

PDC Energy Inc. DJ Basin

Well Name: **McGlothlin Farms 4X-334**

Surface Location: McGlothlin Farms 5N64W4DX Pad Sec.4-T5N-R64W
North American Datum 1983 , US State Plane 1983, Colorado Northern Zone

Ground Elevation: 4616.0

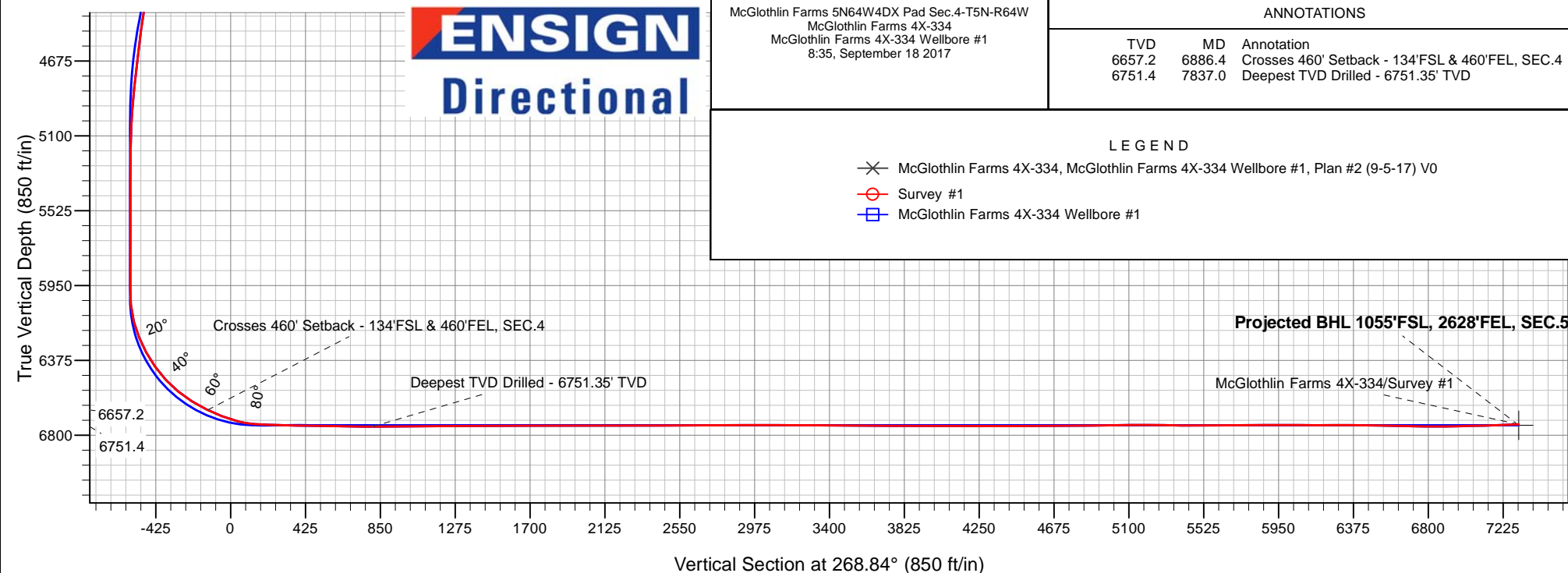
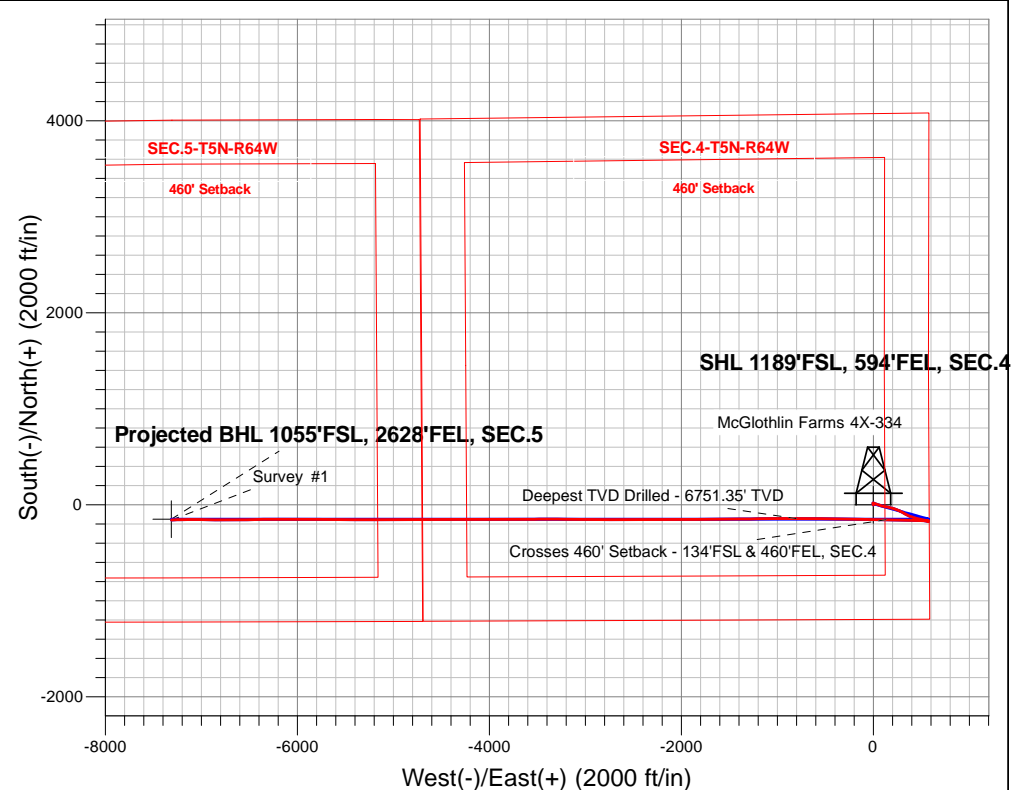
+N/-S+E/-W Northing Easting Latitude Longitude Slot
0.0 0.0 1398820.643265077.25 40.424258 -104.547873

Ensign Rig #152 -RKB- 23' WELL @ 4639.0ft (Ensign Rig #152 -RKB- 23')

FINAL SURVEY

Projected Bottom Hole Location

14,345'MD 6738'TVD 157'S & 7310'W of SHL
92.1 degree Incl @ 268.6 degree AZM





PDC Energy Inc. DJ Basin

SEC.4-T5N-R64W

McGlothlin Farms 5N64W4DX Pad Sec.4-T5N-R64W

McGlothlin Farms 4X-334

McGlothlin Farms 4X-334 Wellbore #1

Survey: Survey #1

Standard Survey Report

18 September, 2017

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well McGlothlin Farms 4X-334
Project:	SEC.4-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (Ensign Rig #152 -RKB- 23')
Site:	McGlothlin Farms 5N64W4DX Pad Sec.4-T5N-R64W	MD Reference:	WELL @ 4639.0ft (Ensign Rig #152 -RKB- 23')
Well:	McGlothlin Farms 4X-334	North Reference:	True
Wellbore:	McGlothlin Farms 4X-334 Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	McGlothlin Farms 4X-334 Wellbore #1	Database:	US_EDM

Project	SEC.4-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	McGlothlin Farms 5N64W4DX Pad Sec.4-T5N-R64W				
Site Position:		Northing:	1,398,838.61 usft	Latitude:	40.424309
From:	Lat/Long	Easting:	3,265,019.98 usft	Longitude:	-104.548078
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.62 °

Well	McGlothlin Farms 4X-334					
Well Position	+N/-S	0.0 ft	Northing:	1,398,820.64 usft	Latitude:	40.424258
	+E/-W	0.0 ft	Easting:	3,265,077.25 usft	Longitude:	-104.547873
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,616.0 ft

Wellbore	McGlothlin Farms 4X-334 Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/5/2017	7.91	66.89	52,512

Design	McGlothlin Farms 4X-334 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	268.84	

Survey Program	Date	9/18/2017			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
156.0	14,345.0	Survey #1 (McGlothlin Farms 4X-334 Well	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	
156.0	0.40	174.90	156.0	-0.5	0.0	0.0	0.26	0.26	0.00	
252.0	0.80	338.70	252.0	-0.3	-0.2	0.2	1.24	0.42	170.63	
347.0	0.60	337.90	347.0	0.8	-0.6	0.6	0.21	-0.21	-0.84	
443.0	1.70	342.40	443.0	2.7	-1.2	1.2	1.15	1.15	4.69	
539.0	1.80	341.40	538.9	5.4	-2.1	2.0	0.11	0.10	-1.04	
634.0	1.90	338.00	633.9	8.3	-3.2	3.0	0.16	0.11	-3.58	
730.0	1.80	358.40	729.8	11.3	-3.8	3.6	0.69	-0.10	21.25	
825.0	1.70	353.80	824.8	14.2	-4.0	3.7	0.18	-0.11	-4.84	
921.0	1.70	350.70	920.7	17.0	-4.4	4.1	0.10	0.00	-3.23	

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Well:	McGlothlin Farms 4X-334	North Reference:	True
Wellbore:	McGlothlin Farms 4X-334 Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	McGlothlin Farms 4X-334 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	0.60	53.60	1,016.7	18.7	-4.2	3.9	1.59	-1.15	65.52
1,112.0	0.40	92.50	1,111.7	19.0	-3.5	3.1	0.40	-0.21	40.95
1,208.0	0.60	95.30	1,207.7	18.9	-2.7	2.3	0.21	0.21	2.92
1,304.0	1.90	105.60	1,303.7	18.5	-0.6	0.3	1.37	1.35	10.73
1,400.0	2.60	102.70	1,399.6	17.5	3.0	-3.4	0.74	0.73	-3.02
1,496.0	3.30	112.30	1,495.5	16.0	7.7	-8.0	0.89	0.73	10.00
1,610.0	4.70	112.10	1,609.2	13.0	15.1	-15.3	1.23	1.23	-0.18
1,683.0	4.00	109.00	1,682.0	11.1	20.2	-20.5	1.01	-0.96	-4.25
1,779.0	5.80	113.20	1,777.6	8.1	27.9	-28.0	1.91	1.88	4.38
1,874.0	6.90	107.20	1,872.1	4.5	37.7	-37.8	1.35	1.16	-6.32
1,969.0	8.90	109.00	1,966.2	0.4	50.1	-50.1	2.12	2.11	1.89
2,065.0	9.50	107.20	2,060.9	-4.4	64.7	-64.6	0.69	0.63	-1.88
2,160.0	11.20	105.50	2,154.4	-9.1	81.1	-80.9	1.82	1.79	-1.79
2,256.0	10.60	104.10	2,248.6	-13.8	98.7	-98.4	0.68	-0.63	-1.46
2,352.0	11.60	103.00	2,342.8	-18.1	116.6	-116.2	1.06	1.04	-1.15
2,447.0	12.70	101.80	2,435.7	-22.4	136.2	-135.7	1.19	1.16	-1.26
2,543.0	12.50	99.50	2,529.4	-26.3	156.7	-156.2	0.56	-0.21	-2.40
2,638.0	11.20	102.00	2,622.4	-29.9	175.9	-175.3	1.47	-1.37	2.63
2,733.0	12.20	108.50	2,715.4	-35.0	194.4	-193.7	1.74	1.05	6.84
2,829.0	11.30	106.30	2,809.4	-40.8	213.1	-212.2	1.05	-0.94	-2.29
2,925.0	11.30	107.10	2,903.5	-46.2	231.1	-230.1	0.16	0.00	0.83
3,020.0	11.70	114.30	2,996.6	-52.9	248.8	-247.7	1.57	0.42	7.58
3,116.0	10.00	111.10	3,090.9	-60.0	265.4	-264.2	1.88	-1.77	-3.33
3,212.0	10.10	119.70	3,185.4	-67.1	280.5	-279.1	1.57	0.10	8.96
3,308.0	12.00	120.60	3,279.7	-76.4	296.4	-294.8	1.99	1.98	0.94
3,404.0	11.70	119.00	3,373.6	-86.2	313.5	-311.7	0.46	-0.31	-1.67
3,499.0	11.10	116.20	3,466.7	-94.9	330.2	-328.2	0.86	-0.63	-2.95
3,595.0	11.10	115.80	3,560.9	-103.0	346.8	-344.6	0.08	0.00	-0.42
3,691.0	10.90	116.70	3,655.2	-111.1	363.2	-360.9	0.27	-0.21	0.94
3,786.0	11.80	113.40	3,748.3	-119.0	380.1	-377.6	1.17	0.95	-3.47
3,883.0	12.30	106.90	3,843.2	-125.9	399.1	-396.5	1.49	0.52	-6.70
3,978.0	11.50	106.00	3,936.1	-131.5	417.9	-415.2	0.86	-0.84	-0.95
4,074.0	10.90	105.80	4,030.3	-136.6	435.8	-433.0	0.63	-0.63	-0.21
4,170.0	10.50	107.60	4,124.6	-141.7	452.9	-449.9	0.54	-0.42	1.88
4,265.0	9.70	104.80	4,218.2	-146.4	468.9	-465.8	0.99	-0.84	-2.95
4,361.0	9.20	105.50	4,312.9	-150.5	484.1	-481.0	0.53	-0.52	0.73
4,457.0	8.40	95.30	4,407.7	-153.2	498.5	-495.3	1.82	-0.83	-10.63
4,553.0	7.60	99.80	4,502.8	-154.9	511.7	-508.5	1.06	-0.83	4.69
4,648.0	7.20	103.00	4,597.0	-157.3	523.7	-520.4	0.60	-0.42	3.37
4,744.0	6.90	101.60	4,692.3	-159.8	535.2	-531.9	0.36	-0.31	-1.46
4,840.0	6.20	103.70	4,787.7	-162.2	545.9	-542.5	0.77	-0.73	2.19
4,936.0	5.90	106.30	4,883.1	-164.8	555.7	-552.2	0.42	-0.31	2.71

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Survey									
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5,032.0	4.30	94.00	4,978.8	-166.5	564.0	-560.5	2.01	-1.67	-12.81
5,128.0	1.20	75.80	5,074.6	-166.5	568.6	-565.1	3.31	-3.23	-18.96
5,223.0	1.00	87.00	5,169.6	-166.2	570.4	-566.9	0.31	-0.21	11.79
5,319.0	1.60	101.40	5,265.6	-166.4	572.5	-569.0	0.71	0.63	15.00
5,415.0	0.20	260.90	5,361.6	-166.7	573.7	-570.2	1.86	-1.46	166.15
5,511.0	0.70	197.40	5,457.6	-167.3	573.3	-569.8	0.66	0.52	-66.15
5,607.0	0.80	183.00	5,553.6	-168.5	573.1	-569.6	0.22	0.10	-15.00
5,702.0	0.70	170.00	5,648.6	-169.7	573.2	-569.6	0.21	-0.11	-13.68
5,798.0	0.80	176.00	5,744.5	-171.0	573.3	-569.7	0.13	0.10	6.25
5,921.0	0.30	144.80	5,867.5	-172.1	573.6	-570.0	0.46	-0.41	-25.37
6,017.0	0.40	111.60	5,963.5	-172.4	574.0	-570.4	0.23	0.10	-34.58
6,113.0	4.60	279.50	6,059.4	-171.9	570.6	-566.9	5.20	4.38	174.90
6,209.0	15.30	282.50	6,153.9	-168.5	554.3	-550.8	11.16	11.15	3.13
6,305.0	22.40	272.30	6,244.7	-165.1	523.7	-520.2	8.13	7.40	-10.63
6,400.0	28.80	269.80	6,330.3	-164.4	482.6	-479.2	6.83	6.74	-2.63
6,496.0	35.20	271.10	6,411.7	-164.0	431.8	-428.4	6.70	6.67	1.35
6,592.0	42.90	271.80	6,486.2	-162.4	371.4	-368.0	8.03	8.02	0.73
6,688.0	51.00	271.60	6,551.7	-160.3	301.3	-298.0	8.44	8.44	-0.21
6,784.0	57.70	272.60	6,607.6	-157.4	223.4	-220.2	7.03	6.98	1.04
6,879.0	63.80	271.40	6,654.0	-154.6	140.6	-137.4	6.51	6.42	-1.26
6,886.4	64.22	271.38	6,657.2	-154.4	134.0	-130.8	5.63	5.62	-0.32
Crosses 460' Setback - 134'FSL & 460'FEL, SEC.4									
6,975.0	69.20	271.10	6,692.2	-152.7	52.6	-49.5	5.63	5.63	-0.31
7,071.0	75.20	269.60	6,721.6	-152.1	-38.7	41.8	6.42	6.25	-1.56
7,167.0	86.60	270.50	6,736.7	-152.0	-133.4	136.4	11.91	11.88	0.94
7,263.0	87.50	270.50	6,741.7	-151.2	-229.2	232.3	0.94	0.94	0.00
7,358.0	89.10	271.60	6,744.5	-149.4	-324.2	327.1	2.04	1.68	1.16
7,454.0	89.20	271.10	6,745.9	-147.2	-420.1	423.0	0.53	0.10	-0.52
7,549.0	88.70	270.90	6,747.7	-145.5	-515.1	517.9	0.57	-0.53	-0.21
7,645.0	89.60	270.50	6,749.1	-144.4	-611.1	613.9	1.03	0.94	-0.42
7,741.0	88.80	270.70	6,750.4	-143.4	-707.1	709.8	0.86	-0.83	0.21
7,837.0	90.10	270.40	6,751.4	-142.4	-803.0	805.8	1.39	1.35	-0.31
Deepest TVD Drilled - 6751.35' TVD									
7,933.0	90.70	270.20	6,750.7	-141.9	-899.0	901.7	0.66	0.63	-0.21
8,029.0	90.40	269.30	6,749.8	-142.3	-995.0	997.7	0.99	-0.31	-0.94
8,124.0	90.10	268.90	6,749.3	-143.8	-1,090.0	1,092.7	0.53	-0.32	-0.42
8,220.0	90.30	268.90	6,749.0	-145.7	-1,186.0	1,188.7	0.21	0.21	0.00
8,315.0	90.30	269.80	6,748.5	-146.8	-1,281.0	1,283.7	0.95	0.00	0.95
8,411.0	91.00	270.20	6,747.4	-146.8	-1,377.0	1,379.7	0.84	0.73	0.42
8,506.0	90.70	269.60	6,746.0	-146.9	-1,472.0	1,474.7	0.71	-0.32	-0.63
8,602.0	90.00	269.10	6,745.4	-148.0	-1,568.0	1,570.7	0.90	-0.73	-0.52
8,698.0	89.90	268.90	6,745.5	-149.7	-1,664.0	1,666.7	0.23	-0.10	-0.21
8,793.0	90.10	268.40	6,745.5	-151.9	-1,758.9	1,761.7	0.57	0.21	-0.53

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8,889.0	89.60	270.20	6,745.8	-153.1	-1,854.9	1,857.6	1.95	-0.52	1.88
8,985.0	89.60	270.00	6,746.4	-152.9	-1,950.9	1,953.6	0.21	0.00	-0.21
9,081.0	90.00	269.80	6,746.8	-153.1	-2,046.9	2,049.6	0.47	0.42	-0.21
9,176.0	90.20	269.50	6,746.6	-153.7	-2,141.9	2,144.6	0.38	0.21	-0.32
9,272.0	90.20	268.90	6,746.3	-155.0	-2,237.9	2,240.6	0.62	0.00	-0.63
9,368.0	90.50	270.70	6,745.7	-155.4	-2,333.9	2,336.6	1.90	0.31	1.88
9,464.0	90.50	270.70	6,744.8	-154.2	-2,429.9	2,432.5	0.00	0.00	0.00
9,560.0	90.30	270.50	6,744.2	-153.2	-2,525.9	2,528.5	0.29	-0.21	-0.21
9,656.0	90.50	269.80	6,743.5	-152.9	-2,621.9	2,624.4	0.76	0.21	-0.73
9,752.0	90.10	269.50	6,743.0	-153.5	-2,717.9	2,720.4	0.52	-0.42	-0.31
9,848.0	89.70	269.30	6,743.2	-154.5	-2,813.9	2,816.4	0.47	-0.42	-0.21
9,943.0	90.30	270.70	6,743.2	-154.5	-2,908.9	2,911.4	1.60	0.63	1.47
10,039.0	90.00	270.70	6,742.9	-153.3	-3,004.9	3,007.4	0.31	-0.31	0.00
10,134.0	89.80	270.70	6,743.1	-152.2	-3,099.8	3,102.3	0.21	-0.21	0.00
10,230.0	89.50	270.70	6,743.7	-151.0	-3,195.8	3,198.2	0.31	-0.31	0.00
10,325.0	89.80	270.40	6,744.2	-150.1	-3,290.8	3,293.2	0.45	0.32	-0.32
10,421.0	90.00	270.20	6,744.4	-149.6	-3,386.8	3,389.2	0.29	0.21	-0.21
10,517.0	89.50	269.50	6,744.8	-149.9	-3,482.8	3,485.2	0.90	-0.52	-0.73
10,612.0	89.60	268.10	6,745.6	-151.8	-3,577.8	3,580.1	1.48	0.11	-1.47
10,707.0	89.70	269.10	6,746.2	-154.2	-3,672.8	3,675.1	1.06	0.11	1.05
10,803.0	89.30	270.20	6,747.0	-154.7	-3,768.8	3,771.1	1.22	-0.42	1.15
10,899.0	89.30	270.70	6,748.2	-154.0	-3,864.8	3,867.1	0.52	0.00	0.52
10,995.0	90.40	271.20	6,748.4	-152.4	-3,960.7	3,963.0	1.26	1.15	0.52
11,090.0	90.20	270.70	6,747.9	-150.8	-4,055.7	4,058.0	0.57	-0.21	-0.53
11,186.0	89.90	270.00	6,747.8	-150.2	-4,151.7	4,153.9	0.79	-0.31	-0.73
11,282.0	89.70	269.30	6,748.2	-150.8	-4,247.7	4,249.9	0.76	-0.21	-0.73
11,378.0	90.40	269.80	6,748.1	-151.6	-4,343.7	4,345.9	0.90	0.73	0.52
11,474.0	90.00	269.30	6,747.8	-152.3	-4,439.7	4,441.9	0.67	-0.42	-0.52
11,569.0	89.90	269.60	6,747.8	-153.2	-4,534.7	4,536.9	0.33	-0.11	0.32
11,665.0	89.90	268.90	6,748.0	-154.5	-4,630.7	4,632.9	0.73	0.00	-0.73
11,761.0	90.50	269.80	6,747.7	-155.6	-4,726.7	4,728.9	1.13	0.63	0.94
11,857.0	90.70	271.10	6,746.7	-154.8	-4,822.7	4,824.8	1.37	0.21	1.35
11,952.0	91.10	270.20	6,745.2	-153.8	-4,917.7	4,919.8	1.04	0.42	-0.95
12,048.0	91.40	269.30	6,743.1	-154.2	-5,013.6	5,015.7	0.99	0.31	-0.94
12,143.0	89.80	270.20	6,742.1	-154.6	-5,108.6	5,110.7	1.93	-1.68	0.95
12,239.0	89.80	269.10	6,742.4	-155.2	-5,204.6	5,206.7	1.15	0.00	-1.15
12,335.0	89.20	270.20	6,743.3	-155.8	-5,300.6	5,302.7	1.31	-0.63	1.15
12,431.0	89.20	270.90	6,744.6	-154.8	-5,396.6	5,398.6	0.73	0.00	0.73
12,526.0	90.00	270.50	6,745.3	-153.7	-5,491.6	5,493.6	0.94	0.84	-0.42
12,622.0	90.50	270.40	6,744.8	-152.9	-5,587.6	5,589.5	0.53	0.52	-0.10
12,718.0	91.20	269.80	6,743.4	-152.8	-5,683.6	5,685.5	0.96	0.73	-0.63
12,814.0	90.50	270.20	6,742.0	-152.8	-5,779.6	5,781.5	0.84	-0.73	0.42

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well McGlothlin Farms 4X-334
Project:	SEC.4-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (Ensign Rig #152 -RKB- 23')
Site:	McGlothlin Farms 5N64W4DX Pad Sec.4-T5N-R64W	MD Reference:	WELL @ 4639.0ft (Ensign Rig #152 -RKB- 23')
Well:	McGlothlin Farms 4X-334	North Reference:	True
Wellbore:	McGlothlin Farms 4X-334 Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	McGlothlin Farms 4X-334 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)
12,910.0	89.50	270.50	6,742.0	-152.2	-5,875.6	5,877.4	1.09	-1.04	0.31
13,005.0	89.30	269.50	6,743.0	-152.2	-5,970.6	5,972.4	1.07	-0.21	-1.05
13,101.0	90.00	271.20	6,743.6	-151.6	-6,066.5	6,068.4	1.92	0.73	1.77
13,197.0	90.10	270.20	6,743.5	-150.4	-6,162.5	6,164.3	1.05	0.10	-1.04
13,293.0	90.50	269.50	6,743.0	-150.7	-6,258.5	6,260.3	0.84	0.42	-0.73
13,389.0	89.80	269.50	6,742.7	-151.5	-6,354.5	6,356.3	0.73	-0.73	0.00
13,485.0	89.10	268.60	6,743.7	-153.1	-6,450.5	6,452.3	1.19	-0.73	-0.94
13,581.0	88.50	268.60	6,745.7	-155.4	-6,546.5	6,548.3	0.63	-0.63	0.00
13,677.0	88.50	269.80	6,748.2	-156.8	-6,642.4	6,644.2	1.25	0.00	1.25
13,772.0	89.60	270.50	6,749.8	-156.5	-6,737.4	6,739.2	1.37	1.16	0.74
13,868.0	89.90	269.80	6,750.2	-156.3	-6,833.4	6,835.2	0.79	0.31	-0.73
13,963.0	90.90	271.40	6,749.5	-155.3	-6,928.4	6,930.1	1.99	1.05	1.68
14,059.0	91.30	270.50	6,747.7	-153.7	-7,024.4	7,026.0	1.03	0.42	-0.94
14,155.0	91.60	269.50	6,745.2	-153.7	-7,120.3	7,122.0	1.09	0.31	-1.04
14,251.0	92.30	268.80	6,742.0	-155.1	-7,216.3	7,217.9	1.03	0.73	-0.73
14,285.0	92.10	268.60	6,740.7	-155.9	-7,250.2	7,251.9	0.83	-0.59	-0.59
14,345.0	92.10	268.60	6,738.5	-157.4	-7,310.2	7,311.9	0.00	0.00	0.00

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 1189'FSL, 594'FEL, - survey hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,398,820.65	3,265,077.25	40.424258	-104.547873
BHL 1064'FSL, 2630'FEI - survey misses target center by 10.6ft at 14345.0ft MD (6738.5 TVD, -157.4 N, -7310.2 E) - Point	0.00	0.00	6,744.0	-148.6	-7,312.5	1,398,593.50	3,257,767.05	40.423847	-104.574137

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
6,886.4	6,657.2	-154.4	134.0	Crosses 460' Setback - 134'FSL & 460'FEL, SEC.4
7,837.0	6,751.4	-142.4	-803.0	Deepest TVD Drilled - 6751.35' TVD

Checked By: _____	Approved By: _____	Date: _____
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