



Company: PDC ENERGY
Lease / Well: EDWARDS 33-9 05-123-20104
County/Parish: WELD 123
State: COLORADO
Date: 1/2/2017
Rig: NA
Surveyor: JOHNNY RIDDLE
Job Number: 05-123-20104
Instrument Number: 3123 **Type:** MEMORY
Proposed Direction: 0 **GL Elev:** 4962
Magnetic Declination 9.81 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	0.61	68.90	100.00	0.19	0.19	0.50	0.61	0.53	68.90°
200	0.36	47.43	199.99	0.60	0.60	1.22	0.30	1.36	64.06°
300	0.27	234.28	299.99	0.67	0.67	1.26	0.63	1.43	62.06°
400	0.36	296.46	399.99	0.67	0.67	0.79	0.33	1.04	49.64°
500	0.65	272.45	499.99	0.84	0.84	-0.06	0.35	0.84	356.19°
600	0.75	276.87	599.98	0.94	0.94	-1.27	0.11	1.58	306.46°
700	0.42	302.88	699.98	1.22	1.22	-2.23	0.42	2.54	298.63°
800	0.60	276.98	799.97	1.48	1.48	-3.06	0.29	3.40	295.83°
900	0.61	325.93	899.97	1.98	1.98	-3.88	0.50	4.35	297.12°
1000	0.90	340.22	999.96	3.16	3.16	-4.44	0.34	5.45	305.48°
1100	0.78	348.56	1099.95	4.57	4.57	-4.84	0.17	6.66	313.36°
1200	0.85	326.25	1199.94	5.85	5.85	-5.39	0.32	7.96	317.38°
1300	0.76	352.30	1299.93	7.13	7.13	-5.89	0.37	9.25	320.44°
1400	0.83	333.97	1399.92	8.44	8.44	-6.29	0.26	10.53	323.27°
1500	0.82	357.32	1499.91	9.80	9.80	-6.65	0.33	11.84	325.86°
1600	1.03	342.76	1599.90	11.38	11.38	-6.95	0.31	13.33	328.59°
1700	0.97	339.47	1699.88	13.03	13.03	-7.51	0.08	15.04	330.04°
1800	0.83	334.97	1799.87	14.48	14.48	-8.11	0.16	16.59	330.73°
1900	0.82	340.02	1899.86	15.80	15.80	-8.66	0.07	18.02	331.27°
2000	0.89	336.65	1999.85	17.19	17.19	-9.22	0.09	19.50	331.80°
2100	1.02	335.62	2099.83	18.71	18.71	-9.89	0.13	21.17	332.14°
2200	1.16	329.57	2199.81	20.40	20.40	-10.77	0.18	23.07	332.16°
2300	1.01	327.10	2299.80	22.01	22.01	-11.76	0.16	24.96	331.88°
2400	1.30	325.15	2399.78	23.68	23.68	-12.89	0.29	26.96	331.44°
2500	1.52	329.60	2499.75	25.76	25.76	-14.21	0.25	29.41	331.12°
2600	1.61	326.46	2599.71	28.07	28.07	-15.66	0.12	32.14	330.85°
2700	1.84	326.90	2699.66	30.59	30.59	-17.31	0.23	35.14	330.49°
2800	2.13	332.89	2799.60	33.59	33.59	-19.03	0.36	38.60	330.46°
2900	1.95	334.35	2899.54	36.77	36.77	-20.62	0.19	42.16	330.72°
3000	1.96	332.40	2999.48	39.82	39.82	-22.14	0.07	45.57	330.92°
3100	1.89	333.64	3099.43	42.82	42.82	-23.67	0.08	48.92	331.07°
3200	1.69	334.51	3199.38	45.62	45.62	-25.04	0.20	52.04	331.24°
3300	1.22	336.82	3299.34	47.93	47.93	-26.09	0.47	54.57	331.44°
3400	0.85	333.62	3399.33	49.58	49.58	-26.84	0.37	56.37	331.57°
3500	0.83	333.12	3499.32	50.89	50.89	-27.50	0.02	57.84	331.62°
3600	0.81	345.73	3599.31	52.22	52.22	-28.00	0.18	59.25	331.80°
3700	0.85	337.70	3699.30	53.59	53.59	-28.45	0.12	60.67	332.03°
3800	0.87	335.73	3799.29	54.97	54.97	-29.05	0.04	62.17	332.15°
3900	0.85	339.39	3899.27	56.35	56.35	-29.62	0.06	63.66	332.27°
4000	0.21	331.31	3999.27	57.21	57.21	-29.97	0.64	64.58	332.35°
4100	0.22	250.90	4099.27	57.31	57.31	-30.24	0.28	64.80	332.18°
4200	0.24	193.94	4199.27	57.04	57.04	-30.47	0.22	64.67	331.89°
4300	0.19	74.99	4299.27	56.88	56.88	-30.36	0.37	64.48	331.91°
4400	0.26	337.79	4399.27	57.13	57.13	-30.29	0.34	64.66	332.07°
4500	1.30	327.78	4499.26	58.30	58.30	-30.98	1.04	66.02	332.02°
4600	1.65	320.89	4599.22	60.38	60.38	-32.49	0.39	68.57	331.72°
4700	1.60	328.40	4699.18	62.69	62.69	-34.13	0.22	71.37	331.43°
4800	1.49	329.32	4799.15	64.99	64.99	-35.52	0.11	74.07	331.34°

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	1.47	326.22	4899.11	67.18	67.18	-36.90	0.08	76.65	331.22°
5000	1.27	328.07	4999.08	69.18	69.18	-38.20	0.20	79.03	331.10°
5100	1.26	326.12	5099.06	71.04	71.04	-39.40	0.04	81.23	330.99°
5200	0.81	332.62	5199.04	72.58	72.58	-40.34	0.46	83.03	330.94°
5300	0.91	341.22	5299.03	73.96	73.96	-40.92	0.16	84.52	331.05°
5400	0.35	50.56	5399.03	74.90	74.90	-40.94	0.85	85.36	331.34°
5500	0.53	307.08	5499.03	75.38	75.38	-41.07	0.70	85.84	331.42°
5600	0.61	311.51	5599.02	76.01	76.01	-41.84	0.09	86.76	331.17°
5700	0.67	320.74	5699.01	76.81	76.81	-42.61	0.12	87.84	330.98°
5800	0.72	332.19	5799.01	77.82	77.82	-43.27	0.15	89.04	330.93°
5900	1.04	336.21	5898.99	79.21	79.21	-43.93	0.33	90.57	330.99°
6000	0.98	328.09	5998.98	80.76	80.76	-44.75	0.16	92.33	331.01°
6100	0.94	328.42	6098.97	82.19	82.19	-45.63	0.04	94.01	330.96°
6200	1.04	338.47	6198.95	83.73	83.73	-46.39	0.20	95.72	331.01°
6300	1.08	349.12	6298.93	85.50	85.50	-46.90	0.20	97.52	331.25°
6400	0.60	338.54	6398.92	86.91	86.91	-47.27	0.50	98.94	331.46°
6500	0.41	337.60	6498.92	87.73	87.73	-47.60	0.19	99.81	331.52°
6600	0.38	345.63	6598.92	88.39	88.39	-47.82	0.06	100.49	331.59°
6700	0.26	327.77	6698.91	88.90	88.90	-48.02	0.15	101.04	331.62°
6800	0.32	290.90	6798.91	89.19	89.19	-48.40	0.19	101.48	331.51°
6900	0.27	289.80	6898.91	89.37	89.37	-48.89	0.05	101.87	331.32°
7000	0.43	270.67	6998.91	89.45	89.45	-49.48	0.20	102.23	331.05°
7100	0.24	264.80	7098.91	89.44	89.44	-50.07	0.19	102.50	330.76°
7200	0.36	259.42	7198.91	89.36	89.36	-50.58	0.12	102.69	330.49°
7300	0.58	215.89	7298.90	88.89	88.89	-51.19	0.40	102.58	330.06°
7400	0.53	219.54	7398.90	88.13	88.13	-51.78	0.06	102.21	329.56°
7500	0.35	230.13	7498.90	87.58	87.58	-52.31	0.20	102.01	329.15°
7600	0.48	141.16	7598.89	87.05	87.05	-52.28	0.59	101.55	329.01°
7650	0.83	138.74	7648.89	86.62	86.62	-51.91	0.70	100.98	329.07°

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