253.50	5,959.4	-126.7	-172.4	-122.3	0.17	0.00	24.11	
6,071.0	0.20	165.80	6,055.4	-126.9	-172.7	-122.6	0.46	-0.21	-91.35	
6,166.0	5.50	14.30	6,150.2	-122.7	-171.5	-118.3	5.98	5.58	-159.47	
6,261.0	13.70	11.10	6,243.8	-107.2	-168.2	-103.0	8.65	8.63	-3.37	
6,357.0	23.40	12.80	6,334.7	-77.4	-161.8	-73.3	10.12	10.10	1.77	
6,452.0	38.60	15.50	6,415.9	-30.2	-149.6	-26.4	16.06	16.00	2.84	
6,548.0	51.20	11.40	6,483.8	35.6	-134.1	39.0	13.46	13.13	-4.27	
6,643.0	55.40	6.90	6,540.6	110.8	-122.1	113.8	5.83	4.42	-4.74	
6,739.0	59.30	0.00	6,592.4	191.4	-117.4	194.3	7.29	4.06	-7.19	
6,758.8	60.00	359.36	6,602.4	208.5	-117.4	211.4	4.47	3.51	-3.21	
TPZ - 60° Incl in curve - 341'FNL, 2126'FEL, SEC.14										
6,835.0	62.70	357.00	6,638.9	275.3	-119.6	278.2	4.47	3.55	-3.10	
6,930.0	62.00	357.70	6,683.0	359.4	-123.5	362.4	0.98	-0.74	0.74	
7,026.0	65.60	354.00	6,725.4	445.2	-129.8	448.4	5.10	3.75	-3.85	
7,122.0	73.80	352.60	6,758.7	534.6	-140.3	537.9	8.65	8.54	-1.46	
7,195.7	81.09	356.51	6,774.7	606.2	-147.1	609.7	11.16	9.89	5.30	
LPL 50'FSL & 2175'FEL, Sec.11										
7,217.0	83.20	357.60	6,777.6	627.2	-148.1	630.7	11.16	9.93	5.14	
7,313.0	87.80	0.50	6,785.1	722.9	-149.7	726.4	5.66	4.79	3.02	
7,408.0	89.60	0.90	6,787.3	817.8	-148.6	821.3	1.94	1.89	0.42	
7,504.0	90.00	0.90	6,787.6	913.8	-147.1	917.2	0.42	0.42	0.00	
7,599.0	90.10	0.90	6,787.6	1,008.8	-145.6	1,012.1	0.11	0.11	0.00	
7,695.0	90.20	1.10	6,787.3	1,104.8	-143.9	1,108.0	0.23	0.10	0.21	
7,790.0	90.20	1.20	6,787.0	1,199.8	-142.0	1,202.9	0.11	0.00	0.11	
7,886.0	90.20	1.10	6,786.6	1,295.7	-140.1	1,298.9	0.10	0.00	-0.10	
7,981.0	90.60	0.00	6,786.0	1,390.7	-139.1	1,393.8	1.23	0.42	-1.16	
8,077.0	91.20	0.00	6,784.5	1,486.7	-139.1	1,489.7	0.63	0.63	0.00	
8,173.0	90.70	0.20	6,782.9	1,582.7	-139.0	1,585.7	0.56	-0.52	0.21	
8,268.0	90.70	0.50	6,781.7	1,677.7	-138.4	1,680.6	0.32	0.00	0.32	
8,364.0	90.20	0.50	6,781.0	1,773.7	-137.6	1,776.6	0.52	-0.52	0.00	
8,459.0	90.00	0.40	6,780.8	1,868.7	-136.8	1,871.5	0.24	-0.21	-0.11	
8,555.0	90.20	0.00	6,780.6	1,964.7	-136.5	1,967.5	0.47	0.21	-0.42	
8,651.0	90.10	359.70	6,780.4	2,060.7	-136.7	2,063.5	0.33	-0.10	-0.31	
8,746.0	90.40	359.50	6,780.0	2,155.7	-137.4	2,158.5	0.38	0.32	-0.21	

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Well:	J Clark 12N (Nio B)	North Reference:	True
Wellbore:	J Clark 12N (Nio B) Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	J Clark 12N (Nio B) 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)	
8,842.0	89.50	358.40	6,780.0	2,251.7	-139.2	2,254.4	1.48	-0.94	-1.15	
8,938.0	89.70	358.10	6,780.7	2,347.6	-142.1	2,350.4	0.38	0.21	-0.31	
9,034.0	88.50	357.40	6,782.2	2,443.5	-145.9	2,446.4	1.45	-1.25	-0.73	
9,129.0	89.20	359.10	6,784.1	2,538.5	-148.8	2,541.4	1.93	0.74	1.79	
9,225.0	89.70	0.40	6,785.0	2,634.5	-149.2	2,637.4	1.45	0.52	1.35	
9,321.0	89.70	0.40	6,785.6	2,730.5	-148.5	2,733.3	0.00	0.00	0.00	
9,416.0	89.80	0.00	6,786.0	2,825.4	-148.2	2,828.3	0.43	0.11	-0.42	
9,512.0	90.00	0.00	6,786.1	2,921.4	-148.2	2,924.2	0.21	0.21	0.00	
9,607.0	90.00	0.00	6,786.1	3,016.4	-148.2	3,019.2	0.00	0.00	0.00	
9,702.0	90.60	0.50	6,785.6	3,111.4	-147.8	3,114.2	0.82	0.63	0.53	
9,798.0	90.90	0.70	6,784.4	3,207.4	-146.7	3,210.1	0.38	0.31	0.21	
9,894.0	90.90	0.20	6,782.9	3,303.4	-146.0	3,306.0	0.52	0.00	-0.52	
9,989.0	90.60	0.20	6,781.6	3,398.4	-145.7	3,401.0	0.32	-0.32	0.00	
10,085.0	90.80	0.50	6,780.5	3,494.4	-145.1	3,496.9	0.38	0.21	0.31	
10,180.0	90.90	0.70	6,779.0	3,589.4	-144.1	3,591.9	0.24	0.11	0.21	
10,276.0	90.60	0.40	6,777.8	3,685.4	-143.2	3,687.8	0.44	-0.31	-0.31	
10,371.0	90.90	359.70	6,776.5	3,780.4	-143.1	3,782.8	0.80	0.32	-0.74	
10,466.0	91.20	358.60	6,774.8	3,875.3	-144.5	3,877.7	1.20	0.32	-1.16	
10,562.0	91.20	358.80	6,772.8	3,971.3	-146.7	3,973.7	0.21	0.00	0.21	
10,657.0	91.10	359.70	6,770.9	4,066.3	-147.9	4,068.7	0.95	-0.11	0.95	
10,752.0	89.00	359.50	6,770.8	4,161.3	-148.6	4,163.7	2.22	-2.21	-0.21	
10,848.0	88.10	359.10	6,773.2	4,257.2	-149.7	4,259.6	1.03	-0.94	-0.42	
10,944.0	87.80	358.80	6,776.7	4,353.1	-151.5	4,355.6	0.44	-0.31	-0.31	
11,039.0	87.50	358.30	6,780.6	4,448.0	-153.9	4,450.5	0.61	-0.32	-0.53	
11,134.0	88.20	359.80	6,784.1	4,542.9	-155.5	4,545.4	1.74	0.74	1.58	
11,230.0	88.50	359.50	6,786.9	4,638.9	-156.1	4,641.4	0.44	0.31	-0.31	
11,325.0	88.50	359.00	6,789.4	4,733.9	-157.3	4,736.3	0.53	0.00	-0.53	
11,420.0	90.50	0.40	6,790.2	4,828.8	-157.8	4,831.3	2.57	2.11	1.47	
Deepest TVD Drilled - 6790.2' TVD										
11,516.0	91.50	0.90	6,788.5	4,924.8	-156.7	4,927.2	1.16	1.04	0.52	
11,612.0	92.20	1.10	6,785.4	5,020.8	-155.0	5,023.1	0.76	0.73	0.21	
11,707.0	93.50	1.40	6,780.7	5,115.6	-153.0	5,117.8	1.40	1.37	0.32	
11,803.0	92.00	0.70	6,776.1	5,211.5	-151.2	5,213.6	1.72	-1.56	-0.73	
11,908.0	92.80	0.20	6,771.7	5,316.4	-150.4	5,318.5	0.90	0.76	-0.48	
11,966.0	92.80	0.20	6,768.9	5,374.3	-150.2	5,376.4	0.00	0.00	0.00	
BHL 500'FNL & 2150'FEL, Sec.11										

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well J Clark 12N (Nio B)
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 12N (Nio B)	North Reference:	True
Wellbore:	J Clark 12N (Nio B) Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	J Clark 12N (Nio B) 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 & 2009'FE - survey hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,391,636.28	3,242,755.95	40.405168	-104.628297
BHL 500'FNL & 2150'FE - survey misses target center by 17.7ft at 11966.0ft MD (6768.9 TVD, 5374.3 N, -150.2 E) - Point	0.00	0.00	6,778.0	5,375.0	-135.1	1,397,009.43	3,242,568.06	40.419922	-104.628782

Survey Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
6,758.8	6,602.4	208.5	-117.4	TPZ - 60° Incl in curve - 341'FNL, 2126'FEL, SEC.14	
11,420.0	6,790.2	4,828.8	-157.8	Deepest TVD Drilled - 6790.2' TVD	

Checked By: _____ Approved By: _____ Date: _____