

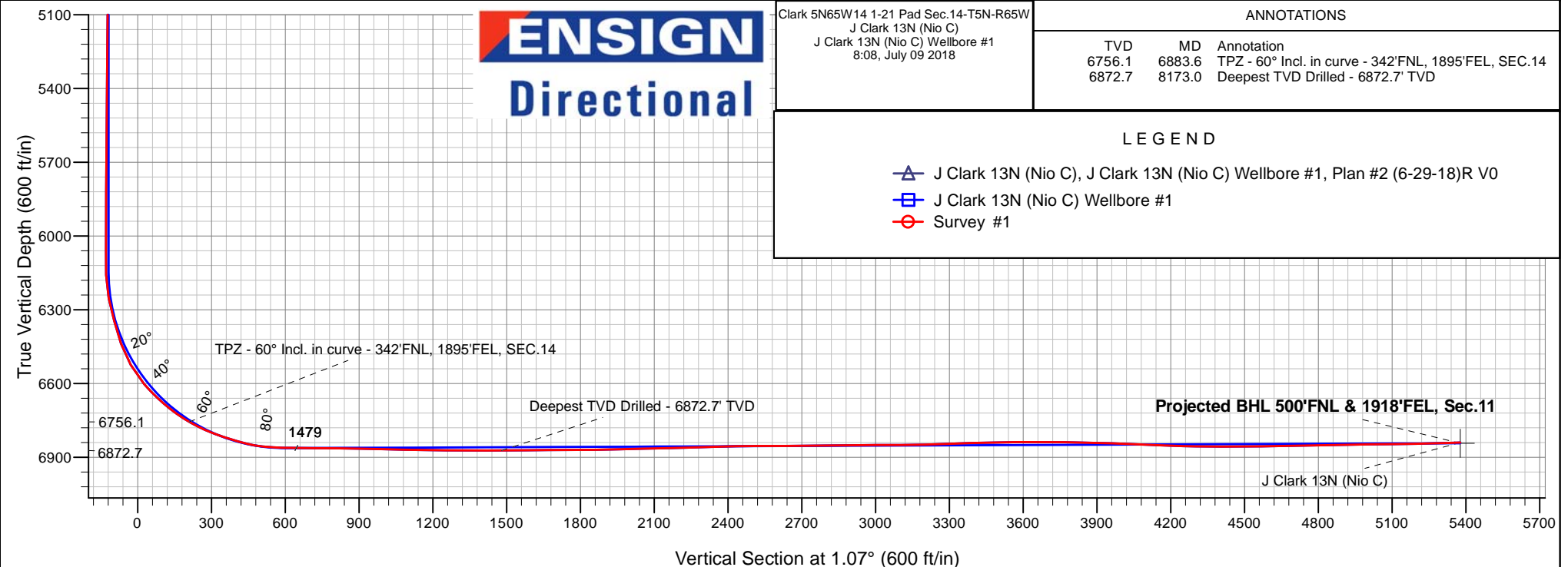
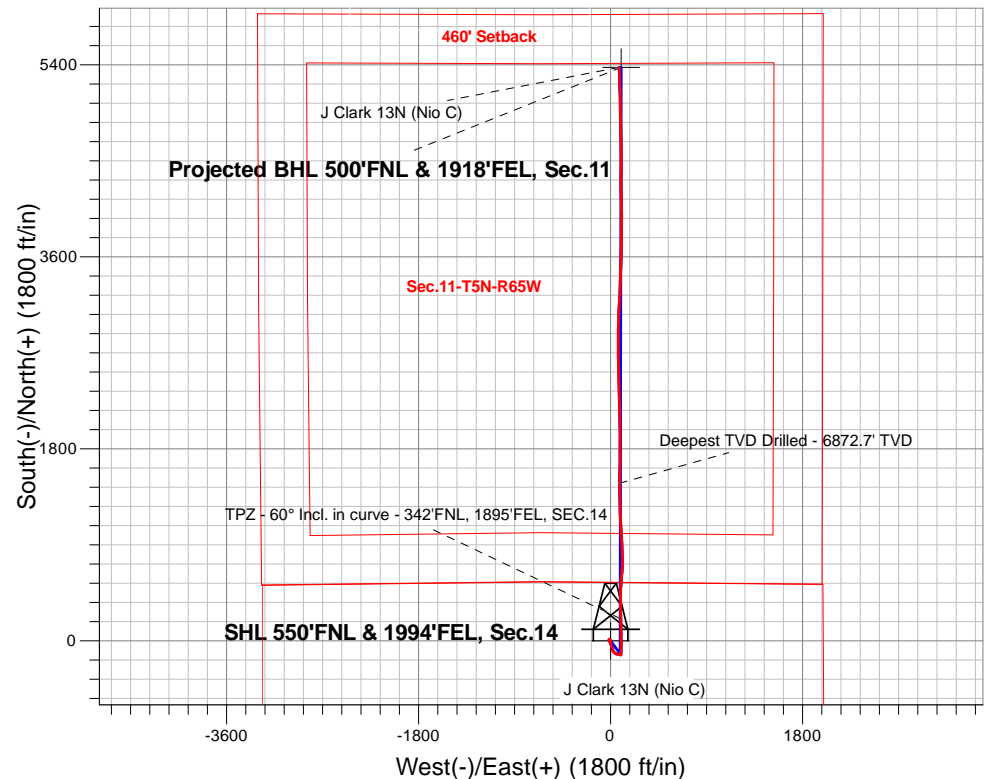
PDC Energy Inc. DJ Basin

Well Name: **J Clark 13N (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 1391636.26 3242770.94 40.405168 -104.628243
 RKB - 23' WELL @ 4638.0ft (RKB - 23')

FINAL SURVEY

Projected Bottom Hole Location
12,074'MD 6840'TVD 5376'N & 82'E of SHL
91.6 degree Incl @ 358.3 degree AZM





PDC Energy Inc. DJ Basin

SEC.14-T5N-R65W

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

J Clark 13N (Nio C)

J Clark 13N (Nio C) Wellbore #1

Survey: Survey #1

Standard Survey Report

09 July, 2018

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well J Clark 13N (Nio C)
Project:	SEC.14-T5N-R65W	TVD Reference:	WELL @ 4638.0ft (RKB - 23')
Site:	Clark 5N65W14 1-21 Pad Sec.14-T5N-R65W	MD Reference:	WELL @ 4638.0ft (RKB - 23')
Well:	J Clark 13N (Nio C)	North Reference:	True
Wellbore:	J Clark 13N (Nio C) Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	J Clark 13N (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 13N (Nio C)					
Well Position	+N-S	0.0 ft	Northing:	1,391,636.26 usft	Latitude:	40.405168
	+E-W	0.0 ft	Easting:	3,242,770.94 usft	Longitude:	-104.628243
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,615.0 ft

Wellbore	J Clark 13N (Nio C) Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	6/29/2018	8.10	66.88	52,235

Design	J Clark 13N (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		1.07

Survey Program	Date	7/9/2018			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
152.0	12,074.0	Survey #1 (J Clark 13N (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	0.00	257.50	1.0	0.0	0.0	0.0	0.39	0.39	0.00
SHL 550'FNL & 1994'FEL, Sec.14									
152.0	0.60	257.50	152.0	-0.2	-0.8	-0.2	0.39	0.39	0.00
248.0	0.70	252.10	248.0	-0.5	-1.8	-0.5	0.12	0.10	-5.63
343.0	0.50	252.30	343.0	-0.8	-2.8	-0.8	0.21	-0.21	0.21
438.0	0.60	255.80	438.0	-1.0	-3.6	-1.1	0.11	0.11	3.68
534.0	0.80	264.20	534.0	-1.2	-4.8	-1.3	0.23	0.21	8.75
629.0	1.00	266.50	629.0	-1.3	-6.3	-1.4	0.21	0.21	2.42
724.0	1.10	264.90	723.9	-1.5	-8.0	-1.6	0.11	0.11	-1.68
820.0	0.80	2.70	819.9	-0.9	-8.9	-1.0	1.51	-0.31	101.88

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well J Clark 13N (Nio C)
Project:	SEC.14-T5N-R65W	TVD Reference:	WELL @ 4638.0ft (RKB - 23')
Site:	Clark 5N65W14 1-21 Pad Sec.14-T5N-R65W	MD Reference:	WELL @ 4638.0ft (RKB - 23')
Well:	J Clark 13N (Nio C)	North Reference:	True
Wellbore:	J Clark 13N (Nio C) Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	J Clark 13N (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	0.70	33.40	914.9	0.3	-8.6	0.1	0.43	-0.11	32.32
1,010.0	0.70	26.20	1,009.9	1.3	-8.0	1.1	0.09	0.00	-7.58
1,106.0	0.70	15.70	1,105.9	2.4	-7.6	2.2	0.13	0.00	-10.94
1,201.0	0.90	17.60	1,200.9	3.6	-7.2	3.5	0.21	0.21	2.00
1,296.0	0.90	29.70	1,295.9	5.0	-6.6	4.9	0.20	0.00	12.74
1,392.0	0.80	13.00	1,391.9	6.3	-6.1	6.2	0.28	-0.10	-17.40
1,487.0	0.90	358.40	1,486.9	7.7	-5.9	7.6	0.25	0.11	-15.37
1,582.0	0.90	348.20	1,581.9	9.2	-6.1	9.1	0.17	0.00	-10.74
1,676.0	1.00	328.40	1,675.8	10.6	-6.7	10.5	0.36	0.11	-21.06
1,772.0	1.00	11.60	1,771.8	12.1	-7.0	12.0	0.77	0.00	45.00
1,867.0	0.40	352.30	1,866.8	13.3	-6.8	13.1	0.67	-0.63	-20.32
1,963.0	0.40	311.90	1,962.8	13.8	-7.1	13.7	0.29	0.00	-42.08
2,057.0	0.50	282.10	2,056.8	14.1	-7.8	14.0	0.27	0.11	-31.70
2,152.0	0.50	286.40	2,151.8	14.3	-8.6	14.2	0.04	0.00	4.53
2,248.0	0.50	269.80	2,247.8	14.5	-9.4	14.3	0.15	0.00	-17.29
2,344.0	0.40	251.00	2,343.8	14.3	-10.1	14.2	0.18	-0.10	-19.58
2,439.0	0.60	245.20	2,438.8	14.0	-10.9	13.8	0.22	0.21	-6.11
2,535.0	0.60	241.20	2,534.8	13.6	-11.8	13.4	0.04	0.00	-4.17
2,631.0	0.60	221.50	2,630.8	13.0	-12.6	12.7	0.21	0.00	-20.52
2,726.0	0.70	193.20	2,725.8	12.0	-13.0	11.8	0.35	0.11	-29.79
2,822.0	0.50	197.20	2,821.8	11.1	-13.3	10.8	0.21	-0.21	4.17
2,917.0	0.90	188.60	2,916.8	9.9	-13.5	9.7	0.43	0.42	-9.05
3,013.0	2.10	145.00	3,012.7	7.7	-12.6	7.5	1.64	1.25	-45.42
3,109.0	4.00	154.70	3,108.6	3.3	-10.2	3.1	2.04	1.98	10.10
3,204.0	5.60	162.10	3,203.3	-4.1	-7.4	-4.3	1.80	1.68	7.79
3,300.0	5.70	159.60	3,298.8	-13.1	-4.3	-13.1	0.28	0.10	-2.60
3,395.0	5.20	162.80	3,393.4	-21.6	-1.3	-21.6	0.62	-0.53	3.37
3,491.0	4.40	155.90	3,489.0	-29.1	1.5	-29.1	1.03	-0.83	-7.19
3,586.0	4.80	156.10	3,583.7	-36.1	4.6	-36.0	0.42	0.42	0.21
3,682.0	4.80	160.30	3,679.4	-43.5	7.5	-43.4	0.37	0.00	4.38
3,777.0	4.70	161.90	3,774.1	-51.0	10.1	-50.8	0.17	-0.11	1.68
3,873.0	4.80	165.10	3,869.7	-58.6	12.3	-58.4	0.29	0.10	3.33
3,968.0	5.00	157.90	3,964.4	-66.3	14.9	-66.0	0.68	0.21	-7.58
4,063.0	5.60	166.50	4,059.0	-74.6	17.6	-74.3	1.05	0.63	9.05
4,159.0	5.20	165.60	4,154.6	-83.4	19.7	-83.0	0.43	-0.42	-0.94
4,254.0	5.10	152.80	4,249.2	-91.3	22.7	-90.9	1.21	-0.11	-13.47
4,350.0	4.90	149.40	4,344.8	-98.6	26.8	-98.1	0.37	-0.21	-3.54
4,445.0	4.70	142.90	4,439.5	-105.2	31.2	-104.6	0.61	-0.21	-6.84
4,541.0	4.40	125.70	4,535.2	-110.5	36.5	-109.8	1.45	-0.31	-17.92
4,637.0	4.60	125.90	4,630.9	-114.9	42.7	-114.1	0.21	0.21	0.21
4,732.0	4.20	128.00	4,725.6	-119.3	48.5	-118.4	0.45	-0.42	2.21
4,828.0	3.40	110.20	4,821.4	-122.4	53.9	-121.4	1.48	-0.83	-18.54
4,924.0	3.80	90.70	4,917.2	-123.5	59.8	-122.3	1.33	0.42	-20.31

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well J Clark 13N (Nio C)
Project:	SEC.14-T5N-R65W	TVD Reference:	WELL @ 4638.0ft (RKB - 23')
Site:	Clark 5N65W14 1-21 Pad Sec.14-T5N-R65W	MD Reference:	WELL @ 4638.0ft (RKB - 23')
Well:	J Clark 13N (Nio C)	North Reference:	True
Wellbore:	J Clark 13N (Nio C) Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	J Clark 13N (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)
5,020.0	3.20	89.70	5,013.0	-123.5	65.6	-122.3	0.63	-0.63	-1.04
5,115.0	2.90	92.80	5,107.9	-123.6	70.7	-122.3	0.36	-0.32	3.26
5,211.0	2.00	98.10	5,203.8	-124.0	74.8	-122.5	0.97	-0.94	5.52
5,306.0	1.80	118.00	5,298.8	-124.9	77.7	-123.4	0.72	-0.21	20.95
5,402.0	1.80	115.90	5,394.7	-126.3	80.4	-124.7	0.07	0.00	-2.19
5,497.0	1.40	116.00	5,489.7	-127.4	82.8	-125.9	0.42	-0.42	0.11
5,593.0	1.60	106.90	5,585.6	-128.3	85.1	-126.7	0.32	0.21	-9.48
5,689.0	1.80	99.30	5,681.6	-128.9	87.9	-127.3	0.31	0.21	-7.92
5,784.0	1.60	96.20	5,776.6	-129.3	90.7	-127.6	0.23	-0.21	-3.26
5,880.0	1.30	103.50	5,872.5	-129.7	93.1	-128.0	0.37	-0.31	7.60
5,975.0	1.00	113.70	5,967.5	-130.3	94.9	-128.5	0.38	-0.32	10.74
6,071.0	1.00	96.20	6,063.5	-130.7	96.5	-128.9	0.32	0.00	-18.23
6,166.0	1.10	10.90	6,158.5	-129.9	97.5	-128.1	1.50	0.11	-89.79
6,261.0	11.90	357.20	6,252.7	-119.2	97.2	-117.4	11.40	11.37	-14.42
6,357.0	14.60	1.10	6,346.2	-97.2	96.9	-95.4	2.96	2.81	4.06
6,453.0	19.30	1.10	6,438.0	-69.3	97.5	-67.4	4.90	4.90	0.00
6,548.0	29.50	2.80	6,524.4	-30.1	98.9	-28.3	10.76	10.74	1.79
6,643.0	40.90	359.00	6,601.9	24.5	99.5	26.4	12.21	12.00	-4.00
6,739.0	47.70	0.40	6,670.6	91.5	99.2	93.4	7.16	7.08	1.46
6,835.0	55.50	357.90	6,730.2	166.7	98.0	168.5	8.38	8.13	-2.60
6,883.6	60.00	358.11	6,756.1	207.8	96.6	209.5	9.27	9.26	0.44
TPZ - 60° Incl. in curve - 342°FNL, 1895°FEL, SEC.14									
6,930.0	64.30	358.30	6,777.7	248.8	95.3	250.5	9.27	9.26	0.40
7,026.0	71.20	0.40	6,814.1	337.6	94.3	339.2	7.47	7.19	2.19
7,122.0	75.00	0.00	6,842.0	429.4	94.7	431.1	3.98	3.96	-0.42
7,217.0	85.60	3.50	6,858.0	522.8	97.6	524.6	11.73	11.16	3.68
7,292.9	88.69	5.32	6,861.8	598.5	103.4	600.3	4.72	4.06	2.40
LPL 50°FSL & 1900°FEL, Sec.11									
7,313.0	89.50	5.80	6,862.1	618.4	105.3	620.3	4.72	4.06	2.39
7,408.0	89.50	0.50	6,862.9	713.2	110.6	715.2	5.58	0.00	-5.58
7,504.0	89.20	358.40	6,864.0	809.2	109.6	811.1	2.21	-0.31	-2.19
7,599.0	88.90	357.60	6,865.6	904.1	106.3	906.0	0.90	-0.32	-0.84
7,695.0	89.10	356.90	6,867.2	1,000.0	101.7	1,001.7	0.76	0.21	-0.73
7,791.0	88.10	356.30	6,869.6	1,095.8	96.0	1,097.4	1.21	-1.04	-0.63
7,886.0	89.70	358.10	6,871.4	1,190.7	91.4	1,192.2	2.53	1.68	1.89
7,981.0	89.80	358.80	6,871.8	1,285.6	88.8	1,287.1	0.74	0.11	0.74
8,077.0	89.20	358.40	6,872.7	1,381.6	86.5	1,383.0	0.75	-0.63	-0.42
8,173.0	90.70	0.90	6,872.7	1,477.6	85.9	1,478.9	3.04	1.56	2.60
Deepest TVD Drilled - 6872.7' TVD									
8,268.0	90.60	0.70	6,871.7	1,572.6	87.2	1,573.9	0.24	-0.11	-0.21
8,364.0	90.40	0.90	6,870.8	1,668.6	88.6	1,669.9	0.29	-0.21	0.21
8,459.0	90.20	0.00	6,870.3	1,763.6	89.3	1,764.9	0.97	-0.21	-0.95
8,555.0	90.90	0.50	6,869.4	1,859.6	89.7	1,860.9	0.90	0.73	0.52
8,651.0	91.20	0.20	6,867.7	1,955.5	90.3	1,956.9	0.44	0.31	-0.31

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well J Clark 13N (Nio C)
Project:	SEC.14-T5N-R65W	TVD Reference:	WELL @ 4638.0ft (RKB - 23')
Site:	Clark 5N65W14 1-21 Pad Sec.14-T5N-R65W	MD Reference:	WELL @ 4638.0ft (RKB - 23')
Well:	J Clark 13N (Nio C)	North Reference:	True
Wellbore:	J Clark 13N (Nio C) Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	J Clark 13N (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)	
8,747.0	91.40	359.30	6,865.5	2,051.5	89.9	2,052.8	0.96	0.21	-0.94	
8,842.0	91.40	358.30	6,863.2	2,146.5	87.9	2,147.7	1.05	0.00	-1.05	
8,938.0	91.50	357.60	6,860.7	2,242.4	84.5	2,243.5	0.74	0.10	-0.73	
9,034.0	91.80	356.50	6,858.0	2,338.2	79.5	2,339.3	1.19	0.31	-1.15	
9,130.0	91.60	359.00	6,855.1	2,434.1	75.8	2,435.1	2.61	-0.21	2.60	
9,225.0	89.80	358.40	6,854.0	2,529.0	73.6	2,530.0	2.00	-1.89	-0.63	
9,321.0	90.00	0.90	6,854.1	2,625.0	73.0	2,625.9	2.61	0.21	2.60	
9,416.0	90.70	0.90	6,853.5	2,720.0	74.5	2,720.9	0.74	0.74	0.00	
9,512.0	90.50	0.00	6,852.5	2,816.0	75.3	2,816.9	0.96	-0.21	-0.94	
9,608.0	90.90	359.50	6,851.4	2,912.0	74.8	2,912.9	0.67	0.42	-0.52	
9,702.0	89.90	1.60	6,850.7	3,006.0	75.7	3,006.9	2.47	-1.06	2.23	
9,798.0	90.50	3.20	6,850.4	3,101.9	79.8	3,102.8	1.78	0.63	1.67	
9,894.0	91.60	2.80	6,848.6	3,197.7	84.8	3,198.8	1.22	1.15	-0.42	
9,989.0	91.80	2.30	6,845.8	3,292.6	89.0	3,293.7	0.57	0.21	-0.53	
10,085.0	92.30	1.90	6,842.4	3,388.5	92.5	3,389.6	0.67	0.52	-0.42	
10,180.0	90.40	2.10	6,840.1	3,483.4	95.8	3,484.6	2.01	-2.00	0.21	
10,276.0	90.50	1.80	6,839.4	3,579.3	99.1	3,580.6	0.33	0.10	-0.31	
10,371.0	90.80	1.40	6,838.3	3,674.3	101.8	3,675.6	0.53	0.32	-0.42	
10,467.0	88.50	1.40	6,838.9	3,770.3	104.1	3,771.5	2.40	-2.40	0.00	
10,562.0	88.40	0.50	6,841.4	3,865.2	105.7	3,866.5	0.95	-0.11	-0.95	
10,657.0	88.20	359.50	6,844.3	3,960.2	105.7	3,961.4	1.07	-0.21	-1.05	
10,752.0	87.80	358.60	6,847.6	4,055.1	104.1	4,056.3	1.04	-0.42	-0.95	
10,848.0	87.80	358.10	6,851.3	4,151.0	101.3	4,152.1	0.52	0.00	-0.52	
10,944.0	88.10	358.60	6,854.7	4,246.9	98.6	4,248.0	0.61	0.31	0.52	
11,039.0	89.60	0.50	6,856.6	4,341.9	97.8	4,342.9	2.55	1.58	2.00	
11,134.0	89.50	0.70	6,857.4	4,436.8	98.8	4,437.9	0.24	-0.11	0.21	
11,230.0	91.60	0.50	6,856.4	4,532.8	99.8	4,533.9	2.20	2.19	-0.21	
11,325.0	91.20	359.80	6,854.1	4,627.8	100.1	4,628.9	0.85	-0.42	-0.74	
11,420.0	90.80	358.40	6,852.5	4,722.8	98.6	4,723.8	1.53	-0.42	-1.47	
11,516.0	90.70	358.10	6,851.2	4,818.7	95.7	4,819.7	0.33	-0.10	-0.31	
11,612.0	91.00	359.00	6,849.8	4,914.7	93.2	4,915.6	0.99	0.31	0.94	
11,707.0	90.90	359.00	6,848.2	5,009.6	91.6	5,010.5	0.11	-0.11	0.00	
11,803.0	90.70	358.80	6,846.9	5,105.6	89.7	5,106.4	0.29	-0.21	-0.21	
11,898.0	91.30	358.40	6,845.2	5,200.6	87.4	5,201.3	0.76	0.63	-0.42	
11,994.0	91.70	358.40	6,842.7	5,296.5	84.7	5,297.2	0.42	0.42	0.00	
12,016.0	91.60	358.30	6,842.1	5,318.5	84.1	5,319.1	0.64	-0.45	-0.45	
12,073.1	91.60	358.30	6,840.5	5,375.6	82.4	5,376.2	0.00	0.00	0.00	
BHL 500'FNL & 1900'FEL, Sec.11										
12,074.0	91.60	358.30	6,840.4	5,376.4	82.4	5,377.0	0.00	0.00	0.00	

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well J Clark 13N (Nio C)
Project:	SEC.14-T5N-R65W	TVD Reference:	WELL @ 4638.0ft (RKB - 23')
Site:	Clark 5N65W14 1-21 Pad Sec.14-T5N-R65W	MD Reference:	WELL @ 4638.0ft (RKB - 23')
Well:	J Clark 13N (Nio C)	North Reference:	True
Wellbore:	J Clark 13N (Nio C) Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	J Clark 13N (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 & 1994'FE - survey hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,391,636.28	3,242,770.94	40.405168	-104.628243
BHL 500'FNL & 1900'FE - survey misses target center by 17.8ft at 12073.1ft MD (6840.5 TVD, 5375.6 N, 82.4 E) - Point	0.00	0.00	6,843.0	5,376.1	100.0	1,397,012.91	3,242,818.07	40.419925	-104.627884

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
6,883.6	6,756.1	207.8	96.6	TPZ - 60° Incl. in curve - 342'FNL, 1895'FEL, SEC.14
8,173.0	6,872.7	1,477.6	85.9	Deepest TVD Drilled - 6872.7' TVD

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------