

PDC Energy Inc. DJ Basin

Well Name: **Cecil's Kersey Farm 17B-304**

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

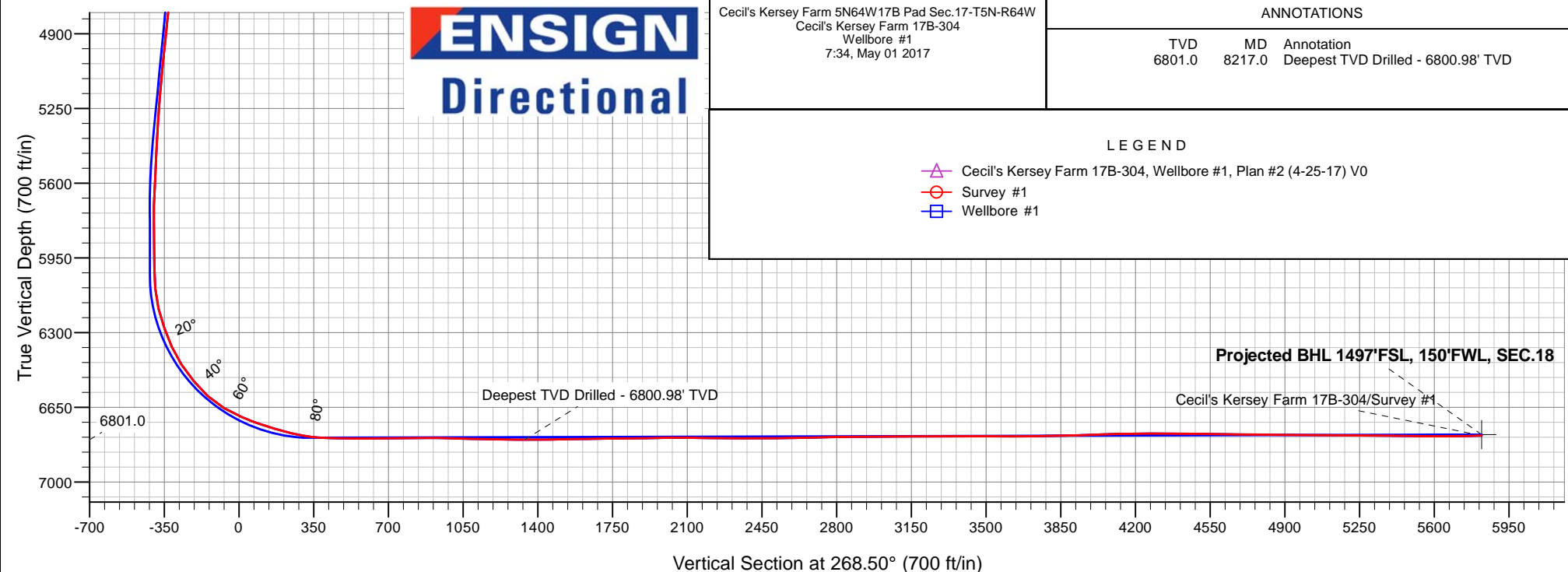
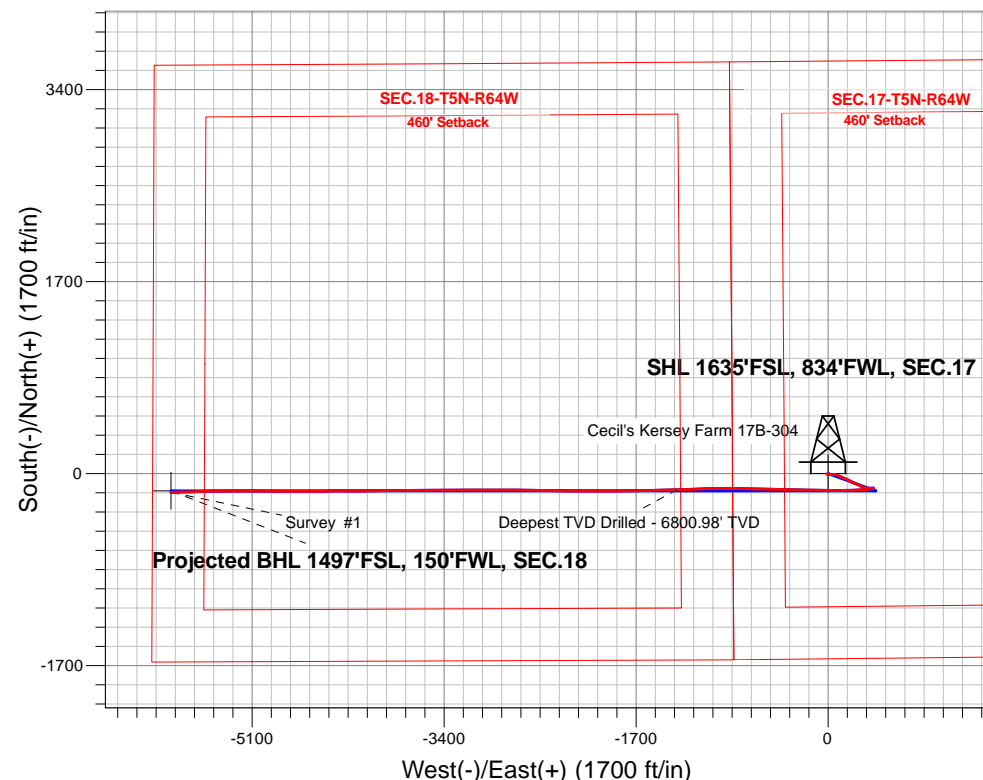
Ground Elevation: 4623.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1388582.393	256119.84	40.396415	-104.580426	

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

FINAL SURVEY

Projected Bottom Hole Location
12,702'MD 6782'TVD 166'S & 5820'W of SHL
91.2 degree Incl @ 268.3 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-304

Wellbore #1

Survey: Survey #1

Standard Survey Report

01 May, 2017

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Cecil's Kersey Farm 17B-304
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-304	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-304					
Well Position	+N/-S	0.0 ft	Northing:	1,388,582.39 usft	Latitude:	40.396415
	+E/-W	0.0 ft	Easting:	3,256,119.84 usft	Longitude:	-104.580426
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	4/25/2017	7.97	66.87	52,533

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	268.50	

Survey Program	Date	5/1/2017			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
158.0	12,702.0	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	
158.0	0.50	232.40	158.0	-0.4	-0.5	0.6	0.32	0.32	0.00	
254.0	0.40	235.30	254.0	-0.9	-1.2	1.2	0.11	-0.10	3.02	
350.0	0.80	238.90	350.0	-1.4	-2.0	2.0	0.42	0.42	3.75	
445.0	0.40	233.30	445.0	-1.9	-2.8	2.9	0.43	-0.42	-5.89	
540.0	0.80	269.50	540.0	-2.1	-3.8	3.8	0.56	0.42	38.11	
635.0	1.10	245.80	635.0	-2.5	-5.3	5.3	0.51	0.32	-24.95	
731.0	0.90	244.70	731.0	-3.2	-6.8	6.9	0.21	-0.21	-1.15	
826.0	0.80	246.70	825.9	-3.8	-8.1	8.2	0.11	-0.11	2.11	
923.0	1.30	130.70	922.9	-4.8	-7.9	8.0	1.86	0.52	-119.59	

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Well:	Cecil's Kersey Farm 17B-304	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)
1,018.0	2.90	105.70	1,017.9	-6.1	-4.7	4.9	1.90	1.68	-26.32
1,114.0	5.20	96.40	1,113.6	-7.3	1.9	-1.7	2.48	2.40	-9.69
1,209.0	5.00	92.50	1,208.2	-8.0	10.4	-10.1	0.42	-0.21	-4.11
1,305.0	4.70	89.40	1,303.9	-8.1	18.5	-18.2	0.41	-0.31	-3.23
1,401.0	6.10	89.20	1,399.5	-8.0	27.5	-27.3	1.46	1.46	-0.21
1,496.0	6.30	88.30	1,493.9	-7.8	37.8	-37.5	0.23	0.21	-0.95
1,620.0	5.10	89.40	1,617.3	-7.5	50.1	-49.9	0.97	-0.97	0.89
1,686.0	4.90	83.90	1,683.1	-7.2	55.8	-55.6	0.79	-0.30	-8.33
1,782.0	5.00	109.20	1,778.7	-8.1	63.8	-63.6	2.26	0.10	26.35
1,878.0	6.20	117.30	1,874.2	-11.9	72.4	-72.1	1.49	1.25	8.44
1,974.0	6.20	115.00	1,969.7	-16.4	81.7	-81.2	0.26	0.00	-2.40
2,069.0	5.90	113.10	2,064.2	-20.5	90.8	-90.3	0.38	-0.32	-2.00
2,165.0	5.50	111.70	2,159.7	-24.1	99.6	-99.0	0.44	-0.42	-1.46
2,261.0	5.30	107.80	2,255.3	-27.2	108.1	-107.4	0.44	-0.21	-4.06
2,357.0	4.70	109.40	2,350.9	-29.9	116.1	-115.3	0.64	-0.63	1.67
2,453.0	6.20	116.30	2,446.5	-33.5	124.4	-123.5	1.70	1.56	7.19
2,548.0	5.80	115.40	2,540.9	-37.8	133.4	-132.3	0.43	-0.42	-0.95
2,644.0	5.80	114.10	2,636.4	-41.9	142.2	-141.0	0.14	0.00	-1.35
2,836.0	5.30	114.00	2,827.5	-49.4	159.1	-157.8	0.26	-0.26	-0.05
2,932.0	4.70	114.70	2,923.2	-52.9	166.8	-165.3	0.63	-0.63	0.73
3,026.0	4.60	115.70	3,016.9	-56.1	173.7	-172.1	0.14	-0.11	1.06
3,122.0	4.20	113.10	3,112.6	-59.2	180.4	-178.7	0.47	-0.42	-2.71
3,217.0	6.40	119.90	3,207.2	-63.2	188.1	-186.4	2.40	2.32	7.16
3,313.0	5.50	117.70	3,302.7	-68.0	196.9	-195.0	0.97	-0.94	-2.29
3,409.0	4.80	119.80	3,398.3	-72.1	204.4	-202.5	0.76	-0.73	2.19
3,504.0	6.90	113.80	3,492.8	-76.4	213.1	-211.0	2.30	2.21	-6.32
3,600.0	7.30	113.40	3,588.0	-81.1	224.0	-221.8	0.42	0.42	-0.42
3,695.0	7.40	112.90	3,682.3	-85.9	235.1	-232.8	0.12	0.11	-0.53
3,790.0	7.40	113.10	3,776.5	-90.7	246.4	-243.9	0.03	0.00	0.21
3,885.0	7.40	111.50	3,870.7	-95.3	257.7	-255.1	0.22	0.00	-1.68
3,981.0	6.80	111.20	3,965.9	-99.7	268.8	-266.1	0.63	-0.63	-0.31
4,077.0	6.70	117.70	4,061.3	-104.3	279.0	-276.2	0.80	-0.10	6.77
4,172.0	6.20	119.90	4,155.7	-109.5	288.4	-285.4	0.59	-0.53	2.32
4,268.0	5.40	119.10	4,251.2	-114.2	296.8	-293.7	0.84	-0.83	-0.83
4,363.0	4.50	118.00	4,345.8	-118.2	304.0	-300.8	0.95	-0.95	-1.16
4,459.0	3.90	115.50	4,441.6	-121.3	310.3	-307.0	0.65	-0.63	-2.60
4,554.0	3.50	115.00	4,536.4	-124.0	315.8	-312.5	0.42	-0.42	-0.53
4,650.0	3.20	114.80	4,632.2	-126.3	320.9	-317.5	0.31	-0.31	-0.21
4,746.0	5.20	96.70	4,727.9	-127.9	327.7	-324.2	2.47	2.08	-18.85
4,842.0	6.50	92.70	4,823.4	-128.7	337.4	-333.9	1.42	1.35	-4.17
4,938.0	6.00	92.00	4,918.9	-129.1	347.9	-344.4	0.53	-0.52	-0.73
5,033.0	5.80	90.90	5,013.4	-129.4	357.6	-354.1	0.24	-0.21	-1.16

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5,129.0	5.20	90.10	5,108.9	-129.5	366.8	-363.3	0.63	-0.63	-0.83	
5,224.0	4.30	89.70	5,203.6	-129.5	374.7	-371.2	0.95	-0.95	-0.42	
5,320.0	3.90	89.90	5,299.3	-129.4	381.6	-378.0	0.42	-0.42	0.21	
5,416.0	2.90	85.70	5,395.2	-129.2	387.2	-383.7	1.07	-1.04	-4.38	
5,512.0	2.90	84.80	5,491.1	-128.8	392.1	-388.6	0.05	0.00	-0.94	
5,607.0	2.70	88.10	5,585.9	-128.6	396.7	-393.2	0.27	-0.21	3.47	
5,703.0	2.40	82.50	5,681.8	-128.2	401.0	-397.5	0.41	-0.31	-5.83	
5,798.0	0.70	229.60	5,776.8	-128.3	402.5	-399.0	3.17	-1.79	154.84	
5,922.0	1.10	221.70	5,900.8	-129.7	401.1	-397.6	0.34	0.32	-6.37	
6,018.0	0.10	231.70	5,996.8	-130.5	400.5	-396.9	1.04	-1.04	10.42	
6,113.0	5.30	268.30	6,091.7	-130.6	396.0	-392.4	5.49	5.47	38.53	
6,209.0	14.00	256.30	6,186.2	-133.5	380.3	-376.6	9.25	9.06	-12.50	
6,305.0	18.90	260.90	6,278.3	-138.7	353.6	-349.8	5.28	5.10	4.79	
6,400.0	24.40	266.70	6,366.5	-142.3	318.8	-314.9	6.21	5.79	6.11	
6,495.0	33.60	265.30	6,449.5	-145.6	272.9	-269.0	9.71	9.68	-1.47	
6,591.0	39.30	269.90	6,526.7	-147.8	216.0	-212.0	6.58	5.94	4.79	
6,687.0	47.20	268.30	6,596.6	-148.9	150.3	-146.3	8.31	8.23	-1.67	
6,782.0	59.50	269.00	6,653.2	-150.7	74.2	-70.2	12.96	12.95	0.74	
6,878.0	67.40	272.30	6,696.1	-149.6	-11.6	15.5	8.78	8.23	3.44	
6,974.0	71.10	270.80	6,730.1	-147.2	-101.3	105.1	4.12	3.85	-1.56	
7,069.0	75.00	271.60	6,757.8	-145.3	-192.1	195.9	4.18	4.11	0.84	
7,165.0	78.20	269.90	6,780.0	-144.1	-285.5	289.2	3.75	3.33	-1.77	
7,261.0	88.00	271.60	6,791.6	-142.8	-380.7	384.3	10.36	10.21	1.77	
7,356.0	88.20	272.50	6,794.7	-139.4	-475.6	479.1	0.97	0.21	0.95	
7,452.0	90.40	270.90	6,795.9	-136.6	-571.5	574.9	2.83	2.29	-1.67	
7,548.0	90.60	270.90	6,795.1	-135.1	-667.5	670.8	0.21	0.21	0.00	
7,644.0	90.50	270.90	6,794.1	-133.6	-763.5	766.7	0.10	-0.10	0.00	
7,739.0	90.70	271.50	6,793.1	-131.6	-858.4	861.6	0.67	0.21	0.63	
7,834.0	88.60	268.30	6,793.7	-131.7	-953.4	956.5	4.03	-2.21	-3.37	
7,930.0	88.60	268.70	6,796.1	-134.3	-1,049.4	1,052.5	0.42	0.00	0.42	
8,025.0	88.50	268.10	6,798.5	-136.9	-1,144.3	1,147.5	0.64	-0.11	-0.63	
8,121.0	88.90	268.10	6,800.6	-140.1	-1,240.2	1,243.5	0.42	0.42	0.00	
8,217.0	90.70	268.70	6,801.0	-142.8	-1,336.2	1,339.5	1.98	1.88	0.63	
Deepest TVD Drilled - 6800.98' TVD										
8,313.0	90.50	268.10	6,800.0	-145.4	-1,432.1	1,435.5	0.66	-0.21	-0.63	
8,409.0	90.60	267.60	6,799.1	-149.0	-1,528.1	1,531.4	0.53	0.10	-0.52	
8,505.0	90.90	269.50	6,797.8	-151.5	-1,624.0	1,627.4	2.00	0.31	1.98	
8,601.0	90.80	269.90	6,796.4	-152.0	-1,720.0	1,723.4	0.43	-0.10	0.42	
8,696.0	90.80	269.90	6,795.0	-152.1	-1,815.0	1,818.4	0.00	0.00	0.00	
8,792.0	90.90	269.50	6,793.6	-152.6	-1,911.0	1,914.3	0.43	0.10	-0.42	
8,888.0	90.80	269.70	6,792.2	-153.3	-2,007.0	2,010.3	0.23	-0.10	0.21	
8,984.0	89.50	269.90	6,791.9	-153.7	-2,103.0	2,106.3	1.37	-1.35	0.21	
9,079.0	89.00	270.10	6,793.2	-153.7	-2,198.0	2,201.2	0.57	-0.53	0.21	

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Design:	Wellbore #1	Database:	US_EDM

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9,175.0	89.30	270.60	6,794.6	-153.1	-2,293.9	2,297.2	0.61	0.31	0.52
9,271.0	90.60	271.30	6,794.7	-151.5	-2,389.9	2,393.1	1.54	1.35	0.73
9,367.0	89.70	270.60	6,794.4	-149.9	-2,485.9	2,489.0	1.19	-0.94	-0.73
9,462.0	91.50	271.10	6,793.4	-148.5	-2,580.9	2,583.9	1.97	1.89	0.53
9,557.0	91.30	270.80	6,791.1	-146.9	-2,675.9	2,678.8	0.38	-0.21	-0.32
9,653.0	91.00	270.40	6,789.2	-145.9	-2,771.8	2,774.7	0.52	-0.31	-0.42
9,748.0	90.70	270.20	6,787.8	-145.4	-2,866.8	2,869.6	0.38	-0.32	-0.21
9,845.0	90.70	270.10	6,786.6	-145.1	-2,963.8	2,966.6	0.10	0.00	-0.10
9,941.0	90.30	269.00	6,785.8	-145.9	-3,059.8	3,062.6	1.22	-0.42	-1.15
10,037.0	89.40	268.80	6,786.0	-147.7	-3,155.8	3,158.6	0.96	-0.94	-0.21
10,133.0	90.60	270.90	6,786.0	-148.0	-3,251.8	3,254.5	2.52	1.25	2.19
10,229.0	90.40	270.80	6,785.2	-146.6	-3,347.8	3,350.4	0.23	-0.21	-0.10
10,325.0	90.00	270.10	6,784.8	-145.8	-3,443.8	3,446.4	0.84	-0.42	-0.73
10,421.0	89.80	269.90	6,785.0	-145.8	-3,539.8	3,542.4	0.29	-0.21	-0.21
10,517.0	89.60	269.00	6,785.5	-146.7	-3,635.7	3,638.3	0.96	-0.21	-0.94
10,613.0	91.20	269.20	6,784.8	-148.2	-3,731.7	3,734.3	1.68	1.67	0.21
10,709.0	91.20	269.40	6,782.8	-149.4	-3,827.7	3,830.3	0.21	0.00	0.21
10,805.0	91.60	268.80	6,780.5	-150.9	-3,923.7	3,926.3	0.75	0.42	-0.63
10,901.0	92.00	268.30	6,777.5	-153.4	-4,019.6	4,022.2	0.67	0.42	-0.52
10,996.0	91.10	270.60	6,774.9	-154.3	-4,114.5	4,117.2	2.60	-0.95	2.42
11,092.0	91.60	270.20	6,772.6	-153.6	-4,210.5	4,213.1	0.67	0.52	-0.42
11,188.0	89.30	270.40	6,771.9	-153.1	-4,306.5	4,309.0	2.40	-2.40	0.21
11,284.0	89.20	269.00	6,773.1	-153.6	-4,402.5	4,405.0	1.46	-0.10	-1.46
11,379.0	89.60	268.10	6,774.1	-156.0	-4,497.4	4,500.0	1.04	0.42	-0.95
11,475.0	89.00	270.40	6,775.3	-157.3	-4,593.4	4,596.0	2.48	-0.63	2.40
11,571.0	89.70	270.40	6,776.4	-156.6	-4,689.4	4,691.9	0.73	0.73	0.00
11,667.0	89.30	269.90	6,777.2	-156.3	-4,785.4	4,787.9	0.67	-0.42	-0.52
11,763.0	89.20	269.00	6,778.5	-157.3	-4,881.4	4,883.8	0.94	-0.10	-0.94
11,859.0	89.60	272.00	6,779.5	-156.4	-4,977.4	4,979.8	3.15	0.42	3.13
11,955.0	90.00	271.30	6,779.8	-153.7	-5,073.3	5,075.6	0.84	0.42	-0.73
12,051.0	89.40	270.80	6,780.3	-151.9	-5,169.3	5,171.5	0.81	-0.63	-0.52
12,146.0	89.60	269.20	6,781.2	-151.9	-5,264.3	5,266.5	1.70	0.21	-1.68
12,241.0	89.40	268.30	6,782.0	-154.0	-5,359.3	5,361.5	0.97	-0.21	-0.95
12,337.0	89.10	269.50	6,783.3	-155.8	-5,455.3	5,457.5	1.29	-0.31	1.25
12,432.0	89.40	268.50	6,784.5	-157.5	-5,550.2	5,552.5	1.10	0.32	-1.05
12,527.0	90.20	268.10	6,784.8	-160.3	-5,645.2	5,647.4	0.94	0.84	-0.42
12,622.0	91.00	268.10	6,783.8	-163.4	-5,740.1	5,742.4	0.84	0.84	0.00
12,645.0	91.20	268.30	6,783.4	-164.2	-5,763.1	5,765.4	1.23	0.87	0.87
12,702.0	91.20	268.30	6,782.2	-165.8	-5,820.1	5,822.4	0.00	0.00	0.00

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Cecil's Kersey Farm 17B-304
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-304	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	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 1635'FSL, 834'FWL - survey hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,388,582.41	3,256,119.84	40.396415	-104.580426
BHL 1510'FSL, 150'FWL - survey misses target center by 14.2ft at 12701.7ft MD (6782.2 TVD, -165.8 N, -5819.8 E) - Point	0.00	0.00	6,777.0	-152.7	-5,820.1	1,388,369.38	3,250,301.92	40.395994	-104.601321

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
+N/-S (ft)	+E/-W (ft)			
8,217.0	6,801.0	-142.8	-1,336.2	Deepest TVD Drilled - 6800.98' TVD

Checked By: _____	Approved By: _____	Date: _____
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