

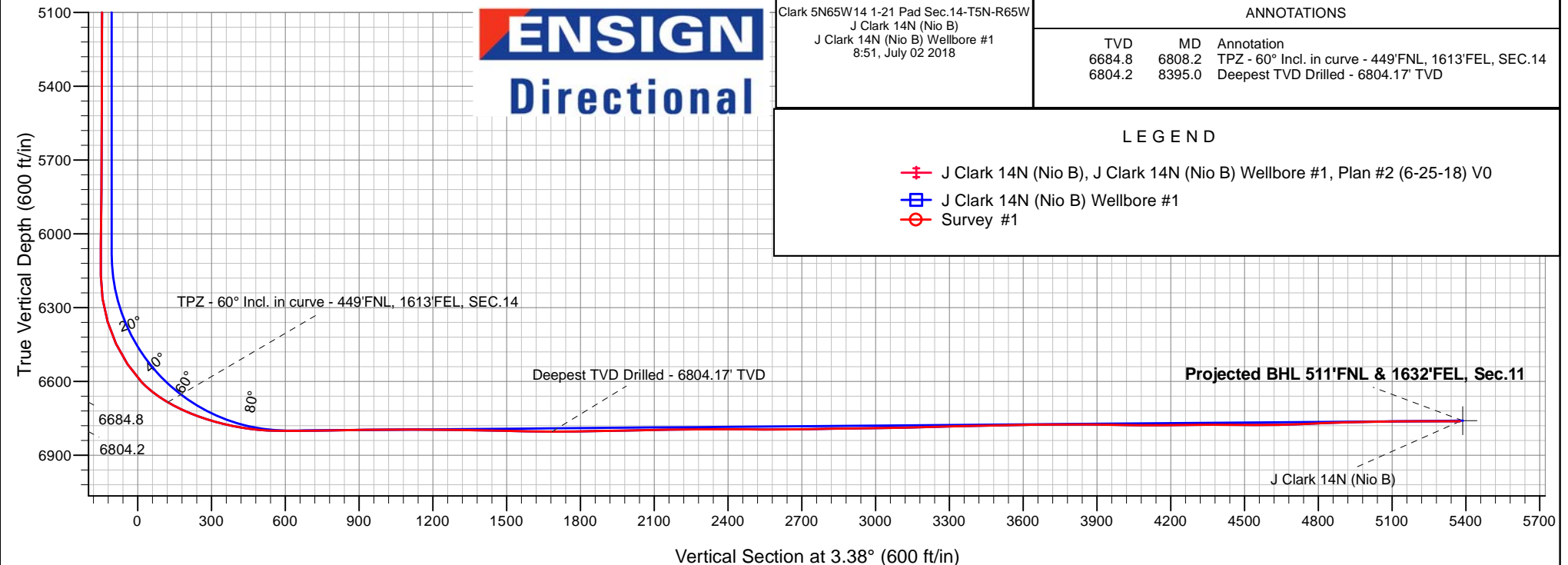
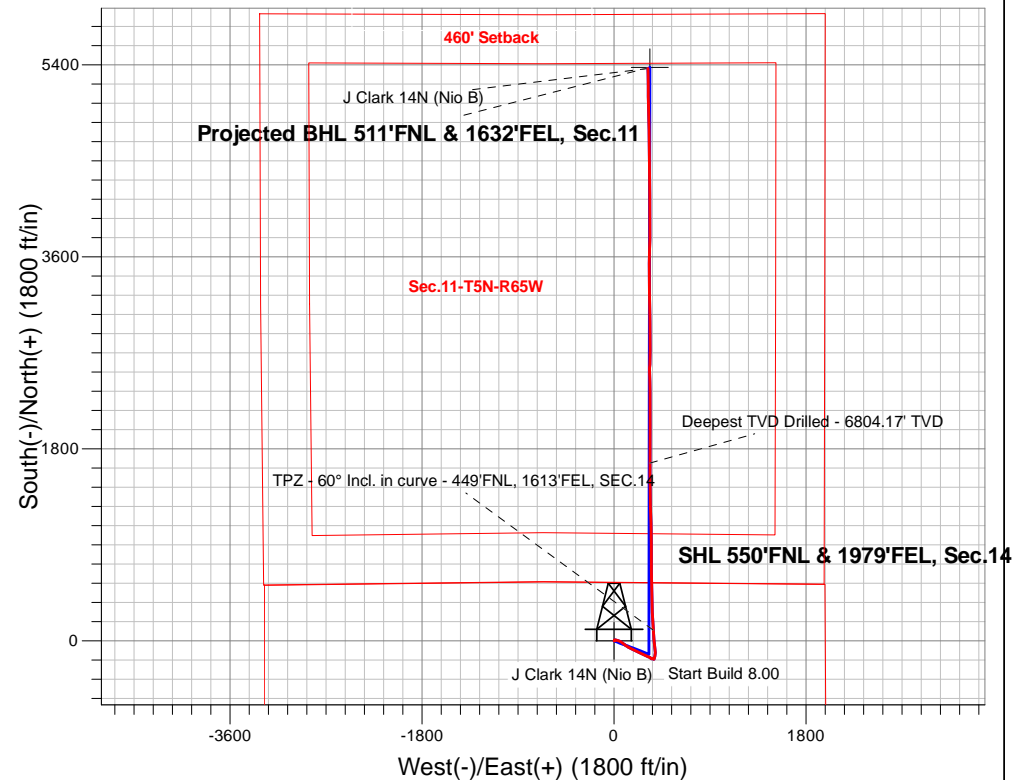
PDC Energy Inc. DJ Basin

Well Name: **J Clark 14N (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 1391636.223242785.95 40.405167 -104.628189
 Original Well Elev WELL @ 4638.0ft (Original Well Elev)

FINAL SURVEY

Projected Bottom Hole Location
12,095'MD 6762'TVD 5367'N & 317'E of SHL
90.1 degree Incl @ 359.0 degree AZM





PDC Energy Inc. DJ Basin

SEC.14-T5N-R65W

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

J Clark 14N (Nio B)

J Clark 14N (Nio B) Wellbore #1

Survey: Survey #1

Standard Survey Report

02 July, 2018

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well J Clark 14N (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 14N (Nio B)	North Reference:	True
Wellbore:	J Clark 14N (Nio B) Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	J Clark 14N (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 14N (Nio B)					
Well Position	+N-S	0.0 ft	Northing:	1,391,636.22 usft	Latitude:	40.405167
	+E-W	0.0 ft	Easting:	3,242,785.95 usft	Longitude:	-104.628189
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,615.0 ft

Wellbore	J Clark 14N (Nio B) Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	6/25/2018	8.10	66.88	52,236

Design	J Clark 14N (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	3.38	

Survey Program	Date	7/2/2018			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
152.0	12,095.0	Survey #1 (J Clark 14N (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	328.50	1.0	0.0	0.0	0.0	0.00	0.00	0.00	
SHL 550'FNL & 1979'FEL, Sec.14										
152.0	0.10	328.50	152.0	0.1	-0.1	0.1	0.07	0.07	0.00	
248.0	0.10	91.20	248.0	0.2	0.0	0.2	0.18	0.00	127.81	
343.0	0.30	23.70	343.0	0.4	0.2	0.4	0.29	0.21	-71.05	
439.0	0.40	31.30	439.0	0.9	0.4	0.9	0.11	0.10	7.92	
534.0	0.40	32.90	534.0	1.5	0.8	1.5	0.01	0.00	1.68	
629.0	0.50	45.00	629.0	2.1	1.3	2.1	0.14	0.11	12.74	
724.0	0.70	48.50	724.0	2.7	2.0	2.8	0.21	0.21	3.68	
820.0	0.90	38.70	820.0	3.7	2.9	3.9	0.25	0.21	-10.21	

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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 14N (Nio B)	North Reference:	True
Wellbore:	J Clark 14N (Nio B) Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	J Clark 14N (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	1.00	29.00	915.0	5.0	3.8	5.2	0.20	0.11	-10.21
1,010.0	1.00	28.80	1,010.0	6.5	4.6	6.7	0.00	0.00	-0.21
1,106.0	1.10	14.60	1,105.9	8.1	5.2	8.4	0.29	0.10	-14.79
1,201.0	1.80	71.20	1,200.9	9.5	6.8	9.8	1.59	0.74	59.58
1,296.0	3.30	98.50	1,295.8	9.5	11.0	10.2	1.99	1.58	28.74
1,392.0	4.30	106.90	1,391.6	8.1	17.1	9.1	1.19	1.04	8.75
1,487.0	5.40	106.00	1,486.3	5.8	24.8	7.3	1.16	1.16	-0.95
1,627.0	6.80	111.30	1,625.5	1.0	38.9	3.3	1.08	1.00	3.79
1,773.0	5.70	110.10	1,770.6	-4.6	53.8	-1.5	0.76	-0.75	-0.82
1,868.0	7.70	125.00	1,864.9	-9.9	63.4	-6.2	2.77	2.11	15.68
1,964.0	7.50	123.60	1,960.1	-17.1	73.9	-12.7	0.28	-0.21	-1.46
2,058.0	8.70	125.70	2,053.2	-24.6	84.8	-19.6	1.31	1.28	2.23
2,153.0	9.10	127.50	2,147.0	-33.4	96.6	-27.6	0.51	0.42	1.89
2,249.0	8.60	127.80	2,241.9	-42.4	108.3	-36.0	0.52	-0.52	0.31
2,345.0	8.20	123.20	2,336.9	-50.6	119.7	-43.4	0.81	-0.42	-4.79
2,440.0	7.80	121.70	2,430.9	-57.6	130.8	-49.8	0.47	-0.42	-1.58
2,536.0	10.60	118.30	2,525.7	-65.3	144.1	-56.7	2.97	2.92	-3.54
2,632.0	10.50	116.90	2,620.1	-73.4	159.7	-63.9	0.29	-0.10	-1.46
2,727.0	10.50	115.70	2,713.5	-81.1	175.2	-70.6	0.23	0.00	-1.26
2,823.0	9.80	116.60	2,808.0	-88.5	190.4	-77.2	0.75	-0.73	0.94
3,014.0	9.80	115.50	2,996.2	-102.8	219.6	-89.7	0.10	0.00	-0.58
3,110.0	9.30	114.80	3,090.8	-109.6	234.0	-95.6	0.53	-0.52	-0.73
3,301.0	9.00	113.90	3,279.4	-122.1	261.7	-106.5	0.17	-0.16	-0.47
3,396.0	8.60	113.70	3,373.3	-128.0	275.0	-111.5	0.42	-0.42	-0.21
3,491.0	7.90	116.40	3,467.3	-133.7	287.4	-116.6	0.84	-0.74	2.84
3,587.0	7.70	116.40	3,562.4	-139.5	299.0	-121.7	0.21	-0.21	0.00
3,683.0	7.70	114.40	3,657.6	-145.0	310.6	-126.5	0.28	0.00	-2.08
3,778.0	5.60	115.20	3,751.9	-149.6	320.6	-130.5	2.21	-2.21	0.84
3,874.0	4.60	111.10	3,847.5	-153.0	328.5	-133.4	1.11	-1.04	-4.27
3,969.0	2.70	115.50	3,942.3	-155.3	334.0	-135.4	2.02	-2.00	4.63
4,064.0	1.90	135.00	4,037.3	-157.4	337.2	-137.3	1.17	-0.84	20.53
4,160.0	1.80	132.70	4,133.2	-159.6	339.4	-139.3	0.13	-0.10	-2.40
4,255.0	1.50	127.10	4,228.2	-161.3	341.5	-140.9	0.36	-0.32	-5.89
4,351.0	1.40	124.10	4,324.1	-162.8	343.5	-142.2	0.13	-0.10	-3.13
4,446.0	1.40	114.10	4,419.1	-163.9	345.5	-143.2	0.26	0.00	-10.53
4,628.0	1.20	115.50	4,601.1	-165.6	349.2	-144.7	0.11	-0.11	0.77
4,723.0	1.10	103.20	4,696.0	-166.2	351.0	-145.3	0.28	-0.11	-12.95
4,819.0	1.40	84.20	4,792.0	-166.3	353.1	-145.2	0.53	0.31	-19.79
5,011.0	1.20	89.10	4,984.0	-166.1	357.4	-144.7	0.12	-0.10	2.55
5,106.0	1.20	100.60	5,079.0	-166.2	359.4	-144.8	0.25	0.00	12.11
5,202.0	1.10	105.80	5,174.9	-166.7	361.3	-145.1	0.15	-0.10	5.42
5,297.0	1.00	96.20	5,269.9	-167.0	363.0	-145.3	0.21	-0.11	-10.11
5,393.0	0.90	106.00	5,365.9	-167.3	364.5	-145.5	0.20	-0.10	10.21

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Well:	J Clark 14N (Nio B)	North Reference:	True
Wellbore:	J Clark 14N (Nio B) Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	J Clark 14N (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)
5,488.0	0.90	100.00	5,460.9	-167.6	366.0	-145.8	0.10	0.00	-6.32
5,584.0	0.80	91.80	5,556.9	-167.8	367.4	-145.9	0.16	-0.10	-8.54
5,680.0	0.90	108.10	5,652.9	-168.0	368.8	-146.0	0.27	0.10	16.98
5,775.0	0.90	123.80	5,747.9	-168.7	370.1	-146.6	0.26	0.00	16.53
5,871.0	1.10	136.80	5,843.9	-169.8	371.4	-147.6	0.31	0.21	13.54
5,966.0	0.90	139.90	5,938.8	-171.0	372.5	-148.8	0.22	-0.21	3.26
6,072.0	1.10	129.60	6,044.8	-172.3	373.8	-150.0	0.25	0.19	-9.72
6,197.0	1.10	335.80	6,169.8	-172.0	374.2	-149.6	1.71	0.00	-123.04
6,292.0	7.70	15.50	6,264.5	-165.0	375.6	-142.6	7.25	6.95	41.79
6,387.0	17.60	16.00	6,357.1	-145.0	381.2	-122.3	10.42	10.42	0.53
6,483.0	24.90	1.20	6,446.5	-110.8	385.7	-87.9	9.38	7.60	-15.42
6,579.0	33.30	354.20	6,530.4	-64.3	383.4	-41.6	9.43	8.75	-7.29
6,674.0	44.60	352.50	6,604.1	-5.1	376.4	17.1	11.95	11.89	-1.79
6,770.0	56.90	355.10	6,664.8	68.7	368.5	90.3	12.98	12.81	2.71
6,808.2	59.99	355.86	6,684.8	101.2	366.0	122.5	8.27	8.10	1.98
TPZ - 60° Incl. in curve - 449°FNL, 1613°FEL, SEC.14									
6,865.0	64.60	356.90	6,711.2	151.3	362.8	172.4	8.27	8.11	1.84
6,961.0	71.20	357.90	6,747.3	240.1	358.8	260.9	6.94	6.88	1.04
7,056.0	76.40	358.30	6,773.7	331.3	355.8	351.7	5.49	5.47	0.42
7,152.0	82.00	357.40	6,791.7	425.5	352.2	445.5	5.91	5.83	-0.94
7,248.0	88.20	0.40	6,799.9	521.1	350.4	540.8	7.17	6.46	3.13
7,324.2	89.96	359.92	6,801.1	597.2	350.6	616.8	2.40	2.32	-0.63
LPL 50°FSL & 1650°FEL, Sec.11									
7,343.0	90.40	359.80	6,801.1	616.0	350.6	635.6	2.40	2.32	-0.63
7,439.0	90.70	359.50	6,800.2	712.0	350.0	731.4	0.44	0.31	-0.31
7,535.0	91.10	359.30	6,798.7	808.0	349.0	827.2	0.47	0.42	-0.21
7,630.0	90.70	359.30	6,797.2	903.0	347.8	921.9	0.42	-0.42	0.00
7,726.0	90.20	359.30	6,796.4	999.0	346.7	1,017.7	0.52	-0.52	0.00
7,821.0	90.00	359.30	6,796.2	1,094.0	345.5	1,112.4	0.21	-0.21	0.00
7,917.0	89.40	358.60	6,796.7	1,190.0	343.7	1,208.1	0.96	-0.63	-0.73
8,012.0	89.30	358.40	6,797.8	1,284.9	341.3	1,302.8	0.24	-0.11	-0.21
8,108.0	89.20	358.30	6,799.1	1,380.9	338.5	1,398.4	0.15	-0.10	-0.10
8,204.0	88.40	358.30	6,801.1	1,476.8	335.6	1,494.0	0.83	-0.83	0.00
8,299.0	89.30	0.20	6,803.0	1,571.8	334.4	1,588.7	2.21	0.95	2.00
8,395.0	89.30	0.50	6,804.2	1,667.8	335.0	1,684.6	0.31	0.00	0.31
Deepest TVD Drilled - 6804.17' TVD									
8,490.0	91.10	0.70	6,803.8	1,762.8	336.0	1,779.5	1.91	1.89	0.21
8,586.0	91.20	0.20	6,801.9	1,858.7	336.7	1,875.3	0.53	0.10	-0.52
8,682.0	91.30	0.20	6,799.8	1,954.7	337.1	1,971.2	0.10	0.10	0.00
8,873.0	90.70	359.80	6,796.5	2,145.7	337.1	2,161.8	0.38	-0.31	-0.21
8,969.0	90.60	359.50	6,795.4	2,241.7	336.5	2,257.6	0.33	-0.10	-0.31
9,065.0	90.10	359.10	6,794.8	2,337.7	335.3	2,353.4	0.67	-0.52	-0.42
9,160.0	89.80	359.50	6,794.9	2,432.7	334.1	2,448.1	0.53	-0.32	0.42
9,256.0	89.30	359.50	6,795.6	2,528.6	333.3	2,543.9	0.52	-0.52	0.00

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9,351.0	90.90	1.10	6,795.5	2,623.6	333.8	2,638.7	2.38	1.68	1.68	
9,447.0	91.00	0.70	6,793.9	2,719.6	335.3	2,734.6	0.43	0.10	-0.42	
9,543.0	91.10	0.20	6,792.1	2,815.6	336.1	2,830.5	0.53	0.10	-0.52	
9,638.0	90.50	359.70	6,790.8	2,910.6	336.0	2,925.3	0.82	-0.63	-0.53	
9,733.0	90.30	359.50	6,790.1	3,005.6	335.3	3,020.1	0.30	-0.21	-0.21	
9,829.0	91.90	359.50	6,788.3	3,101.6	334.5	3,115.9	1.67	1.67	0.00	
9,925.0	91.50	358.80	6,785.5	3,197.5	333.1	3,211.6	0.84	-0.42	-0.73	
10,020.0	91.40	358.40	6,783.0	3,292.4	330.7	3,306.2	0.43	-0.11	-0.42	
10,114.0	91.50	358.30	6,780.7	3,386.4	328.0	3,399.8	0.15	0.11	-0.11	
10,211.0	91.10	1.80	6,778.5	3,483.3	328.1	3,496.6	3.63	-0.41	3.61	
10,306.0	90.70	1.40	6,777.0	3,578.3	330.8	3,591.6	0.60	-0.42	-0.42	
10,402.0	90.60	0.90	6,775.9	3,674.3	332.7	3,687.5	0.53	-0.10	-0.52	
10,497.0	90.00	0.40	6,775.4	3,769.3	333.8	3,782.4	0.82	-0.63	-0.53	
10,593.0	89.70	0.00	6,775.6	3,865.3	334.1	3,878.2	0.52	-0.31	-0.42	
10,688.0	89.20	359.70	6,776.6	3,960.2	333.9	3,973.0	0.61	-0.53	-0.32	
10,783.0	88.70	359.50	6,778.3	4,055.2	333.2	4,067.8	0.57	-0.53	-0.21	
10,879.0	91.00	0.40	6,778.5	4,151.2	333.1	4,163.6	2.57	2.40	0.94	
10,975.0	90.70	0.40	6,777.1	4,247.2	333.8	4,259.5	0.31	-0.31	0.00	
11,070.0	90.20	359.70	6,776.4	4,342.2	333.9	4,354.3	0.91	-0.53	-0.74	
11,165.0	89.70	359.00	6,776.5	4,437.2	332.8	4,449.1	0.91	-0.53	-0.74	
11,261.0	89.30	358.60	6,777.3	4,533.2	330.8	4,544.8	0.59	-0.42	-0.42	
11,356.0	91.40	359.50	6,776.7	4,628.2	329.2	4,639.5	2.40	2.21	0.95	
11,451.0	92.40	359.10	6,773.6	4,723.1	328.0	4,734.2	1.13	1.05	-0.42	
11,547.0	92.10	359.00	6,769.8	4,819.0	326.5	4,829.9	0.33	-0.31	-0.10	
11,642.0	91.60	358.40	6,766.7	4,913.9	324.3	4,924.5	0.82	-0.53	-0.63	
11,738.0	91.20	357.90	6,764.4	5,009.8	321.2	5,020.1	0.67	-0.42	-0.52	
11,834.0	90.50	0.00	6,763.0	5,105.8	319.4	5,115.8	2.31	-0.73	2.19	
11,929.0	90.10	359.50	6,762.5	5,200.8	319.0	5,210.6	0.67	-0.42	-0.53	
12,038.0	90.10	359.00	6,762.3	5,309.8	317.6	5,319.3	0.46	0.00	-0.46	
12,095.0	90.10	359.00	6,762.2	5,366.8	316.6	5,376.1	0.00	0.00	0.00	
BHL 500'FNL & 1650'FEL, Sec.11										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude		Longitude
SHL 550'FNL & 1979'FE	0.00	0.00	1.0	0.0	0.0	1,391,636.24	3,242,785.95	40.405167		-104.628189
- hit/miss target										
- Shape										
- survey hits target center										
- Point										
BHL 500'FNL & 1650'FE	0.00	0.00	6,760.0	5,377.3	335.0	1,397,016.35	3,243,068.05	40.419927		-104.626986
- survey misses target center by 21.3ft at 12095.0ft MD (6762.2 TVD, 5366.8 N, 316.6 E)										
- Point										

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well J Clark 14N (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 14N (Nio B)	North Reference:	True
Wellbore:	J Clark 14N (Nio B) Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	J Clark 14N (Nio B) Wellbore #1	Database:	US_EDM

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
6,808.2	6,684.8	101.2	366.0	TPZ - 60° Incl. in curve - 449'FNL, 1613'FEL, SEC.14
8,395.0	6,804.2	1,667.8	335.0	Deepest TVD Drilled - 6804.17' TVD

Checked By: _____	Approved By: _____	Date: _____
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