



Company: PDC ENERGY
Lease / Well: PETERSON 43-13 05123-20465
County/Parish: WELD 123
State: COLORADO
Date: 2/21/2017
Rig: NA
Surveyor: JOHNNY RIDDLE
Job Number: 3692-05-123-20465
Instrument Number: 3123 **Type:** MEMORY
Proposed Direction: 0 **GL Elev:** 4685
Magnetic Declination 9.62 EAST TO TRUE NORTH
Calulation 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	0.38	359.44	100.00	0.33	0.33	0.00	0.38	0.33	359.44°
200	0.13	226.10	200.00	0.58	0.58	-0.09	0.48	0.59	351.42°
300	0.31	140.78	300.00	0.30	0.30	0.00	0.33	0.30	0.21°
400	0.22	84.67	400.00	0.10	0.10	0.36	0.26	0.38	73.95°
500	0.12	191.09	500.00	0.02	0.02	0.53	0.28	0.53	87.90°
600	0.44	134.76	600.00	-0.35	-0.35	0.79	0.39	0.86	114.20°
700	0.19	40.23	699.99	-0.50	-0.50	1.17	0.49	1.27	113.09°
800	0.18	185.70	799.99	-0.53	-0.53	1.26	0.35	1.36	112.73°
900	0.20	35.81	899.99	-0.54	-0.54	1.34	0.37	1.45	111.95°
1000	0.24	122.93	999.99	-0.51	-0.51	1.62	0.30	1.70	107.58°
1100	0.14	209.22	1099.99	-0.73	-0.73	1.74	0.27	1.89	112.90°
1200	0.20	352.12	1199.99	-0.67	-0.67	1.66	0.32	1.78	111.99°
1300	0.27	26.95	1299.99	-0.29	-0.29	1.74	0.16	1.76	99.33°
1400	0.26	85.58	1399.99	-0.06	-0.06	2.07	0.26	2.07	91.60°
1500	0.09	316.48	1499.99	0.02	0.02	2.24	0.32	2.24	89.58°
1600	0.46	32.07	1599.99	0.41	0.41	2.40	0.45	2.44	80.23°
1700	0.26	4.48	1699.99	0.98	0.98	2.63	0.26	2.81	69.58°
1800	0.27	51.80	1799.99	1.35	1.35	2.84	0.21	3.14	64.51°
1900	0.23	237.88	1899.99	1.39	1.39	2.85	0.50	3.17	63.99°
2000	0.93	208.82	1999.98	0.57	0.57	2.29	0.74	2.36	75.95°
2100	1.31	187.86	2099.96	-1.27	-1.27	1.74	0.55	2.16	126.09°
2200	1.26	178.57	2199.94	-3.50	-3.50	1.61	0.21	3.86	155.26°
2300	1.10	178.13	2299.92	-5.56	-5.56	1.67	0.16	5.81	163.26°
2400	1.02	187.84	2399.90	-7.40	-7.40	1.58	0.20	7.57	167.93°
2500	0.93	186.52	2499.88	-9.09	-9.09	1.37	0.09	9.19	171.44°
2600	0.65	182.19	2599.87	-10.46	-10.46	1.25	0.29	10.54	173.16°
2700	0.73	187.14	2699.87	-11.66	-11.66	1.15	0.10	11.72	174.35°
2800	0.83	194.63	2799.86	-12.99	-12.99	0.89	0.14	13.02	176.07°
2900	0.89	191.71	2899.85	-14.46	-14.46	0.55	0.07	14.47	177.82°
3000	0.75	206.70	2999.84	-15.80	-15.80	0.10	0.26	15.80	179.64°
3100	0.44	226.05	3099.83	-16.65	-16.65	-0.47	0.37	16.66	181.62°
3200	0.65	1.79	3199.83	-16.35	-16.35	-0.73	1.01	16.37	182.56°
3300	1.47	30.49	3299.81	-14.68	-14.68	-0.06	0.95	14.68	180.24°
3400	1.26	36.12	3399.78	-12.69	-12.69	1.24	0.25	12.75	174.43°
3500	0.46	36.77	3499.77	-11.48	-11.48	2.13	0.80	11.67	169.50°
3600	0.48	35.89	3599.77	-10.82	-10.82	2.61	0.02	11.13	166.42°
3700	0.57	51.07	3699.76	-10.16	-10.16	3.24	0.16	10.67	162.30°
3800	0.72	45.14	3799.76	-9.41	-9.41	4.08	0.16	10.25	156.57°
3900	0.73	28.71	3899.75	-8.41	-8.41	4.83	0.21	9.69	150.13°
4000	0.69	20.48	3999.74	-7.28	-7.28	5.34	0.11	9.03	143.73°
4100	0.66	12.26	4099.74	-6.16	-6.16	5.68	0.10	8.37	137.31°
4200	0.59	19.54	4199.73	-5.11	-5.11	5.97	0.11	7.86	130.54°
4300	0.67	29.53	4299.72	-4.11	-4.11	6.43	0.14	7.64	122.60°
4400	0.88	39.11	4399.71	-3.01	-3.01	7.21	0.25	7.81	112.67°
4500	1.15	52.68	4499.70	-1.81	-1.81	8.49	0.36	8.68	102.01°
4600	1.55	94.79	4599.67	-1.31	-1.31	10.63	1.04	10.71	97.02°
4700	1.58	97.19	4699.64	-1.60	-1.60	13.35	0.07	13.44	96.81°
4800	1.53	41.15	4799.60	-0.76	-0.76	15.60	1.46	15.61	92.80°

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)				
4900	1.52	25.43	4899.57	1.44	1.44	17.04	0.42	17.10	85.17°
5000	1.10	32.97	4999.54	3.44	3.44	18.14	0.45	18.46	79.25°
5100	0.62	67.50	5099.53	4.46	4.46	19.16	0.69	19.67	76.91°
5200	0.80	139.37	5199.53	4.13	4.13	20.11	0.85	20.53	78.39°
5300	1.43	146.34	5299.51	2.56	2.56	21.26	0.64	21.41	83.12°
5400	2.01	142.95	5399.46	0.13	0.13	23.01	0.59	23.01	89.68°
5500	2.11	158.40	5499.40	-2.98	-2.98	24.74	0.56	24.92	96.88°
5600	1.97	176.10	5599.33	-6.41	-6.41	25.54	0.64	26.33	104.09°
5700	1.82	187.89	5699.28	-9.70	-9.70	25.43	0.42	27.22	110.87°
5800	1.81	195.00	5799.23	-12.80	-12.80	24.81	0.23	27.91	117.29°
5900	1.76	196.14	5899.18	-15.80	-15.80	23.97	0.06	28.71	123.39°
6000	1.58	199.60	5999.14	-18.57	-18.57	23.08	0.21	29.63	128.82°
6100	1.42	196.84	6099.10	-21.06	-21.06	22.26	0.18	30.64	133.41°
6200	1.55	195.20	6199.07	-23.55	-23.55	21.55	0.14	31.92	137.54°
6300	1.93	192.41	6299.03	-26.50	-26.50	20.83	0.39	33.71	141.83°
6400	2.29	189.86	6398.96	-30.11	-30.11	20.13	0.37	36.22	146.24°
6500	2.33	183.57	6498.88	-34.11	-34.11	19.66	0.26	39.37	150.04°
6600	2.38	181.56	6598.79	-38.21	-38.21	19.48	0.10	42.89	152.99°
6700	1.95	172.12	6698.72	-41.97	-41.97	19.65	0.56	46.35	154.91°
6800	3.03	174.88	6798.62	-46.29	-46.29	20.12	1.09	50.47	156.51°
6900	3.14	223.27	6898.50	-50.92	-50.92	18.48	2.53	54.17	160.05°

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