

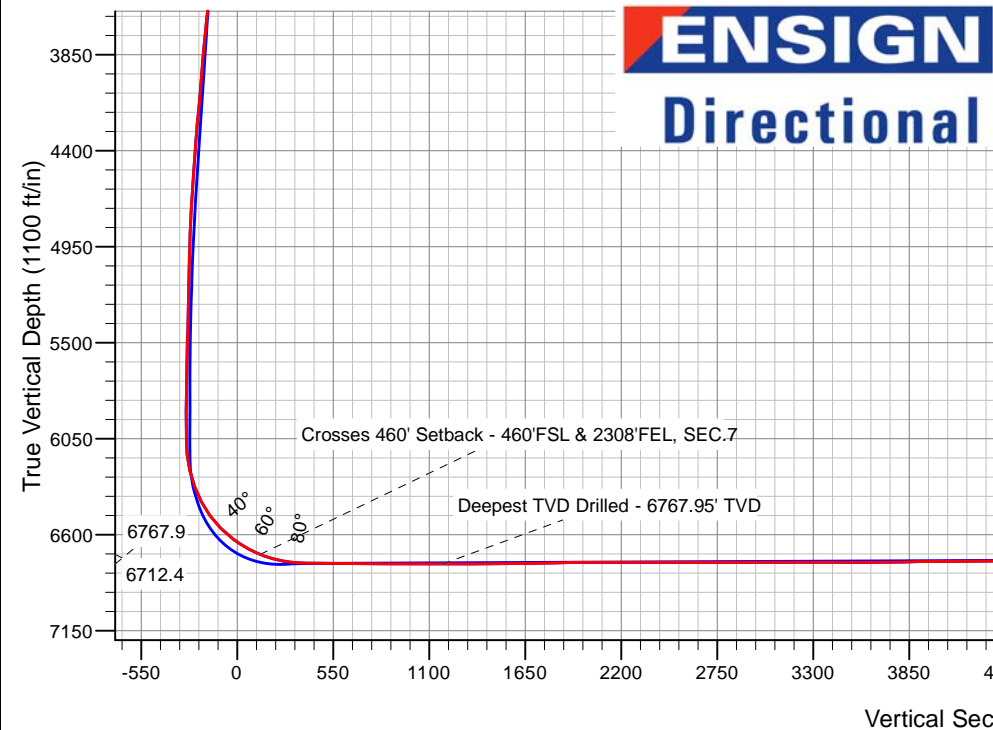
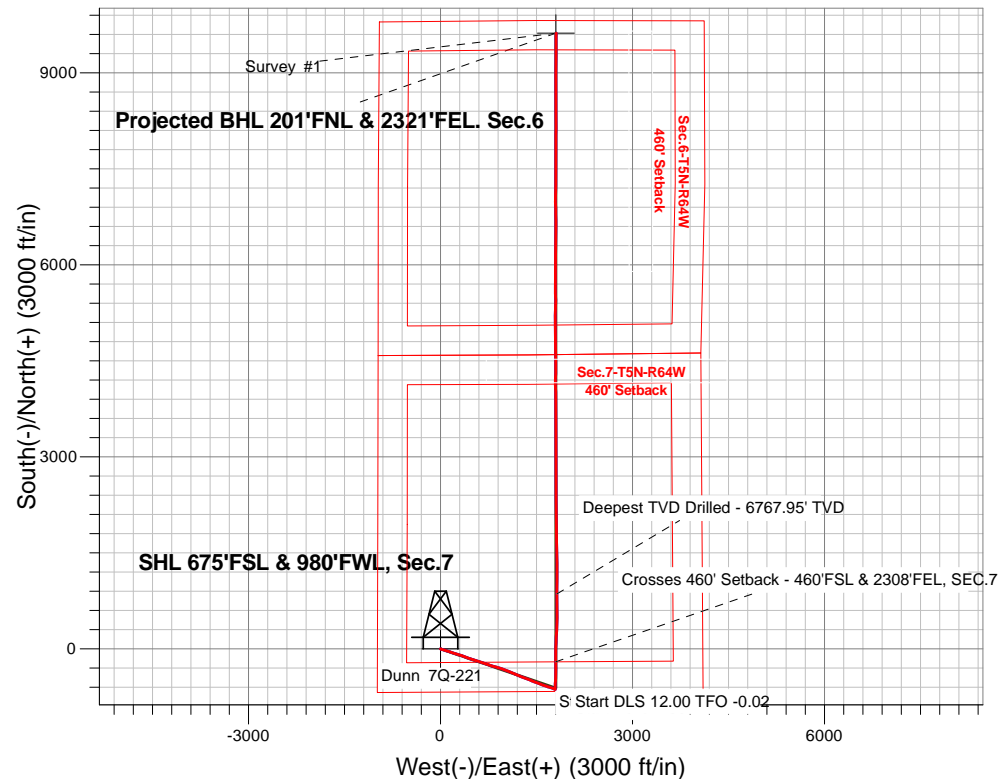
PDC Energy Inc. DJ Basin

Well Name: **Dunn 7Q-221**

Surface Location: Dunn 5N64W7 Pad Sec.7-T5N-R64W
 North American Datum 1983 , US State Plane 1983, Colorado Northern Zone
 Ground Elevation: 4625.0
 +N/-S+E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1392830.908251104.70 40.408218 -104.598276
 Ensign Rig #152 - RKB - 23'WELL @ 4648.0ft (Ensign Rig #152 - RKB - 23')

FINAL SURVEY

Projected Bottom Hole Location
17087'MD 6719'TVD 9620'N & 1806'E of SHL
93.4 degree Incl @ 0.6 degree AZM



Dunn 5N64W7 Pad Sec.7-T5N-R64W
 Dunn 7Q-221
 Wellbore #1
 7:36, February 23 2017

ANNOTATIONS

TVD	MD	Annotation
6712.4	7255.0	Crosses 460' Setback - 460'FSL & 2308'FEL, SEC.7
6767.9	8321.0	Deepest TVD Drilled - 6767.95' TVD

LEGEND

- Wellbore #1
- Survey #1
- Dunn 7Q-221, Wellbore #1, Plan #2 (2-10-17)R V0

Projected BHL 201'FNL & 2321'FEL. Sec.6

Dunn 7Q-221/Survey #1



PDC Energy Inc. DJ Basin

SEC.7-T5N-R64W

Dunn 5N64W7 Pad Sec.7-T5N-R64W

Dunn 7Q-221

Wellbore #1

Survey: Survey #1

Standard Survey Report

23 February, 2017

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Dunn 7Q-221
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4648.0ft (Ensign Rig #152 - RKB - 23')
Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4648.0ft (Ensign Rig #152 - RKB - 23')
Well:	Dunn 7Q-221	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	US_EDM

Project	SEC.7-T5N-R64W, 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		Dunn 5N64W7 Pad Sec.7-T5N-R64W			
Site Position:		Northing:	1,392,981.02 usft	Latitude:	40.408630
From:	Lat/Long	Easting:	3,251,104.57 usft	Longitude:	-104.598271
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.58 °

Well	Dunn 7Q-221					
Well Position	+N/-S	0.0 ft	Northing:	1,392,830.90 usft	Latitude:	40.408218
	+E/-W	0.0 ft	Easting:	3,251,104.70 usft	Longitude:	-104.598276
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,625.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/10/2017	8.01	66.89	52,558

Design	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	10.61	

Survey Program	Date	2/22/2017			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
155.0	17,087.0	Survey #1 (Wellbore #1)	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	
155.0	0.60	226.20	155.0	-0.6	-0.6	-0.7	0.39	0.39	0.00	
250.0	1.50	128.10	250.0	-1.7	0.0	-1.6	1.78	0.95	-103.26	
346.0	2.80	102.10	345.9	-2.9	3.3	-2.3	1.66	1.35	-27.08	
441.0	5.10	104.20	440.7	-4.5	9.7	-2.6	2.43	2.42	2.21	
537.0	7.60	106.80	536.1	-7.3	19.9	-3.6	2.62	2.60	2.71	
633.0	8.70	109.30	631.1	-11.6	32.8	-5.3	1.20	1.15	2.60	
729.0	10.70	107.70	725.7	-16.7	48.2	-7.5	2.10	2.08	-1.67	
825.0	11.10	107.00	820.0	-22.1	65.5	-9.7	0.44	0.42	-0.73	
921.0	11.40	107.70	914.2	-27.7	83.4	-11.9	0.34	0.31	0.73	

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Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4648.0ft (Ensign Rig #152 - RKB - 23')
Well:	Dunn 7Q-221	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	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)
1,017.0	13.10	107.00	1,008.0	-33.8	102.8	-14.3	1.78	1.77	-0.73
1,112.0	15.50	107.50	1,100.0	-40.7	125.2	-17.0	2.53	2.53	0.53
1,208.0	15.80	108.40	1,192.5	-48.7	149.9	-20.3	0.40	0.31	0.94
1,304.0	17.80	109.40	1,284.4	-57.7	176.1	-24.3	2.10	2.08	1.04
1,400.0	18.00	107.50	1,375.7	-67.0	204.1	-28.3	0.64	0.21	-1.98
1,495.0	18.20	105.70	1,466.0	-75.5	232.4	-31.4	0.63	0.21	-1.89
1,591.0	19.30	107.00	1,556.9	-84.2	262.0	-34.5	1.23	1.15	1.35
1,685.0	19.20	108.60	1,645.7	-93.6	291.5	-38.4	0.57	-0.11	1.70
1,781.0	20.30	110.10	1,736.0	-104.4	322.1	-43.3	1.26	1.15	1.56
1,876.0	23.40	111.70	1,824.2	-117.0	355.1	-49.7	3.32	3.26	1.68
1,972.0	24.40	109.30	1,912.0	-130.6	391.5	-56.3	1.45	1.04	-2.50
2,068.0	26.20	108.60	1,998.7	-143.9	430.3	-62.3	1.90	1.88	-0.73
2,163.0	26.00	107.90	2,084.1	-157.0	470.0	-67.8	0.39	-0.21	-0.74
2,259.0	24.50	107.00	2,170.9	-169.3	509.1	-72.7	1.61	-1.56	-0.94
2,355.0	26.10	108.60	2,257.7	-181.9	548.1	-77.9	1.81	1.67	1.67
2,451.0	25.70	109.10	2,344.0	-195.4	587.8	-83.9	0.47	-0.42	0.52
2,547.0	24.60	108.00	2,430.9	-208.4	626.5	-89.5	1.24	-1.15	-1.15
2,643.0	26.60	109.40	2,517.5	-221.7	665.8	-95.4	2.18	2.08	1.46
2,738.0	26.60	108.70	2,602.4	-235.6	706.0	-101.6	0.33	0.00	-0.74
2,835.0	26.80	108.00	2,689.1	-249.3	747.3	-107.5	0.38	0.21	-0.72
2,930.0	26.70	107.30	2,773.9	-262.3	788.1	-112.8	0.35	-0.11	-0.74
3,026.0	26.10	105.90	2,859.9	-274.5	829.0	-117.2	0.90	-0.63	-1.46
3,122.0	25.80	105.00	2,946.2	-285.7	869.5	-120.8	0.52	-0.31	-0.94
3,217.0	27.20	108.60	3,031.3	-298.0	910.0	-125.4	2.24	1.47	3.79
3,313.0	24.80	106.30	3,117.5	-310.6	950.2	-130.4	2.71	-2.50	-2.40
3,409.0	23.60	108.40	3,205.1	-322.3	987.7	-135.0	1.54	-1.25	2.19
3,505.0	23.00	112.10	3,293.3	-335.5	1,023.3	-141.4	1.65	-0.63	3.85
3,600.0	23.40	113.70	3,380.6	-350.0	1,057.8	-149.3	0.79	0.42	1.68
3,696.0	22.90	114.00	3,468.9	-365.3	1,092.3	-158.0	0.54	-0.52	0.31
3,791.0	23.40	113.00	3,556.2	-380.2	1,126.6	-166.3	0.67	0.53	-1.05
3,886.0	25.40	113.00	3,642.7	-395.5	1,162.7	-174.7	2.11	2.11	0.00
3,982.0	25.90	112.60	3,729.3	-411.6	1,201.0	-183.5	0.55	0.52	-0.42
4,077.0	26.30	111.20	3,814.6	-427.2	1,239.8	-191.7	0.77	0.42	-1.47
4,173.0	26.00	110.80	3,900.8	-442.4	1,279.3	-199.3	0.36	-0.31	-0.42
4,269.0	24.20	108.90	3,987.7	-456.2	1,317.6	-205.9	2.05	-1.88	-1.98
4,364.0	25.00	112.10	4,074.1	-470.1	1,354.6	-212.7	1.64	0.84	3.37
4,460.0	25.70	112.60	4,160.8	-485.7	1,392.6	-221.1	0.76	0.73	0.52
4,556.0	23.30	112.60	4,248.2	-501.0	1,429.4	-229.3	2.50	-2.50	0.00
4,652.0	21.50	111.20	4,336.9	-514.7	1,463.3	-236.5	1.96	-1.88	-1.46
4,748.0	22.70	110.70	4,425.9	-527.6	1,497.0	-243.0	1.27	1.25	-0.52
4,844.0	21.10	111.20	4,514.9	-540.4	1,530.5	-249.4	1.68	-1.67	0.52
4,939.0	20.80	110.30	4,603.7	-552.4	1,562.2	-255.4	0.46	-0.32	-0.95
5,035.0	19.60	110.50	4,693.8	-563.9	1,593.3	-261.0	1.25	-1.25	0.21
5,131.0	17.30	109.10	4,784.8	-574.3	1,621.9	-265.9	2.44	-2.40	-1.46

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Well:	Dunn 7Q-221	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	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)
5,227.0	16.40	108.60	4,876.7	-583.3	1,648.2	-269.9	0.95	-0.94	-0.52
5,322.0	15.50	107.00	4,968.0	-591.2	1,673.0	-273.2	1.05	-0.95	-1.68
5,419.0	13.40	106.60	5,062.0	-598.2	1,696.2	-275.8	2.17	-2.16	-0.41
5,515.0	10.70	105.70	5,155.8	-603.8	1,715.5	-277.8	2.82	-2.81	-0.94
5,611.0	9.20	106.40	5,250.4	-608.4	1,731.4	-279.3	1.57	-1.56	0.73
5,706.0	8.40	112.40	5,344.3	-613.2	1,745.1	-281.5	1.28	-0.84	6.32
5,802.0	7.10	112.60	5,439.4	-618.2	1,757.1	-284.2	1.35	-1.35	0.21
5,898.0	5.40	116.30	5,534.8	-622.4	1,766.6	-286.6	1.82	-1.77	3.85
5,994.0	4.30	115.10	5,630.5	-626.0	1,773.9	-288.7	1.15	-1.15	-1.25
6,090.0	3.90	114.40	5,726.2	-628.8	1,780.1	-290.4	0.42	-0.42	-0.73
6,185.0	3.50	114.20	5,821.0	-631.4	1,785.7	-291.9	0.42	-0.42	-0.21
6,310.0	0.90	86.20	5,945.9	-632.9	1,790.2	-292.5	2.19	-2.08	-22.40
6,406.0	0.40	75.00	6,041.9	-632.7	1,791.3	-292.2	0.53	-0.52	-11.67
6,502.0	4.90	356.90	6,137.8	-628.5	1,791.4	-288.1	5.03	4.69	-81.35
6,597.0	14.20	359.00	6,231.4	-612.8	1,790.9	-272.7	9.79	9.79	2.21
6,693.0	20.20	2.70	6,323.1	-584.4	1,791.5	-244.7	6.35	6.25	3.85
6,788.0	27.40	4.00	6,409.9	-546.2	1,793.8	-206.7	7.60	7.58	1.37
6,884.0	36.40	2.90	6,491.3	-495.6	1,796.8	-156.4	9.39	9.38	-1.15
6,979.0	45.80	2.60	6,562.9	-433.3	1,799.8	-94.6	9.90	9.89	-0.32
7,075.0	53.30	358.90	6,625.1	-360.3	1,800.6	-22.7	8.34	7.81	-3.85
7,171.0	61.40	359.20	6,676.9	-279.6	1,799.3	56.4	8.44	8.44	0.31
7,255.0	68.49	359.55	6,712.4	-203.5	1,798.4	131.0	8.45	8.44	0.42
Crosses 460' Setback - 460'FSL & 2308'FEL, SEC.7									
7,267.0	69.50	359.60	6,716.7	-192.3	1,798.4	142.0	8.45	8.44	0.39
7,362.0	77.00	359.60	6,744.1	-101.4	1,797.7	231.2	7.89	7.89	0.00
7,458.0	85.40	2.00	6,758.7	-6.7	1,799.1	324.6	9.09	8.75	2.50
7,554.0	89.30	3.40	6,763.2	89.1	1,803.6	419.6	4.32	4.06	1.46
7,650.0	89.80	3.30	6,763.9	184.9	1,809.2	514.8	0.53	0.52	-0.10
7,745.0	89.70	3.40	6,764.3	279.8	1,814.8	609.0	0.15	-0.11	0.11
7,841.0	89.80	0.60	6,764.8	375.7	1,818.1	703.9	2.92	0.10	-2.92
7,937.0	89.40	0.80	6,765.4	471.7	1,819.3	798.5	0.47	-0.42	0.21
8,033.0	89.50	359.90	6,766.4	567.7	1,819.9	893.0	0.94	0.10	-0.94
8,129.0	89.50	359.40	6,767.2	663.7	1,819.3	987.2	0.52	0.00	-0.52
8,225.0	89.70	359.60	6,767.9	759.7	1,818.4	1,081.4	0.29	0.21	0.21
8,321.0	90.20	359.70	6,767.9	855.7	1,817.9	1,175.7	0.53	0.52	0.10
Deepest TVD Drilled - 6767.95' TVD									
8,416.0	90.20	0.10	6,767.6	950.7	1,817.7	1,269.0	0.42	0.00	0.42
8,512.0	90.20	1.50	6,767.3	1,046.7	1,819.0	1,363.6	1.46	0.00	1.46
8,609.0	90.70	359.70	6,766.5	1,143.6	1,820.0	1,459.1	1.93	0.52	-1.86
8,704.0	91.10	359.60	6,765.0	1,238.6	1,819.5	1,552.4	0.43	0.42	-0.11
8,800.0	90.90	359.00	6,763.4	1,334.6	1,818.3	1,646.5	0.66	-0.21	-0.63
8,896.0	90.90	358.70	6,761.8	1,430.6	1,816.4	1,740.5	0.31	0.00	-0.31
8,991.0	90.90	358.90	6,760.4	1,525.5	1,814.4	1,833.4	0.21	0.00	0.21

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Well:	Dunn 7Q-221	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	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)
9,087.0	90.60	358.30	6,759.1	1,621.5	1,812.0	1,927.3	0.70	-0.31	-0.63
9,182.0	90.50	0.10	6,758.2	1,716.5	1,810.7	2,020.5	1.90	-0.11	1.89
9,278.0	90.20	0.30	6,757.6	1,812.5	1,811.0	2,114.9	0.38	-0.31	0.21
9,374.0	89.70	359.90	6,757.7	1,908.5	1,811.2	2,209.3	0.67	-0.52	-0.42
9,470.0	89.20	359.90	6,758.6	2,004.5	1,811.0	2,303.6	0.52	-0.52	0.00
9,565.0	90.00	359.40	6,759.3	2,099.5	1,810.5	2,396.8	0.99	0.84	-0.53
9,662.0	90.00	358.70	6,759.3	2,196.5	1,808.9	2,491.9	0.72	0.00	-0.72
9,757.0	90.50	0.10	6,758.9	2,291.5	1,807.9	2,585.1	1.56	0.53	1.47
9,853.0	90.20	0.10	6,758.3	2,387.4	1,808.0	2,679.5	0.31	-0.31	0.00
9,949.0	90.30	359.40	6,757.8	2,483.4	1,807.6	2,773.7	0.74	0.10	-0.73
10,045.0	90.30	359.40	6,757.3	2,579.4	1,806.6	2,867.9	0.00	0.00	0.00
10,140.0	89.60	358.50	6,757.4	2,674.4	1,804.9	2,960.9	1.20	-0.74	-0.95
10,236.0	89.90	358.50	6,757.8	2,770.4	1,802.3	3,054.8	0.31	0.31	0.00
10,331.0	89.90	359.90	6,758.0	2,865.4	1,801.0	3,147.9	1.47	0.00	1.47
10,427.0	90.00	0.60	6,758.1	2,961.4	1,801.4	3,242.4	0.74	0.10	0.73
10,523.0	90.10	0.10	6,758.0	3,057.4	1,802.0	3,336.8	0.53	0.10	-0.52
10,619.0	89.90	359.70	6,758.0	3,153.4	1,801.9	3,431.2	0.47	-0.21	-0.42
10,715.0	89.50	359.90	6,758.5	3,249.4	1,801.5	3,525.5	0.47	-0.42	0.21
10,810.0	90.80	0.50	6,758.3	3,344.4	1,801.9	3,618.9	1.51	1.37	0.63
10,906.0	90.60	0.10	6,757.1	3,440.4	1,802.4	3,713.3	0.47	-0.21	-0.42
11,002.0	90.80	0.10	6,755.9	3,536.4	1,802.5	3,807.7	0.21	0.21	0.00
11,097.0	90.70	359.90	6,754.7	3,631.3	1,802.5	3,901.1	0.24	-0.11	-0.21
11,193.0	90.60	359.90	6,753.6	3,727.3	1,802.4	3,995.4	0.10	-0.10	0.00
11,289.0	90.70	359.60	6,752.5	3,823.3	1,801.9	4,089.7	0.33	0.10	-0.31
11,385.0	90.60	359.00	6,751.4	3,919.3	1,800.8	4,183.8	0.63	-0.10	-0.63
11,481.0	90.50	358.00	6,750.5	4,015.3	1,798.3	4,277.7	1.05	-0.10	-1.04
11,576.0	90.20	359.90	6,749.9	4,110.3	1,796.5	4,370.7	2.02	-0.32	2.00
11,672.0	90.00	0.60	6,749.7	4,206.3	1,796.9	4,465.1	0.76	-0.21	0.73
11,768.0	90.40	0.60	6,749.4	4,302.2	1,797.9	4,559.7	0.42	0.42	0.00
11,863.0	90.40	0.50	6,748.7	4,397.2	1,798.8	4,653.2	0.11	0.00	-0.11
11,959.0	90.40	0.10	6,748.1	4,493.2	1,799.4	4,747.7	0.42	0.00	-0.42
12,055.0	90.50	359.60	6,747.3	4,589.2	1,799.1	4,842.0	0.53	0.10	-0.52
12,151.0	90.20	358.90	6,746.7	4,685.2	1,797.8	4,936.1	0.79	-0.31	-0.73
12,246.0	90.90	358.50	6,745.8	4,780.2	1,795.7	5,029.0	0.85	0.74	-0.42
12,342.0	89.70	359.90	6,745.3	4,876.2	1,794.3	5,123.1	1.92	-1.25	1.46
12,438.0	89.30	359.20	6,746.2	4,972.2	1,793.6	5,217.4	0.84	-0.42	-0.73
12,533.0	90.70	1.20	6,746.2	5,067.2	1,793.9	5,310.8	2.57	1.47	2.11
12,629.0	91.10	0.80	6,744.6	5,163.1	1,795.6	5,405.4	0.59	0.42	-0.42
12,725.0	88.60	0.50	6,744.9	5,259.1	1,796.7	5,500.0	2.62	-2.60	-0.31
12,821.0	88.80	0.30	6,747.1	5,355.1	1,797.4	5,594.4	0.29	0.21	-0.21
12,917.0	89.10	359.70	6,748.8	5,451.1	1,797.4	5,688.8	0.70	0.31	-0.63
13,013.0	88.90	359.40	6,750.5	5,547.1	1,796.6	5,783.0	0.38	-0.21	-0.31
13,108.0	90.50	0.50	6,751.0	5,642.1	1,796.5	5,876.3	2.04	1.68	1.16
13,204.0	90.30	359.90	6,750.3	5,738.1	1,796.9	5,970.8	0.66	-0.21	-0.63

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Dunn 7Q-221
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4648.0ft (Ensign Rig #152 - RKB - 23')
Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4648.0ft (Ensign Rig #152 - RKB - 23')
Well:	Dunn 7Q-221	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	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)
13,300.0	90.00	359.70	6,750.1	5,834.0	1,796.5	6,065.0	0.38	-0.31	-0.21
13,396.0	89.90	359.20	6,750.2	5,930.0	1,795.6	6,159.2	0.53	-0.10	-0.52
13,492.0	90.40	1.30	6,749.9	6,026.0	1,796.0	6,253.7	2.25	0.52	2.19
13,588.0	90.50	0.80	6,749.2	6,122.0	1,797.8	6,348.3	0.53	0.10	-0.52
13,684.0	91.00	0.30	6,747.9	6,218.0	1,798.7	6,442.8	0.74	0.52	-0.52
13,779.0	91.50	359.70	6,745.8	6,313.0	1,798.7	6,536.2	0.82	0.53	-0.63
13,875.0	90.20	1.00	6,744.4	6,409.0	1,799.3	6,630.6	1.91	-1.35	1.35
13,971.0	90.30	0.30	6,744.0	6,505.0	1,800.4	6,725.2	0.74	0.10	-0.73
14,067.0	91.00	0.30	6,742.9	6,600.9	1,800.9	6,819.6	0.73	0.73	0.00
14,162.0	90.80	359.60	6,741.4	6,695.9	1,800.8	6,913.0	0.77	-0.21	-0.74
14,258.0	90.80	359.20	6,740.1	6,791.9	1,799.8	7,007.2	0.42	0.00	-0.42
14,354.0	90.70	358.30	6,738.8	6,887.9	1,797.7	7,101.1	0.94	-0.10	-0.94
14,450.0	91.10	0.50	6,737.3	6,983.9	1,796.7	7,195.3	2.33	0.42	2.29
14,546.0	91.60	0.30	6,735.0	7,079.8	1,797.4	7,289.7	0.56	0.52	-0.21
14,641.0	90.60	0.60	6,733.2	7,174.8	1,798.1	7,383.2	1.10	-1.05	0.32
14,737.0	91.50	0.50	6,731.5	7,270.8	1,799.0	7,477.7	0.94	0.94	-0.10
14,833.0	89.80	0.30	6,730.4	7,366.8	1,799.7	7,572.2	1.78	-1.77	-0.21
14,929.0	90.90	0.50	6,729.8	7,462.8	1,800.4	7,666.7	1.16	1.15	0.21
15,024.0	89.40	0.50	6,729.5	7,557.8	1,801.2	7,760.2	1.58	-1.58	0.00
15,120.0	89.90	0.30	6,730.1	7,653.8	1,801.9	7,854.7	0.56	0.52	-0.21
15,216.0	91.20	0.30	6,729.2	7,749.8	1,802.4	7,949.1	1.35	1.35	0.00
15,312.0	89.60	0.10	6,728.5	7,845.8	1,802.7	8,043.5	1.68	-1.67	-0.21
15,407.0	90.40	359.70	6,728.5	7,940.8	1,802.5	8,136.9	0.94	0.84	-0.42
15,503.0	88.10	0.50	6,729.8	8,036.7	1,802.7	8,231.2	2.54	-2.40	0.83
15,599.0	89.20	0.50	6,732.0	8,132.7	1,803.5	8,325.7	1.15	1.15	0.00
15,695.0	90.10	0.10	6,732.6	8,228.7	1,804.0	8,420.2	1.03	0.94	-0.42
15,790.0	89.30	359.70	6,733.1	8,323.7	1,803.9	8,513.5	0.94	-0.84	-0.42
15,886.0	89.70	359.00	6,734.0	8,419.7	1,802.8	8,607.7	0.84	0.42	-0.73
15,982.0	90.20	358.30	6,734.1	8,515.7	1,800.5	8,701.6	0.90	0.52	-0.73
16,077.0	90.30	0.60	6,733.6	8,610.6	1,799.6	8,794.8	2.42	0.11	2.42
16,173.0	91.50	0.60	6,732.1	8,706.6	1,800.6	8,889.3	1.25	1.25	0.00
16,269.0	90.00	0.30	6,730.9	8,802.6	1,801.4	8,983.8	1.59	-1.56	-0.31
16,365.0	91.00	0.80	6,730.0	8,898.6	1,802.3	9,078.3	1.16	1.04	0.52
16,461.0	89.60	359.90	6,729.5	8,994.6	1,802.9	9,172.8	1.73	-1.46	-0.94
16,557.0	90.70	0.10	6,729.3	9,090.6	1,802.9	9,267.1	1.16	1.15	0.21
16,652.0	89.00	0.30	6,729.5	9,185.6	1,803.2	9,360.6	1.80	-1.79	0.21
16,748.0	89.90	0.30	6,730.5	9,281.6	1,803.7	9,455.0	0.94	0.94	0.00
16,844.0	91.00	0.30	6,729.7	9,377.6	1,804.2	9,549.4	1.15	1.15	0.00
16,939.0	92.20	0.50	6,727.0	9,472.5	1,804.9	9,642.9	1.28	1.26	0.21
17,029.0	93.40	0.60	6,722.7	9,562.4	1,805.7	9,731.4	1.34	1.33	0.11
17,087.0	93.40	0.60	6,719.2	9,620.3	1,806.4	9,788.4	0.00	0.00	0.00

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Dunn 7Q-221
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4648.0ft (Ensign Rig #152 - RKB - 23')
Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4648.0ft (Ensign Rig #152 - RKB - 23')
Well:	Dunn 7Q-221	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	US_EDM

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
SHL 675'FSL & 980'FWL	0.00	0.00	1.0	0.0	0.0	1,392,830.93	3,251,104.70	40.408218	-104.598276
- survey hits target center									
- Point									
BHL 200'FNL & 2326'FE	0.00	0.00	6,723.0	9,620.9	1,801.7	1,402,469.21	3,252,808.38	40.434626	-104.591804
- survey misses target center by 6.0ft at 17087.0ft MD (6719.2 TVD, 9620.3 N, 1806.4 E)									
- Point									

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
7,255.0	6,712.4	-203.5	1,798.4	Crosses 460' Setback - 460'FSL & 2308'FEL, SEC.7
8,321.0	6,767.9	855.7	1,817.9	Deepest TVD Drilled - 6767.95' TVD

Checked By: _____	Approved By: _____	Date: _____
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