

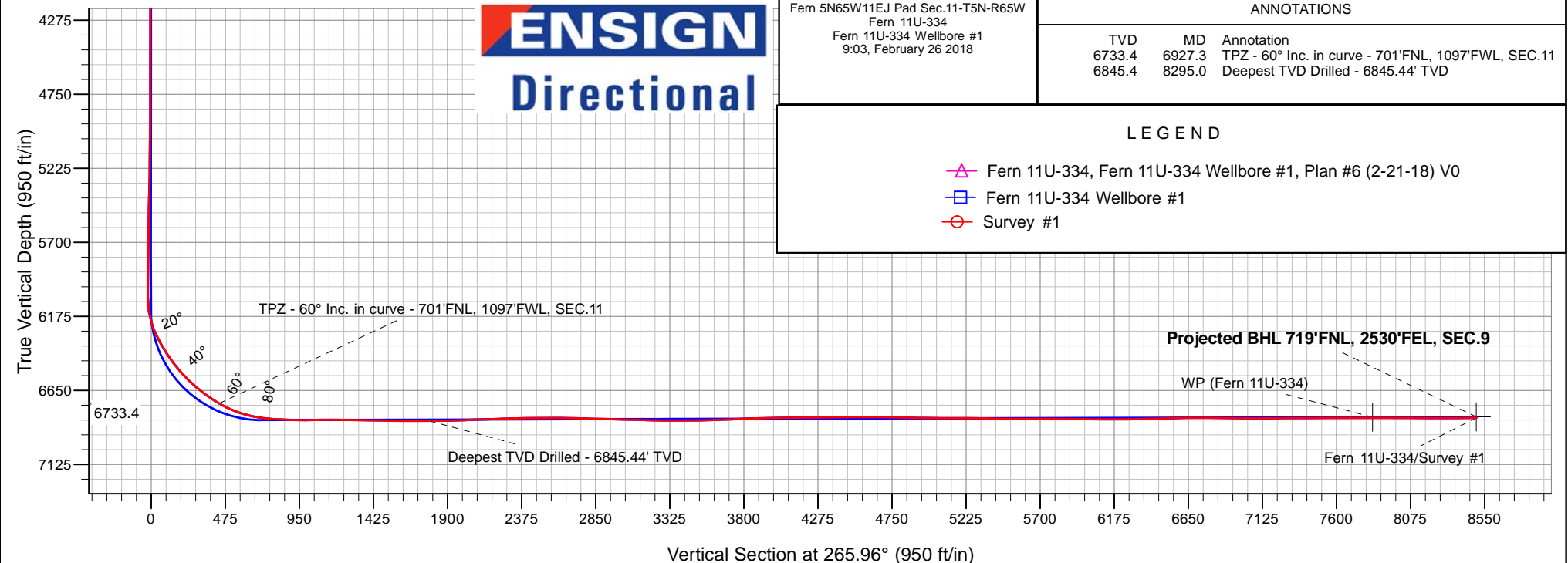
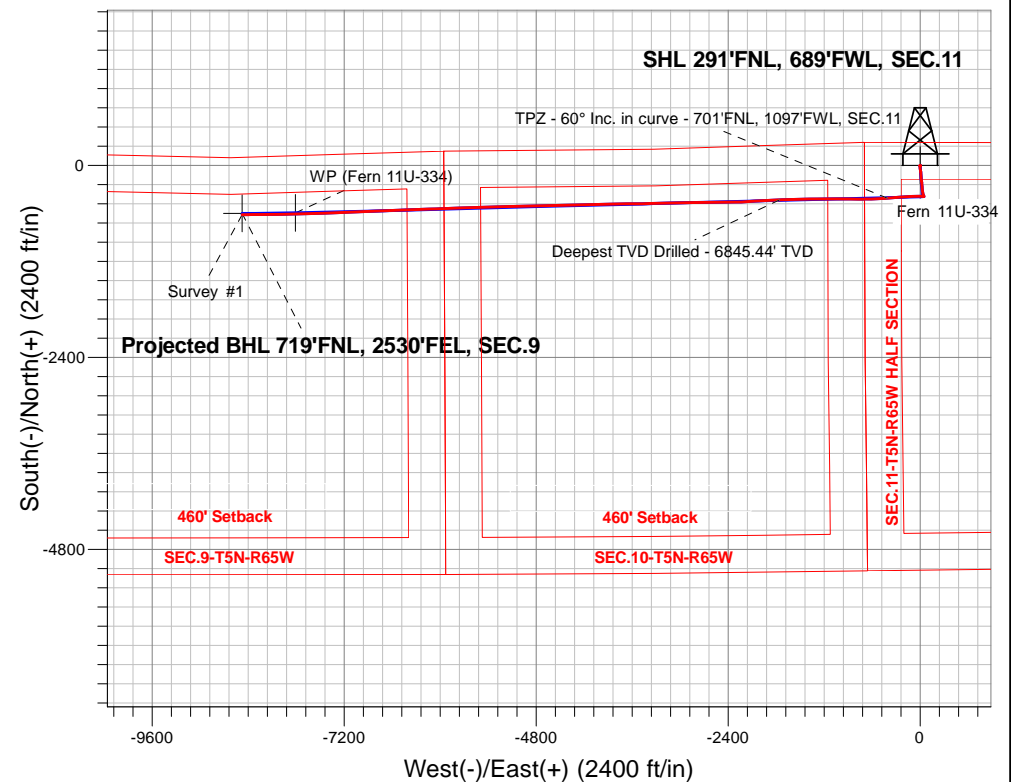
# PDC Energy Inc. DJ Basin

Well Name: **Fern 11U-334**

Surface Location: Fern 5N65W11EJ Pad Sec.11-T5N-R65W  
North American Datum 1983 , US State Plane 1983, Colorado Northern Zone  
Ground Elevation: 4619.0  
+N/-S+E/-W Northing Easting Latitude Longitude Slot  
0.0 0.01397199.293240103.65 40.420509 -104.637626  
Original Well Elev WELL @ 4642.0ft (Original Well Elev)

## FINAL SURVEY

**Projected Bottom Hole Location**  
**15,017'MD 6825'TVD 617'S & 8475'W of SHL**  
**90.9 degree Incl @ 268.9 degree AZM**





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

**SEC.11-T5N-R65W**

**Fern 5N65W11EJ Pad Sec.11-T5N-R65W**

**Fern 11U-334**

**Fern 11U-334 Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**26 February, 2018**

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Fern 11U-334
<b>Project:</b>	SEC.11-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4642.0ft (Original Well Elev)
<b>Site:</b>	Fern 5N65W11EJ Pad Sec.11-T5N-R65W	<b>MD Reference:</b>	WELL @ 4642.0ft (Original Well Elev)
<b>Well:</b>	Fern 11U-334	<b>North Reference:</b>	True
<b>Wellbore:</b>	Fern 11U-334 Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Fern 11U-334 Wellbore #1	<b>Database:</b>	US_EDM

<b>Project</b>	SEC.11-T5N-R65W, 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		Fern 5N65W11EJ Pad Sec.11-T5N-R65W			
Site Position:		Northing:	1,397,139.19 usft	Latitude:	40.420344
From:	Lat/Long	Easting:	3,240,103.68 usft	Longitude:	-104.637628
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.56 °

Well	Fern 11U-334					
Well Position	+N/-S	0.0 ft	Northing:	1,397,199.29 usft	Latitude:	40.420509
	+E/-W	0.0 ft	Easting:	3,240,103.65 usft	Longitude:	-104.637626
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,619.0 ft

<b>Wellbore</b>	Fern 11U-334 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>
	IGRF2010	2/21/2018	7.89	66.85	52,452

<b>Design</b>	Fern 11U-334 Wellbore #1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	265.96	

<b>Survey Program</b>	<b>Date</b>	2/26/2018			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
152.0	15,017.0	Survey #1 (Fern 11U-334 Wellbore #1)	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	79.40	1.0	0.0	0.0	0.0	0.20	0.20	0.00	
<b>SHL 291'FNL, 689'FWL, SEC.11</b>										
152.0	0.30	79.40	152.0	0.1	0.4	-0.4	0.20	0.20	0.00	
248.0	0.40	129.20	248.0	-0.1	0.9	-0.9	0.32	0.10	51.88	
343.0	0.40	143.40	343.0	-0.6	1.4	-1.3	0.10	0.00	14.95	
439.0	0.30	161.50	439.0	-1.1	1.6	-1.6	0.15	-0.10	18.85	
534.0	0.40	104.20	534.0	-1.4	2.0	-1.9	0.37	0.11	-60.32	
629.0	0.70	159.60	629.0	-2.0	2.6	-2.4	0.61	0.32	58.32	
725.0	1.20	180.30	725.0	-3.6	2.8	-2.5	0.62	0.52	21.56	
820.0	1.20	160.80	820.0	-5.5	3.1	-2.7	0.43	0.00	-20.53	

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Fern 11U-334
<b>Project:</b>	SEC.11-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4642.0ft (Original Well Elev)
<b>Site:</b>	Fern 5N65W11EJ Pad Sec.11-T5N-R65W	<b>MD Reference:</b>	WELL @ 4642.0ft (Original Well Elev)
<b>Well:</b>	Fern 11U-334	<b>North Reference:</b>	True
<b>Wellbore:</b>	Fern 11U-334 Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Fern 11U-334 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)
915.0	0.40	254.00	914.9	-6.5	3.1	-2.6	1.35	-0.84	98.11
1,011.0	0.40	292.00	1,010.9	-6.5	2.5	-2.0	0.27	0.00	39.58
1,106.0	0.40	305.50	1,105.9	-6.2	1.9	-1.4	0.10	0.00	14.21
1,201.0	0.40	290.20	1,200.9	-5.9	1.3	-0.9	0.11	0.00	-16.11
1,297.0	0.40	299.30	1,296.9	-5.6	0.7	-0.3	0.07	0.00	9.48
1,392.0	0.40	294.10	1,391.9	-5.3	0.1	0.3	0.04	0.00	-5.47
1,488.0	0.50	292.50	1,487.9	-5.0	-0.6	0.9	0.10	0.10	-1.67
1,583.0	0.50	303.40	1,582.9	-4.6	-1.3	1.6	0.10	0.00	11.47
1,678.0	0.40	258.90	1,677.9	-4.5	-2.0	2.3	0.37	-0.11	-46.84
1,774.0	2.50	190.40	1,773.9	-6.6	-2.7	3.2	2.48	2.19	-71.35
1,868.0	4.20	169.60	1,867.7	-12.0	-2.5	3.3	2.20	1.81	-22.13
1,964.0	6.50	176.60	1,963.3	-20.9	-1.5	3.0	2.49	2.40	7.29
2,060.0	6.30	173.30	2,058.7	-31.5	-0.6	2.8	0.44	-0.21	-3.44
2,155.0	5.70	169.10	2,153.2	-41.3	0.9	2.0	0.78	-0.63	-4.42
2,250.0	5.40	170.10	2,247.7	-50.4	2.6	1.0	0.33	-0.32	1.05
2,345.0	5.00	169.30	2,342.4	-58.8	4.1	0.0	0.43	-0.42	-0.84
2,441.0	5.10	170.00	2,438.0	-67.2	5.7	-0.9	0.12	0.10	0.73
2,536.0	4.50	172.90	2,532.6	-75.0	6.9	-1.5	0.68	-0.63	3.05
2,631.0	7.30	178.20	2,627.1	-84.7	7.5	-1.5	3.00	2.95	5.58
2,727.0	7.10	176.50	2,722.4	-96.8	8.1	-1.2	0.30	-0.21	-1.77
2,822.0	7.00	175.80	2,816.7	-108.4	8.8	-1.2	0.14	-0.11	-0.74
2,918.0	6.80	175.80	2,912.0	-119.9	9.7	-1.2	0.21	-0.21	0.00
3,014.0	6.60	174.90	3,007.3	-131.1	10.6	-1.3	0.24	-0.21	-0.94
3,109.0	6.40	174.70	3,101.7	-141.8	11.6	-1.5	0.21	-0.21	-0.21
3,204.0	6.20	175.20	3,196.1	-152.2	12.5	-1.7	0.22	-0.21	0.53
3,300.0	6.00	175.60	3,291.6	-162.3	13.3	-1.8	0.21	-0.21	0.42
3,394.0	5.70	173.70	3,385.1	-171.9	14.2	-2.0	0.38	-0.32	-2.02
3,490.0	5.50	171.70	3,480.6	-181.1	15.4	-2.6	0.29	-0.21	-2.08
3,585.0	5.10	169.80	3,575.2	-189.8	16.8	-3.4	0.46	-0.42	-2.00
3,681.0	5.00	170.30	3,670.9	-198.1	18.2	-4.2	0.11	-0.10	0.52
3,776.0	6.10	176.50	3,765.4	-207.3	19.2	-4.6	1.32	1.16	6.53
3,872.0	5.80	177.20	3,860.9	-217.2	19.8	-4.4	0.32	-0.31	0.73
3,967.0	5.80	173.70	3,955.4	-226.8	20.6	-4.5	0.37	0.00	-3.68
4,063.0	5.50	175.20	4,050.9	-236.2	21.5	-4.8	0.35	-0.31	1.56
4,158.0	5.60	174.40	4,145.5	-245.3	22.3	-4.9	0.13	0.11	-0.84
4,253.0	5.50	173.80	4,240.0	-254.4	23.3	-5.2	0.12	-0.11	-0.63
4,349.0	5.50	175.40	4,335.6	-263.6	24.1	-5.5	0.16	0.00	1.67
4,445.0	5.20	174.50	4,431.2	-272.5	24.9	-5.6	0.32	-0.31	-0.94
4,541.0	4.90	173.80	4,526.8	-280.9	25.8	-5.9	0.32	-0.31	-0.73
4,636.0	4.80	175.90	4,621.5	-288.9	26.5	-6.0	0.21	-0.11	2.21
4,732.0	6.20	176.50	4,717.0	-298.1	27.1	-6.0	1.46	1.46	0.63
4,828.0	5.80	174.70	4,812.5	-308.1	27.9	-6.1	0.46	-0.42	-1.88
4,923.0	5.30	173.10	4,907.1	-317.2	28.8	-6.4	0.55	-0.53	-1.68

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<b>Site:</b>	Fern 5N65W11EJ Pad Sec.11-T5N-R65W	<b>MD Reference:</b>	WELL @ 4642.0ft (Original Well Elev)
<b>Well:</b>	Fern 11U-334	<b>North Reference:</b>	True
<b>Wellbore:</b>	Fern 11U-334 Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Fern 11U-334 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)
5,019.0	5.50	172.40	5,002.6	-326.2	30.0	-6.9	0.22	0.21	-0.73
5,114.0	5.00	168.40	5,097.2	-334.8	31.4	-7.7	0.65	-0.53	-4.21
5,210.0	5.00	167.50	5,192.9	-343.0	33.1	-8.9	0.08	0.00	-0.94
5,305.0	4.70	162.60	5,287.5	-350.7	35.2	-10.4	0.54	-0.32	-5.16
5,401.0	4.50	158.00	5,383.2	-358.0	37.8	-12.5	0.44	-0.21	-4.79
5,496.0	4.50	162.20	5,477.9	-365.0	40.3	-14.5	0.35	0.00	4.42
5,592.0	3.90	164.70	5,573.7	-371.7	42.3	-16.0	0.65	-0.63	2.60
5,688.0	3.50	162.60	5,669.5	-377.6	44.1	-17.3	0.44	-0.42	-2.19
5,783.0	2.70	159.60	5,764.3	-382.5	45.7	-18.6	0.86	-0.84	-3.16
5,878.0	2.20	156.60	5,859.2	-386.3	47.2	-19.9	0.54	-0.53	-3.16
5,973.0	1.40	147.60	5,954.2	-388.9	48.6	-21.0	0.89	-0.84	-9.47
6,069.0	0.40	175.10	6,050.2	-390.3	49.2	-21.6	1.11	-1.04	28.65
6,164.0	8.00	280.70	6,144.9	-389.4	42.8	-15.2	8.54	8.00	111.16
6,259.0	20.50	276.00	6,236.8	-386.4	19.6	7.7	13.20	13.16	-4.95
6,355.0	28.70	269.80	6,324.0	-384.7	-20.2	47.3	8.94	8.54	-6.46
6,450.0	32.40	267.50	6,405.8	-385.9	-68.5	95.5	4.08	3.89	-2.42
6,545.0	37.40	267.00	6,483.7	-388.5	-122.7	149.8	5.27	5.26	-0.53
6,641.0	43.70	266.30	6,556.6	-392.2	-185.0	212.2	6.58	6.56	-0.73
6,737.0	49.00	265.10	6,622.8	-397.4	-254.3	281.7	5.59	5.52	-1.25
6,833.0	54.40	265.20	6,682.3	-403.8	-329.3	357.0	5.63	5.63	0.10
6,927.3	60.00	265.79	6,733.4	-410.0	-408.3	436.2	5.96	5.94	0.63
TPZ - 60° Inc. in curve - 701'FNL, 1097'FWL, SEC.11									
6,929.0	60.10	265.80	6,734.2	-410.1	-409.8	437.7	5.96	5.94	0.59
7,024.0	67.20	267.00	6,776.4	-415.4	-494.7	522.7	7.56	7.47	1.26
7,120.0	75.20	269.30	6,807.3	-418.3	-585.4	613.5	8.64	8.33	2.40
7,215.0	82.20	268.90	6,825.9	-419.8	-678.5	706.4	7.38	7.37	-0.42
7,224.9	82.73	269.07	6,827.2	-419.9	-688.3	716.2	5.57	5.31	1.68
LPL 702'FNL, 0'FEL, SEC.10									
7,311.0	87.30	270.50	6,834.7	-420.3	-774.1	801.8	5.57	5.31	1.67
7,406.0	87.80	270.50	6,838.7	-419.4	-869.0	896.4	0.53	0.53	0.00
7,501.0	90.60	270.20	6,840.1	-418.9	-964.0	991.1	2.96	2.95	-0.32
7,596.0	90.60	270.20	6,839.1	-418.5	-1,058.9	1,085.8	0.00	0.00	0.00
7,692.0	89.90	270.20	6,838.6	-418.2	-1,154.9	1,181.6	0.73	-0.73	0.00
7,817.0	89.30	269.60	6,839.5	-418.4	-1,279.9	1,306.3	0.68	-0.48	-0.48
7,913.0	88.90	268.90	6,841.0	-419.7	-1,375.9	1,402.1	0.84	-0.42	-0.73
8,008.0	88.50	268.90	6,843.2	-421.5	-1,470.9	1,496.9	0.42	-0.42	0.00
8,104.0	90.00	268.60	6,844.4	-423.6	-1,566.8	1,592.8	1.59	1.56	-0.31
8,199.0	89.80	267.90	6,844.6	-426.5	-1,661.8	1,687.7	0.77	-0.21	-0.74
8,295.0	89.20	266.60	6,845.4	-431.1	-1,757.7	1,783.7	1.49	-0.63	-1.35
Deepest TVD Drilled - 6845.44' TVD									
8,390.0	91.80	267.50	6,844.6	-436.0	-1,852.5	1,878.7	2.90	2.74	0.95
8,485.0	92.10	267.20	6,841.4	-440.4	-1,947.4	1,973.6	0.45	0.32	-0.32
8,581.0	91.90	267.00	6,838.0	-445.2	-2,043.2	2,069.5	0.29	-0.21	-0.21
8,677.0	92.20	266.50	6,834.6	-450.7	-2,139.0	2,165.4	0.61	0.31	-0.52

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<b>Site:</b>	Fern 5N65W11EJ Pad Sec.11-T5N-R65W	<b>MD Reference:</b>	WELL @ 4642.0ft (Original Well Elev)
<b>Well:</b>	Fern 11U-334	<b>North Reference:</b>	True
<b>Wellbore:</b>	Fern 11U-334 Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Fern 11U-334 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)	
8,773.0	92.50	266.80	6,830.7	-456.3	-2,234.7	2,261.4	0.44	0.31	0.31	
8,868.0	90.10	268.90	6,828.5	-459.8	-2,329.6	2,356.3	3.36	-2.53	2.21	
8,964.0	90.60	269.50	6,827.9	-461.2	-2,425.6	2,452.1	0.81	0.52	0.63	
9,059.0	91.20	269.80	6,826.4	-461.8	-2,520.6	2,546.9	0.71	0.63	0.32	
9,155.0	88.70	270.20	6,826.5	-461.8	-2,616.6	2,642.7	2.64	-2.60	0.42	
9,250.0	88.30	269.50	6,829.0	-462.0	-2,711.6	2,737.4	0.85	-0.42	-0.74	
9,346.0	88.50	269.30	6,831.7	-463.0	-2,807.5	2,833.2	0.29	0.21	-0.21	
9,441.0	88.60	268.90	6,834.1	-464.5	-2,902.5	2,928.0	0.43	0.11	-0.42	
9,536.0	88.50	268.40	6,836.5	-466.7	-2,997.4	3,022.9	0.54	-0.11	-0.53	
9,631.0	88.50	268.00	6,839.0	-469.7	-3,092.4	3,117.8	0.42	0.00	-0.42	
9,727.0	88.40	267.90	6,841.6	-473.2	-3,188.3	3,213.7	0.15	-0.10	-0.10	
9,822.0	89.90	269.30	6,843.0	-475.5	-3,283.2	3,308.6	2.16	1.58	1.47	
9,918.0	89.60	268.90	6,843.4	-477.0	-3,379.2	3,404.4	0.52	-0.31	-0.42	
10,013.0	91.80	269.80	6,842.2	-478.1	-3,474.2	3,499.2	2.50	2.32	0.95	
10,109.0	91.70	269.60	6,839.3	-478.6	-3,570.1	3,595.0	0.23	-0.10	-0.21	
10,204.0	91.90	269.50	6,836.3	-479.3	-3,665.1	3,689.8	0.24	0.21	-0.11	
10,300.0	92.00	269.10	6,833.1	-480.5	-3,761.0	3,785.5	0.43	0.10	-0.42	
10,395.0	92.00	268.20	6,829.7	-482.7	-3,855.9	3,880.4	0.95	0.00	-0.95	
10,490.0	92.40	268.00	6,826.1	-485.9	-3,950.8	3,975.2	0.47	0.42	-0.21	
10,586.0	89.90	269.80	6,824.2	-487.7	-4,046.8	4,071.1	3.21	-2.60	1.88	
10,680.0	90.20	268.90	6,824.1	-488.8	-4,140.8	4,164.9	1.01	0.32	-0.96	
10,776.0	90.20	268.90	6,823.7	-490.6	-4,236.7	4,260.8	0.00	0.00	0.00	
10,871.0	90.70	268.20	6,823.0	-493.0	-4,331.7	4,355.7	0.91	0.53	-0.74	
10,967.0	90.70	268.00	6,821.8	-496.2	-4,427.6	4,451.6	0.21	0.00	-0.21	
11,062.0	91.10	267.70	6,820.3	-499.8	-4,522.6	4,546.6	0.53	0.42	-0.32	
11,158.0	88.70	269.30	6,820.5	-502.3	-4,618.5	4,642.4	3.00	-2.50	1.67	
11,254.0	88.90	268.60	6,822.5	-504.0	-4,714.5	4,738.3	0.76	0.21	-0.73	
11,349.0	89.20	268.20	6,824.1	-506.7	-4,809.4	4,833.2	0.53	0.32	-0.42	
11,444.0	88.60	267.50	6,825.9	-510.2	-4,904.3	4,928.1	0.97	-0.63	-0.74	
11,540.0	89.80	269.30	6,827.3	-512.9	-5,000.3	5,024.0	2.25	1.25	1.88	
11,635.0	89.60	268.90	6,827.8	-514.4	-5,095.3	5,118.9	0.47	-0.21	-0.42	
11,731.0	89.60	268.60	6,828.4	-516.5	-5,191.3	5,214.8	0.31	0.00	-0.31	
11,826.0	89.30	268.20	6,829.3	-519.2	-5,286.2	5,309.7	0.53	-0.32	-0.42	
11,920.0	89.20	271.20	6,830.6	-519.7	-5,380.2	5,403.4	3.19	-0.11	3.19	
12,016.0	89.30	267.90	6,831.8	-520.4	-5,476.2	5,499.2	3.44	0.10	-3.44	
12,111.0	89.50	267.00	6,832.8	-524.6	-5,571.1	5,594.2	0.97	0.21	-0.95	
12,206.0	90.00	268.20	6,833.2	-528.6	-5,666.0	5,689.2	1.37	0.53	1.26	
12,302.0	90.00	267.90	6,833.2	-531.9	-5,761.9	5,785.1	0.31	0.00	-0.31	
12,397.0	90.00	267.90	6,833.2	-535.4	-5,856.9	5,880.0	0.00	0.00	0.00	
12,493.0	89.10	267.20	6,834.0	-539.5	-5,952.8	5,976.0	1.19	-0.94	-0.73	
12,588.0	89.50	268.40	6,835.1	-543.1	-6,047.7	6,070.9	1.33	0.42	1.26	
12,683.0	89.80	268.40	6,835.7	-545.8	-6,142.7	6,165.8	0.32	0.32	0.00	
12,779.0	91.10	268.00	6,835.0	-548.8	-6,238.6	6,261.8	1.42	1.35	-0.42	

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Fern 11U-334
<b>Project:</b>	SEC.11-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4642.0ft (Original Well Elev)
<b>Site:</b>	Fern 5N65W11EJ Pad Sec.11-T5N-R65W	<b>MD Reference:</b>	WELL @ 4642.0ft (Original Well Elev)
<b>Well:</b>	Fern 11U-334	<b>North Reference:</b>	True
<b>Wellbore:</b>	Fern 11U-334 Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Fern 11U-334 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)	
12,875.0	91.40	267.70	6,832.9	-552.4	-6,334.5	6,357.7	0.44	0.31	-0.31	
12,970.0	91.40	267.70	6,830.6	-556.2	-6,429.4	6,452.6	0.00	0.00	0.00	
13,066.0	91.50	267.50	6,828.1	-560.2	-6,525.3	6,548.6	0.23	0.10	-0.21	
13,162.0	91.40	266.60	6,825.7	-565.2	-6,621.1	6,644.5	0.94	-0.10	-0.94	
13,257.0	89.50	269.10	6,825.0	-568.7	-6,716.1	6,739.4	3.31	-2.00	2.63	
13,353.0	89.30	268.00	6,826.0	-571.1	-6,812.0	6,835.3	1.16	-0.21	-1.15	
13,448.0	89.10	267.30	6,827.3	-575.0	-6,906.9	6,930.3	0.77	-0.21	-0.74	
13,544.0	88.90	266.80	6,829.0	-580.0	-7,002.8	7,026.2	0.56	-0.21	-0.52	
13,640.0	90.80	268.70	6,829.2	-583.7	-7,098.7	7,122.2	2.80	1.98	1.98	
13,735.0	90.40	268.20	6,828.2	-586.3	-7,193.7	7,217.1	0.67	-0.42	-0.53	
13,831.0	90.30	267.70	6,827.6	-589.8	-7,289.6	7,313.0	0.53	-0.10	-0.52	
13,926.0	90.40	267.20	6,827.0	-594.0	-7,384.5	7,408.0	0.54	0.11	-0.53	
14,022.0	90.70	267.50	6,826.1	-598.4	-7,480.4	7,504.0	0.44	0.31	0.31	
14,117.0	89.70	269.60	6,825.8	-600.8	-7,575.4	7,598.9	2.45	-1.05	2.21	
14,213.0	90.00	268.90	6,826.0	-602.1	-7,671.3	7,694.7	0.79	0.31	-0.73	
14,309.0	90.10	267.90	6,826.0	-604.8	-7,767.3	7,790.6	1.05	0.10	-1.04	
14,349.7	90.23	267.65	6,825.8	-606.3	-7,808.0	7,831.3	0.70	0.31	-0.62	
WP (Fern 11U-334)										
14,405.0	90.40	267.30	6,825.5	-608.8	-7,863.2	7,886.6	0.70	0.31	-0.63	
14,500.0	89.70	270.00	6,825.5	-611.0	-7,958.2	7,981.5	2.94	-0.74	2.84	
14,595.0	89.20	268.40	6,826.4	-612.3	-8,053.2	8,076.3	1.76	-0.53	-1.68	
14,691.0	90.00	270.00	6,827.0	-613.7	-8,149.2	8,172.1	1.86	0.83	1.67	
14,787.0	90.00	269.80	6,827.0	-613.8	-8,245.2	8,267.9	0.21	0.00	-0.21	
14,882.0	90.30	269.50	6,826.8	-614.4	-8,340.1	8,362.7	0.45	0.32	-0.32	
14,959.0	90.90	268.90	6,826.0	-615.5	-8,417.1	8,439.6	1.10	0.78	-0.78	
15,017.0	90.90	268.90	6,825.1	-616.6	-8,475.1	8,497.5	0.00	0.00	0.00	
BHL 702'FNL, 2530'FEL, SEC.9										

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 291'FNL, 689'FWL, - survey hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,397,199.30	3,240,103.65	40.420509	-104.637626	
BHL 702'FNL, 2530'FEL - survey misses target center by 18.1ft at 15017.0ft MD (6825.1 TVD, -616.6 N, -8475.1 E) - Point	0.00	0.00	6,820.0	-599.3	-8,475.4	1,396,517.64	3,231,634.80	40.418860	-104.668065	
WP (Fern 11U-334) - survey misses target center by 12.1ft at 14349.7ft MD (6825.8 TVD, -606.3 N, -7808.0 E) - Point	0.00	0.00	6,821.7	-595.0	-7,808.4	1,396,528.41	3,232,301.71	40.418872	-104.665669	

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Fern 11U-334
<b>Project:</b>	SEC.11-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4642.0ft (Original Well Elev)
<b>Site:</b>	Fern 5N65W11EJ Pad Sec.11-T5N-R65W	<b>MD Reference:</b>	WELL @ 4642.0ft (Original Well Elev)
<b>Well:</b>	Fern 11U-334	<b>North Reference:</b>	True
<b>Wellbore:</b>	Fern 11U-334 Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Fern 11U-334 Wellbore #1	<b>Database:</b>	US_EDM

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
6,927.3	6,733.4	-410.0	-408.3	TPZ - 60° Inc. in curve - 701'FNL, 1097'FWL, SEC.11
8,295.0	6,845.4	-431.1	-1,757.7	Deepest TVD Drilled - 6845.44' TVD

Checked By: _____	Approved By: _____	Date: _____
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