

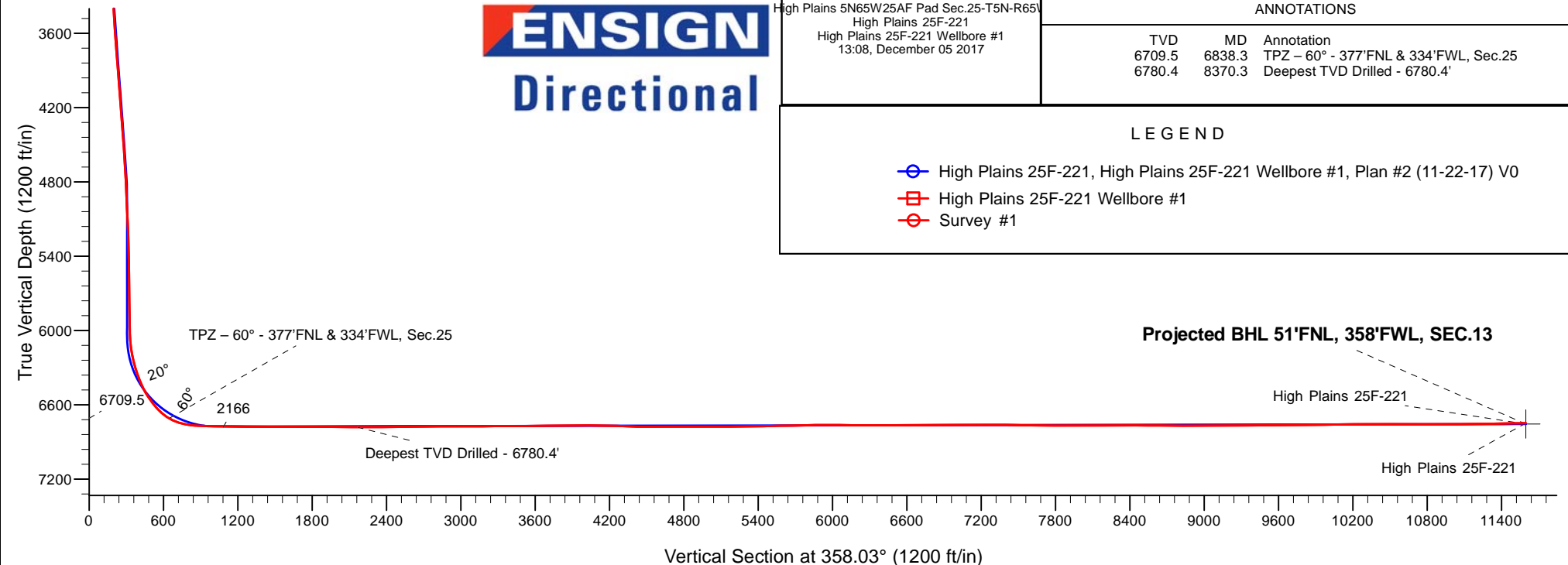
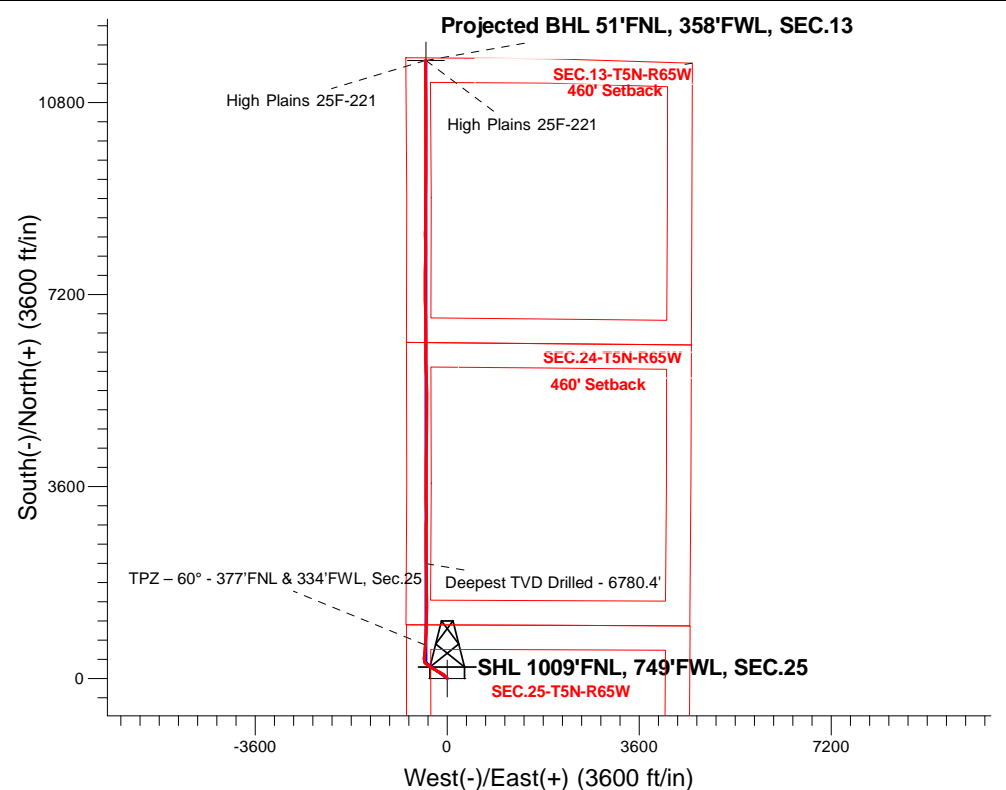
PDC Energy Inc. DJ Basin

Well Name: **High Plains 25F-221**

Surface Location: High Plains 5N65W25AF Pad Sec.25-T5N-R65W
North American Datum 1983 , US State Plane 1983, Colorado Northern Zone
Ground Elevation: 4639.0
+N/-S+E/-W Northing Easting Latitude Longitude Slot
0.0 0.0 1380554.323245642.76 40.374671 -104.618327
Original Well Elev WELL @ 4662.0ft (Original Well Elev)

FINAL SURVEY

Projected Bottom Hole Location
17,808'MD 6748'TVD 11,589'N & 412'W of SHL
90.8 degree Incl @ 359.3 degree AZM



ENSIGN
Directional

High Plains 5N65W25AF Pad Sec.25-T5N-R65W
High Plains 25F-221
High Plains 25F-221 Wellbore #1
13:08, December 05 2017

ANNOTATIONS

TVD	MD	Annotation
6709.5	6838.3	TPZ - 60° - 377'FNL & 334'FWL, Sec.25
6780.4	8370.3	Deepest TVD Drilled - 6780.4'

LEGEND

- High Plains 25F-221, High Plains 25F-221 Wellbore #1, Plan #2 (11-22-17) V0
- High Plains 25F-221 Wellbore #1
- Survey #1



PDC Energy Inc. DJ Basin

SEC.25-T5N-R65W

High Plains 5N65W25AF Pad Sec.25-T5N-R65W

High Plains 25F-221

High Plains 25F-221 Wellbore #1

Survey: Survey #1

Standard Survey Report

05 December, 2017

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well High Plains 25F-221
Project:	SEC.25-T5N-R65W	TVD Reference:	WELL @ 4662.0ft (Original Well Elev)
Site:	High Plains 5N65W25AF Pad Sec.25-T5N-R65W	MD Reference:	WELL @ 4662.0ft (Original Well Elev)
Well:	High Plains 25F-221	North Reference:	True
Wellbore:	High Plains 25F-221 Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	High Plains 25F-221 Wellbore #1	Database:	US_EDM

Project	SEC.25-T5N-R65W, 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	High Plains 5N65W25AF Pad Sec.25-T5N-R65W				
Site Position:		Northing:	1,380,509.53 usft	Latitude:	40.374548
From:	Lat/Long	Easting:	3,245,642.93 usft	Longitude:	-104.618328
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.57 °

Well	High Plains 25F-221					
Well Position	+N/-S	0.0 ft	Northing:	1,380,554.32 usft	Latitude:	40.374671
	+E/-W	0.0 ft	Easting:	3,245,642.76 usft	Longitude:	-104.618327
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,639.0 ft

Wellbore	High Plains 25F-221 Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/22/2017	7.91	66.83	52,456

Design	High Plains 25F-221 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	358.03	

Survey Program	Date	12/5/2017			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
156.0	17,808.0	Survey #1 (High Plains 25F-221 Wellbore	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	0.00	0.00	156.0	0.0	0.0	0.0	0.00	0.00	0.00	
252.0	0.30	34.10	252.0	0.2	0.1	0.2	0.31	0.31	0.00	
347.0	0.00	0.00	347.0	0.4	0.3	0.4	0.32	-0.32	0.00	
443.0	1.00	309.60	443.0	0.9	-0.4	1.0	1.04	1.04	0.00	
539.0	2.70	327.50	538.9	3.4	-2.2	3.5	1.85	1.77	18.65	
634.0	4.00	319.60	633.8	7.8	-5.6	8.0	1.45	1.37	-8.32	
730.0	5.50	318.50	729.4	13.8	-10.8	14.2	1.57	1.56	-1.15	
825.0	6.90	315.70	823.9	21.3	-17.8	21.9	1.51	1.47	-2.95	
921.0	7.30	317.80	919.2	29.9	-25.9	30.8	0.50	0.42	2.19	

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well High Plains 25F-221
Project:	SEC.25-T5N-R65W	TVD Reference:	WELL @ 4662.0ft (Original Well Elev)
Site:	High Plains 5N65W25AF Pad Sec.25-T5N-R65W	MD Reference:	WELL @ 4662.0ft (Original Well Elev)
Well:	High Plains 25F-221	North Reference:	True
Wellbore:	High Plains 25F-221 Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	High Plains 25F-221 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	6.90	315.40	1,014.4	38.6	-34.1	39.7	0.52	-0.42	-2.50
1,112.0	6.70	316.60	1,108.7	46.6	-41.9	48.1	0.26	-0.21	1.26
1,208.0	6.00	315.70	1,204.2	54.3	-49.2	56.0	0.74	-0.73	-0.94
1,304.0	6.30	309.70	1,299.6	61.3	-56.8	63.2	0.74	0.31	-6.25
1,399.0	6.30	311.10	1,394.0	68.0	-64.7	70.2	0.16	0.00	1.47
1,494.0	6.60	302.30	1,488.4	74.4	-73.3	76.8	1.09	0.32	-9.26
1,590.0	5.60	299.70	1,583.9	79.6	-82.0	82.4	1.08	-1.04	-2.71
1,638.0	5.80	301.50	1,631.7	82.1	-86.1	85.0	0.56	0.42	3.75
1,783.0	6.20	296.70	1,775.9	89.4	-99.3	92.8	0.44	0.28	-3.31
1,879.0	6.80	309.70	1,871.2	95.4	-108.4	99.0	1.65	0.63	13.54
1,975.0	6.60	309.00	1,966.6	102.5	-117.0	106.4	0.23	-0.21	-0.73
2,070.0	8.10	301.50	2,060.8	109.4	-127.0	113.7	1.87	1.58	-7.89
2,166.0	7.70	298.10	2,155.9	116.0	-138.4	120.7	0.64	-0.42	-3.54
2,262.0	6.80	294.40	2,251.1	121.3	-149.3	126.4	1.06	-0.94	-3.85
2,357.0	6.40	290.60	2,345.5	125.5	-159.3	130.9	0.62	-0.42	-4.00
2,453.0	6.50	290.70	2,440.9	129.3	-169.4	135.1	0.10	0.10	0.10
2,549.0	6.80	292.50	2,536.2	133.4	-179.8	139.5	0.38	0.31	1.88
2,645.0	6.60	298.50	2,631.6	138.2	-189.9	144.7	0.76	-0.21	6.25
2,741.0	7.50	306.40	2,726.9	144.6	-199.7	151.4	1.38	0.94	8.23
2,837.0	6.80	307.40	2,822.1	151.8	-209.3	158.9	0.74	-0.73	1.04
2,933.0	6.70	304.80	2,917.5	158.4	-218.4	165.8	0.33	-0.10	-2.71
3,029.0	6.50	301.30	3,012.8	164.4	-227.7	172.2	0.47	-0.21	-3.65
3,125.0	7.50	300.40	3,108.1	170.4	-237.7	178.5	1.05	1.04	-0.94
3,220.0	6.80	295.70	3,202.4	176.0	-248.1	184.4	0.96	-0.74	-4.95
3,316.0	7.40	301.50	3,297.6	181.7	-258.5	190.5	0.97	0.63	6.04
3,412.0	6.90	300.10	3,392.9	187.8	-268.8	196.9	0.55	-0.52	-1.46
3,508.0	6.80	296.50	3,488.2	193.2	-278.9	202.7	0.46	-0.10	-3.75
3,603.0	7.10	301.10	3,582.5	198.8	-288.9	208.6	0.67	0.32	4.84
3,699.0	7.70	303.90	3,677.7	205.4	-299.3	215.6	0.73	0.63	2.92
3,795.0	7.30	304.60	3,772.9	212.5	-309.7	223.0	0.43	-0.42	0.73
3,891.0	7.70	304.80	3,868.1	219.6	-320.0	230.5	0.42	0.42	0.21
3,987.0	7.50	299.90	3,963.2	226.4	-330.7	237.7	0.71	-0.21	-5.10
4,082.0	7.40	302.30	4,057.4	232.8	-341.2	244.4	0.34	-0.11	2.53
4,178.0	7.40	307.40	4,152.6	239.8	-351.4	251.8	0.68	0.00	5.31
4,274.0	6.80	310.40	4,247.9	247.3	-360.6	259.5	0.73	-0.63	3.13
4,370.0	6.40	312.00	4,343.2	254.5	-368.9	267.1	0.46	-0.42	1.67
4,466.0	6.20	309.90	4,438.7	261.4	-376.9	274.3	0.32	-0.21	-2.19
4,562.0	6.20	305.90	4,534.1	267.8	-385.1	280.9	0.45	0.00	-4.17
4,658.0	5.50	302.30	4,629.6	273.3	-393.1	286.7	0.82	-0.73	-3.75
4,754.0	5.50	303.20	4,725.2	278.3	-400.9	291.9	0.09	0.00	0.94
4,850.0	4.70	305.90	4,820.8	283.1	-407.9	297.0	0.87	-0.83	2.81
4,946.0	4.00	306.20	4,916.5	287.4	-413.8	301.5	0.73	-0.73	0.31

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Well:	High Plains 25F-221	North Reference:	True
Wellbore:	High Plains 25F-221 Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	High Plains 25F-221 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)
5,042.0	3.30	324.70	5,012.3	291.6	-418.1	305.8	1.42	-0.73	19.27
5,138.0	2.50	328.50	5,108.2	295.7	-420.8	310.0	0.86	-0.83	3.96
5,265.0	2.60	330.50	5,235.1	300.5	-423.7	314.9	0.11	0.08	1.57
5,361.0	2.40	321.00	5,331.0	304.0	-426.0	318.5	0.48	-0.21	-9.90
5,457.0	1.10	28.70	5,426.9	306.4	-426.8	320.9	2.32	-1.35	70.52
5,553.0	1.00	30.40	5,522.9	307.9	-426.0	322.4	0.11	-0.10	1.77
5,648.0	0.30	23.90	5,617.9	308.8	-425.4	323.3	0.74	-0.74	-6.84
5,744.0	0.60	7.20	5,713.9	309.6	-425.3	324.0	0.34	0.31	-17.40
5,840.0	0.70	359.80	5,809.9	310.6	-425.2	325.1	0.14	0.10	-7.71
5,936.0	1.10	9.00	5,905.9	312.1	-425.1	326.6	0.44	0.42	9.58
6,032.0	0.70	324.50	6,001.9	313.5	-425.3	328.0	0.81	-0.42	-46.35
6,128.0	5.50	349.30	6,097.7	318.5	-426.5	333.0	5.08	5.00	25.83
6,224.0	11.20	351.90	6,192.7	332.3	-428.6	346.8	5.95	5.94	2.71
6,319.0	15.70	355.80	6,285.0	354.3	-430.9	368.9	4.83	4.74	4.11
6,415.0	20.20	1.20	6,376.3	383.8	-431.5	398.4	4.99	4.69	5.63
6,510.0	26.60	4.60	6,463.5	421.4	-429.4	436.0	6.88	6.74	3.58
6,606.0	34.20	2.80	6,546.2	469.9	-426.4	484.3	7.97	7.92	-1.88
6,701.0	41.20	3.20	6,621.3	527.9	-423.3	542.1	7.37	7.37	0.42
6,793.0	52.30	5.10	6,684.3	594.6	-418.4	608.6	12.16	12.07	2.07
6,838.3	59.99	5.66	6,709.5	632.0	-414.8	645.9	17.01	16.98	1.25
TPZ - 60° - 377'FNL & 334'FWL, Sec.25									
6,889.0	68.60	6.20	6,731.5	677.4	-410.1	691.1	17.01	16.98	1.06
6,985.0	79.20	1.80	6,758.1	769.3	-403.8	782.7	11.88	11.04	-4.58
7,080.0	87.90	2.60	6,768.7	863.5	-400.2	876.8	9.20	9.16	0.84
7,179.0	88.80	1.90	6,771.6	962.4	-396.3	975.4	1.15	0.91	-0.71
7,275.0	89.10	1.60	6,773.3	1,058.3	-393.4	1,071.2	0.44	0.31	-0.31
7,371.0	89.10	1.60	6,774.8	1,154.3	-390.7	1,167.0	0.00	0.00	0.00
7,467.0	89.30	1.40	6,776.2	1,250.2	-388.2	1,262.8	0.29	0.21	-0.21
7,562.0	89.80	1.60	6,776.9	1,345.2	-385.7	1,357.7	0.57	0.53	0.21
7,657.0	89.80	1.40	6,777.3	1,440.1	-383.2	1,452.5	0.21	0.00	-0.21
7,753.0	90.30	359.70	6,777.2	1,536.1	-382.3	1,548.4	1.85	0.52	-1.77
7,849.0	90.30	359.10	6,776.7	1,632.1	-383.3	1,644.4	0.62	0.00	-0.63
7,944.0	90.10	358.60	6,776.3	1,727.1	-385.2	1,739.3	0.57	-0.21	-0.53
8,040.0	89.70	358.60	6,776.5	1,823.1	-387.5	1,835.3	0.42	-0.42	0.00
8,136.0	89.30	357.50	6,777.4	1,919.0	-390.8	1,931.3	1.22	-0.42	-1.15
8,232.0	89.50	359.50	6,778.4	2,015.0	-393.3	2,027.3	2.09	0.21	2.08
8,327.0	88.80	359.50	6,779.8	2,110.0	-394.1	2,122.3	0.74	-0.74	0.00
8,370.3	89.52	359.41	6,780.4	2,153.3	-394.5	2,165.6	1.68	1.67	-0.21
Deepest TVD Drilled - 6780.4'									
8,423.0	90.40	359.30	6,780.4	2,206.0	-395.1	2,218.2	1.68	1.67	-0.21
8,519.0	90.60	358.60	6,779.6	2,301.9	-396.9	2,314.2	0.76	0.21	-0.73
8,615.0	90.70	0.40	6,778.5	2,397.9	-397.7	2,410.2	1.88	0.10	1.88
8,711.0	90.80	359.50	6,777.3	2,493.9	-397.8	2,506.1	0.94	0.10	-0.94

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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)
8,806.0	91.00	359.10	6,775.8	2,588.9	-399.0	2,601.1	0.47	0.21	-0.42
8,902.0	90.00	1.20	6,774.9	2,684.9	-398.7	2,697.0	2.42	-1.04	2.19
8,999.0	90.20	0.90	6,774.8	2,781.9	-396.9	2,793.9	0.37	0.21	-0.31
9,095.0	89.90	0.90	6,774.7	2,877.9	-395.4	2,889.8	0.31	-0.31	0.00
9,191.0	90.00	0.70	6,774.8	2,973.8	-394.1	2,985.6	0.23	0.10	-0.21
9,287.0	90.50	359.80	6,774.3	3,069.8	-393.7	3,081.6	1.07	0.52	-0.94
9,383.0	90.70	359.60	6,773.3	3,165.8	-394.2	3,177.5	0.29	0.21	-0.21
9,479.0	91.00	359.30	6,771.9	3,261.8	-395.1	3,273.5	0.44	0.31	-0.31
9,574.0	89.90	0.20	6,771.2	3,356.8	-395.5	3,368.4	1.50	-1.16	0.95
9,670.0	90.10	358.90	6,771.2	3,452.8	-396.3	3,464.4	1.37	0.21	-1.35
9,766.0	90.80	0.20	6,770.4	3,548.8	-397.0	3,560.4	1.54	0.73	1.35
9,862.0	90.40	1.10	6,769.4	3,644.8	-395.9	3,656.3	1.03	-0.42	0.94
9,958.0	90.50	0.20	6,768.6	3,740.8	-394.8	3,752.1	0.94	0.10	-0.94
10,055.0	90.70	0.00	6,767.6	3,837.8	-394.7	3,849.1	0.29	0.21	-0.21
10,150.0	91.00	358.90	6,766.2	3,932.8	-395.6	3,944.0	1.20	0.32	-1.16
10,246.0	89.90	0.50	6,765.5	4,028.7	-396.1	4,040.0	2.02	-1.15	1.67
10,343.0	88.10	1.10	6,767.2	4,125.7	-394.7	4,136.9	1.96	-1.86	0.62
10,438.0	88.00	0.70	6,770.4	4,220.7	-393.2	4,231.7	0.43	-0.11	-0.42
10,534.0	87.90	0.70	6,773.8	4,316.6	-392.1	4,327.5	0.10	-0.10	0.00
10,630.0	89.90	0.70	6,775.7	4,412.6	-390.9	4,423.4	2.08	2.08	0.00
10,727.0	90.00	0.40	6,775.8	4,509.5	-390.0	4,520.3	0.33	0.10	-0.31
10,823.0	90.00	0.40	6,775.8	4,605.5	-389.3	4,616.2	0.00	0.00	0.00
10,918.0	90.10	0.90	6,775.7	4,700.5	-388.2	4,711.1	0.54	0.11	0.53
11,014.0	90.00	0.70	6,775.6	4,796.5	-386.9	4,807.0	0.23	-0.10	-0.21
11,111.0	89.90	1.10	6,775.7	4,893.5	-385.4	4,903.9	0.43	-0.10	0.41
11,207.0	89.60	0.50	6,776.1	4,989.5	-384.0	4,999.8	0.70	-0.31	-0.63
11,303.0	89.60	359.70	6,776.8	5,085.5	-383.9	5,095.7	0.83	0.00	-0.83
11,399.0	91.00	0.00	6,776.3	5,181.5	-384.1	5,191.6	1.49	1.46	0.31
11,494.0	91.10	359.30	6,774.5	5,276.5	-384.7	5,286.6	0.74	0.11	-0.74
11,590.0	91.10	359.10	6,772.7	5,372.5	-386.0	5,382.6	0.21	0.00	-0.21
11,686.0	90.90	358.90	6,771.0	5,468.4	-387.7	5,478.5	0.29	-0.21	-0.21
11,782.0	91.10	358.40	6,769.3	5,564.4	-390.0	5,574.5	0.56	0.21	-0.52
11,878.0	91.10	358.10	6,767.5	5,660.3	-392.9	5,670.5	0.31	0.00	-0.31
11,974.0	91.20	357.90	6,765.6	5,756.2	-396.2	5,766.5	0.23	0.10	-0.21
12,070.0	91.30	357.40	6,763.5	5,852.1	-400.2	5,862.4	0.53	0.10	-0.52
12,166.0	89.40	358.80	6,762.9	5,948.1	-403.4	5,958.4	2.46	-1.98	1.46
12,263.0	89.90	0.50	6,763.5	6,045.1	-404.0	6,055.4	1.83	0.52	1.75
12,359.0	89.70	0.40	6,763.8	6,141.1	-403.2	6,151.3	0.23	-0.21	-0.10
12,455.0	90.10	0.20	6,764.0	6,237.1	-402.7	6,247.2	0.47	0.42	-0.21
12,551.0	90.20	359.80	6,763.7	6,333.1	-402.7	6,343.2	0.43	0.10	-0.42
12,647.0	89.90	0.20	6,763.6	6,429.1	-402.7	6,439.1	0.52	-0.31	0.42
12,743.0	89.50	0.00	6,764.1	6,525.1	-402.5	6,535.0	0.47	-0.42	-0.21

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well High Plains 25F-221
Project:	SEC.25-T5N-R65W	TVD Reference:	WELL @ 4662.0ft (Original Well Elev)
Site:	High Plains 5N65W25AF Pad Sec.25-T5N-R65W	MD Reference:	WELL @ 4662.0ft (Original Well Elev)
Well:	High Plains 25F-221	North Reference:	True
Wellbore:	High Plains 25F-221 Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	High Plains 25F-221 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)
12,839.0	90.20	359.30	6,764.4	6,621.1	-403.1	6,631.0	1.03	0.73	-0.73
12,935.0	90.40	358.90	6,763.9	6,717.0	-404.6	6,727.0	0.47	0.21	-0.42
13,031.0	90.40	358.80	6,763.2	6,813.0	-406.6	6,823.0	0.10	0.00	-0.10
13,126.0	90.40	357.90	6,762.6	6,908.0	-409.3	6,918.0	0.95	0.00	-0.95
13,222.0	90.60	357.70	6,761.7	7,003.9	-413.0	7,014.0	0.29	0.21	-0.21
13,317.0	90.00	359.80	6,761.2	7,098.9	-415.0	7,109.0	2.30	-0.63	2.21
13,412.0	90.00	359.10	6,761.2	7,193.9	-416.0	7,203.9	0.74	0.00	-0.74
13,508.0	89.70	1.20	6,761.5	7,289.9	-415.7	7,299.9	2.21	-0.31	2.19
13,604.0	89.70	0.40	6,762.0	7,385.9	-414.4	7,395.7	0.83	0.00	-0.83
13,699.0	89.60	359.80	6,762.5	7,480.9	-414.2	7,490.7	0.64	-0.11	-0.63
13,795.0	88.70	0.50	6,764.0	7,576.8	-413.9	7,586.6	1.19	-0.94	0.73
13,890.0	88.60	0.20	6,766.2	7,671.8	-413.4	7,681.5	0.33	-0.11	-0.32
13,986.0	89.50	1.60	6,767.8	7,767.8	-411.9	7,777.4	1.73	0.94	1.46
14,081.0	89.90	1.20	6,768.3	7,862.8	-409.5	7,872.2	0.60	0.42	-0.42
14,177.0	90.20	0.40	6,768.2	7,958.7	-408.2	7,968.1	0.89	0.31	-0.83
14,272.0	90.60	359.30	6,767.6	8,053.7	-408.4	8,063.0	1.23	0.42	-1.16
14,368.0	90.70	358.90	6,766.5	8,149.7	-410.0	8,159.0	0.43	0.10	-0.42
14,464.0	91.10	358.60	6,765.0	8,245.7	-412.0	8,255.0	0.52	0.42	-0.31
14,560.0	89.50	0.70	6,764.5	8,341.7	-412.6	8,350.9	2.75	-1.67	2.19
14,656.0	89.50	0.20	6,765.3	8,437.7	-411.9	8,446.8	0.52	0.00	-0.52
14,752.0	89.60	359.80	6,766.0	8,533.7	-411.9	8,542.8	0.43	0.10	-0.42
14,847.0	89.20	1.20	6,767.0	8,628.7	-411.1	8,637.7	1.53	-0.42	1.47
14,943.0	89.40	0.50	6,768.2	8,724.6	-409.6	8,733.6	0.76	0.21	-0.73
15,038.0	89.50	0.20	6,769.1	8,819.6	-409.0	8,828.5	0.33	0.11	-0.32
15,133.0	90.00	359.50	6,769.5	8,914.6	-409.3	8,923.4	0.91	0.53	-0.74
15,229.0	90.50	358.80	6,769.1	9,010.6	-410.7	9,019.4	0.90	0.52	-0.73
15,325.0	90.90	0.00	6,767.9	9,106.6	-411.7	9,115.4	1.32	0.42	1.25
15,420.0	90.90	359.80	6,766.5	9,201.6	-411.9	9,210.3	0.21	0.00	-0.21
15,515.0	90.20	1.60	6,765.5	9,296.6	-410.7	9,305.2	2.03	-0.74	1.89
15,611.0	90.30	1.10	6,765.1	9,392.5	-408.5	9,401.0	0.53	0.10	-0.52
15,706.0	90.30	0.50	6,764.6	9,487.5	-407.1	9,495.9	0.63	0.00	-0.63
15,802.0	90.30	0.00	6,764.1	9,583.5	-406.7	9,591.8	0.52	0.00	-0.52
15,898.0	90.50	2.10	6,763.5	9,679.5	-405.0	9,687.7	2.20	0.21	2.19
15,993.0	90.20	2.10	6,762.9	9,774.4	-401.5	9,782.5	0.32	-0.32	0.00
16,089.0	90.80	0.90	6,762.0	9,870.4	-399.0	9,878.3	1.40	0.63	-1.25
16,185.0	91.30	0.70	6,760.3	9,966.4	-397.6	9,974.2	0.56	0.52	-0.21
16,280.0	91.70	0.00	6,757.8	10,061.3	-397.0	10,069.0	0.85	0.42	-0.74
16,376.0	89.60	0.90	6,756.7	10,157.3	-396.3	10,164.9	2.38	-2.19	0.94
16,472.0	89.80	0.50	6,757.2	10,253.3	-395.1	10,260.8	0.47	0.21	-0.42
16,568.0	90.20	359.50	6,757.2	10,349.3	-395.1	10,356.8	1.12	0.42	-1.04
16,663.0	90.90	358.90	6,756.3	10,444.3	-396.4	10,451.8	0.97	0.74	-0.63
16,758.0	89.80	358.20	6,755.7	10,539.3	-398.9	10,546.7	1.37	-1.16	-0.74
16,854.0	90.10	356.30	6,755.8	10,635.1	-403.5	10,642.7	2.00	0.31	-1.98

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well High Plains 25F-221
Project:	SEC.25-T5N-R65W	TVD Reference:	WELL @ 4662.0ft (Original Well Elev)
Site:	High Plains 5N65W25AF Pad Sec.25-T5N-R65W	MD Reference:	WELL @ 4662.0ft (Original Well Elev)
Well:	High Plains 25F-221	North Reference:	True
Wellbore:	High Plains 25F-221 Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	High Plains 25F-221 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)
16,950.0	89.70	357.90	6,756.0	10,731.0	-408.3	10,738.7	1.72	-0.42	1.67
17,045.0	89.50	359.30	6,756.6	10,826.0	-410.6	10,833.7	1.49	-0.21	1.47
17,140.0	90.00	0.50	6,757.0	10,921.0	-410.8	10,928.7	1.37	0.53	1.26
17,236.0	90.70	0.20	6,756.5	11,017.0	-410.2	11,024.6	0.79	0.73	-0.31
17,331.0	91.30	359.30	6,754.8	11,112.0	-410.6	11,119.5	1.14	0.63	-0.95
17,427.0	90.10	359.80	6,753.6	11,208.0	-411.4	11,215.5	1.35	-1.25	0.52
17,523.0	90.90	0.90	6,752.8	11,303.9	-410.8	11,311.4	1.42	0.83	1.15
17,618.0	91.50	359.80	6,750.8	11,398.9	-410.2	11,406.3	1.32	0.63	-1.16
17,714.0	90.70	359.50	6,749.0	11,494.9	-410.8	11,502.2	0.89	-0.83	-0.31
17,753.0	90.80	359.30	6,748.4	11,533.9	-411.2	11,541.2	0.57	0.26	-0.51
17,808.0	90.80	359.30	6,747.7	11,588.9	-411.9	11,596.2	0.00	0.00	0.00

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
SHL 1009'FNL, 749'FWL	0.00	0.00	1.0	0.0	0.0	1,380,554.34	3,245,642.76	40.374671	-104.618327
- survey hits target center									
- Point									
BHL 50'FNL, 371'FWL, §	0.00	0.00	6,755.0	11,589.5	-399.1	1,392,138.79	3,245,128.49	40.406483	-104.619760
- survey misses target center by 14.8ft at 17808.0ft MD (6747.7 TVD, 11588.9 N, -411.9 E)									
- Point									

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
6,838.3	6,709.5	632.0	-414.8	TPZ - 60° - 377'FNL & 334'FWL, Sec.25
8,370.3	6,780.4	2,153.3	-394.5	Deepest TVD Drilled - 6780.4'

Checked By: _____	Approved By: _____	Date: _____
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