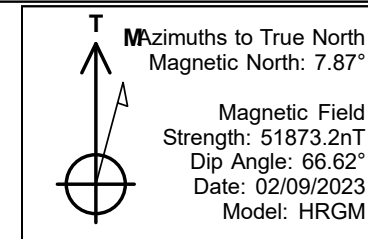


# PDC Energy Inc. DJ Basin



Stugart 19N  
 Stugart State 6-20  
 North American Datum 1983 , US State Plane 1983, Colorado Northern Zone  
 Ground Elevation: 4885.0  
 +N/-S +E/-W Northing Easting Longitude Slot  
 0.0 0.0 1384397.25 3193393.25 40.386500 -104.805760  
 Ensign 769 - RKB 28' Well @ 4913.0ft (Ensign 769 - RKB 28')

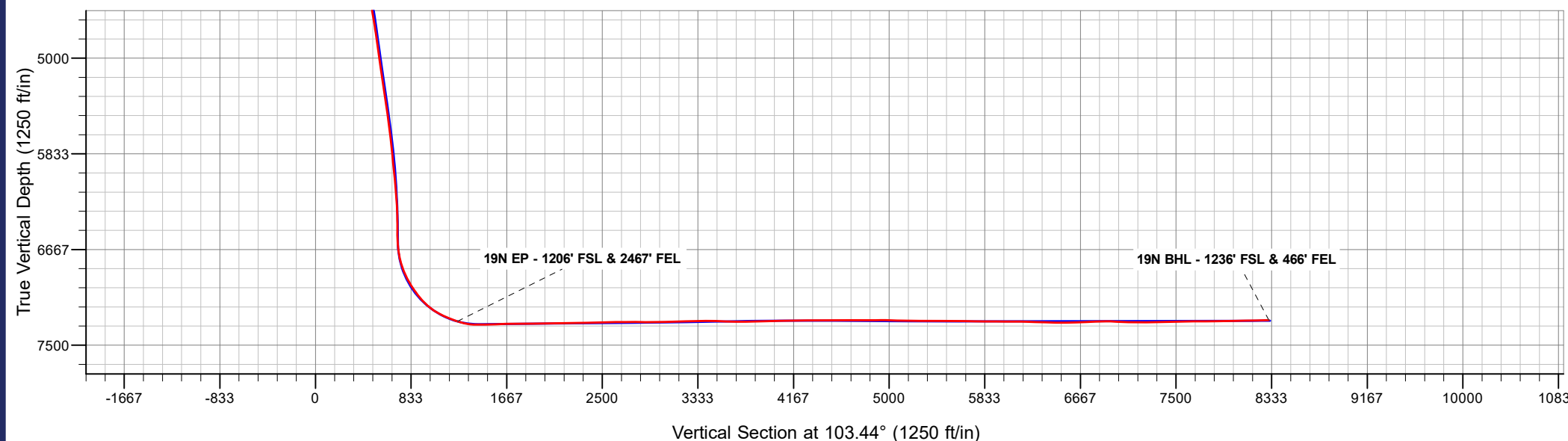
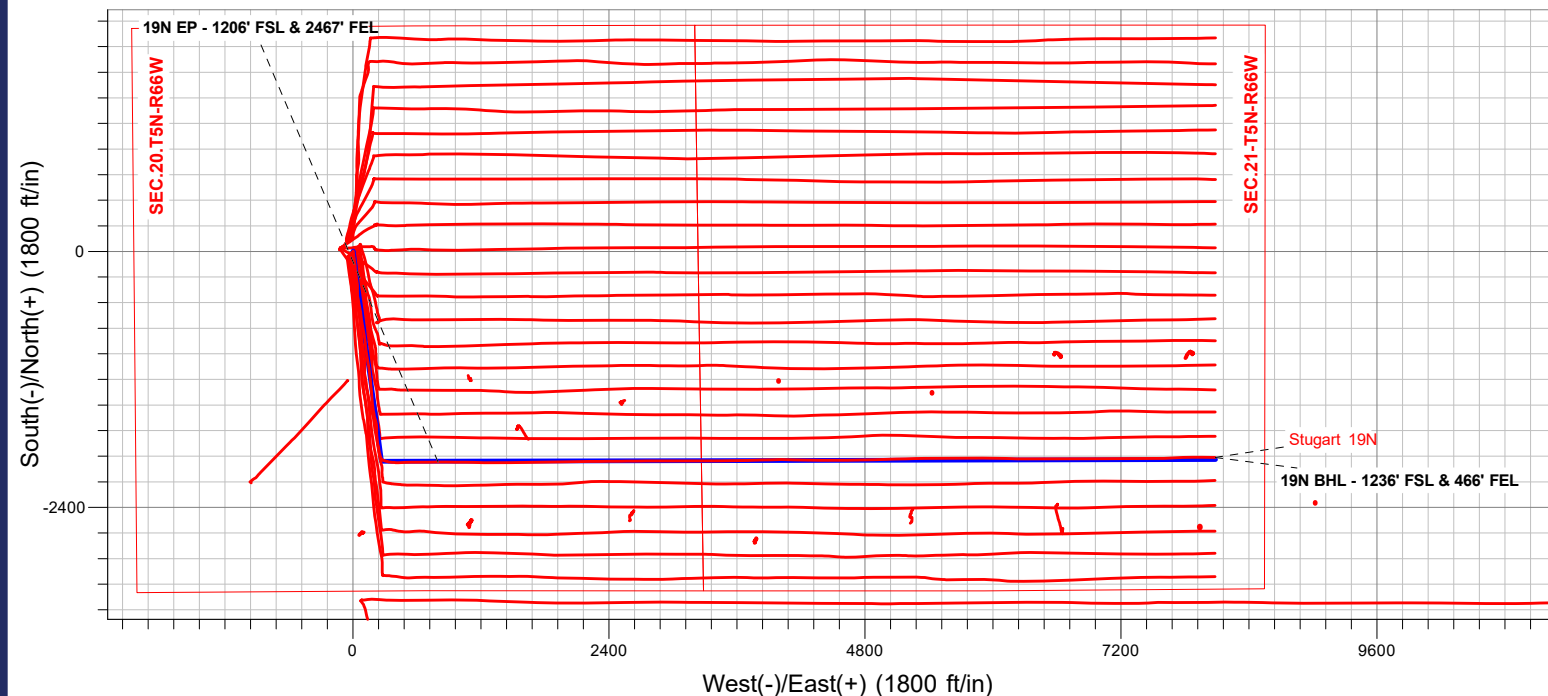
Stugart State 6-20  
 Stugart 19N  
 Stugart 19N Final Surveys  
 12:51, March 09 2023



**ANNOTATIONS**

MD	TVD	Annotation
7890.2	7292.1	19N EP - 1206' FSL & 2467' FEL
15179.0	7282.1	19N BHL - 1236' FSL & 466' FEL

**FINAL SURVEY**  
**Projected Bottom Hole Location**  
**15179' MD / 7282.1' TVD**  
**91.26° INC / 90.47° AZM**  
**1236' FSL / 466' FEL**





# **PDC Energy Inc. DJ Basin**

**SEC.20-T5N-R66W**

**Stugart State 6-20**

**Stugart 19N**

**Stugart 19N**

**Design: Stugart 19N Final Surveys**

## **Standard Survey Report**

**09 March, 2023**



<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Stugart 19N
<b>Project:</b>	SEC.20-T5N-R66W	<b>TVD Reference:</b>	Well @ 4913.0ft (Ensign 769 - RKB 28')
<b>Site:</b>	Stugart State 6-20	<b>MD Reference:</b>	Well @ 4913.0ft (Ensign 769 - RKB 28')
<b>Well:</b>	Stugart 19N	<b>North Reference:</b>	True
<b>Wellbore:</b>	Stugart 19N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Stugart 19N Final Surveys	<b>Database:</b>	US_EDM

<b>Project</b>	SEC.20-T5N-R66W		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

<b>Site</b>	Stugart State 6-20				
<b>Site Position:</b>		<b>Northing:</b>	1,384,531.67 usft	<b>Latitude:</b>	40.386863
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,193,390.47 usft	<b>Longitude:</b>	-104.805753
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.45 °

<b>Well</b>	Stugart 19N					
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	1,384,397.25 usft	<b>Latitude:</b>	40.386500
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	3,193,393.25 usft	<b>Longitude:</b>	-104.805760
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	4,885.0 ft

<b>Wellbore</b>	Stugart 19N				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HRGM	02/09/2023	7.87	66.62	51,873.16400609

<b>Design</b>	Stugart 19N Final Surveys				
<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	103.44	

<b>Survey Program</b>	<b>Date</b>	03/09/2023			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
160.0	15,179.0	Survey #1 (Stugart 19N)	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	
160.0	0.35	14.37	160.0	0.5	0.1	0.0	0.22	0.22	0.00	
252.0	0.79	17.36	252.0	1.4	0.4	0.1	0.48	0.48	3.25	
343.0	1.06	28.79	343.0	2.7	1.0	0.3	0.36	0.30	12.56	
459.0	0.70	165.72	459.0	2.9	1.7	0.9	1.42	-0.31	118.04	
546.0	2.02	168.71	545.9	0.9	2.1	1.8	1.52	1.52	3.44	
633.0	3.96	172.75	632.8	-3.6	2.8	3.5	2.24	2.23	4.64	
717.0	5.63	170.87	716.5	-10.5	3.8	6.1	2.00	1.99	-2.24	
802.0	8.18	173.28	800.9	-20.6	5.2	9.8	3.02	3.00	2.84	
887.0	10.73	173.63	884.7	-34.5	6.8	14.6	3.00	3.00	0.41	

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Stugart 19N
<b>Project:</b>	SEC.20-T5N-R66W	<b>TVD Reference:</b>	Well @ 4913.0ft (Ensign 769 - RKB 28')
<b>Site:</b>	Stugart State 6-20	<b>MD Reference:</b>	Well @ 4913.0ft (Ensign 769 - RKB 28')
<b>Well:</b>	Stugart 19N	<b>North Reference:</b>	True
<b>Wellbore:</b>	Stugart 19N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Stugart 19N Final Surveys	<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)	
973.0	11.96	172.05	969.1	-51.3	8.9	20.5	1.48	1.43	-1.84	
1,059.0	12.75	171.35	1,053.1	-69.5	11.5	27.4	0.93	0.92	-0.81	
1,144.0	14.33	170.47	1,135.7	-89.1	14.7	35.0	1.87	1.86	-1.04	
1,232.0	15.92	172.40	1,220.7	-111.8	18.1	43.6	1.90	1.81	2.19	
1,319.0	17.67	174.16	1,303.9	-136.8	21.0	52.2	2.09	2.01	2.02	
1,404.0	19.96	174.33	1,384.4	-164.1	23.8	61.2	2.69	2.69	0.20	
1,491.0	21.63	174.86	1,465.7	-194.8	26.7	71.2	1.93	1.92	0.61	
1,577.0	20.66	173.81	1,545.9	-225.7	29.7	81.3	1.21	-1.13	-1.22	
1,638.0	18.91	172.40	1,603.3	-246.2	32.2	88.5	2.97	-2.87	-2.31	
1,758.0	16.37	167.68	1,717.7	-282.0	38.4	102.8	2.43	-2.12	-3.93	
1,848.0	18.85	175.06	1,803.5	-308.9	42.3	112.9	3.70	2.76	8.20	
1,937.0	20.63	180.25	1,887.2	-338.9	43.5	121.0	2.81	2.00	5.83	
2,027.0	20.30	180.06	1,971.6	-370.4	43.4	128.3	0.37	-0.37	-0.21	
2,117.0	22.13	181.55	2,055.5	-402.9	42.9	135.4	2.12	2.03	1.66	
2,206.0	21.38	176.08	2,138.1	-435.9	43.6	143.7	2.43	-0.84	-6.15	
2,296.0	20.51	175.72	2,222.2	-468.0	45.9	153.4	0.98	-0.97	-0.40	
2,386.0	21.96	175.67	2,306.1	-500.5	48.3	163.3	1.61	1.61	-0.06	
2,475.0	21.97	175.68	2,388.6	-533.7	50.8	173.4	0.01	0.01	0.01	
2,565.0	19.91	174.35	2,472.7	-565.7	53.6	183.6	2.35	-2.29	-1.48	
2,655.0	21.15	171.46	2,556.9	-597.0	57.5	194.7	1.78	1.38	-3.21	
2,766.0	22.34	172.10	2,660.0	-637.7	63.4	209.9	1.09	1.07	0.58	
2,855.0	21.36	171.81	2,742.7	-670.5	68.0	222.0	1.11	-1.10	-0.33	
2,945.0	24.28	174.40	2,825.6	-705.2	72.2	234.1	3.43	3.24	2.88	
3,035.0	26.94	175.39	2,906.8	-743.9	75.6	246.4	2.99	2.96	1.10	
3,124.0	26.20	176.01	2,986.4	-783.6	78.6	258.5	0.89	-0.83	0.70	
3,214.0	24.15	174.14	3,067.8	-821.7	81.9	270.6	2.44	-2.28	-2.08	
3,303.0	22.86	172.54	3,149.4	-857.0	86.0	282.8	1.62	-1.45	-1.80	
3,393.0	20.98	171.40	3,232.9	-890.3	90.7	295.0	2.14	-2.09	-1.27	
3,483.0	18.57	166.64	3,317.6	-920.1	96.4	307.5	3.22	-2.68	-5.29	
3,662.0	18.54	173.76	3,487.3	-976.2	106.1	330.0	1.27	-0.02	3.98	
3,752.0	18.27	171.10	3,572.7	-1,004.3	109.8	340.2	0.98	-0.30	-2.96	
3,842.0	19.08	173.99	3,658.0	-1,032.9	113.5	350.4	1.37	0.90	3.21	
3,931.0	22.63	186.39	3,741.2	-1,064.4	113.1	357.4	6.34	3.99	13.93	
4,020.0	24.47	186.20	3,822.8	-1,099.7	109.2	361.8	2.07	2.07	-0.21	
4,110.0	26.24	180.97	3,904.1	-1,138.2	106.9	368.4	3.17	1.97	-5.81	
4,200.0	26.81	174.63	3,984.6	-1,178.3	108.5	379.3	3.21	0.63	-7.04	
4,289.0	28.15	171.65	4,063.6	-1,219.0	113.4	393.5	2.16	1.51	-3.35	
4,379.0	27.85	168.59	4,143.1	-1,260.7	120.6	410.2	1.63	-0.33	-3.40	
4,469.0	26.26	166.90	4,223.2	-1,300.7	129.3	428.0	1.96	-1.77	-1.88	
4,558.0	23.99	167.00	4,303.8	-1,337.5	137.8	444.8	2.55	-2.55	0.11	
4,648.0	22.47	166.84	4,386.5	-1,372.0	145.9	460.7	1.69	-1.69	-0.18	
4,738.0	20.52	166.18	4,470.2	-1,404.1	153.6	475.6	2.18	-2.17	-0.73	
4,827.0	19.09	165.21	4,554.0	-1,433.3	161.0	489.6	1.65	-1.61	-1.09	
4,917.0	19.65	167.74	4,638.9	-1,462.3	168.0	503.2	1.12	0.62	2.81	

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Stugart 19N
<b>Project:</b>	SEC.20-T5N-R66W	<b>TVD Reference:</b>	Well @ 4913.0ft (Ensign 769 - RKB 28')
<b>Site:</b>	Stugart State 6-20	<b>MD Reference:</b>	Well @ 4913.0ft (Ensign 769 - RKB 28')
<b>Well:</b>	Stugart 19N	<b>North Reference:</b>	True
<b>Wellbore:</b>	Stugart 19N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Stugart 19N Final Surveys	<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)	
5,007.0	20.33	167.63	4,723.4	-1,492.4	174.5	516.5	0.76	0.76	-0.12	
5,096.0	17.73	165.01	4,807.6	-1,520.6	181.3	529.7	3.07	-2.92	-2.94	
5,186.0	17.45	166.06	4,893.4	-1,546.9	188.1	542.4	0.47	-0.31	1.17	
5,276.0	19.14	170.29	4,978.8	-1,574.6	193.9	554.4	2.39	1.88	4.70	
5,366.0	20.84	173.07	5,063.4	-1,605.0	198.3	565.8	2.16	1.89	3.09	
5,455.0	23.10	174.20	5,145.9	-1,638.1	202.0	577.1	2.58	2.54	1.27	
5,545.0	22.30	171.12	5,229.0	-1,672.5	206.4	589.4	1.59	-0.89	-3.42	
5,635.0	20.33	169.54	5,312.8	-1,704.8	211.9	602.2	2.28	-2.19	-1.76	
5,725.0	19.86	168.55	5,397.3	-1,735.2	217.7	615.0	0.64	-0.52	-1.10	
5,814.0	18.01	169.17	5,481.5	-1,763.5	223.3	627.0	2.09	-2.08	0.70	
5,904.0	16.77	165.41	5,567.4	-1,789.7	229.2	638.8	1.86	-1.38	-4.18	
5,994.0	16.21	166.77	5,653.7	-1,814.5	235.4	650.5	0.76	-0.62	1.51	
6,083.0	15.94	171.93	5,739.2	-1,838.7	239.9	660.6	1.63	-0.30	5.80	
6,173.0	14.45	171.64	5,826.1	-1,862.1	243.3	669.3	1.66	-1.66	-0.32	
6,262.0	12.99	169.51	5,912.5	-1,882.9	246.7	677.5	1.74	-1.64	-2.39	
6,352.0	12.03	165.38	6,000.4	-1,901.9	250.9	686.0	1.46	-1.07	-4.59	
6,442.0	9.70	160.62	6,088.8	-1,918.1	255.8	694.5	2.77	-2.59	-5.29	
6,532.0	8.28	157.77	6,177.7	-1,931.3	260.8	702.4	1.65	-1.58	-3.17	
6,621.0	5.96	161.99	6,266.0	-1,941.6	264.6	708.5	2.67	-2.61	4.74	
6,711.0	3.62	165.36	6,355.6	-1,948.8	266.8	712.3	2.62	-2.60	3.74	
6,800.0	1.52	174.56	6,444.6	-1,952.7	267.6	714.0	2.40	-2.36	10.34	
6,890.0	0.02	206.11	6,534.5	-1,953.9	267.7	714.4	1.67	-1.67	35.06	
6,980.0	4.52	107.46	6,624.4	-1,955.0	271.1	717.9	5.03	5.00	-109.61	
7,069.0	9.75	103.62	6,712.7	-1,957.8	281.8	729.0	5.90	5.88	-4.31	
7,159.0	17.81	108.15	6,800.1	-1,963.9	302.3	750.4	9.03	8.96	5.03	
7,249.0	23.95	104.21	6,884.1	-1,972.7	333.1	782.4	6.99	6.82	-4.38	
7,339.0	31.67	93.28	6,963.7	-1,978.5	374.5	824.0	10.25	8.58	-12.14	
7,428.0	36.32	89.61	7,037.5	-1,979.7	424.2	872.6	5.71	5.22	-4.12	
7,518.0	43.15	88.44	7,106.7	-1,978.7	481.7	928.3	7.63	7.59	-1.30	
7,608.0	51.19	89.42	7,167.8	-1,977.5	547.6	992.1	8.97	8.93	1.09	
7,697.0	61.26	89.70	7,217.2	-1,976.9	621.5	1,063.9	11.32	11.31	0.31	
7,787.0	67.02	89.30	7,256.5	-1,976.2	702.5	1,142.4	6.41	6.40	-0.44	
7,876.0	71.81	89.79	7,287.7	-1,975.5	785.8	1,223.3	5.41	5.38	0.55	
7,890.2	72.77	89.86	7,292.1	-1,975.5	799.3	1,236.4	6.77	6.76	0.49	
<b>19N EP - 1206' FSL &amp; 2467' FEL</b>										
7,966.0	77.89	90.22	7,311.2	-1,975.6	872.6	1,307.8	6.77	6.76	0.48	
8,056.0	89.57	90.77	7,321.1	-1,976.3	961.9	1,394.8	12.99	12.98	0.61	
8,146.0	91.60	90.37	7,320.1	-1,977.2	1,051.9	1,482.5	2.30	2.26	-0.44	
8,235.0	91.43	90.68	7,317.8	-1,978.0	1,140.9	1,569.2	0.40	-0.19	0.35	
8,325.0	92.54	91.43	7,314.7	-1,979.7	1,230.8	1,657.1	1.49	1.23	0.83	
8,415.0	90.57	90.07	7,312.2	-1,980.9	1,320.7	1,744.9	2.66	-2.19	-1.51	
8,505.0	90.35	89.49	7,311.5	-1,980.5	1,410.7	1,832.3	0.69	-0.24	-0.64	
8,594.0	90.09	89.28	7,311.2	-1,979.6	1,499.7	1,918.6	0.38	-0.29	-0.24	

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Stugart 19N
<b>Project:</b>	SEC.20-T5N-R66W	<b>TVD Reference:</b>	Well @ 4913.0ft (Ensign 769 - RKB 28')
<b>Site:</b>	Stugart State 6-20	<b>MD Reference:</b>	Well @ 4913.0ft (Ensign 769 - RKB 28')
<b>Well:</b>	Stugart 19N	<b>North Reference:</b>	True
<b>Wellbore:</b>	Stugart 19N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Stugart 19N Final Surveys	<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)	
8,684.0	90.26	89.32	7,310.9	-1,978.5	1,589.7	2,005.9	0.19	0.19	0.04	
8,774.0	90.46	89.54	7,310.3	-1,977.6	1,679.7	2,093.2	0.33	0.22	0.24	
8,864.0	91.04	89.09	7,309.1	-1,976.5	1,769.7	2,180.5	0.82	0.64	-0.50	
8,953.0	92.17	88.69	7,306.7	-1,974.8	1,858.6	2,266.6	1.35	1.27	-0.45	
9,043.0	91.17	89.31	7,304.0	-1,973.2	1,948.6	2,353.7	1.31	-1.11	0.69	
9,133.0	91.20	89.12	7,302.2	-1,972.0	2,038.6	2,441.0	0.21	0.03	-0.21	
9,223.0	92.16	88.91	7,299.5	-1,970.4	2,128.5	2,528.1	1.09	1.07	-0.23	
9,312.0	90.06	89.67	7,297.8	-1,969.3	2,217.5	2,614.4	2.51	-2.36	0.85	
9,402.0	90.20	89.77	7,297.6	-1,968.9	2,307.5	2,701.8	0.19	0.16	0.11	
9,492.0	91.02	89.51	7,296.6	-1,968.3	2,397.5	2,789.2	0.96	0.91	-0.29	
9,582.0	88.94	89.51	7,296.7	-1,967.6	2,487.5	2,876.6	2.31	-2.31	0.00	
9,672.0	89.37	89.37	7,298.0	-1,966.7	2,577.4	2,963.9	0.50	0.48	-0.16	
9,762.0	90.72	89.18	7,297.9	-1,965.5	2,667.4	3,051.1	1.51	1.50	-0.21	
9,851.0	91.74	89.41	7,296.0	-1,964.4	2,756.4	3,137.4	1.17	1.15	0.26	
9,941.0	92.78	89.35	7,292.5	-1,963.5	2,846.3	3,224.7	1.16	1.16	-0.07	
10,031.0	90.44	89.95	7,289.9	-1,962.9	2,936.3	3,312.0	2.68	-2.60	0.67	
10,121.0	90.95	90.64	7,288.9	-1,963.4	3,026.3	3,399.7	0.95	0.57	0.77	
10,210.0	87.86	89.88	7,289.8	-1,963.8	3,115.3	3,486.3	3.58	-3.47	-0.85	
10,300.0	87.56	90.02	7,293.4	-1,963.7	3,205.2	3,573.8	0.37	-0.33	0.16	
10,390.0	89.12	90.18	7,296.0	-1,963.9	3,295.2	3,661.3	1.74	1.73	0.18	
10,480.0	91.10	89.76	7,295.8	-1,963.8	3,385.1	3,748.8	2.25	2.20	-0.47	
10,570.0	92.26	89.72	7,293.2	-1,963.4	3,475.1	3,836.2	1.29	1.29	-0.04	
10,659.0	91.38	88.35	7,290.3	-1,961.9	3,564.0	3,922.4	1.83	-0.99	-1.54	
10,749.0	91.62	88.37	7,288.0	-1,959.3	3,654.0	4,009.2	0.27	0.27	0.02	
10,839.0	90.84	88.57	7,286.1	-1,956.9	3,743.9	4,096.2	0.89	-0.87	0.22	
10,929.0	90.80	88.62	7,284.8	-1,954.7	3,833.9	4,183.2	0.07	-0.04	0.06	
11,019.0	89.95	89.10	7,284.2	-1,952.9	3,923.9	4,270.3	1.08	-0.94	0.53	
11,109.0	90.24	89.44	7,284.0	-1,951.8	4,013.9	4,357.5	0.50	0.32	0.38	
11,198.0	91.06	91.39	7,283.0	-1,952.4	4,102.8	4,444.2	2.38	0.92	2.19	
11,288.0	89.55	91.83	7,282.5	-1,955.0	4,192.8	4,532.3	1.75	-1.68	0.49	
11,378.0	90.38	91.51	7,282.6	-1,957.6	4,282.8	4,620.4	0.99	0.92	-0.36	
11,468.0	89.74	90.17	7,282.5	-1,958.9	4,372.8	4,708.2	1.65	-0.71	-1.49	
11,557.0	89.57	89.47	7,283.0	-1,958.6	4,461.8	4,794.7	0.81	-0.19	-0.79	
11,647.0	91.06	90.04	7,282.5	-1,958.2	4,551.7	4,882.2	1.77	1.66	0.63	
11,827.0	87.83	88.72	7,284.3	-1,956.3	4,731.7	5,056.8	1.94	-1.79	-0.73	
11,917.0	88.59	88.38	7,287.1	-1,954.0	4,821.6	5,143.7	0.93	0.84	-0.38	
12,006.0	89.49	88.57	7,288.6	-1,951.7	4,910.6	5,229.7	1.03	1.01	0.21	
12,096.0	89.97	88.47	7,289.0	-1,949.3	5,000.6	5,316.6	0.54	0.53	-0.11	
12,186.0	91.03	88.50	7,288.2	-1,946.9	5,090.5	5,403.6	1.18	1.18	0.03	
12,276.0	89.50	88.71	7,287.8	-1,944.8	5,180.5	5,490.6	1.72	-1.70	0.23	
12,366.0	88.62	88.99	7,289.3	-1,943.0	5,270.5	5,577.7	1.03	-0.98	0.31	
12,456.0	88.96	88.69	7,291.2	-1,941.1	5,360.4	5,664.7	0.50	0.38	-0.33	
12,545.0	89.98	89.22	7,292.0	-1,939.5	5,449.4	5,750.9	1.29	1.15	0.60	
12,635.0	89.15	89.86	7,292.7	-1,938.8	5,539.4	5,838.3	1.16	-0.92	0.71	

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Stugart 19N
<b>Project:</b>	SEC.20-T5N-R66W	<b>TVD Reference:</b>	Well @ 4913.0ft (Ensign 769 - RKB 28')
<b>Site:</b>	Stugart State 6-20	<b>MD Reference:</b>	Well @ 4913.0ft (Ensign 769 - RKB 28')
<b>Well:</b>	Stugart 19N	<b>North Reference:</b>	True
<b>Wellbore:</b>	Stugart 19N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Stugart 19N Final Surveys	<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)
12,725.0	89.56	90.57	7,293.7	-1,939.1	5,629.4	5,925.9	0.91	0.46	0.79
12,815.0	90.31	89.58	7,293.8	-1,939.2	5,719.4	6,013.4	1.38	0.83	-1.10
12,905.0	89.58	89.48	7,293.9	-1,938.5	5,809.4	6,100.8	0.82	-0.81	-0.11
12,995.0	88.03	90.24	7,295.8	-1,938.3	5,899.4	6,188.3	1.92	-1.72	0.84
13,084.0	88.48	90.16	7,298.5	-1,938.6	5,988.3	6,274.9	0.51	0.51	-0.09
13,174.0	88.58	91.29	7,300.8	-1,939.7	6,078.3	6,362.6	1.26	0.11	1.26
13,264.0	88.57	91.73	7,303.0	-1,942.1	6,168.2	6,450.7	0.49	-0.01	0.49
13,353.0	90.70	90.46	7,303.6	-1,943.8	6,257.2	6,537.6	2.79	2.39	-1.43
13,443.0	92.00	90.14	7,301.5	-1,944.3	6,347.2	6,625.2	1.49	1.44	-0.36
13,533.0	92.80	89.78	7,297.7	-1,944.2	6,437.1	6,712.7	0.97	0.89	-0.40
13,623.0	91.43	89.63	7,294.4	-1,943.7	6,527.0	6,800.0	1.53	-1.52	-0.17
13,713.0	91.24	90.53	7,292.3	-1,943.9	6,617.0	6,887.6	1.02	-0.21	1.00
13,802.0	87.35	89.79	7,293.4	-1,944.1	6,706.0	6,974.2	4.45	-4.37	-0.83
13,892.0	87.34	89.73	7,297.6	-1,943.7	6,795.9	7,061.5	0.07	-0.01	-0.07
13,982.0	89.32	89.85	7,300.2	-1,943.4	6,885.8	7,148.9	2.20	2.20	0.13
14,072.0	89.80	89.93	7,300.9	-1,943.2	6,975.8	7,236.4	0.54	0.53	0.09
14,161.0	90.94	89.86	7,300.3	-1,943.1	7,064.8	7,322.9	1.28	1.28	-0.08
14,251.0	92.03	89.97	7,298.0	-1,942.9	7,154.8	7,410.4	1.22	1.21	0.12
14,341.0	92.71	89.76	7,294.2	-1,942.7	7,244.7	7,497.8	0.79	0.76	-0.23
14,430.0	89.85	89.84	7,292.2	-1,942.4	7,333.7	7,584.3	3.21	-3.21	0.09
14,610.0	90.58	89.66	7,291.6	-1,941.6	7,513.7	7,759.2	0.42	0.41	-0.10
14,699.0	90.67	88.59	7,290.6	-1,940.3	7,602.7	7,845.4	1.21	0.10	-1.20
14,879.0	91.23	86.10	7,287.6	-1,931.9	7,782.4	8,018.3	1.42	0.31	-1.38
14,969.0	90.57	90.37	7,286.2	-1,929.2	7,872.3	8,105.1	4.80	-0.73	4.74
15,058.0	91.26	90.47	7,284.8	-1,929.8	7,961.3	8,191.8	0.78	0.78	0.11
15,179.0	91.26	90.47	7,282.1	-1,930.8	8,082.3	8,309.7	0.00	0.00	0.00
<b>19N BHL - 1236' FSL &amp; 466' FEL</b>									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
7,890.2	7,292.1	-1,975.5	799.3	19N EP - 1206' FSL & 2467' FEL
15,179.0	7,282.1	-1,930.8	8,082.3	19N BHL - 1236' FSL & 466' FEL

Checked By: _____	Approved By: _____	Date: _____
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