

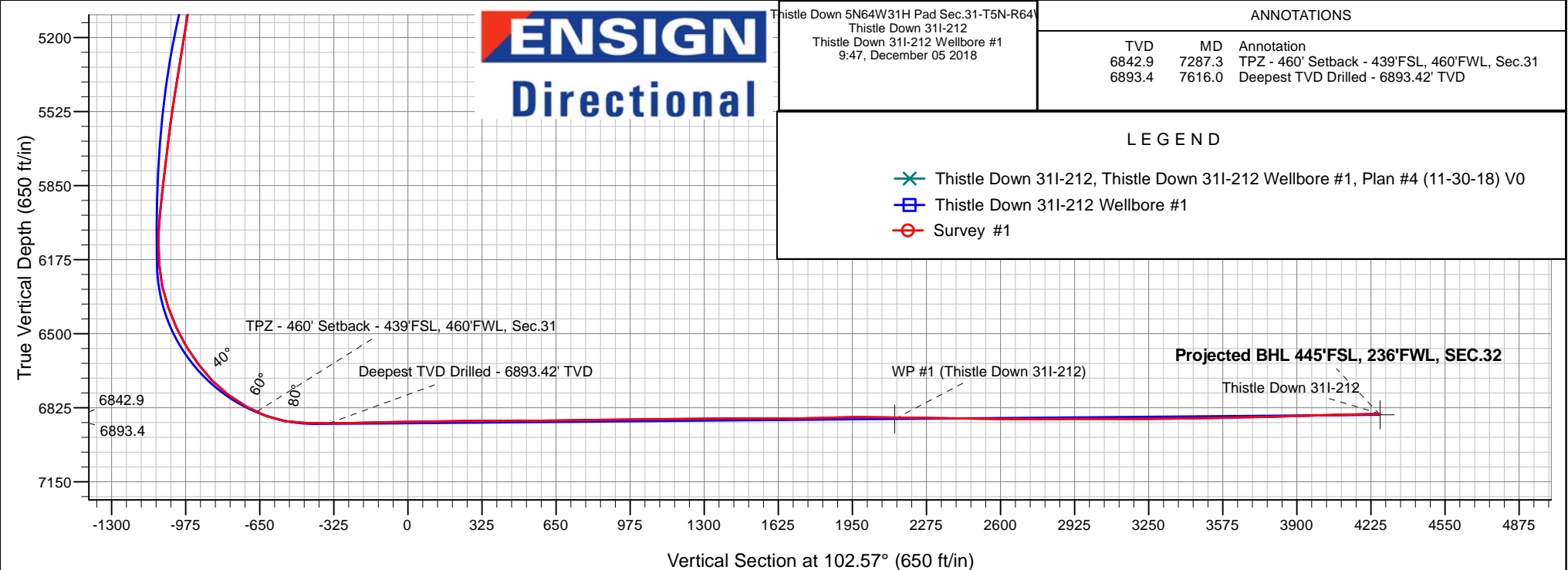
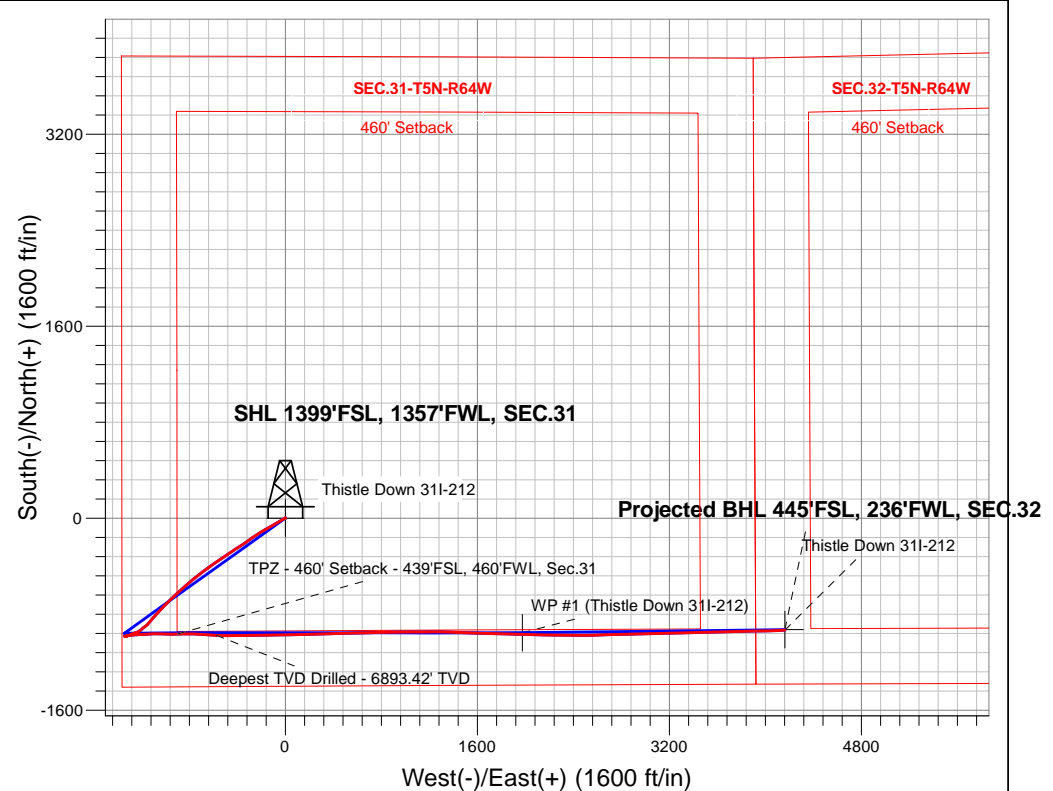
# PDC Energy Inc. DJ Basin

Well Name: **Thistle Down 311-212**

Surface Location: Thistle Down 5N64W31H Pad Sec.31-T5N-R64W  
North American Datum 1983 , US State Plane 1983, Colorado Northern Zone  
Ground Elevation: 4803.0  
+N/-S+E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 1372453.513251620.19 40.352270 -104.597170  
Original Well Elev WELL @ 4826.0ft (Original Well Elev)

## FINAL SURVEY

**Projected Bottom Hole Location**  
**12,355'MD 6851'TVD 934'S & 4162'E of SHL**  
**91.58 degree Incl @ 87.86 degree AZM**





## **PDC Energy Inc. DJ Basin**

**SEC.31-T5N-R64W**

**Thistle Down 5N64W31H Pad Sec.31-T5N-R64W**

**Thistle Down 31I-212**

**Thistle Down 31I-212 Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**05 December, 2018**

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Thistle Down 311-212
<b>Project:</b>	SEC.31-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4826.0ft (Original Well Elev)
<b>Site:</b>	Thistle Down 5N64W31H Pad Sec.31-T5N-R64W	<b>MD Reference:</b>	WELL @ 4826.0ft (Original Well Elev)
<b>Well:</b>	Thistle Down 311-212	<b>North Reference:</b>	True
<b>Wellbore:</b>	Thistle Down 311-212 Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Thistle Down 311-212 Wellbore #1	<b>Database:</b>	US_EDM

<b>Project</b>	SEC.31-T5N-R64W, Weld County, CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site	Thistle Down 5N64W31H Pad Sec.31-T5N-R64W				
Site Position:		Northing:	1,372,559.16 usft	Latitude:	40.352560
From:	Lat/Long	Easting:	3,251,619.12 usft	Longitude:	-104.597170
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.58 °

Well	Thistle Down 311-212					
Well Position	+N/-S	0.0 ft	Northing:	1,372,453.51 usft	Latitude:	40.352270
	+E/-W	0.0 ft	Easting:	3,251,620.19 usft	Longitude:	-104.597170
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,803.0 ft

<b>Wellbore</b>	Thistle Down 311-212 Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM	11/30/2018	8.17	66.83	52,188

Design	Thistle Down 311-212 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	102.57	

<b>Survey Program</b>	<b>Date</b>	12/5/2018			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
156.0	12,355.0	Survey #1 (Thistle Down 311-212 Wellbore	MWD	MWD - Standard	

<b>Survey</b>									
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	36.70	1.0	0.0	0.0	0.0	0.45	0.45	0.00
<b>SHL 1399'FSL, 1357'FWL, SEC.31</b>									
156.0	0.70	36.70	156.0	0.8	0.6	0.4	0.45	0.45	0.00
251.0	0.70	32.30	251.0	1.7	1.2	0.8	0.06	0.00	-4.63
346.0	0.70	22.80	346.0	2.7	1.8	1.1	0.12	0.00	-10.00
440.0	0.90	271.60	440.0	3.3	1.2	0.5	1.41	0.21	-118.30
536.0	3.40	242.00	535.9	2.0	-2.0	-2.4	2.77	2.60	-30.83
631.0	5.90	235.50	630.6	-2.1	-8.5	-7.9	2.69	2.63	-6.84

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Thistle Down 311-212
<b>Project:</b>	SEC.31-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4826.0ft (Original Well Elev)
<b>Site:</b>	Thistle Down 5N64W31H Pad Sec.31-T5N-R64W	<b>MD Reference:</b>	WELL @ 4826.0ft (Original Well Elev)
<b>Well:</b>	Thistle Down 311-212	<b>North Reference:</b>	True
<b>Wellbore:</b>	Thistle Down 311-212 Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Thistle Down 311-212 Wellbore #1	<b>Database:</b>	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)
727.0	8.90	235.70	725.8	-9.1	-18.7	-16.3	3.13	3.13	0.21
822.0	12.10	237.70	819.2	-18.6	-33.2	-28.4	3.39	3.37	2.11
918.0	15.10	241.20	912.5	-30.0	-52.7	-44.9	3.24	3.13	3.65
1,013.0	15.80	241.90	1,004.0	-42.0	-74.9	-64.0	0.76	0.74	0.74
1,109.0	15.80	240.30	1,096.4	-54.6	-97.8	-83.6	0.45	0.00	-1.67
1,204.0	15.70	240.80	1,187.8	-67.3	-120.3	-102.7	0.18	-0.11	0.53
1,299.0	16.00	238.90	1,279.2	-80.4	-142.7	-121.8	0.63	0.32	-2.00
1,395.0	16.10	239.40	1,371.5	-94.0	-165.5	-141.1	0.18	0.10	0.52
1,490.0	16.40	240.10	1,462.7	-107.4	-188.5	-160.6	0.38	0.32	0.74
1,586.0	16.10	238.40	1,554.9	-121.1	-211.6	-180.1	0.59	-0.31	-1.77
1,620.0	15.70	237.70	1,587.6	-126.0	-219.5	-186.8	1.30	-1.18	-2.06
1,870.0	15.62	235.67	1,828.3	-163.1	-275.8	-233.7	0.22	-0.03	-0.81
1,965.0	15.62	233.87	1,919.8	-177.8	-296.7	-250.9	0.51	0.00	-1.89
2,060.0	16.14	233.16	2,011.1	-193.3	-317.6	-267.9	0.58	0.55	-0.75
2,155.0	17.65	235.12	2,102.0	-209.4	-340.0	-286.3	1.70	1.59	2.06
2,251.0	20.11	236.88	2,192.9	-226.8	-365.8	-307.6	2.63	2.56	1.83
2,345.0	23.21	238.17	2,280.2	-245.4	-395.1	-332.2	3.34	3.30	1.37
2,465.0	23.14	237.26	2,390.5	-270.6	-435.0	-365.6	0.30	-0.06	-0.76
2,560.0	22.60	236.56	2,478.1	-290.8	-465.9	-391.4	0.64	-0.57	-0.74
2,654.0	21.88	235.88	2,565.1	-310.5	-495.5	-416.0	0.81	-0.77	-0.72
2,749.0	21.18	235.60	2,653.5	-330.2	-524.3	-439.9	0.74	-0.74	-0.29
2,845.0	21.22	234.96	2,743.0	-349.9	-552.8	-463.4	0.24	0.04	-0.67
2,940.0	21.18	235.20	2,831.5	-369.6	-581.0	-486.6	0.10	-0.04	0.25
3,035.0	21.12	234.26	2,920.1	-389.4	-609.0	-509.6	0.36	-0.06	-0.99
3,129.0	20.50	233.79	3,008.0	-409.0	-636.0	-531.7	0.68	-0.66	-0.50
3,225.0	23.16	233.85	3,097.1	-430.1	-664.8	-555.3	2.77	2.77	0.06
3,321.0	24.28	232.86	3,185.0	-453.1	-695.8	-580.5	1.24	1.17	-1.03
3,416.0	23.31	232.74	3,271.9	-476.3	-726.3	-605.2	1.02	-1.02	-0.13
3,511.0	22.18	230.97	3,359.5	-499.0	-755.2	-628.5	1.39	-1.19	-1.86
3,606.0	21.19	230.32	3,447.8	-521.2	-782.4	-650.1	1.07	-1.04	-0.68
3,702.0	20.03	228.61	3,537.7	-543.2	-808.1	-670.4	1.36	-1.21	-1.78
3,798.0	18.82	228.00	3,628.2	-564.4	-831.9	-689.1	1.28	-1.26	-0.64
3,893.0	20.78	228.98	3,717.6	-585.7	-856.0	-708.0	2.09	2.06	1.03
3,988.0	22.59	227.78	3,805.8	-609.1	-882.2	-728.5	1.96	1.91	-1.26
4,084.0	22.45	226.95	3,894.5	-634.0	-909.3	-749.5	0.36	-0.15	-0.86
4,180.0	22.30	226.97	3,983.3	-658.9	-936.0	-770.1	0.16	-0.16	0.02
4,276.0	21.74	225.96	4,072.3	-683.7	-962.1	-790.2	0.70	-0.58	-1.05
4,371.0	21.13	224.99	4,160.7	-708.0	-986.8	-809.0	0.74	-0.64	-1.02
4,500.0	20.12	224.00	4,281.5	-740.4	-1,018.7	-833.1	0.83	-0.78	-0.77

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Thistle Down 311-212
<b>Project:</b>	SEC.31-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4826.0ft (Original Well Elev)
<b>Site:</b>	Thistle Down 5N64W31H Pad Sec.31-T5N-R64W	<b>MD Reference:</b>	WELL @ 4826.0ft (Original Well Elev)
<b>Well:</b>	Thistle Down 311-212	<b>North Reference:</b>	True
<b>Wellbore:</b>	Thistle Down 311-212 Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Thistle Down 311-212 Wellbore #1	<b>Database:</b>	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)
4,562.0	19.75	223.34	4,339.7	-755.7	-1,033.3	-844.0	0.70	-0.60	-1.06
4,657.0	19.37	222.17	4,429.3	-779.1	-1,054.9	-860.0	0.57	-0.40	-1.23
4,752.0	18.91	221.79	4,519.0	-802.2	-1,075.7	-875.3	0.50	-0.48	-0.40
4,848.0	18.44	220.36	4,610.0	-825.4	-1,095.9	-890.0	0.68	-0.49	-1.49
4,943.0	17.57	220.89	4,700.3	-847.7	-1,115.0	-903.8	0.93	-0.92	0.56
5,039.0	16.88	220.20	4,792.0	-869.3	-1,133.5	-917.1	0.75	-0.72	-0.72
5,134.0	15.44	228.09	4,883.2	-888.3	-1,151.8	-930.8	2.76	-1.52	8.31
5,229.0	14.96	232.32	4,974.9	-904.2	-1,171.0	-946.0	1.27	-0.51	4.45
5,325.0	14.52	231.31	5,067.8	-919.3	-1,190.2	-961.5	0.53	-0.46	-1.05
5,420.0	13.88	231.68	5,159.9	-933.8	-1,208.4	-976.1	0.68	-0.67	0.39
5,516.0	11.98	243.20	5,253.4	-945.5	-1,226.3	-991.1	3.33	-1.98	12.00
5,611.0	10.70	252.31	5,346.6	-952.6	-1,243.5	-1,006.3	2.31	-1.35	9.59
5,707.0	10.28	251.61	5,441.0	-958.0	-1,260.1	-1,021.4	0.46	-0.44	-0.73
5,801.0	9.62	249.49	5,533.6	-963.4	-1,275.5	-1,035.1	0.80	-0.70	-2.26
5,897.0	9.06	247.95	5,628.3	-969.0	-1,290.0	-1,048.1	0.64	-0.58	-1.60
5,993.0	8.63	245.33	5,723.2	-974.9	-1,303.5	-1,060.0	0.61	-0.45	-2.73
6,088.0	8.05	244.10	5,817.2	-980.8	-1,316.0	-1,070.9	0.64	-0.61	-1.29
6,183.0	6.81	269.33	5,911.4	-983.7	-1,327.6	-1,081.6	3.64	-1.31	26.56
6,279.0	4.04	273.50	6,006.9	-983.6	-1,336.7	-1,090.5	2.91	-2.89	4.34
6,374.0	0.62	306.97	6,101.8	-983.1	-1,340.4	-1,094.3	3.73	-3.60	35.23
6,470.0	4.56	83.25	6,197.8	-982.3	-1,337.1	-1,091.1	5.24	4.10	141.96
6,565.0	12.85	82.26	6,291.6	-980.5	-1,322.8	-1,077.7	8.73	8.73	-1.04
6,660.0	20.30	82.93	6,382.6	-977.0	-1,296.0	-1,052.2	7.84	7.84	0.71
6,756.0	25.58	85.73	6,470.9	-973.4	-1,258.7	-1,016.6	5.61	5.50	2.92
6,852.0	32.18	85.38	6,555.0	-969.8	-1,212.5	-972.3	6.88	6.88	-0.36
6,947.0	37.73	86.24	6,632.8	-965.8	-1,158.3	-920.2	5.86	5.84	0.91
7,043.0	43.81	89.42	6,705.5	-963.6	-1,095.7	-859.6	6.69	6.33	3.31
7,138.0	54.02	92.93	6,767.8	-965.2	-1,024.2	-789.5	11.10	10.75	3.69
7,234.0	61.61	89.21	6,818.9	-966.6	-943.0	-710.0	8.56	7.91	-3.88
7,287.3	65.01	88.48	6,842.9	-965.7	-895.4	-663.7	6.50	6.39	-1.38
TPZ - 460' Setback - 439'FSL, 460'FWL, Sec.31									
7,329.0	67.68	87.93	6,859.6	-964.5	-857.3	-626.7	6.50	6.39	-1.31
7,424.0	82.00	92.39	6,884.4	-964.8	-765.8	-537.4	15.74	15.07	4.69
7,520.0	88.65	93.79	6,892.2	-970.0	-670.3	-443.1	7.08	6.93	1.46
7,568.9	89.30	93.79	6,893.1	-973.2	-621.6	-394.8	1.32	1.32	0.00
LPL 450'FSL, 735'FWL, SEC.31									
7,616.0	89.92	93.79	6,893.4	-976.3	-574.6	-348.2	1.32	1.32	0.00
Deepest TVD Drilled - 6893.42' TVD									
7,711.0	91.36	89.42	6,892.4	-979.0	-479.6	-255.0	4.84	1.52	-4.60
7,806.0	91.55	89.31	6,889.9	-977.9	-384.7	-162.6	0.23	0.20	-0.12

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Thistle Down 311-212
<b>Project:</b>	SEC.31-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4826.0ft (Original Well Elev)
<b>Site:</b>	Thistle Down 5N64W31H Pad Sec.31-T5N-R64W	<b>MD Reference:</b>	WELL @ 4826.0ft (Original Well Elev)
<b>Well:</b>	Thistle Down 311-212	<b>North Reference:</b>	True
<b>Wellbore:</b>	Thistle Down 311-212 Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Thistle Down 311-212 Wellbore #1	<b>Database:</b>	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)
7,902.0	90.79	88.75	6,888.0	-976.3	-288.7	-69.2	0.98	-0.79	-0.58
7,997.0	91.08	89.17	6,886.4	-974.6	-193.7	23.1	0.54	0.31	0.44
8,093.0	90.61	89.38	6,885.0	-973.4	-97.8	116.5	0.54	-0.49	0.22
8,188.0	90.66	89.02	6,884.0	-972.1	-2.8	208.9	0.38	0.05	-0.38
8,284.0	90.80	88.60	6,882.7	-970.1	93.2	302.1	0.46	0.15	-0.44
8,380.0	90.24	88.25	6,881.9	-967.4	189.2	395.2	0.69	-0.58	-0.36
8,475.0	89.74	88.73	6,881.9	-964.9	284.1	487.4	0.73	-0.53	0.51
8,571.0	90.23	88.81	6,881.9	-962.9	380.1	580.6	0.52	0.51	0.08
8,666.0	91.02	88.73	6,880.9	-960.8	475.1	672.8	0.84	0.83	-0.08
8,762.0	91.11	88.34	6,879.1	-958.4	571.0	766.0	0.42	0.09	-0.41
8,857.0	90.13	87.70	6,878.1	-955.1	666.0	857.9	1.23	-1.03	-0.67
8,953.0	91.02	88.25	6,877.1	-951.7	761.9	950.8	1.09	0.93	0.57
9,048.0	90.41	89.08	6,875.9	-949.5	856.9	1,043.0	1.08	-0.64	0.87
9,144.0	90.52	90.29	6,875.1	-949.0	952.9	1,136.6	1.27	0.11	1.26
9,239.0	90.62	89.94	6,874.2	-949.1	1,047.9	1,229.3	0.38	0.11	-0.37
9,335.0	90.62	89.28	6,873.2	-948.5	1,143.8	1,322.9	0.69	0.00	-0.69
9,430.0	90.55	89.93	6,872.2	-947.8	1,238.8	1,415.5	0.69	-0.07	0.68
9,526.0	89.72	91.68	6,872.0	-949.2	1,334.8	1,509.4	2.02	-0.86	1.82
9,621.0	89.81	91.38	6,872.3	-951.7	1,429.8	1,602.7	0.33	0.09	-0.32
9,717.0	90.58	92.42	6,872.0	-954.9	1,525.7	1,697.0	1.35	0.80	1.08
9,813.0	91.52	92.12	6,870.3	-958.7	1,621.6	1,791.5	1.03	0.98	-0.31
9,908.0	91.78	92.32	6,867.5	-962.4	1,716.5	1,884.9	0.35	0.27	0.21
10,002.0	89.78	91.42	6,866.2	-965.5	1,810.5	1,977.2	2.33	-2.13	-0.96
10,098.0	89.29	90.85	6,867.0	-967.4	1,906.4	2,071.3	0.78	-0.51	-0.59
10,166.1	89.22	91.44	6,867.9	-968.7	1,974.5	2,138.0	0.87	-0.11	0.86
<b>WP #1 (Thistle Down 311-212)</b>									
10,193.0	89.19	91.67	6,868.3	-969.4	2,001.4	2,164.4	0.87	-0.11	0.86
10,290.0	89.20	91.03	6,869.6	-971.7	2,098.4	2,259.6	0.66	0.01	-0.66
10,385.0	89.18	91.22	6,871.0	-973.6	2,193.3	2,352.7	0.20	-0.02	0.20
10,481.0	88.98	90.63	6,872.5	-975.1	2,289.3	2,446.7	0.65	-0.21	-0.61
10,576.0	89.07	90.70	6,874.1	-976.2	2,384.3	2,539.6	0.12	0.09	0.07
10,672.0	90.32	89.21	6,874.7	-976.2	2,480.3	2,633.3	2.03	1.30	-1.55
10,767.0	90.46	88.25	6,874.0	-974.1	2,575.3	2,725.6	1.02	0.15	-1.01
10,863.0	89.90	88.27	6,873.7	-971.1	2,671.2	2,818.6	0.58	-0.58	0.02
10,958.0	90.05	88.81	6,873.8	-968.7	2,766.2	2,910.7	0.59	0.16	0.57
11,054.0	90.01	88.94	6,873.7	-966.8	2,862.2	3,004.0	0.14	-0.04	0.14
11,150.0	90.08	88.65	6,873.6	-964.8	2,958.1	3,097.2	0.31	0.07	-0.30
11,245.0	90.17	88.23	6,873.4	-962.2	3,053.1	3,189.4	0.45	0.09	-0.44
11,341.0	90.24	88.63	6,873.1	-959.6	3,149.1	3,282.5	0.42	0.07	0.42

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Thistle Down 311-212
<b>Project:</b>	SEC.31-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4826.0ft (Original Well Elev)
<b>Site:</b>	Thistle Down 5N64W31H Pad Sec.31-T5N-R64W	<b>MD Reference:</b>	WELL @ 4826.0ft (Original Well Elev)
<b>Well:</b>	Thistle Down 311-212	<b>North Reference:</b>	True
<b>Wellbore:</b>	Thistle Down 311-212 Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Thistle Down 311-212 Wellbore #1	<b>Database:</b>	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)	
11,436.0	90.41	87.95	6,872.5	-956.8	3,244.0	3,374.5	0.74	0.18	-0.72	
11,532.0	90.78	88.79	6,871.5	-954.0	3,340.0	3,467.6	0.96	0.39	0.88	
11,627.0	91.09	88.77	6,870.0	-952.0	3,435.0	3,559.8	0.33	0.33	-0.02	
11,723.0	91.62	88.76	6,867.7	-950.0	3,530.9	3,653.0	0.55	0.55	-0.01	
11,819.0	91.59	88.67	6,865.0	-947.8	3,626.8	3,746.2	0.10	-0.03	-0.09	
11,914.0	91.58	88.97	6,862.4	-945.8	3,721.8	3,838.4	0.32	-0.01	0.32	
12,010.0	91.43	88.71	6,859.9	-943.9	3,817.7	3,931.7	0.31	-0.16	-0.27	
12,106.0	91.33	88.51	6,857.6	-941.6	3,913.7	4,024.8	0.23	-0.10	-0.21	
12,202.0	91.27	88.45	6,855.4	-939.0	4,009.6	4,117.9	0.09	-0.06	-0.06	
12,295.0	91.58	87.86	6,853.1	-936.0	4,102.5	4,207.9	0.72	0.33	-0.63	
12,355.0	91.58	87.86	6,851.4	-933.8	4,162.5	4,265.9	0.00	0.00	0.00	
Projected BHL 445'FSL, 236'FWL, SEC.32										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
SHL 1399'FSL, 1357'FW - hit/miss target - Shape - Point	0.00	0.00	1.0	0.0	0.0	1,372,453.52	3,251,620.19	40.352270	-104.597170	
Projected BHL 445'FSL, - survey misses target center by 7.0ft at 12355.0ft MD (6851.4 TVD, -933.8 N, 4162.5 E) - Point	0.00	0.00	6,856.0	-928.5	4,163.0	1,371,567.45	3,255,792.25	40.349720	-104.582235	
WP #1 (Thistle Down 31 - survey misses target center by 14.8ft at 10166.1ft MD (6867.9 TVD, -968.7 N, 1974.5 E) - Point	0.00	0.00	6,874.3	-955.4	1,974.7	1,371,518.30	3,253,604.41	40.349647	-104.590086	

Survey Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
7,287.3	6,842.9	-965.7	-895.4	TPZ - 460' Setback - 439'FSL, 460'FWL, Sec.31	
7,616.0	6,893.4	-976.3	-574.6	Deepest TVD Drilled - 6893.42' TVD	

Checked By: _____	Approved By: _____	Date: _____
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