

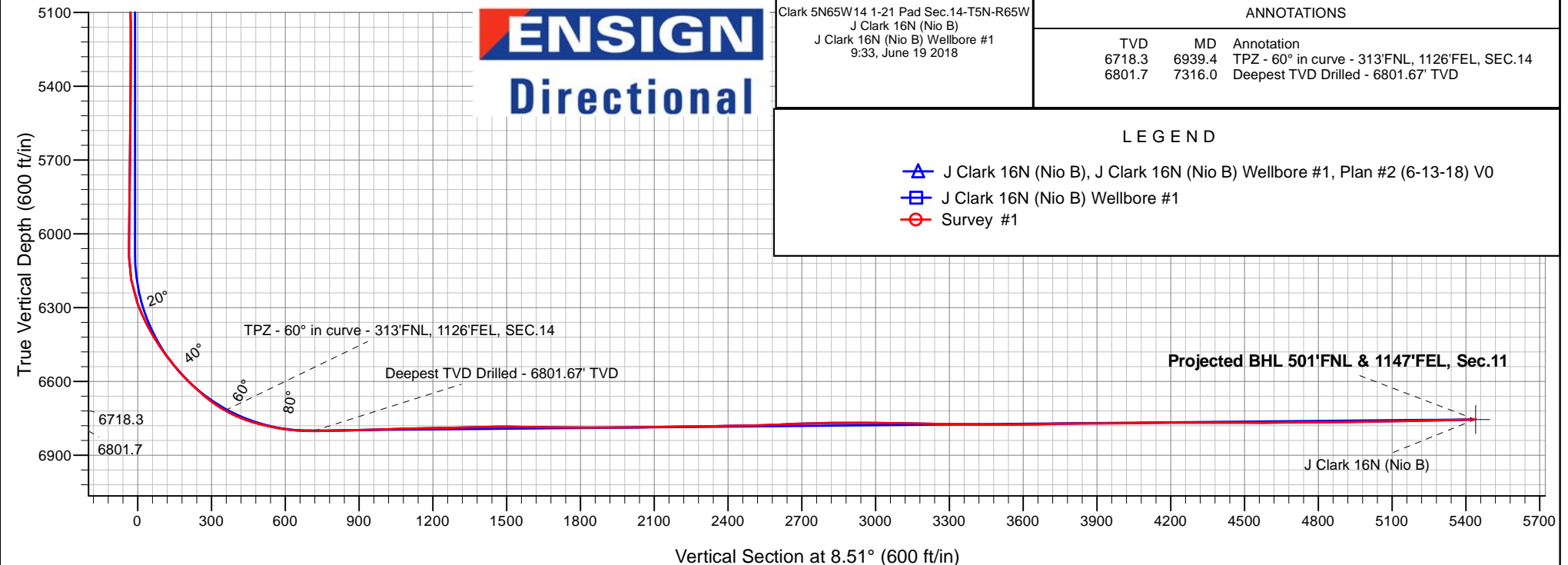
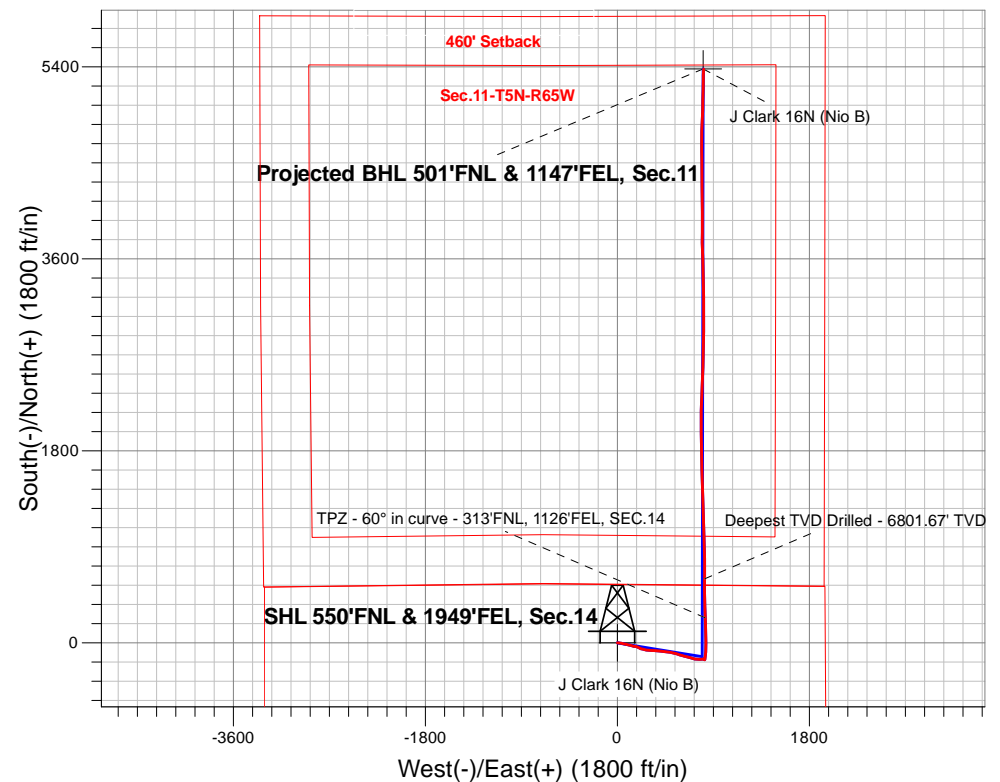
PDC Energy Inc. DJ Basin

Well Name: **J Clark 16N (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 1391636.223242815.94 40.405166 -104.628081
 Original Well Elev WELL @ 4638.0ft (Original Well Elev)

FINAL SURVEY

Projected Bottom Hole Location
12,097'MD 6754'TVD 5379'N & 808'E of SHL
91.8 degree Incl @ 0.90 degree AZM





PDC Energy Inc. DJ Basin

SEC.14-T5N-R65W

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

J Clark 16N (Nio B)

J Clark 16N (Nio B) Wellbore #1

Survey: Survey #1

Standard Survey Report

19 June, 2018

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well J Clark 16N (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 16N (Nio B)	North Reference:	True
Wellbore:	J Clark 16N (Nio B) Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	J Clark 16N (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 16N (Nio B)					
Well Position	+N/-S	0.0 ft	Northing:	1,391,636.23 usft	Latitude:	40.405166
	+E/-W	0.0 ft	Easting:	3,242,815.94 usft	Longitude:	-104.628082
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,615.0 ft

Wellbore	J Clark 16N (Nio B) Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	6/13/2018	8.12	66.88	52,240

Design	J Clark 16N (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	8.51	

Survey Program	Date	6/19/2018			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
152.0	12,097.0	Survey #1 (J Clark 16N (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	38.70	1.0	0.0	0.0	0.0	0.26	0.26	0.00
SHL 550'FNL & 1949'FEL, Sec.14									
152.0	0.40	38.70	152.0	0.4	0.3	0.5	0.26	0.26	0.00
248.0	1.40	93.20	248.0	0.6	1.7	0.9	1.26	1.04	56.77
343.0	2.80	98.80	342.9	0.2	5.2	1.0	1.49	1.47	5.89
439.0	4.10	94.80	438.7	-0.5	10.9	1.2	1.38	1.35	-4.17
534.0	5.80	98.30	533.4	-1.4	19.0	1.4	1.82	1.79	3.68
629.0	7.70	100.90	627.7	-3.3	30.0	1.2	2.03	2.00	2.74
724.0	9.20	100.20	721.7	-5.9	43.8	0.7	1.58	1.58	-0.74
820.0	10.50	101.10	816.3	-8.9	59.9	0.0	1.36	1.35	0.94

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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 16N (Nio B)	North Reference:	True
Wellbore:	J Clark 16N (Nio B) Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	J Clark 16N (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	10.10	103.00	909.7	-12.5	76.5	-1.0	0.55	-0.42	2.00
1,106.0	9.10	104.40	1,098.1	-20.0	107.5	-3.9	0.54	-0.52	0.73
1,201.0	8.50	105.70	1,191.9	-23.8	121.5	-5.5	0.67	-0.63	1.37
1,296.0	8.10	105.20	1,286.0	-27.4	134.7	-7.2	0.43	-0.42	-0.53
1,392.0	9.00	98.80	1,380.9	-30.3	148.7	-8.0	1.36	0.94	-6.67
1,487.0	7.60	100.40	1,474.9	-32.6	162.2	-8.2	1.49	-1.47	1.68
1,625.0	6.80	106.40	1,611.8	-36.6	179.0	-9.7	0.79	-0.58	4.35
1,775.0	5.80	111.30	1,760.9	-41.8	194.6	-12.6	0.76	-0.67	3.27
1,870.0	7.70	119.20	1,855.2	-46.7	204.6	-15.9	2.22	2.00	8.32
1,966.0	9.20	113.90	1,950.2	-52.9	217.2	-20.2	1.76	1.56	-5.52
2,060.0	11.00	104.40	2,042.7	-58.2	232.8	-23.1	2.60	1.91	-10.11
2,156.0	11.30	101.80	2,136.9	-62.4	250.9	-24.6	0.61	0.31	-2.71
2,251.0	10.30	101.10	2,230.2	-65.9	268.3	-25.5	1.06	-1.05	-0.74
2,347.0	11.70	97.20	2,324.5	-68.8	286.4	-25.7	1.65	1.46	-4.06
2,442.0	11.80	92.50	2,417.5	-70.4	305.7	-24.4	1.01	0.11	-4.95
2,538.0	10.90	91.10	2,511.6	-71.0	324.5	-22.2	0.98	-0.94	-1.46
2,634.0	14.00	95.50	2,605.3	-72.3	345.2	-20.4	3.37	3.23	4.58
2,729.0	14.40	94.60	2,697.4	-74.4	368.4	-19.0	0.48	0.42	-0.95
2,825.0	14.00	95.80	2,790.5	-76.5	391.8	-17.7	0.52	-0.42	1.25
2,920.0	13.50	95.80	2,882.8	-78.8	414.3	-16.6	0.53	-0.53	0.00
3,016.0	12.70	96.20	2,976.3	-81.1	436.0	-15.6	0.84	-0.83	0.42
3,112.0	11.50	95.80	3,070.2	-83.2	456.0	-14.8	1.25	-1.25	-0.42
3,207.0	10.60	95.80	3,163.4	-85.0	474.1	-13.9	0.95	-0.95	0.00
3,303.0	10.00	97.80	3,257.8	-87.0	491.1	-13.4	0.73	-0.63	2.08
3,398.0	10.70	101.50	3,351.3	-89.9	507.9	-13.7	1.02	0.74	3.89
3,494.0	12.20	109.40	3,445.4	-95.0	526.2	-16.1	2.26	1.56	8.23
3,589.0	12.80	105.90	3,538.1	-101.3	545.8	-19.4	1.02	0.63	-3.68
3,685.0	12.80	106.20	3,631.8	-107.1	566.3	-22.2	0.07	0.00	0.31
3,780.0	12.60	105.30	3,724.4	-112.8	586.4	-24.8	0.30	-0.21	-0.95
3,876.0	12.50	105.90	3,818.1	-118.4	606.5	-27.4	0.17	-0.10	0.63
3,971.0	11.90	104.40	3,911.0	-123.7	625.8	-29.7	0.71	-0.63	-1.58
4,067.0	11.00	103.90	4,005.1	-128.3	644.3	-31.6	0.94	-0.94	-0.52
4,162.0	11.00	103.70	4,098.3	-132.7	661.9	-33.2	0.04	0.00	-0.21
4,257.0	12.00	109.20	4,191.4	-138.1	680.0	-35.9	1.56	1.05	5.79
4,353.0	10.80	110.60	4,285.5	-144.5	697.9	-39.6	1.28	-1.25	1.46
4,449.0	11.20	101.50	4,379.8	-149.5	715.4	-42.0	1.85	0.42	-9.48
4,544.0	11.30	93.90	4,473.0	-152.0	733.8	-41.7	1.56	0.11	-8.00
4,640.0	10.00	94.60	4,567.3	-153.3	751.5	-40.4	1.36	-1.35	0.73
4,736.0	9.60	93.40	4,661.9	-154.5	767.8	-39.1	0.47	-0.42	-1.25
4,832.0	7.20	84.60	4,756.9	-154.4	781.8	-37.0	2.83	-2.50	-9.17
4,927.0	6.40	85.60	4,851.2	-153.4	793.0	-34.4	0.85	-0.84	1.05
5,023.0	4.80	83.70	4,946.7	-152.5	802.3	-32.1	1.68	-1.67	-1.98
5,118.0	4.00	77.40	5,041.5	-151.4	809.5	-29.9	0.98	-0.84	-6.63

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Wellbore:	J Clark 16N (Nio B) Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	J Clark 16N (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)
5,214.0	1.80	85.50	5,137.3	-150.5	814.2	-28.4	2.33	-2.29	8.44
5,309.0	1.30	91.80	5,232.3	-150.5	816.8	-27.9	0.56	-0.53	6.63
5,405.0	0.40	211.50	5,328.3	-150.8	817.7	-28.1	1.60	-0.94	124.69
5,500.0	0.50	207.50	5,423.3	-151.4	817.4	-28.8	0.11	0.11	-4.21
5,596.0	0.40	175.10	5,519.3	-152.1	817.2	-29.5	0.28	-0.10	-33.75
5,692.0	0.70	177.40	5,615.3	-153.0	817.2	-30.4	0.31	0.31	2.40
5,787.0	0.60	185.50	5,710.3	-154.1	817.2	-31.5	0.14	-0.11	8.53
5,883.0	0.60	148.20	5,806.3	-155.1	817.4	-32.4	0.40	0.00	-38.85
5,978.0	1.10	148.00	5,901.3	-156.2	818.2	-33.4	0.53	0.53	-0.21
6,074.0	1.00	157.70	5,997.2	-157.8	819.0	-34.9	0.21	-0.10	10.10
6,169.0	0.50	80.90	6,092.2	-158.5	819.7	-35.4	1.06	-0.53	-80.84
6,264.0	10.60	8.50	6,186.7	-149.8	821.4	-26.6	11.01	10.63	-76.21
6,360.0	19.70	6.50	6,279.2	-124.9	824.6	-1.5	9.49	9.48	-2.08
6,456.0	27.10	4.40	6,367.3	-87.0	828.1	36.5	7.76	7.71	-2.19
6,551.0	33.90	1.80	6,449.1	-38.9	830.6	84.5	7.29	7.16	-2.74
6,647.0	38.90	359.50	6,526.3	18.1	831.2	140.9	5.40	5.21	-2.40
6,742.0	45.50	358.30	6,596.7	81.8	829.9	203.8	7.00	6.95	-1.26
6,838.0	50.90	356.70	6,660.7	153.3	826.7	274.0	5.76	5.63	-1.67
6,934.0	59.30	356.70	6,715.5	231.8	822.2	351.0	8.75	8.75	0.00
6,939.4	60.00	356.80	6,718.3	236.5	821.9	355.5	13.14	13.04	1.86
TPZ - 60° in curve - 313'FNL, 1126'FEL, SEC.14									
7,029.0	71.70	358.30	6,754.9	318.0	818.5	435.7	13.14	13.05	1.67
7,125.0	76.80	0.00	6,780.9	410.4	817.1	526.8	5.58	5.31	1.77
7,220.0	83.90	0.70	6,796.8	504.0	817.7	619.4	7.51	7.47	0.74
7,308.9	89.83	359.96	6,801.7	592.7	818.2	707.3	6.72	6.67	-0.83
LPL 50'FSL & 1150'FEL, Sec.11									
7,316.0	90.30	359.90	6,801.7	599.8	818.2	714.3	6.72	6.67	-0.83
Deepest TVD Drilled - 6801.67' TVD									
7,411.0	91.60	359.90	6,800.1	694.8	818.0	808.2	1.37	1.37	0.00
7,507.0	91.30	359.20	6,797.7	790.7	817.3	903.0	0.79	-0.31	-0.73
7,603.0	91.40	358.50	6,795.4	886.7	815.4	997.6	0.74	0.10	-0.73
7,698.0	92.00	357.90	6,792.6	981.6	812.4	1,091.0	0.89	0.63	-0.63
7,794.0	90.80	358.60	6,790.2	1,077.5	809.5	1,185.5	1.45	-1.25	0.73
7,889.0	91.20	358.50	6,788.6	1,172.5	807.1	1,279.0	0.43	0.42	-0.11
7,984.0	91.90	358.30	6,786.0	1,267.4	804.4	1,372.5	0.77	0.74	-0.21
8,080.0	90.20	358.10	6,784.3	1,363.4	801.4	1,466.9	1.78	-1.77	-0.21
8,176.0	88.90	358.10	6,785.0	1,459.3	798.2	1,561.4	1.35	-1.35	0.00
8,271.0	89.30	356.90	6,786.5	1,554.2	794.1	1,654.6	1.33	0.42	-1.26
8,367.0	89.60	359.00	6,787.4	1,650.1	790.6	1,749.0	2.21	0.31	2.19
8,463.0	89.90	0.00	6,787.8	1,746.1	789.8	1,843.8	1.09	0.31	1.04
8,558.0	90.30	359.50	6,787.7	1,841.1	789.4	1,937.7	0.67	0.42	-0.53
8,654.0	90.70	359.00	6,786.8	1,937.1	788.1	2,032.4	0.67	0.42	-0.52
8,750.0	91.10	358.80	6,785.3	2,033.1	786.3	2,127.0	0.47	0.42	-0.21
8,846.0	90.80	0.90	6,783.7	2,129.0	786.0	2,221.9	2.21	-0.31	2.19

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8,941.0	90.60	2.30	6,782.6	2,224.0	788.7	2,316.2	1.49	-0.21	1.47	
9,037.0	91.30	2.10	6,781.0	2,319.9	792.4	2,411.6	0.76	0.73	-0.21	
9,133.0	91.20	1.80	6,778.9	2,415.8	795.6	2,507.0	0.33	-0.10	-0.31	
9,228.0	92.10	1.80	6,776.2	2,510.8	798.6	2,601.3	0.95	0.95	0.00	
9,324.0	92.20	1.60	6,772.6	2,606.6	801.5	2,696.6	0.23	0.10	-0.21	
9,419.0	91.30	1.40	6,769.7	2,701.6	803.9	2,790.8	0.97	-0.95	-0.21	
9,515.0	90.50	1.40	6,768.1	2,797.5	806.3	2,886.0	0.83	-0.83	0.00	
9,611.0	89.50	0.90	6,768.1	2,893.5	808.2	2,981.3	1.16	-1.04	-0.52	
9,706.0	88.40	0.60	6,769.9	2,988.5	809.5	3,075.4	1.20	-1.16	-0.32	
9,801.0	88.80	359.70	6,772.2	3,083.4	809.7	3,169.3	1.04	0.42	-0.95	
9,897.0	89.20	359.30	6,773.9	3,179.4	808.9	3,264.1	0.59	0.42	-0.42	
9,992.0	89.40	359.30	6,775.0	3,274.4	807.7	3,357.9	0.21	0.21	0.00	
10,088.0	90.10	358.80	6,775.5	3,370.4	806.1	3,452.6	0.90	0.73	-0.52	
10,183.0	90.20	358.60	6,775.2	3,465.4	804.0	3,546.2	0.24	0.11	-0.21	
10,279.0	90.80	358.10	6,774.4	3,561.3	801.2	3,640.7	0.81	0.63	-0.52	
10,374.0	91.20	357.70	6,772.7	3,656.3	797.7	3,734.0	0.60	0.42	-0.42	
10,470.0	90.40	0.40	6,771.4	3,752.2	796.1	3,828.7	2.93	-0.83	2.81	
10,565.0	90.40	0.90	6,770.7	3,847.2	797.2	3,922.8	0.53	0.00	0.53	
10,660.0	90.50	0.00	6,770.0	3,942.2	797.9	4,016.9	0.95	0.11	-0.95	
10,755.0	90.70	359.20	6,769.0	4,037.2	797.3	4,110.7	0.87	0.21	-0.84	
10,851.0	90.70	358.30	6,767.8	4,133.2	795.2	4,205.3	0.94	0.00	-0.94	
10,947.0	89.70	0.40	6,767.5	4,229.2	794.1	4,300.1	2.42	-1.04	2.19	
11,042.0	89.90	359.70	6,767.8	4,324.1	794.2	4,394.1	0.77	0.21	-0.74	
11,138.0	89.90	359.20	6,768.0	4,420.1	793.3	4,488.9	0.52	0.00	-0.52	
11,233.0	90.00	359.00	6,768.0	4,515.1	791.8	4,582.6	0.24	0.11	-0.21	
11,328.0	90.80	358.50	6,767.4	4,610.1	789.7	4,676.2	0.99	0.84	-0.53	
11,424.0	90.90	1.30	6,766.0	4,706.1	789.5	4,771.1	2.92	0.10	2.92	
11,519.0	90.10	2.50	6,765.1	4,801.0	792.7	4,865.5	1.52	-0.84	1.26	
11,615.0	90.60	1.80	6,764.5	4,897.0	796.3	4,960.9	0.90	0.52	-0.73	
11,711.0	91.50	1.60	6,762.8	4,992.9	799.1	5,056.2	0.96	0.94	-0.21	
11,806.0	90.70	1.80	6,761.0	5,087.8	801.9	5,150.5	0.87	-0.84	0.21	
11,902.0	91.00	1.10	6,759.5	5,183.8	804.4	5,245.8	0.79	0.31	-0.73	
11,997.0	91.60	1.30	6,757.4	5,278.8	806.4	5,340.0	0.67	0.63	0.21	
12,042.0	91.80	0.90	6,756.0	5,323.7	807.2	5,384.6	0.99	0.44	-0.89	
12,097.0	91.80	0.90	6,754.3	5,378.7	808.1	5,439.1	0.00	0.00	0.00	
BHL 500'FNL & 1150'FEL, Sec.11										

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well J Clark 16N (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 16N (Nio B)	North Reference:	True
Wellbore:	J Clark 16N (Nio B) Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	J Clark 16N (Nio B) Wellbore #1	Database:	US_EDM

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
- Shape									
SHL 550'FNL & 1949'FE	0.00	0.00	1.0	0.0	0.0	1,391,636.25	3,242,815.94	40.405166	-104.628082
- survey hits target center									
- Point									
BHL 500'FNL & 1150'FE	0.00	0.00	6,755.0	5,379.6	805.0	1,397,023.28	3,243,568.00	40.419933	-104.625190
- survey misses target center by 3.3ft at 12097.0ft MD (6754.3 TVD, 5378.7 N, 808.1 E)									
- Point									

Survey Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(ft)	(ft)	+N/-S	+E/-W		
(ft)	(ft)	(ft)	(ft)	Comment	
6,939.4	6,718.3	236.5	821.9	TPZ - 60° in curve - 313'FNL, 1126'FEL, SEC.14	
7,316.0	6,801.7	599.8	818.2	Deepest TVD Drilled - 6801.67' TVD	

Checked By: _____	Approved By: _____	Date: _____
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