

PDC Energy Inc. DJ Basin

Well Name: **Cecil's Kersey Farm 17B-214**

Surface Location: Cecil's Kersey Farm 5N64W17B Pad Sec.17-T5N-R64W
North American Datum 1983 , US State Plane 1983, Colorado Northern Zone

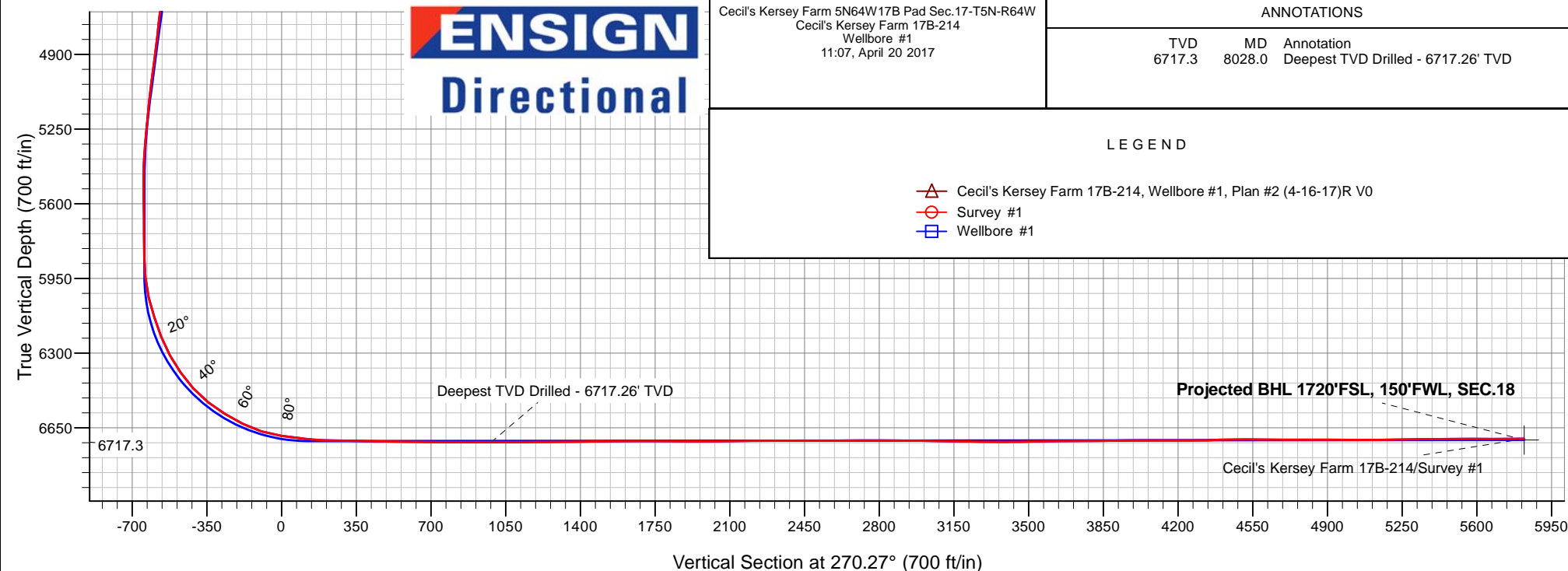
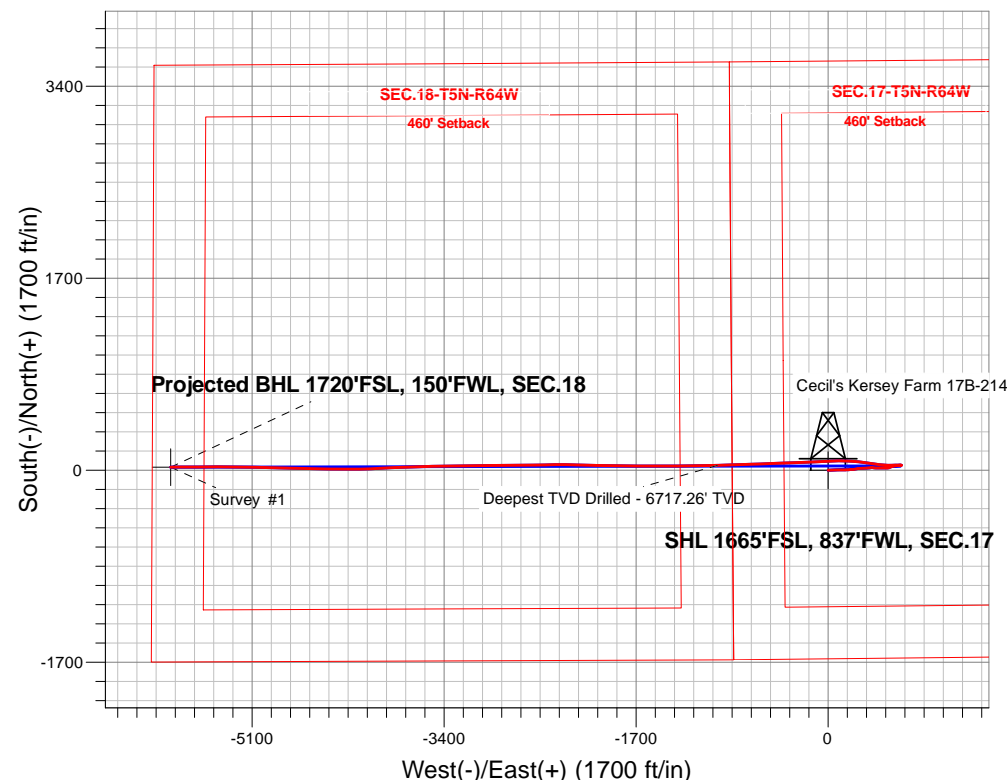
Ground Elevation: 4623.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1388612.29	3256122.31	40.396497	-104.580416	

Ensign Rig #152 -RKB - 23' WELL @ 4646.0ft (Ensign Rig #152 -RKB - 23')

FINAL SURVEY

Projected Bottom Hole Location
12,869'MD 6701'TVD 28'N & 5821'W of SHL
90.6 degree Incl @ 269.5 degree AZM





PDC Energy Inc. DJ Basin

SEC.17-T5N-R64W

Cecil's Kersey Farm 5N64W17B Pad Sec.17-T5N-R64W

Cecil's Kersey Farm 17B-214

Wellbore #1

Survey: Survey #1

Standard Survey Report

20 April, 2017

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Cecil's Kersey Farm 17B-214
Project:	SEC.17-T5N-R64W	TVD Reference:	WELL @ 4646.0ft (Ensign Rig #152 -RKB - 23')
Site:	Cecil's Kersey Farm 5N64W17B Pad Sec.17-T5N-R64W	MD Reference:	WELL @ 4646.0ft (Ensign Rig #152 -RKB - 23')
Well:	Cecil's Kersey Farm 17B-214	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	US_EDM

Project	SEC.17-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	Cecil's Kersey Farm 5N64W17B Pad Sec.17-T5N-R64W				
Site Position:		Northing:	1,388,702.00 usft	Latitude:	40.396743
From:	Lat/Long	Easting:	3,256,129.74 usft	Longitude:	-104.580386
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.59 °

Well	Cecil's Kersey Farm 17B-214					
Well Position	+N/-S	0.0 ft	Northing:	1,388,612.29 usft	Latitude:	40.396497
	+E/-W	0.0 ft	Easting:	3,256,122.31 usft	Longitude:	-104.580416
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,623.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/16/2017	7.98	66.87	52,535

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	270.27	

Survey Program	Date	4/20/2017			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
159.0	12,869.0	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	
159.0	0.40	130.70	159.0	-0.4	0.4	-0.4	0.25	0.25	0.00	
255.0	0.00	59.90	255.0	-0.6	0.7	-0.7	0.42	-0.42	0.00	
351.0	0.40	86.80	351.0	-0.6	1.0	-1.0	0.42	0.42	0.00	
446.0	1.80	90.10	446.0	-0.5	2.8	-2.8	1.47	1.47	3.47	
541.0	3.70	94.50	540.9	-0.8	7.4	-7.4	2.01	2.00	4.63	
636.0	5.00	91.70	635.6	-1.2	14.6	-14.6	1.39	1.37	-2.95	
732.0	6.80	89.20	731.1	-1.2	24.4	-24.4	1.89	1.88	-2.60	
828.0	8.00	83.80	826.3	-0.4	36.8	-36.8	1.44	1.25	-5.63	
924.0	8.20	85.70	921.3	0.8	50.2	-50.2	0.35	0.21	1.98	

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Site:	Cecil's Kersey Farm 5N64W17B Pad Sec.17-T5N-R64W	MD Reference:	WELL @ 4646.0ft (Ensign Rig #152 -RKB - 23')
Well:	Cecil's Kersey Farm 17B-214	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)
1,019.0	7.80	86.60	1,015.4	1.7	63.4	-63.4	0.44	-0.42	0.95
1,115.0	7.10	82.20	1,110.6	2.9	75.8	-75.8	0.94	-0.73	-4.58
1,210.0	7.60	88.30	1,204.8	3.9	87.9	-87.9	0.97	0.53	6.42
1,306.0	8.80	91.90	1,299.8	3.8	101.6	-101.6	1.36	1.25	3.75
1,402.0	9.00	89.70	1,394.7	3.6	116.4	-116.4	0.41	0.21	-2.29
1,497.0	7.80	91.70	1,488.6	3.5	130.3	-130.3	1.30	-1.26	2.11
1,580.0	7.30	90.30	1,570.9	3.3	141.2	-141.2	0.64	-0.60	-1.69
1,688.0	7.10	85.50	1,678.1	3.8	154.7	-154.7	0.59	-0.19	-4.44
1,784.0	8.50	89.50	1,773.2	4.3	167.7	-167.7	1.56	1.46	4.17
1,880.0	8.10	87.10	1,868.2	4.7	181.6	-181.6	0.55	-0.42	-2.50
1,976.0	7.40	82.30	1,963.3	5.9	194.5	-194.4	0.99	-0.73	-5.00
2,071.0	7.10	96.00	2,057.6	6.1	206.4	-206.3	1.84	-0.32	14.42
2,167.0	8.00	86.00	2,152.7	5.9	218.9	-218.9	1.66	0.94	-10.42
2,263.0	7.80	76.70	2,247.8	7.9	231.9	-231.9	1.35	-0.21	-9.69
2,359.0	7.20	76.70	2,343.0	10.8	244.1	-244.1	0.63	-0.63	0.00
2,455.0	6.80	72.80	2,438.3	13.9	255.4	-255.4	0.65	-0.42	-4.06
2,551.0	8.60	90.40	2,533.4	15.5	268.0	-268.0	3.07	1.88	18.33
2,646.0	8.40	87.40	2,627.4	15.7	282.1	-282.0	0.51	-0.21	-3.16
2,742.0	8.40	86.40	2,722.3	16.5	296.1	-296.0	0.15	0.00	-1.04
2,838.0	7.70	88.10	2,817.4	17.2	309.5	-309.4	0.77	-0.73	1.77
2,934.0	7.40	85.00	2,912.6	17.9	322.1	-322.0	0.53	-0.31	-3.23
3,028.0	6.90	84.60	3,005.8	19.0	333.7	-333.6	0.53	-0.53	-0.43
3,124.0	6.10	83.60	3,101.2	20.1	344.5	-344.4	0.84	-0.83	-1.04
3,220.0	8.40	88.10	3,196.4	20.9	356.6	-356.5	2.47	2.40	4.69
3,315.0	6.90	79.00	3,290.6	22.2	369.2	-369.0	2.02	-1.58	-9.58
3,411.0	7.40	90.80	3,385.9	23.2	381.0	-380.9	1.61	0.52	12.29
3,506.0	6.90	92.20	3,480.1	22.9	392.8	-392.7	0.56	-0.53	1.47
3,602.0	8.70	97.10	3,575.2	21.8	405.8	-405.7	2.00	1.88	5.10
3,698.0	10.10	90.90	3,669.9	20.8	421.4	-421.3	1.80	1.46	-6.46
3,792.0	9.90	91.70	3,762.5	20.4	437.7	-437.6	0.26	-0.21	0.85
3,888.0	10.20	91.70	3,857.0	19.9	454.5	-454.4	0.31	0.31	0.00
3,983.0	9.80	91.10	3,950.6	19.5	471.0	-470.9	0.44	-0.42	-0.63
4,079.0	9.10	89.70	4,045.3	19.4	486.7	-486.6	0.77	-0.73	-1.46
4,174.0	8.00	90.20	4,139.2	19.4	500.8	-500.8	1.16	-1.16	0.53
4,270.0	7.40	87.30	4,234.4	19.7	513.7	-513.6	0.74	-0.63	-3.02
4,366.0	6.40	85.50	4,329.7	20.4	525.2	-525.1	1.07	-1.04	-1.88
4,461.0	7.10	73.90	4,424.0	22.4	536.1	-536.0	1.61	0.74	-12.21
4,557.0	6.80	69.20	4,519.3	26.1	547.1	-547.0	0.67	-0.31	-4.90
4,652.0	7.70	74.60	4,613.6	29.8	558.5	-558.4	1.19	0.95	5.68
4,748.0	7.40	74.20	4,708.7	33.2	570.7	-570.5	0.32	-0.31	-0.42
4,844.0	6.20	72.70	4,804.0	36.4	581.6	-581.4	1.26	-1.25	-1.56
4,940.0	7.80	84.30	4,899.3	38.6	593.0	-592.8	2.22	1.67	12.08

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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)
5,035.0	7.60	82.70	4,993.5	40.0	605.7	-605.5	0.31	-0.21	-1.68
5,131.0	6.30	83.20	5,088.8	41.4	617.2	-617.0	1.36	-1.35	0.52
5,226.0	5.80	82.70	5,183.2	42.7	627.1	-626.9	0.53	-0.53	-0.53
5,322.0	4.80	87.80	5,278.8	43.4	636.0	-635.7	1.15	-1.04	5.31
5,418.0	4.10	87.30	5,374.5	43.8	643.4	-643.2	0.73	-0.73	-0.52
5,514.0	0.10	70.40	5,470.5	43.9	646.9	-646.7	4.17	-4.17	-17.60
5,609.0	0.50	268.00	5,565.5	44.0	646.6	-646.4	0.63	0.42	-170.95
5,705.0	0.60	294.90	5,661.4	44.2	645.7	-645.5	0.29	0.10	28.02
5,800.0	0.70	294.30	5,756.4	44.6	644.7	-644.5	0.11	0.11	-0.63
5,896.0	0.70	305.20	5,852.4	45.2	643.7	-643.5	0.14	0.00	11.35
5,991.0	5.10	275.30	5,947.3	45.9	639.0	-638.8	4.74	4.63	-31.47
6,087.0	14.30	269.00	6,041.8	46.1	622.9	-622.7	9.63	9.58	-6.56
6,183.0	17.90	268.80	6,134.0	45.6	596.3	-596.1	3.75	3.75	-0.21
6,278.0	21.40	267.80	6,223.5	44.6	564.3	-564.1	3.70	3.68	-1.05
6,373.0	28.80	268.30	6,309.5	43.3	524.1	-523.9	7.79	7.79	0.53
6,469.0	35.10	278.00	6,390.9	46.4	473.6	-473.3	8.45	6.56	10.10
6,564.0	42.50	278.50	6,464.9	55.0	414.7	-414.4	7.80	7.79	0.53
6,660.0	52.10	277.80	6,529.9	64.9	344.9	-344.6	10.01	10.00	-0.73
6,756.0	58.60	275.30	6,584.5	73.9	266.5	-266.2	7.10	6.77	-2.60
6,852.0	63.40	273.80	6,631.0	80.5	182.9	-182.5	5.18	5.00	-1.56
6,947.0	72.50	268.50	6,666.7	82.1	95.0	-94.6	10.88	9.58	-5.58
7,043.0	82.50	267.30	6,687.4	78.7	1.4	-1.0	10.49	10.42	-1.25
7,138.0	82.70	267.60	6,699.7	74.5	-92.7	93.1	0.38	0.21	0.32
7,234.0	87.80	268.30	6,707.6	71.1	-188.3	188.6	5.36	5.31	0.73
7,330.0	89.10	267.80	6,710.2	67.8	-284.2	284.5	1.45	1.35	-0.52
7,455.0	88.80	268.10	6,712.5	63.3	-409.1	409.4	0.34	-0.24	0.24
7,551.0	89.20	267.80	6,714.2	59.9	-505.0	505.3	0.52	0.42	-0.31
7,647.0	89.30	267.80	6,715.4	56.2	-600.9	601.2	0.10	0.10	0.00
7,742.0	89.30	267.80	6,716.6	52.6	-695.9	696.1	0.00	0.00	0.00
7,837.0	90.00	268.00	6,717.2	49.1	-790.8	791.0	0.77	0.74	0.21
7,933.0	90.00	267.80	6,717.2	45.6	-886.7	886.9	0.21	0.00	-0.21
8,028.0	89.90	267.60	6,717.3	41.8	-981.6	981.8	0.24	-0.11	-0.21
Deepest TVD Drilled - 6717.26' TVD									
8,124.0	90.40	270.10	6,717.0	39.8	-1,077.6	1,077.8	2.66	0.52	2.60
8,220.0	90.30	269.90	6,716.4	39.8	-1,173.6	1,173.8	0.23	-0.10	-0.21
8,316.0	90.60	269.50	6,715.7	39.3	-1,269.6	1,269.8	0.52	0.31	-0.42
8,412.0	90.30	269.20	6,714.9	38.2	-1,365.6	1,365.8	0.44	-0.31	-0.31
8,508.0	90.80	269.20	6,714.0	36.9	-1,461.6	1,461.7	0.52	0.52	0.00
8,604.0	90.80	268.70	6,712.7	35.1	-1,557.6	1,557.7	0.52	0.00	-0.52
8,699.0	90.10	271.10	6,711.9	35.0	-1,652.6	1,652.7	2.63	-0.74	2.53
8,795.0	89.60	271.30	6,712.2	37.0	-1,748.5	1,748.7	0.56	-0.52	0.21
8,891.0	89.60	271.50	6,712.8	39.3	-1,844.5	1,844.7	0.21	0.00	0.21
8,987.0	89.30	271.70	6,713.8	42.0	-1,940.5	1,940.6	0.38	-0.31	0.21

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9,082.0	91.00	270.90	6,713.5	44.2	-2,035.4	2,035.6	1.98	1.79	-0.84
9,178.0	90.70	270.80	6,712.1	45.6	-2,131.4	2,131.6	0.33	-0.31	-0.10
9,274.0	90.50	271.10	6,711.1	47.2	-2,227.4	2,227.6	0.38	-0.21	0.31
9,370.0	90.30	271.10	6,710.4	49.0	-2,323.4	2,323.6	0.21	-0.21	0.00
9,465.0	90.30	269.20	6,709.9	49.3	-2,418.4	2,418.6	2.00	0.00	-2.00
9,560.0	89.80	268.80	6,709.8	47.6	-2,513.3	2,513.5	0.67	-0.53	-0.42
9,656.0	90.10	268.70	6,709.9	45.5	-2,609.3	2,609.5	0.33	0.31	-0.10
9,751.0	90.30	268.80	6,709.6	43.5	-2,704.3	2,704.5	0.24	0.21	0.11
9,848.0	89.80	269.00	6,709.5	41.6	-2,801.3	2,801.4	0.56	-0.52	0.21
9,944.0	89.50	269.70	6,710.1	40.5	-2,897.3	2,897.4	0.79	-0.31	0.73
10,040.0	89.30	269.70	6,711.1	40.0	-2,993.3	2,993.4	0.21	-0.21	0.00
10,136.0	89.20	270.20	6,712.3	39.9	-3,089.3	3,089.4	0.53	-0.10	0.52
10,232.0	89.10	270.40	6,713.8	40.4	-3,185.2	3,185.4	0.23	-0.10	0.21
10,328.0	89.80	268.80	6,714.7	39.7	-3,281.2	3,281.4	1.82	0.73	-1.67
10,424.0	89.40	268.80	6,715.4	37.7	-3,377.2	3,377.4	0.42	-0.42	0.00
10,520.0	91.30	268.10	6,714.8	35.1	-3,473.2	3,473.3	2.11	1.98	-0.73
10,616.0	90.90	268.50	6,712.9	32.3	-3,569.1	3,569.2	0.59	-0.42	0.42
10,712.0	90.40	268.10	6,711.8	29.4	-3,665.1	3,665.2	0.67	-0.52	-0.42
10,808.0	90.30	267.80	6,711.3	26.0	-3,761.0	3,761.1	0.33	-0.10	-0.31
10,904.0	90.50	267.10	6,710.6	21.7	-3,856.9	3,857.0	0.76	0.21	-0.73
10,999.0	90.70	266.90	6,709.6	16.8	-3,951.8	3,951.8	0.30	0.21	-0.21
11,095.0	90.00	268.50	6,709.0	12.9	-4,047.7	4,047.7	1.82	-0.73	1.67
11,191.0	90.10	268.50	6,708.9	10.4	-4,143.7	4,143.7	0.10	0.10	0.00
11,287.0	90.30	270.60	6,708.6	9.6	-4,239.6	4,239.6	2.20	0.21	2.19
11,382.0	90.80	270.40	6,707.7	10.5	-4,334.6	4,334.6	0.57	0.53	-0.21
11,478.0	91.80	270.10	6,705.5	10.9	-4,430.6	4,430.6	1.09	1.04	-0.31
11,574.0	89.60	271.10	6,704.3	11.9	-4,526.6	4,526.6	2.52	-2.29	1.04
11,670.0	89.50	271.10	6,705.1	13.7	-4,622.6	4,622.6	0.10	-0.10	0.00
11,766.0	89.50	272.20	6,705.9	16.5	-4,718.5	4,718.5	1.15	0.00	1.15
11,861.0	90.60	272.20	6,705.8	20.2	-4,813.4	4,813.5	1.16	1.16	0.00
11,957.0	89.50	272.00	6,705.7	23.7	-4,909.4	4,909.4	1.16	-1.15	-0.21
12,053.0	89.80	270.90	6,706.3	26.1	-5,005.3	5,005.4	1.19	0.31	-1.15
12,148.0	90.30	270.20	6,706.2	27.0	-5,100.3	5,100.4	0.91	0.53	-0.74
12,243.0	90.30	270.10	6,705.7	27.3	-5,195.3	5,195.4	0.11	0.00	-0.11
12,339.0	91.10	270.10	6,704.6	27.4	-5,291.3	5,291.4	0.83	0.83	0.00
12,434.0	90.50	270.60	6,703.2	28.0	-5,386.3	5,386.4	0.82	-0.63	0.53
12,529.0	90.70	270.10	6,702.3	28.6	-5,481.3	5,481.4	0.57	0.21	-0.53
12,624.0	89.70	270.20	6,701.9	28.8	-5,576.3	5,576.4	1.06	-1.05	0.11
12,720.0	90.10	269.70	6,702.1	28.8	-5,672.3	5,672.4	0.67	0.42	-0.52
12,811.0	90.60	269.50	6,701.5	28.1	-5,763.3	5,763.4	0.59	0.55	-0.22
12,869.0	90.60	269.50	6,700.9	27.6	-5,821.3	5,821.4	0.00	0.00	0.00

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Cecil's Kersey Farm 17B-214
Project:	SEC.17-T5N-R64W	TVD Reference:	WELL @ 4646.0ft (Ensign Rig #152 -RKB - 23')
Site:	Cecil's Kersey Farm 5N64W17B Pad Sec.17-T5N-R64W	MD Reference:	WELL @ 4646.0ft (Ensign Rig #152 -RKB - 23')
Well:	Cecil's Kersey Farm 17B-214	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	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
- Shape									
SHL 1665'FSL, 837'FWL	0.00	0.00	1.0	0.0	0.0	1,388,612.30	3,256,122.31	40.396497	-104.580416
- survey hits target center									
- Point									
BHL 1720'FSL, 150'FWL	0.00	0.00	6,707.0	27.3	-5,821.7	1,388,579.21	3,250,300.90	40.396570	-104.601317
- survey misses target center by 6.1ft at 12869.0ft MD (6700.9 TVD, 27.6 N, -5821.3 E)									
- Point									

Survey Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
8,028.0	6,717.3	41.8	-981.6	Deepest TVD Drilled - 6717.26' TVD

Checked By: _____	Approved By: _____	Date: _____
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