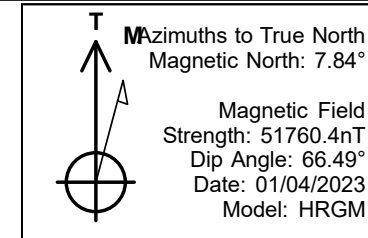


# PDC Energy Inc. DJ Basin



Steamboat 3N  
 Steamboat 4N66W34 1-16 Pad  
 North American Datum 1983 , US State Plane 1983, Colorado Northern Zone  
 Ground Elevation: 4803.0  
 +N/-S +E/-W Northing Easting Longitude Slot  
 0.0 0.0 1340480.75 3205789.26 40.265680 -104.762590  
 Patterson 272 RKB - 28.5'Well @ 4831.5ft (Patterson 272 RKB - 28.5')

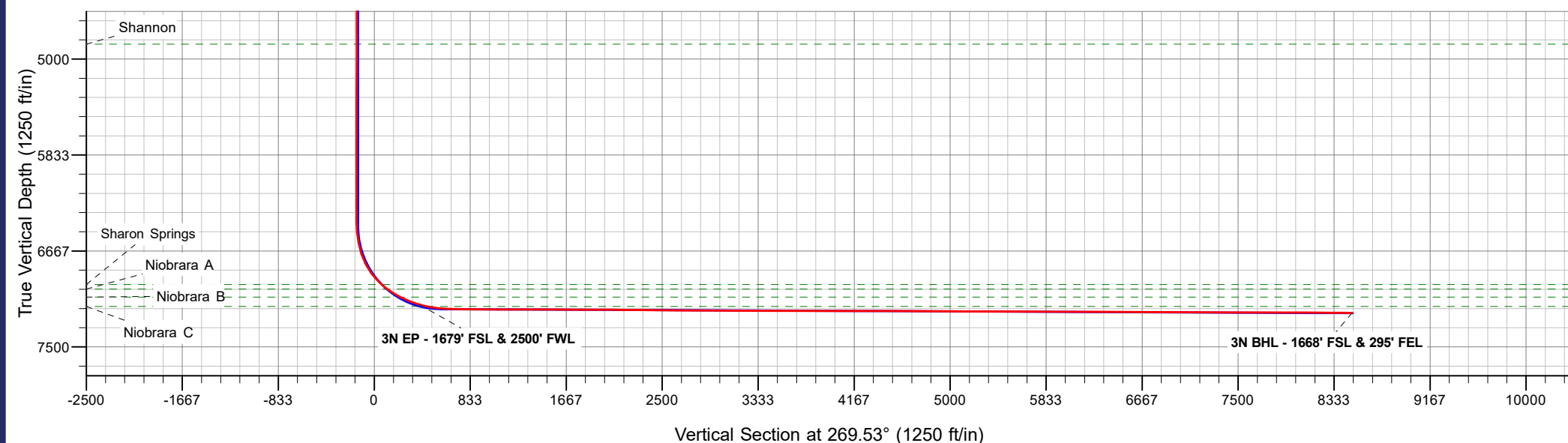
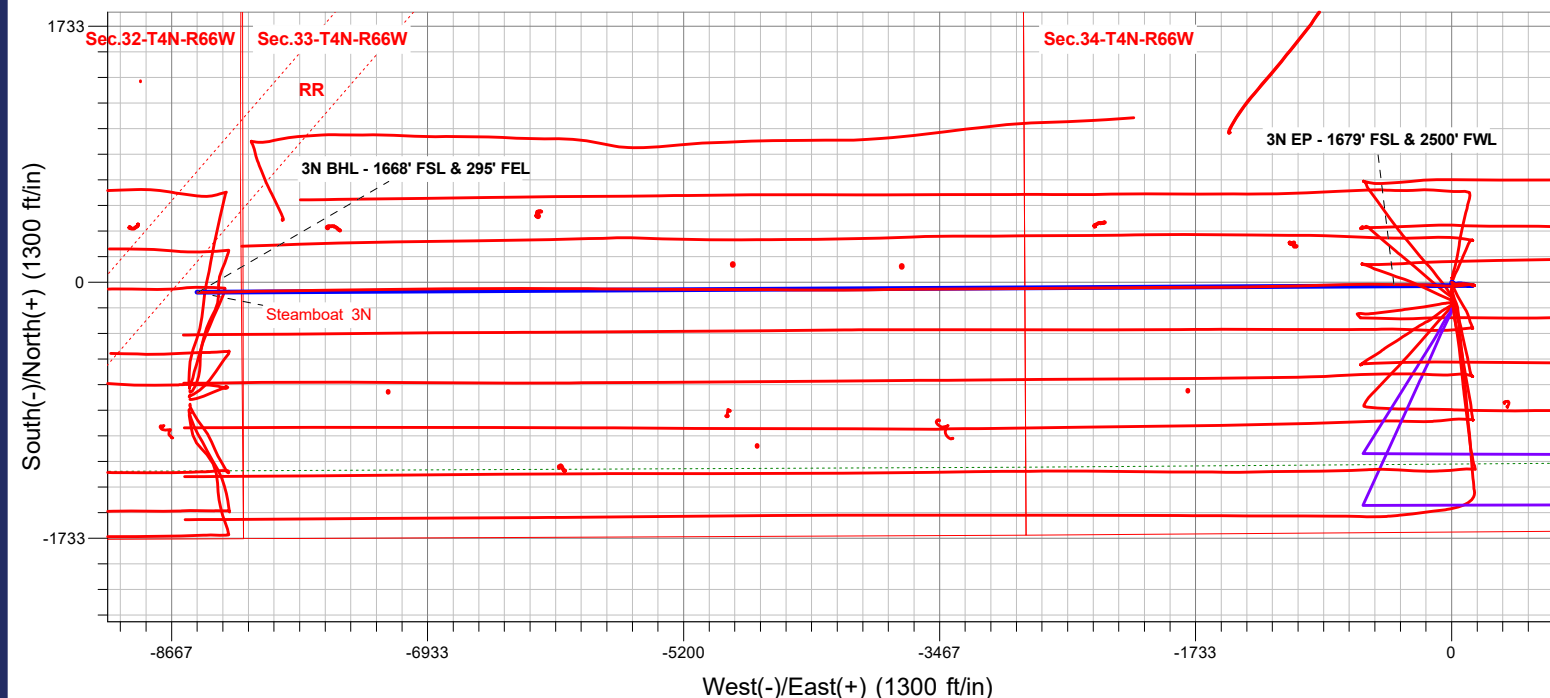
Steamboat 4N66W34 1-16 Pad  
 Steamboat 3N  
 Steamboat 3N Final Surveys  
 13:11, February 23 2023



**ANNOTATIONS**

MD	TVD	Annotation
7401.4	7131.8	3N EP - 1679' FSL & 2500' FWL
15505.0	7204.2	3N BHL - 1668' FSL & 295' FEL

**FINAL SURVEY**  
**Projected Bottom Hole Location**  
**15505' MD / 7204.2' TVD**  
**89.36° INC / 268.89° AZM**  
**1668' FSL / 295' FEL**





# **PDC Energy Inc. DJ Basin**

**SEC.34-T4N-R66W**

**Steamboat 4N66W34 1-16 Pad**

**Steamboat 3N**

**Steamboat 3N Wellbore #1**

**Design: Steamboat 3N Final Surveys**

## **Standard Survey Report**

**23 February, 2023**



<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Steamboat 3N
<b>Project:</b>	SEC.34-T4N-R66W	<b>TVD Reference:</b>	Well @ 4831.5ft (Patterson 272 RKB - 28.5')
<b>Site:</b>	Steamboat 4N66W34 1-16 Pad	<b>MD Reference:</b>	Well @ 4831.5ft (Patterson 272 RKB - 28.5')
<b>Well:</b>	Steamboat 3N	<b>North Reference:</b>	True
<b>Wellbore:</b>	Steamboat 3N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Steamboat 3N Final Surveys	<b>Database:</b>	US_EDM

<b>Project</b>	SEC.34-T4N-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>	Steamboat 4N66W34 1-16 Pad				
<b>Site Position:</b>		<b>Northing:</b>	1,340,466.93 usft	<b>Latitude:</b>	40.265632
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,205,789.66 usft	<b>Longitude:</b>	-104.762559
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.48 °

<b>Well</b>	Steamboat 3N					
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	1,340,480.75 usft	<b>Latitude:</b>	40.265680
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	3,205,789.26 usft	<b>Longitude:</b>	-104.762590
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	4,803.0 ft

<b>Wellbore</b>	Steamboat 3N 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>
	HRGM	01/04/2023	7.84	66.49	51,760.39131152

<b>Design</b>	Steamboat 3N 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		269.53

<b>Survey Program</b>	<b>Date</b>	02/23/2023			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
161.5	15,505.0	Survey #1 (Steamboat 3N 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	
161.5	0.70	156.75	161.5	-0.9	0.4	-0.4	0.43	0.43	0.00	
253.5	1.14	165.89	253.5	-2.3	0.8	-0.8	0.50	0.48	9.93	
344.5	1.41	160.09	344.5	-4.2	1.4	-1.4	0.33	0.30	-6.37	
461.5	0.79	74.13	461.4	-5.4	2.7	-2.7	1.34	-0.53	-73.47	
548.5	0.97	103.66	548.4	-5.4	4.0	-4.0	0.55	0.21	33.94	
633.5	0.88	85.56	633.4	-5.5	5.3	-5.3	0.36	-0.11	-21.29	
720.5	0.97	73.43	720.4	-5.2	6.7	-6.7	0.25	0.10	-13.94	
810.5	1.23	81.51	810.4	-4.9	8.4	-8.4	0.34	0.29	8.98	
871.6	0.38	150.61	871.5	-5.0	9.2	-9.1	1.88	-1.39	113.08	
<b>Fox Hills Aq Base</b>										

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Steamboat 3N
<b>Project:</b>	SEC.34-T4N-R66W	<b>TVD Reference:</b>	Well @ 4831.5ft (Patterson 272 RKB - 28.5')
<b>Site:</b>	Steamboat 4N66W34 1-16 Pad	<b>MD Reference:</b>	Well @ 4831.5ft (Patterson 272 RKB - 28.5')
<b>Well:</b>	Steamboat 3N	<b>North Reference:</b>	True
<b>Wellbore:</b>	Steamboat 3N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Steamboat 3N 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)
898.5	0.62	205.26	898.4	-5.2	9.1	-9.1	1.88	0.88	203.21
988.5	0.79	202.98	988.4	-6.2	8.7	-8.6	0.19	0.19	-2.53
1,076.5	0.88	203.50	1,076.4	-7.4	8.2	-8.1	0.10	0.10	0.59
1,165.5	0.97	148.84	1,165.4	-8.6	8.3	-8.2	0.96	0.10	-61.42
1,254.5	2.46	128.62	1,254.3	-10.5	10.2	-10.1	1.78	1.67	-22.72
1,342.5	3.08	101.90	1,342.2	-12.1	14.0	-13.9	1.61	0.70	-30.36
1,431.5	5.01	87.49	1,431.0	-12.5	20.2	-20.1	2.43	2.17	-16.19
1,519.5	5.10	91.71	1,518.7	-12.4	27.9	-27.8	0.43	0.10	4.80
1,601.5	6.16	85.03	1,600.3	-12.1	36.0	-35.9	1.52	1.29	-8.15
1,685.0	6.95	87.51	1,683.2	-11.5	45.5	-45.4	1.00	0.95	2.97
1,780.0	6.71	84.34	1,777.5	-10.7	56.7	-56.6	0.47	-0.25	-3.34
1,874.0	7.66	86.34	1,870.8	-9.8	68.5	-68.4	1.04	1.01	2.13
1,969.0	10.02	96.26	1,964.7	-10.3	83.0	-82.9	2.95	2.48	10.44
2,064.0	9.18	92.64	2,058.3	-11.5	98.8	-98.7	1.09	-0.88	-3.81
2,158.0	9.33	96.28	2,151.1	-12.7	113.8	-113.7	0.64	0.16	3.87
2,253.0	7.66	114.46	2,245.1	-16.2	127.3	-127.1	3.31	-1.76	19.14
2,348.0	4.84	122.82	2,339.5	-21.0	136.4	-136.2	3.11	-2.97	8.80
2,442.0	4.01	101.85	2,433.2	-23.8	142.9	-142.7	1.92	-0.88	-22.31
2,537.0	3.22	85.86	2,528.1	-24.3	148.9	-148.7	1.34	-0.83	-16.83
2,632.0	0.17	25.69	2,623.0	-24.0	151.6	-151.4	3.30	-3.21	-63.34
2,727.0	0.19	83.08	2,718.0	-23.8	151.8	-151.6	0.18	0.02	60.41
2,822.0	0.22	137.73	2,813.0	-23.9	152.1	-151.9	0.20	0.03	57.53
2,916.0	0.19	35.92	2,907.0	-23.9	152.3	-152.1	0.34	-0.03	-108.31
3,011.0	0.13	356.56	3,002.0	-23.7	152.4	-152.2	0.13	-0.06	-41.43
3,106.0	0.08	85.44	3,097.0	-23.6	152.4	-152.2	0.16	-0.05	93.56
3,201.0	0.09	197.10	3,192.0	-23.7	152.5	-152.3	0.15	0.01	117.54
3,295.0	0.13	326.14	3,286.0	-23.6	152.4	-152.2	0.21	0.04	137.28
3,390.0	0.50	337.57	3,381.0	-23.2	152.2	-152.0	0.39	0.39	12.03
3,485.0	0.15	235.05	3,476.0	-22.9	151.9	-151.7	0.58	-0.37	-107.92
3,580.0	0.17	124.58	3,571.0	-23.0	151.9	-151.7	0.28	0.02	-116.28
3,675.0	0.16	287.77	3,666.0	-23.1	151.9	-151.7	0.34	-0.01	171.78
3,769.0	0.20	32.92	3,760.0	-22.9	151.9	-151.7	0.31	0.04	111.86
3,784.5	0.17	30.14	3,775.5	-22.8	151.9	-151.7	0.22	-0.21	-17.96
<b>Parkman</b>									
3,864.0	0.05	304.84	3,855.0	-22.7	151.9	-151.8	0.22	-0.15	-107.29
3,958.0	0.18	11.22	3,949.0	-22.5	151.9	-151.8	0.18	0.14	70.62
4,053.0	0.02	179.24	4,044.0	-22.4	152.0	-151.8	0.21	-0.17	176.86
4,148.0	0.13	51.48	4,139.0	-22.4	152.1	-151.9	0.15	0.12	-134.48
4,219.5	0.14	101.40	4,210.5	-22.3	152.2	-152.0	0.16	0.01	69.82
<b>Sussex</b>									
4,242.0	0.16	112.68	4,233.0	-22.3	152.3	-152.1	0.16	0.09	50.14
4,337.0	0.24	26.64	4,328.0	-22.2	152.5	-152.3	0.29	0.08	-90.57
4,432.0	0.18	219.32	4,423.0	-22.2	152.5	-152.3	0.44	-0.06	-176.13

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Steamboat 3N
<b>Project:</b>	SEC.34-T4N-R66W	<b>TVD Reference:</b>	Well @ 4831.5ft (Patterson 272 RKB - 28.5')
<b>Site:</b>	Steamboat 4N66W34 1-16 Pad	<b>MD Reference:</b>	Well @ 4831.5ft (Patterson 272 RKB - 28.5')
<b>Well:</b>	Steamboat 3N	<b>North Reference:</b>	True
<b>Wellbore:</b>	Steamboat 3N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Steamboat 3N 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)	
4,526.0	0.25	36.73	4,517.0	-22.1	152.5	-152.3	0.46	0.07	188.73	
4,621.0	0.19	272.37	4,612.0	-21.9	152.5	-152.3	0.41	-0.06	-130.91	
4,716.0	0.29	8.77	4,707.0	-21.7	152.3	-152.2	0.38	0.11	101.47	
4,810.0	0.34	304.47	4,801.0	-21.3	152.1	-152.0	0.36	0.05	-68.40	
4,879.5	0.06	171.73	4,870.5	-21.2	152.0	-151.8	0.56	-0.40	-190.97	
<b>Shannon</b>										
4,904.0	0.19	144.14	4,895.0	-21.3	152.0	-151.8	0.56	0.51	-112.65	
4,999.0	0.22	201.47	4,990.0	-21.6	152.0	-151.9	0.21	0.03	60.35	
5,094.0	0.29	108.40	5,085.0	-21.8	152.2	-152.0	0.39	0.07	-97.97	
5,189.0	0.06	80.75	5,180.0	-21.9	152.5	-152.3	0.25	-0.24	-29.11	
5,284.0	0.35	64.75	5,275.0	-21.7	152.8	-152.6	0.31	0.31	-16.84	
5,379.0	0.21	113.57	5,370.0	-21.7	153.2	-153.0	0.28	-0.15	51.39	
5,473.0	0.16	333.19	5,464.0	-21.6	153.3	-153.1	0.37	-0.05	-149.34	
5,568.0	0.19	283.27	5,559.0	-21.5	153.1	-152.9	0.16	0.03	-52.55	
5,663.0	0.08	6.68	5,654.0	-21.4	152.9	-152.8	0.21	-0.12	87.80	
5,758.0	1.16	10.37	5,749.0	-20.4	153.1	-153.0	1.14	1.14	3.88	
5,852.0	0.09	71.05	5,843.0	-19.4	153.4	-153.2	1.19	-1.14	64.55	
6,042.0	0.16	331.95	6,033.0	-19.1	153.4	-153.2	0.10	0.04	-52.16	
6,136.0	0.17	141.73	6,127.0	-19.1	153.4	-153.2	0.35	0.01	180.62	
6,231.0	0.20	259.21	6,222.0	-19.3	153.3	-153.2	0.33	0.03	123.66	
6,326.0	0.15	200.48	6,317.0	-19.4	153.1	-153.0	0.19	-0.05	-61.82	
6,421.0	0.18	39.79	6,412.0	-19.4	153.2	-153.0	0.34	0.03	-169.15	
6,515.0	5.31	289.13	6,505.8	-17.9	149.2	-149.0	5.72	5.46	-117.72	
6,610.0	10.97	275.85	6,599.9	-15.5	136.0	-135.9	6.24	5.96	-13.98	
6,705.0	19.00	262.67	6,691.6	-16.6	111.6	-111.5	9.13	8.45	-13.87	
6,800.0	26.53	260.05	6,779.1	-22.2	75.3	-75.2	8.00	7.93	-2.76	
6,895.0	35.91	268.47	6,860.3	-26.6	26.5	-26.2	10.87	9.87	8.86	
6,989.0	45.98	272.88	6,931.2	-25.7	-35.0	35.2	11.14	10.71	4.69	
7,029.3	48.86	273.20	6,958.5	-24.1	-64.7	64.9	7.16	7.14	0.79	
<b>Sharon Springs</b>										
7,084.0	52.76	273.59	6,993.1	-21.6	-107.0	107.1	7.16	7.14	0.71	
7,089.7	53.19	273.49	6,996.5	-21.3	-111.5	111.7	7.71	7.59	-1.72	
<b>Niobrara A</b>										
7,179.0	59.98	272.08	7,045.6	-17.7	-185.9	186.1	7.71	7.60	-1.58	
7,222.7	63.02	271.06	7,066.5	-16.7	-224.3	224.5	7.25	6.95	-2.34	
<b>Niobrara B</b>										
7,273.0	66.52	269.95	7,087.9	-16.3	-269.8	269.9	7.25	6.97	-2.20	
7,368.0	71.60	270.28	7,121.9	-16.1	-358.5	358.6	5.36	5.35	0.35	
7,401.4	73.72	270.64	7,131.8	-15.8	-390.4	390.5	6.43	6.35	1.07	
<b>3N EP - 1679' FSL &amp; 2500' FWL</b>										
7,462.0	77.57	271.27	7,146.8	-14.9	-449.1	449.2	6.43	6.35	1.04	
7,465.1	77.78	271.24	7,147.5	-14.8	-452.1	452.2	6.90	6.82	-1.08	
<b>Niobrara C</b>										
7,557.0	84.05	270.26	7,162.0	-13.6	-542.8	542.9	6.90	6.82	-1.06	
7,652.0	86.85	268.30	7,169.5	-14.8	-637.5	637.6	3.59	2.95	-2.06	

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Steamboat 3N
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<b>Site:</b>	Steamboat 4N66W34 1-16 Pad	<b>MD Reference:</b>	Well @ 4831.5ft (Patterson 272 RKB - 28.5')
<b>Well:</b>	Steamboat 3N	<b>North Reference:</b>	True
<b>Wellbore:</b>	Steamboat 3N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Steamboat 3N 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)
7,746.0	89.10	268.97	7,172.9	-17.0	-731.4	731.5	2.50	2.39	0.71
7,841.0	90.06	268.76	7,173.6	-18.9	-826.3	826.5	1.03	1.01	-0.22
7,936.0	89.73	268.46	7,173.7	-21.2	-921.3	921.5	0.47	-0.35	-0.32
8,030.0	89.88	268.51	7,174.1	-23.7	-1,015.3	1,015.4	0.17	0.16	0.05
8,125.0	90.10	268.37	7,174.1	-26.3	-1,110.2	1,110.4	0.27	0.23	-0.15
8,219.0	89.86	268.61	7,174.1	-28.8	-1,204.2	1,204.4	0.36	-0.26	0.26
8,314.0	89.72	268.96	7,174.5	-30.8	-1,299.2	1,299.4	0.40	-0.15	0.37
8,409.0	89.33	268.64	7,175.2	-32.8	-1,394.2	1,394.4	0.53	-0.41	-0.34
8,504.0	90.22	269.97	7,175.6	-33.9	-1,489.1	1,489.4	1.68	0.94	1.40
8,598.0	89.63	269.68	7,175.7	-34.2	-1,583.1	1,583.4	0.70	-0.63	-0.31
8,692.0	89.76	269.83	7,176.2	-34.6	-1,677.1	1,677.4	0.21	0.14	0.16
8,787.0	89.71	269.79	7,176.7	-34.9	-1,772.1	1,772.4	0.07	-0.05	-0.04
8,882.0	89.77	269.91	7,177.1	-35.2	-1,867.1	1,867.4	0.14	0.06	0.13
8,977.0	90.18	269.81	7,177.1	-35.4	-1,962.1	1,962.4	0.44	0.43	-0.11
9,071.0	89.71	269.88	7,177.2	-35.7	-2,056.1	2,056.4	0.51	-0.50	0.07
9,166.0	89.97	269.69	7,177.5	-36.0	-2,151.1	2,151.4	0.34	0.27	-0.20
9,261.0	89.37	269.37	7,178.1	-36.8	-2,246.1	2,246.4	0.72	-0.63	-0.34
9,356.0	89.92	269.31	7,178.6	-37.9	-2,341.1	2,341.4	0.58	0.58	-0.06
9,450.0	88.91	268.97	7,179.6	-39.3	-2,435.1	2,435.4	1.13	-1.07	-0.36
9,545.0	89.88	269.76	7,180.6	-40.4	-2,530.1	2,530.3	1.32	1.02	0.83
9,639.0	89.00	269.56	7,181.5	-40.9	-2,624.1	2,624.3	0.96	-0.94	-0.21
9,734.0	89.31	269.57	7,182.9	-41.6	-2,719.1	2,719.3	0.33	0.33	0.01
9,829.0	89.94	270.28	7,183.5	-41.8	-2,814.1	2,814.3	1.00	0.66	0.75
9,923.0	89.63	269.11	7,183.9	-42.3	-2,908.1	2,908.3	1.29	-0.33	-1.24
10,018.0	89.27	269.14	7,184.8	-43.7	-3,003.1	3,003.3	0.38	-0.38	0.03
10,113.0	90.06	269.42	7,185.4	-44.9	-3,098.0	3,098.3	0.88	0.83	0.29
10,208.0	90.00	269.94	7,185.3	-45.4	-3,193.0	3,193.3	0.55	-0.06	0.55
10,302.0	89.95	269.77	7,185.4	-45.7	-3,287.0	3,287.3	0.19	-0.05	-0.18
10,492.0	89.83	269.73	7,185.7	-46.5	-3,477.0	3,477.3	0.07	-0.06	-0.02
10,681.0	89.58	269.18	7,186.7	-48.3	-3,666.0	3,666.3	0.32	-0.13	-0.29
10,776.0	89.80	270.06	7,187.2	-48.9	-3,761.0	3,761.3	0.95	0.23	0.93
10,871.0	89.78	268.64	7,187.6	-50.0	-3,856.0	3,856.3	1.49	-0.02	-1.49
10,966.0	89.78	269.10	7,187.9	-51.9	-3,951.0	3,951.3	0.48	0.00	0.48
11,060.0	89.88	270.14	7,188.2	-52.5	-4,045.0	4,045.3	1.11	0.11	1.11
11,155.0	89.29	269.99	7,188.9	-52.4	-4,140.0	4,140.3	0.64	-0.62	-0.16
11,250.0	90.34	269.92	7,189.2	-52.5	-4,235.0	4,235.3	1.11	1.11	-0.07
11,345.0	90.24	270.24	7,188.7	-52.4	-4,330.0	4,330.3	0.35	-0.11	0.34
11,440.0	89.78	270.33	7,188.7	-51.9	-4,425.0	4,425.3	0.49	-0.48	0.09
11,535.0	89.91	270.10	7,189.0	-51.5	-4,520.0	4,520.3	0.28	0.14	-0.24
11,629.0	90.39	270.57	7,188.7	-51.0	-4,614.0	4,614.2	0.71	0.51	0.50
11,724.0	90.28	270.26	7,188.2	-50.3	-4,709.0	4,709.2	0.35	-0.12	-0.33
11,819.0	89.32	270.07	7,188.5	-50.0	-4,804.0	4,804.2	1.03	-1.01	-0.20
11,914.0	89.58	270.46	7,189.4	-49.6	-4,899.0	4,899.2	0.49	0.27	0.41

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Steamboat 3N
<b>Project:</b>	SEC.34-T4N-R66W	<b>TVD Reference:</b>	Well @ 4831.5ft (Patterson 272 RKB - 28.5')
<b>Site:</b>	Steamboat 4N66W34 1-16 Pad	<b>MD Reference:</b>	Well @ 4831.5ft (Patterson 272 RKB - 28.5')
<b>Well:</b>	Steamboat 3N	<b>North Reference:</b>	True
<b>Wellbore:</b>	Steamboat 3N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Steamboat 3N 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)	
12,103.0	89.69	269.91	7,190.6	-49.0	-5,088.0	5,088.2	0.30	0.06	-0.29	
12,198.0	89.94	270.48	7,190.9	-48.6	-5,183.0	5,183.2	0.66	0.26	0.60	
12,293.0	89.41	269.75	7,191.4	-48.4	-5,278.0	5,278.2	0.95	-0.56	-0.77	
12,388.0	90.46	270.76	7,191.6	-48.0	-5,373.0	5,373.2	1.53	1.11	1.06	
12,483.0	89.28	270.21	7,191.8	-47.2	-5,467.9	5,468.2	1.37	-1.24	-0.58	
12,578.0	89.63	270.48	7,192.7	-46.6	-5,562.9	5,563.1	0.47	0.37	0.28	
12,673.0	89.43	270.74	7,193.5	-45.6	-5,657.9	5,658.1	0.35	-0.21	0.27	
12,768.0	90.21	270.37	7,193.7	-44.7	-5,752.9	5,753.1	0.91	0.82	-0.39	
12,863.0	89.67	270.13	7,193.8	-44.3	-5,847.9	5,848.1	0.62	-0.57	-0.25	
12,957.0	89.81	270.56	7,194.3	-43.7	-5,941.9	5,942.1	0.48	0.15	0.46	
13,053.0	89.99	269.73	7,194.4	-43.5	-6,037.9	6,038.1	0.88	0.19	-0.86	
13,147.0	90.21	270.03	7,194.3	-43.7	-6,131.9	6,132.1	0.40	0.23	0.32	
13,243.0	89.87	271.01	7,194.2	-42.8	-6,227.9	6,228.1	1.08	-0.35	1.02	
13,337.0	89.52	270.00	7,194.7	-42.0	-6,321.9	6,322.0	1.14	-0.37	-1.07	
13,432.0	89.73	270.52	7,195.3	-41.6	-6,416.9	6,417.0	0.59	0.22	0.55	
13,526.0	89.87	269.80	7,195.7	-41.3	-6,510.9	6,511.0	0.78	0.15	-0.77	
13,621.0	89.21	269.10	7,196.4	-42.2	-6,605.9	6,606.0	1.01	-0.69	-0.74	
13,716.0	89.11	269.09	7,197.8	-43.7	-6,700.9	6,701.0	0.11	-0.11	-0.01	
13,811.0	89.52	269.16	7,199.0	-45.2	-6,795.9	6,796.0	0.44	0.43	0.07	
13,906.0	90.30	269.62	7,199.1	-46.2	-6,890.9	6,891.0	0.95	0.82	0.48	
14,000.0	88.78	269.11	7,199.9	-47.2	-6,984.8	6,985.0	1.71	-1.62	-0.54	
14,095.0	90.68	269.52	7,200.3	-48.3	-7,079.8	7,080.0	2.05	2.00	0.43	
14,190.0	90.52	269.88	7,199.3	-48.8	-7,174.8	7,175.0	0.41	-0.17	0.38	
14,284.0	90.03	269.50	7,198.9	-49.4	-7,268.8	7,269.0	0.66	-0.52	-0.40	
14,379.0	89.84	269.40	7,199.0	-50.3	-7,363.8	7,364.0	0.23	-0.20	-0.11	
14,473.0	89.60	269.42	7,199.4	-51.2	-7,457.8	7,458.0	0.26	-0.26	0.02	
14,568.0	89.80	269.21	7,199.9	-52.4	-7,552.8	7,553.0	0.31	0.21	-0.22	
14,663.0	89.16	268.57	7,200.8	-54.2	-7,647.8	7,648.0	0.95	-0.67	-0.67	
14,758.0	90.12	269.44	7,201.4	-55.9	-7,742.8	7,743.0	1.36	1.01	0.92	
14,853.0	90.19	268.94	7,201.1	-57.2	-7,837.7	7,838.0	0.53	0.07	-0.53	
14,948.0	89.89	268.99	7,201.1	-58.9	-7,932.7	7,932.9	0.32	-0.32	0.05	
15,043.0	89.76	269.10	7,201.3	-60.5	-8,027.7	8,027.9	0.18	-0.14	0.12	
15,138.0	89.64	268.52	7,201.8	-62.5	-8,122.7	8,122.9	0.62	-0.13	-0.61	
15,327.0	89.87	268.97	7,202.7	-66.6	-8,311.6	8,311.9	0.27	0.12	0.24	
15,418.0	89.36	268.89	7,203.3	-68.3	-8,402.6	8,402.9	0.57	-0.56	-0.09	
15,505.0	89.36	268.89	7,204.2	-70.0	-8,489.6	8,489.9	0.00	0.00	0.00	

3N BHL - 1668' FSL & 295' FEL

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Steamboat 3N
<b>Project:</b>	SEC.34-T4N-R66W	<b>TVD Reference:</b>	Well @ 4831.5ft (Patterson 272 RKB - 28.5')
<b>Site:</b>	Steamboat 4N66W34 1-16 Pad	<b>MD Reference:</b>	Well @ 4831.5ft (Patterson 272 RKB - 28.5')
<b>Well:</b>	Steamboat 3N	<b>North Reference:</b>	True
<b>Wellbore:</b>	Steamboat 3N Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Steamboat 3N Final Surveys	<b>Database:</b>	US_EDM

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
871.6	871.5	Fox Hills Aq Base		0.00		
3,784.5	3,775.5	Parkman		0.00		
4,219.5	4,210.5	Sussex		0.00		
4,879.5	4,870.5	Shannon		0.00		
7,029.3	6,958.5	Sharon Springs		0.00		
7,089.7	6,996.5	Niobrara A				
7,222.7	7,066.5	Niobrara B				
7,465.1	7,147.5	Niobrara C		0.00		

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
7,401.4	7,131.8	-15.8	-390.4	3N EP - 1679' FSL & 2500' FWL	
15,505.0	7,204.2	-70.0	-8,489.6	3N BHL - 1668' FSL & 295' FEL	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_