

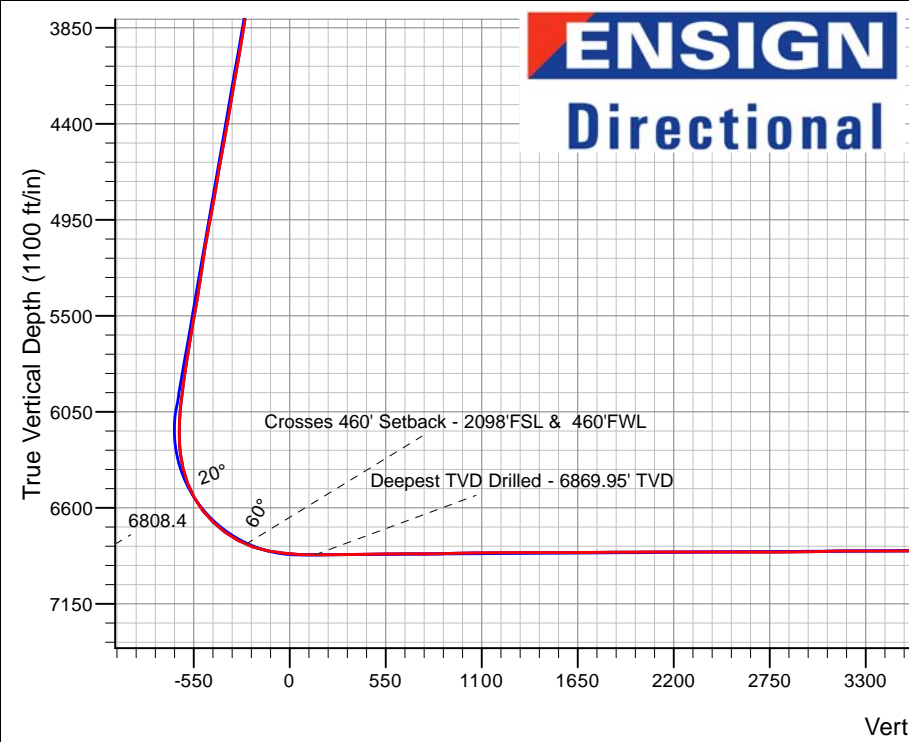
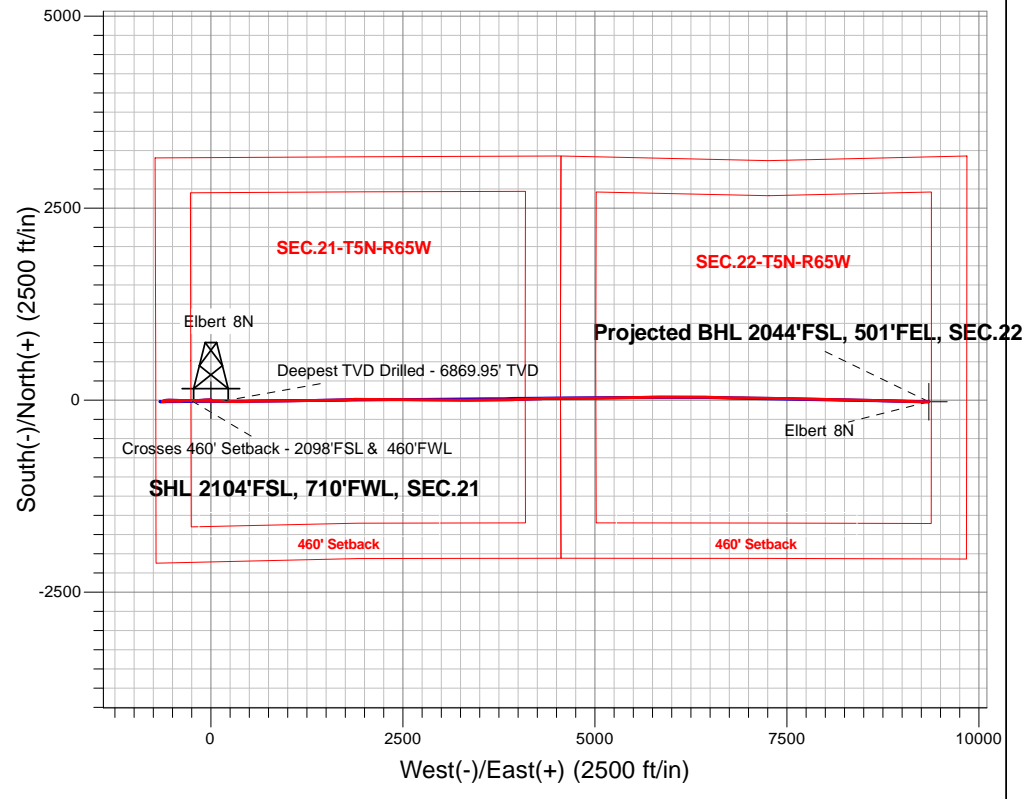
PDC Energy Inc. DJ Basin

Well Name: **Elbert 8N**

Surface Location: Elbert 1-12 Pad Sec.21-T5N-R65W
 North American Datum 1983 , US State Plane 1983, Colorado Northern Zone
 Ground Elevation: 4638.0
 +N/-S+E/-W Northing Easting Longitude Slot
 0.0 0.01383497.73 3229755.13 40.383170 -104.675250
 Original Well Elev WELL @ 4661.0ft (Original Well Elev)

FINAL SURVEY

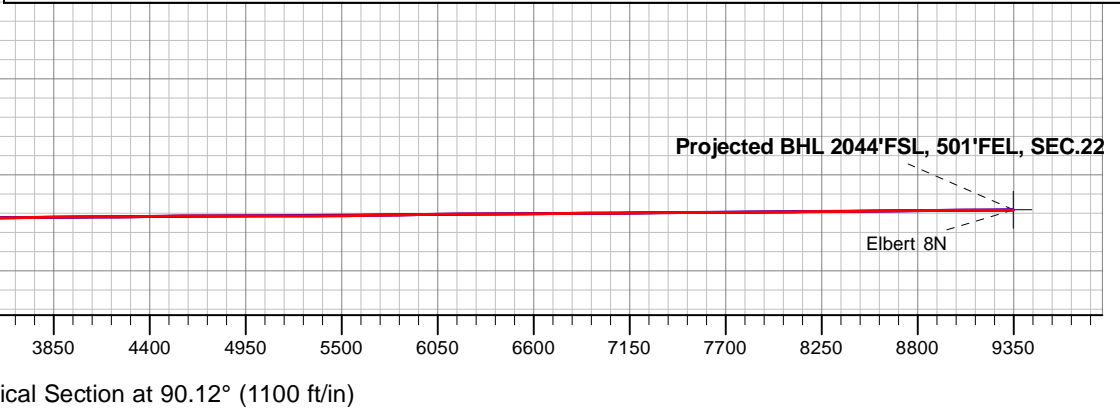
Projected Bottom Hole Location
16,618'MD 6802'TVD 20'S & 9347'E of SHL
90.4 degree Incl @ 90.4 degree AZM



Elbert 1-12 Pad Sec.21-T5N-R65W
 Elbert 8N
 Wellbore #1
 13:42, July 06 2017

ANNOTATIONS		
TVD	MD	Annotation
6808.4	7011.8	Crosses 460' Setback - 2098'FSL & 460'FWL
6870.0	7413.0	Deepest TVD Drilled - 6869.95' TVD

LEGEND	
	Elbert 8N, Wellbore #1, Plan #5 (6-23-17)R V0
	Wellbore #1
	Survey #1



Vertical Section at 90.12° (1100 ft/in)



PDC Energy Inc. DJ Basin

SEC.21-T5N-R65W

Elbert 1-12 Pad Sec.21-T5N-R65W

Elbert 8N

Wellbore #1

Survey: Survey #1

Standard Survey Report

06 July, 2017



Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Elbert 8N
Project:	SEC.21-T5N-R65W	TVD Reference:	WELL @ 4661.0ft (Original Well Elev)
Site:	Elbert 1-12 Pad Sec.21-T5N-R65W	MD Reference:	WELL @ 4661.0ft (Original Well Elev)
Well:	Elbert 8N	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	US_EDM

Project	SEC.21-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	Elbert 1-12 Pad Sec.21-T5N-R65W				
Site Position:		Northing:	1,383,603.37 usft	Latitude:	40.383460
From:	Lat/Long	Easting:	3,229,751.36 usft	Longitude:	-104.675260
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.53 °

Well	Elbert 8N					
Well Position	+N/-S	0.0 ft	Northing:	1,383,497.73 usft	Latitude:	40.383170
	+E/-W	0.0 ft	Easting:	3,229,755.13 usft	Longitude:	-104.675250
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,638.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/23/2017	8.00	66.84	52,499

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	90.12	

Survey Program	Date	7/6/2017			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
142.0	16,618.0	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	
142.0	0.30	84.60	142.0	0.0	0.4	0.4	0.21	0.21	0.00	
232.0	0.20	89.70	232.0	0.1	0.8	0.8	0.11	-0.11	5.67	
321.0	0.40	72.90	321.0	0.2	1.2	1.2	0.24	0.22	-18.88	
411.0	0.30	78.80	411.0	0.3	1.7	1.7	0.12	-0.11	6.56	
500.0	0.30	105.90	500.0	0.3	2.2	2.2	0.16	0.00	30.45	
590.0	0.40	51.10	590.0	0.4	2.7	2.7	0.37	0.11	-60.89	
680.0	0.50	70.90	680.0	0.7	3.3	3.3	0.20	0.11	22.00	
770.0	0.50	70.60	770.0	1.0	4.0	4.0	0.00	0.00	-0.33	
860.0	0.40	60.20	860.0	1.3	4.7	4.7	0.14	-0.11	-11.56	

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Elbert 8N
Project:	SEC.21-T5N-R65W	TVD Reference:	WELL @ 4661.0ft (Original Well Elev)
Site:	Elbert 1-12 Pad Sec.21-T5N-R65W	MD Reference:	WELL @ 4661.0ft (Original Well Elev)
Well:	Elbert 8N	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)	
949.0	0.40	48.80	949.0	1.6	5.2	5.2	0.09	0.00	-12.81	
1,039.0	0.20	52.80	1,039.0	1.9	5.5	5.5	0.22	-0.22	4.44	
1,129.0	0.10	96.40	1,129.0	2.0	5.7	5.7	0.16	-0.11	48.44	
1,218.0	0.10	19.40	1,218.0	2.1	5.8	5.8	0.14	0.00	-86.52	
1,307.0	0.20	354.10	1,307.0	2.3	5.9	5.8	0.13	0.11	-28.43	
1,397.0	0.40	284.40	1,397.0	2.5	5.5	5.5	0.42	0.22	-77.44	
1,487.0	0.40	310.50	1,487.0	2.8	5.0	5.0	0.20	0.00	29.00	
1,593.0	0.40	319.70	1,593.0	3.4	4.5	4.5	0.06	0.00	8.68	
1,666.0	0.40	327.60	1,666.0	3.8	4.2	4.2	0.08	0.00	10.82	
1,756.0	0.10	171.30	1,756.0	3.9	4.0	4.0	0.55	-0.33	-173.67	
1,845.0	1.30	288.50	1,845.0	4.2	3.1	3.1	1.52	1.35	131.69	
1,935.0	2.80	289.10	1,934.9	5.2	0.0	0.0	1.67	1.67	0.67	
2,025.0	4.20	276.20	2,024.7	6.3	-5.3	-5.4	1.78	1.56	-14.33	
2,115.0	5.90	268.70	2,114.4	6.6	-13.2	-13.3	2.02	1.89	-8.33	
2,205.0	5.80	265.70	2,203.9	6.1	-22.4	-22.4	0.36	-0.11	-3.33	
2,295.0	7.30	263.40	2,293.3	5.1	-32.6	-32.6	1.69	1.67	-2.56	
2,384.0	7.20	261.80	2,381.6	3.7	-43.8	-43.8	0.25	-0.11	-1.80	
2,473.0	8.20	266.90	2,469.8	2.5	-55.6	-55.6	1.36	1.12	5.73	
2,562.0	8.20	267.50	2,557.9	1.9	-68.3	-68.3	0.10	0.00	0.67	
2,652.0	8.20	266.90	2,647.0	1.3	-81.1	-81.1	0.10	0.00	-0.67	
2,741.0	8.20	265.90	2,735.1	0.5	-93.8	-93.8	0.16	0.00	-1.12	
2,830.0	7.60	266.20	2,823.2	-0.4	-106.0	-106.0	0.68	-0.67	0.34	
2,920.0	8.60	265.70	2,912.3	-1.3	-118.6	-118.6	1.11	1.11	-0.56	
3,010.0	8.80	266.90	3,001.3	-2.1	-132.2	-132.2	0.30	0.22	1.33	
3,100.0	8.40	265.00	3,090.3	-3.1	-145.6	-145.6	0.55	-0.44	-2.11	
3,190.0	9.60	268.20	3,179.2	-3.9	-159.7	-159.7	1.44	1.33	3.56	
3,279.0	8.90	265.50	3,267.0	-4.7	-174.0	-174.0	0.93	-0.79	-3.03	
3,368.0	7.80	266.00	3,355.1	-5.6	-186.9	-186.8	1.24	-1.24	0.56	
3,458.0	8.40	270.40	3,444.2	-6.0	-199.5	-199.5	0.96	0.67	4.89	
3,548.0	7.60	268.00	3,533.3	-6.2	-212.0	-212.0	0.96	-0.89	-2.67	
3,638.0	9.20	272.70	3,622.3	-6.0	-225.2	-225.2	1.93	1.78	5.22	
3,727.0	9.90	272.70	3,710.1	-5.3	-239.9	-239.9	0.79	0.79	0.00	
3,817.0	9.80	272.20	3,798.8	-4.7	-255.3	-255.3	0.15	-0.11	-0.56	
3,907.0	9.50	270.80	3,887.5	-4.3	-270.4	-270.4	0.42	-0.33	-1.56	
3,997.0	8.90	267.50	3,976.3	-4.5	-284.8	-284.8	0.89	-0.67	-3.67	
4,087.0	10.00	268.90	4,065.1	-4.9	-299.5	-299.5	1.25	1.22	1.56	
4,177.0	9.50	269.20	4,153.8	-5.2	-314.8	-314.8	0.56	-0.56	0.33	
4,267.0	10.50	264.30	4,242.4	-6.1	-330.4	-330.4	1.46	1.11	-5.44	
4,357.0	9.90	263.60	4,331.0	-7.8	-346.2	-346.2	0.68	-0.67	-0.78	
4,447.0	9.50	262.00	4,419.7	-9.7	-361.3	-361.2	0.54	-0.44	-1.78	
4,537.0	10.60	265.90	4,508.4	-11.3	-376.9	-376.8	1.44	1.22	4.33	
4,628.0	10.10	263.90	4,597.9	-12.7	-393.2	-393.1	0.68	-0.55	-2.20	
4,718.0	9.80	263.20	4,686.5	-14.5	-408.6	-408.6	0.36	-0.33	-0.78	
4,808.0	10.40	274.00	4,775.1	-14.8	-424.3	-424.3	2.20	0.67	12.00	

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Site:	Elbert 1-12 Pad Sec.21-T5N-R65W	MD Reference:	WELL @ 4661.0ft (Original Well Elev)
Well:	Elbert 8N	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)	
4,898.0	9.90	275.50	4,863.7	-13.5	-440.1	-440.1	0.63	-0.56	1.67	
4,988.0	11.00	271.30	4,952.2	-12.6	-456.4	-456.4	1.49	1.22	-4.67	
5,078.0	10.20	269.90	5,040.7	-12.4	-473.0	-472.9	0.93	-0.89	-1.56	
5,168.0	9.10	270.60	5,129.4	-12.3	-488.0	-488.0	1.23	-1.22	0.78	
5,258.0	8.00	266.20	5,218.4	-12.7	-501.4	-501.4	1.42	-1.22	-4.89	
5,349.0	8.60	265.00	5,308.5	-13.7	-514.5	-514.5	0.69	0.66	-1.32	
5,438.0	9.10	271.70	5,396.4	-14.1	-528.2	-528.1	1.29	0.56	7.53	
5,527.0	10.60	273.40	5,484.1	-13.4	-543.4	-543.4	1.72	1.69	1.91	
5,617.0	9.50	270.60	5,572.7	-12.8	-559.1	-559.0	1.34	-1.22	-3.11	
5,706.0	9.50	268.20	5,660.5	-13.0	-573.8	-573.7	0.45	0.00	-2.70	
5,796.0	8.60	267.50	5,749.4	-13.5	-587.9	-587.9	1.01	-1.00	-0.78	
5,886.0	8.60	266.80	5,838.4	-14.2	-601.3	-601.3	0.12	0.00	-0.78	
5,976.0	7.10	265.50	5,927.5	-15.0	-613.6	-613.6	1.68	-1.67	-1.44	
6,066.0	6.50	266.60	6,016.9	-15.7	-624.2	-624.2	0.68	-0.67	1.22	
6,156.0	3.20	234.40	6,106.6	-17.5	-631.4	-631.3	4.62	-3.67	-35.78	
6,247.0	1.60	55.30	6,197.5	-18.2	-632.4	-632.4	5.27	-1.76	-196.81	
6,336.0	6.90	59.50	6,286.2	-14.8	-626.8	-626.7	5.96	5.96	4.72	
6,425.0	14.50	70.80	6,373.6	-8.4	-611.6	-611.6	8.82	8.54	12.70	
6,514.0	21.30	80.80	6,458.3	-2.2	-585.1	-585.1	8.36	7.64	11.24	
6,604.0	29.00	89.00	6,539.7	0.8	-547.1	-547.1	9.37	8.56	9.11	
6,694.0	37.40	91.70	6,615.0	0.4	-497.9	-497.9	9.47	9.33	3.00	
6,783.0	45.80	92.60	6,681.5	-1.8	-438.9	-438.9	9.46	9.44	1.01	
6,873.0	54.20	91.10	6,739.3	-4.0	-370.0	-370.0	9.42	9.33	-1.67	
6,963.0	61.50	91.00	6,787.1	-5.4	-293.9	-293.9	8.11	8.11	-0.11	
7,011.8	66.76	91.45	6,808.4	-6.3	-250.0	-250.0	10.81	10.78	0.92	
Crosses 460' Setback - 2098'FSL & 460'FWL										
7,053.0	71.20	91.80	6,823.2	-7.4	-211.6	-211.5	10.81	10.78	0.85	
7,143.0	79.30	91.80	6,846.1	-10.2	-124.6	-124.6	9.00	9.00	0.00	
7,234.0	83.60	91.00	6,859.6	-12.4	-34.7	-34.7	4.80	4.73	-0.88	
7,324.0	86.30	90.60	6,867.5	-13.6	54.9	55.0	3.03	3.00	-0.44	
7,413.0	90.60	91.00	6,870.0	-14.9	143.9	143.9	4.85	4.83	0.45	
Deepest TVD Drilled - 6869.95' TVD										
7,503.0	91.40	90.40	6,868.4	-16.0	233.8	233.9	1.11	0.89	-0.67	
7,593.0	90.10	90.30	6,867.2	-16.5	323.8	323.9	1.45	-1.44	-0.11	
7,683.0	90.60	89.40	6,866.7	-16.3	413.8	413.9	1.14	0.56	-1.00	
7,772.0	91.50	89.40	6,865.0	-15.3	502.8	502.8	1.01	1.01	0.00	
7,862.0	89.60	89.20	6,864.2	-14.2	592.8	592.8	2.12	-2.11	-0.22	
7,951.0	90.00	88.90	6,864.5	-12.8	681.8	681.8	0.56	0.45	-0.34	
8,041.0	90.70	89.00	6,863.9	-11.1	771.8	771.8	0.79	0.78	0.11	
8,131.0	91.10	88.50	6,862.5	-9.2	861.7	861.7	0.71	0.44	-0.56	
8,220.0	91.60	88.50	6,860.4	-6.8	950.7	950.7	0.56	0.56	0.00	
8,310.0	90.60	89.60	6,858.7	-5.3	1,040.6	1,040.7	1.65	-1.11	1.22	
8,400.0	91.00	89.40	6,857.4	-4.5	1,130.6	1,130.6	0.50	0.44	-0.22	

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Well:	Elbert 8N	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)
8,489.0	89.90	90.30	6,856.7	-4.3	1,219.6	1,219.6	1.60	-1.24	1.01
8,579.0	90.20	89.60	6,856.6	-4.2	1,309.6	1,309.6	0.85	0.33	-0.78
8,669.0	90.80	89.20	6,855.9	-3.3	1,399.6	1,399.6	0.80	0.67	-0.44
8,759.0	89.40	89.00	6,855.7	-1.9	1,489.6	1,489.6	1.57	-1.56	-0.22
8,849.0	89.70	88.70	6,856.4	-0.1	1,579.6	1,579.6	0.47	0.33	-0.33
8,939.0	90.60	88.00	6,856.2	2.5	1,669.5	1,669.5	1.27	1.00	-0.78
9,028.0	90.80	87.80	6,855.1	5.8	1,758.5	1,758.5	0.32	0.22	-0.22
9,144.0	90.30	87.60	6,854.0	10.4	1,874.4	1,874.4	0.46	-0.43	-0.17
9,234.0	90.00	89.70	6,853.7	12.6	1,964.3	1,964.3	2.36	-0.33	2.33
9,324.0	90.30	89.40	6,853.5	13.3	2,054.3	2,054.3	0.47	0.33	-0.33
9,414.0	90.10	91.30	6,853.2	12.7	2,144.3	2,144.3	2.12	-0.22	2.11
9,504.0	90.10	90.80	6,853.0	11.1	2,234.3	2,234.3	0.56	0.00	-0.56
9,594.0	90.60	90.30	6,852.5	10.2	2,324.3	2,324.3	0.79	0.56	-0.56
9,684.0	89.50	90.80	6,852.4	9.3	2,414.3	2,414.3	1.34	-1.22	0.56
9,774.0	89.50	91.30	6,853.2	7.7	2,504.3	2,504.3	0.56	0.00	0.56
9,864.0	89.50	91.10	6,854.0	5.8	2,594.3	2,594.2	0.22	0.00	-0.22
9,954.0	90.10	91.10	6,854.3	4.1	2,684.2	2,684.2	0.67	0.67	0.00
10,044.0	90.50	90.60	6,853.8	2.7	2,774.2	2,774.2	0.71	0.44	-0.56
10,133.0	90.80	90.60	6,852.8	1.8	2,863.2	2,863.2	0.34	0.34	0.00
10,223.0	91.40	90.40	6,851.1	1.0	2,953.2	2,953.2	0.70	0.67	-0.22
10,313.0	90.70	90.30	6,849.4	0.5	3,043.2	3,043.2	0.79	-0.78	-0.11
10,403.0	91.20	90.30	6,847.9	0.0	3,133.2	3,133.2	0.56	0.56	0.00
10,493.0	89.80	90.40	6,847.2	-0.6	3,223.2	3,223.2	1.56	-1.56	0.11
10,583.0	90.00	88.90	6,847.3	0.0	3,313.2	3,313.2	1.68	0.22	-1.67
10,673.0	89.80	89.70	6,847.5	1.1	3,403.2	3,403.1	0.92	-0.22	0.89
10,763.0	90.40	89.60	6,847.3	1.6	3,493.2	3,493.1	0.68	0.67	-0.11
10,854.0	90.60	88.90	6,846.5	2.8	3,584.1	3,584.1	0.80	0.22	-0.77
10,944.0	91.00	88.90	6,845.3	4.6	3,674.1	3,674.1	0.44	0.44	0.00
11,034.0	91.50	88.70	6,843.3	6.5	3,764.1	3,764.1	0.60	0.56	-0.22
11,124.0	91.00	88.20	6,841.3	8.9	3,854.0	3,854.0	0.79	-0.56	-0.56
11,214.0	89.50	88.90	6,840.9	11.2	3,944.0	3,944.0	1.84	-1.67	0.78
11,304.0	89.70	88.50	6,841.6	13.2	4,034.0	4,033.9	0.50	0.22	-0.44
11,394.0	90.10	88.30	6,841.7	15.7	4,123.9	4,123.9	0.50	0.44	-0.22
11,483.0	90.60	88.20	6,841.2	18.4	4,212.9	4,212.8	0.57	0.56	-0.11
11,573.0	90.90	88.00	6,840.0	21.4	4,302.8	4,302.8	0.40	0.33	-0.22
11,663.0	90.60	90.10	6,838.8	22.9	4,392.8	4,392.7	2.36	-0.33	2.33
11,753.0	90.90	89.70	6,837.6	23.1	4,482.8	4,482.7	0.56	0.33	-0.44
11,843.0	91.20	89.20	6,836.0	23.9	4,572.8	4,572.7	0.65	0.33	-0.56
11,933.0	89.60	90.30	6,835.4	24.3	4,662.8	4,662.7	2.16	-1.78	1.22
12,023.0	89.90	89.60	6,835.8	24.4	4,752.8	4,752.7	0.85	0.33	-0.78
12,113.0	90.30	89.60	6,835.6	25.0	4,842.8	4,842.7	0.44	0.44	0.00
12,203.0	90.70	89.20	6,834.8	26.0	4,932.8	4,932.7	0.63	0.44	-0.44
12,293.0	89.20	89.20	6,834.9	27.2	5,022.7	5,022.7	1.67	-1.67	0.00
12,382.0	89.40	89.00	6,836.0	28.6	5,111.7	5,111.7	0.32	0.22	-0.22

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Elbert 8N
Project:	SEC.21-T5N-R65W	TVD Reference:	WELL @ 4661.0ft (Original Well Elev)
Site:	Elbert 1-12 Pad Sec.21-T5N-R65W	MD Reference:	WELL @ 4661.0ft (Original Well Elev)
Well:	Elbert 8N	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)	
12,472.0	89.90	88.50	6,836.5	30.6	5,201.7	5,201.6	0.79	0.56	-0.56	
12,562.0	90.50	88.70	6,836.2	32.8	5,291.7	5,291.6	0.70	0.67	0.22	
12,652.0	91.10	89.00	6,835.0	34.6	5,381.6	5,381.6	0.75	0.67	0.33	
12,741.0	90.40	88.90	6,833.8	36.2	5,470.6	5,470.5	0.79	-0.79	-0.11	
12,831.0	90.90	88.90	6,832.8	38.0	5,560.6	5,560.5	0.56	0.56	0.00	
12,921.0	90.20	90.30	6,831.9	38.6	5,650.6	5,650.5	1.74	-0.78	1.56	
13,011.0	90.50	90.10	6,831.4	38.3	5,740.6	5,740.5	0.40	0.33	-0.22	
13,100.0	90.70	89.70	6,830.4	38.4	5,829.6	5,829.5	0.50	0.22	-0.45	
13,190.0	91.00	89.60	6,829.1	39.0	5,919.6	5,919.5	0.35	0.33	-0.11	
13,280.0	91.60	89.00	6,827.1	40.1	6,009.5	6,009.4	0.94	0.67	-0.67	
13,370.0	90.40	90.40	6,825.5	40.5	6,099.5	6,099.4	2.05	-1.33	1.56	
13,460.0	90.50	90.30	6,824.8	40.0	6,189.5	6,189.4	0.16	0.11	-0.11	
13,550.0	90.90	89.90	6,823.7	39.8	6,279.5	6,279.4	0.63	0.44	-0.44	
13,640.0	89.80	91.70	6,823.1	38.6	6,369.5	6,369.4	2.34	-1.22	2.00	
13,730.0	89.90	91.30	6,823.4	36.2	6,459.5	6,459.4	0.46	0.11	-0.44	
13,820.0	90.00	91.00	6,823.4	34.4	6,549.4	6,549.4	0.35	0.11	-0.33	
13,910.0	90.30	90.80	6,823.2	33.0	6,639.4	6,639.3	0.40	0.33	-0.22	
14,000.0	90.50	90.40	6,822.6	32.1	6,729.4	6,729.3	0.50	0.22	-0.44	
14,090.0	91.10	90.40	6,821.3	31.4	6,819.4	6,819.3	0.67	0.67	0.00	
14,180.0	90.00	91.90	6,820.5	29.6	6,909.4	6,909.3	2.07	-1.22	1.67	
14,270.0	90.20	91.70	6,820.3	26.8	6,999.3	6,999.3	0.31	0.22	-0.22	
14,360.0	90.60	91.00	6,819.7	24.7	7,089.3	7,089.2	0.90	0.44	-0.78	
14,450.0	90.90	90.60	6,818.5	23.4	7,179.3	7,179.2	0.56	0.33	-0.44	
14,540.0	91.20	90.30	6,816.8	22.7	7,269.3	7,269.2	0.47	0.33	-0.33	
14,630.0	89.50	90.60	6,816.3	22.0	7,359.3	7,359.2	1.92	-1.89	0.33	
14,720.0	89.90	90.40	6,816.8	21.2	7,449.3	7,449.2	0.50	0.44	-0.22	
14,809.0	90.50	90.10	6,816.5	20.8	7,538.3	7,538.2	0.75	0.67	-0.34	
14,899.0	91.00	90.30	6,815.3	20.5	7,628.3	7,628.2	0.60	0.56	0.22	
14,989.0	90.00	91.80	6,814.5	18.9	7,718.2	7,718.2	2.00	-1.11	1.67	
15,079.0	90.50	91.50	6,814.1	16.3	7,808.2	7,808.1	0.65	0.56	-0.33	
15,168.0	91.20	90.40	6,812.8	14.8	7,897.2	7,897.1	1.46	0.79	-1.24	
15,258.0	89.70	92.00	6,812.1	12.9	7,987.1	7,987.1	2.44	-1.67	1.78	
15,347.0	90.20	91.70	6,812.2	10.0	8,076.1	8,076.1	0.66	0.56	-0.34	
15,437.0	90.80	91.40	6,811.4	7.6	8,166.1	8,166.0	0.75	0.67	-0.33	
15,526.0	90.30	91.10	6,810.5	5.7	8,255.0	8,255.0	0.66	-0.56	-0.34	
15,616.0	90.90	91.30	6,809.6	3.8	8,345.0	8,345.0	0.70	0.67	0.22	
15,706.0	89.70	91.50	6,809.1	1.6	8,435.0	8,435.0	1.35	-1.33	0.22	
15,796.0	90.40	91.70	6,809.0	-0.9	8,524.9	8,524.9	0.81	0.78	0.22	
15,886.0	90.60	91.70	6,808.2	-3.6	8,614.9	8,614.9	0.22	0.22	0.00	
15,975.0	91.00	91.10	6,807.0	-5.8	8,703.9	8,703.9	0.81	0.45	-0.67	
16,065.0	91.20	91.80	6,805.3	-8.0	8,793.8	8,793.8	0.81	0.22	0.78	
16,155.0	91.70	90.60	6,803.0	-9.9	8,883.8	8,883.8	1.44	0.56	-1.33	
16,245.0	89.40	92.20	6,802.1	-12.1	8,973.7	8,973.7	3.11	-2.56	1.78	

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Elbert 8N
Project:	SEC.21-T5N-R65W	TVD Reference:	WELL @ 4661.0ft (Original Well Elev)
Site:	Elbert 1-12 Pad Sec.21-T5N-R65W	MD Reference:	WELL @ 4661.0ft (Original Well Elev)
Well:	Elbert 8N	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	US_EDM

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)
16,335.0	89.90	91.50	6,802.7	-15.0	9,063.7	9,063.7	0.96	0.56	-0.78
16,425.0	90.00	91.30	6,802.8	-17.2	9,153.7	9,153.7	0.25	0.11	-0.22
16,515.0	90.40	91.30	6,802.4	-19.3	9,243.6	9,243.6	0.44	0.44	0.00
16,564.0	90.40	90.40	6,802.1	-20.0	9,292.6	9,292.6	1.84	0.00	-1.84
16,618.0	90.40	90.40	6,801.7	-20.4	9,346.6	9,346.6	0.00	0.00	0.00

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL 2104'FSL, 710'FWL - hit/miss target - Shape - Point	0.00	0.00	1.0	0.0	0.0	1,383,497.75	3,229,755.13	40.383170	-104.675250
BHL 2045'FSL, 500'FEL - survey misses target center by 2.4ft at 16618.0ft MD (6801.7 TVD, -20.4 N, 9346.6 E) - Point	0.00	0.00	6,800.0	-19.7	9,348.1	1,383,564.97	3,239,102.65	40.383111	-104.641695

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
7,011.8	6,808.4	-6.3	-250.0	Crosses 460' Setback - 2098'FSL & 460'FWL
7,413.0	6,870.0	-14.9	143.9	Deepest TVD Drilled - 6869.95' TVD

Checked By: _____ Approved By: _____ Date: _____