



Company:	PDC ENERGY		
Lease / Well:	OLSON 29-22		
County/Parish:	WELD 123		
State:	COLORADO		
Date:	10/31/2019		
Rig:	NA		
Surveyor:	SHON LANE		
Job Number:	8601-512320197		
Instrument Number:	3087	Type:	MEMORY
Proposed Direction:	0	GL Elev:	4962
Magnetic Declination	9.65 EAST TO TRUE NORTH		
Calculation Method:	MINIMUM OF CURVATURE		
Log Measured From:	GL		

TIE-IN Coordinates

Measured Depth (ft.)	Inclination	Azimuth Bearing	Vertical Depth	Coordinates	
				(+N/-S)	(+E/-W)
0	0.00	0.00	0.00	0.00	0.00

Directional Survey Report

Measured Depth (ft.)	Inclination	Azimuth Bearing	Vertical Depth	Vertical Section	Coordinates (+N/-S)	Coordinates (+E/-W)	Dog-Leg / 100 ft.	Closure Distance	Closure Direction
100	0.28	146.85	100.00	-0.20	-0.20	0.13	0.28	0.24	146.85°
200	0.10	169.45	200.00	-0.49	-0.49	0.28	0.19	0.57	150.22°
300	0.23	152.09	300.00	-0.76	-0.76	0.39	0.14	0.85	152.59°
400	0.24	141.93	400.00	-1.10	-1.10	0.62	0.04	1.26	150.75°
500	0.19	128.20	500.00	-1.37	-1.37	0.88	0.07	1.62	147.37°
600	0.17	104.80	600.00	-1.51	-1.51	1.15	0.08	1.90	142.69°
700	0.24	65.78	700.00	-1.46	-1.46	1.48	0.15	2.08	134.54°
800	0.24	59.88	800.00	-1.27	-1.27	1.86	0.02	2.25	124.36°
900	0.29	341.70	899.99	-0.92	-0.92	1.96	0.34	2.16	115.26°
1000	0.24	343.46	999.99	-0.48	-0.48	1.82	0.05	1.88	104.87°
1100	0.14	50.88	1099.99	-0.20	-0.20	1.85	0.23	1.87	96.31°
1200	0.16	110.11	1199.99	-0.18	-0.18	2.08	0.15	2.09	94.83°
1300	0.23	113.77	1299.99	-0.30	-0.30	2.39	0.07	2.41	97.25°
1400	0.46	106.21	1399.99	-0.50	-0.50	2.96	0.23	3.01	99.53°
1500	0.65	125.57	1499.99	-0.94	-0.94	3.81	0.26	3.92	103.85°
1600	0.76	132.67	1599.98	-1.72	-1.72	4.76	0.14	5.06	109.86°
1700	0.70	148.22	1699.97	-2.69	-2.69	5.57	0.21	6.18	115.77°
1800	0.61	153.60	1799.96	-3.68	-3.68	6.13	0.11	7.15	121.02°
1900	0.55	136.72	1899.96	-4.51	-4.51	6.69	0.18	8.07	123.97°
2000	0.87	142.07	1999.95	-5.46	-5.46	7.49	0.33	9.27	126.09°
2100	0.63	130.90	2099.94	-6.42	-6.42	8.37	0.28	10.55	127.47°
2200	0.65	314.13	2199.94	-6.38	-6.38	8.38	1.28	10.53	127.30°
2300	0.63	320.42	2299.93	-5.56	-5.56	7.62	0.07	9.44	126.13°
2400	0.82	349.41	2399.93	-4.44	-4.44	7.14	0.41	8.41	121.85°
2500	0.62	331.17	2499.92	-3.26	-3.26	6.75	0.30	7.49	115.78°
2600	0.99	330.07	2599.91	-2.04	-2.04	6.06	0.37	6.39	108.59°
2700	0.71	329.57	2699.90	-0.75	-0.75	5.31	0.28	5.36	98.08°
2800	0.91	322.34	2799.89	0.41	0.41	4.51	0.22	4.53	84.82°
2900	1.00	305.19	2899.87	1.54	1.54	3.31	0.30	3.65	65.06°
3000	0.72	304.51	2999.86	2.40	2.40	2.08	0.28	3.18	40.95°
3100	0.93	310.32	3099.85	3.28	3.28	0.95	0.23	3.41	16.09°
3200	1.07	305.09	3199.84	4.34	4.34	-0.44	0.17	4.36	354.26°
3300	0.80	288.37	3299.82	5.10	5.10	-1.86	0.38	5.43	339.93°
3400	0.75	294.53	3399.81	5.59	5.59	-3.12	0.10	6.40	330.83°
3500	0.96	286.53	3499.80	6.10	6.10	-4.52	0.24	7.59	323.47°
3600	1.11	283.98	3599.79	6.57	6.57	-6.26	0.16	9.08	316.39°
3700	1.20	269.27	3699.77	6.79	6.79	-8.25	0.31	10.69	309.47°
3800	1.15	269.22	3799.75	6.77	6.77	-10.30	0.05	12.32	303.31°
3900	1.00	266.67	3899.73	6.70	6.70	-12.17	0.16	13.90	298.84°
4000	1.17	272.49	3999.71	6.70	6.70	-14.07	0.20	15.58	295.46°
4100	1.27	262.06	4099.69	6.59	6.59	-16.18	0.24	17.47	292.15°
4200	1.41	247.04	4199.66	5.95	5.95	-18.41	0.38	19.35	287.92°
4300	1.50	236.10	4299.63	4.74	4.74	-20.63	0.29	21.17	282.95°
4400	1.50	223.72	4399.59	3.07	3.07	-22.62	0.32	22.83	277.73°
4500	1.41	218.62	4499.56	1.16	1.16	-24.30	0.16	24.32	272.74°
4600	1.52	211.00	4599.53	-0.94	-0.94	-25.75	0.22	25.76	267.92°
4700	1.33	208.56	4699.50	-3.09	-3.09	-26.99	0.20	27.16	263.46°
4800	1.23	204.15	4799.47	-5.09	-5.09	-27.98	0.14	28.44	259.69°
4900	1.04	207.73	4899.45	-6.87	-6.87	-28.84	0.20	29.65	256.59°
5000	0.83	205.17	4999.44	-8.33	-8.33	-29.57	0.21	30.72	254.26°

Directional Survey Report									
Measured Depth (ft.)	Inclination	Azimuth Bearing	Vertical Depth	Vertical Section	Coordinates		Dog-Leg / 100 ft.	Closure Distance	Closure Direction
					(+N/-S)	(+E/-W)			
5100	0.63	202.73	5099.43	-9.50	-9.50	-30.09	0.20	31.55	252.49°
5200	0.52	212.65	5199.43	-10.38	-10.38	-30.55	0.15	32.27	251.23°
5300	0.46	211.57	5299.42	-11.11	-11.11	-31.00	0.06	32.93	250.29°
5400	0.53	220.33	5399.42	-11.80	-11.80	-31.51	0.10	33.65	249.47°
5500	0.24	255.80	5499.42	-12.21	-12.21	-32.02	0.36	34.26	249.13°
5600	0.64	305.68	5599.41	-11.93	-11.93	-32.67	0.52	34.78	249.94°
5700	0.79	298.54	5699.41	-11.28	-11.28	-33.73	0.17	35.57	251.51°
5800	0.77	306.32	5799.40	-10.55	-10.55	-34.88	0.11	36.44	253.17°
5900	0.46	322.79	5899.39	-9.83	-9.83	-35.66	0.35	36.99	254.59°
6000	0.68	319.18	5999.39	-9.06	-9.06	-36.29	0.22	37.41	255.98°
6100	0.68	338.34	6099.38	-8.06	-8.06	-36.90	0.23	37.77	257.67°
6200	0.86	349.49	6199.37	-6.77	-6.77	-37.26	0.23	37.87	259.70°
6300	0.82	342.72	6299.36	-5.35	-5.35	-37.61	0.11	37.98	261.90°
6400	0.92	339.61	6399.35	-3.92	-3.92	-38.10	0.11	38.30	264.13°
6500	0.97	341.80	6499.33	-2.36	-2.36	-38.64	0.06	38.71	266.50°
6600	0.99	347.59	6599.32	-0.71	-0.71	-39.09	0.10	39.10	268.96°
6700	0.91	335.25	6699.31	0.85	0.85	-39.61	0.22	39.62	271.23°
6800	0.62	351.73	6799.30	2.11	2.11	-40.02	0.36	40.08	273.02°
6900	0.48	318.45	6899.29	2.96	2.96	-40.38	0.34	40.48	274.19°
7000	0.63	323.33	6999.29	3.71	3.71	-40.98	0.16	41.15	275.18°
7100	0.52	350.29	7099.28	4.60	4.60	-41.39	0.29	41.64	276.34°
7200	0.40	4.55	7199.28	5.40	5.40	-41.44	0.16	41.79	277.42°
7300	0.07	321.97	7299.28	5.79	5.79	-41.45	0.35	41.85	277.96°