



Company: PDC ENERGY
Lease / Well: J&L FARMS 29B
County/Parish: WELD 123
State: COLORADO
Date: 6/22/2016
Rig: NA
Surveyor: SHON LANE
Job Number: 2463-05123-20483
Instrument Number: 3123 **Type:** MEMORY
Proposed Direction: 0 **GL Elev:** 4672
Magnetic Declination 9.57 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	0.74	33.03	100.00	0.54	0.54	0.35	0.74	0.65	33.03°
200	0.57	61.87	199.99	1.32	1.32	1.14	0.37	1.74	40.94°
300	0.42	129.04	299.99	1.32	1.32	1.87	0.56	2.29	54.70°
400	0.70	124.54	399.98	0.74	0.74	2.65	0.28	2.76	74.34°
500	0.59	96.07	499.98	0.34	0.34	3.67	0.33	3.68	84.66°
600	0.47	119.26	599.97	0.09	0.09	4.54	0.24	4.54	88.89°
700	0.74	120.50	699.97	-0.44	-0.44	5.45	0.27	5.47	94.61°
800	0.79	109.29	799.96	-1.00	-1.00	6.66	0.16	6.73	98.50°
900	0.58	125.73	899.95	-1.52	-1.52	7.72	0.29	7.87	101.13°
1000	0.61	95.05	999.95	-1.86	-1.86	8.66	0.32	8.86	102.13°
1100	0.75	124.07	1099.94	-2.27	-2.27	9.74	0.37	10.00	103.15°
1200	0.37	144.63	1199.93	-2.90	-2.90	10.46	0.42	10.86	105.51°
1300	0.31	100.99	1299.93	-3.22	-3.22	10.92	0.26	11.38	106.43°
1400	0.42	123.77	1399.93	-3.47	-3.47	11.49	0.18	12.00	106.83°
1500	0.28	161.65	1499.93	-3.91	-3.91	11.87	0.26	12.50	108.24°
1600	0.10	287.89	1599.93	-4.12	-4.12	11.86	0.35	12.56	109.13°
1700	0.13	11.81	1699.93	-3.98	-3.98	11.80	0.16	12.45	108.63°
1800	0.58	152.97	1799.93	-4.32	-4.32	12.06	0.69	12.81	109.70°
1900	1.14	157.46	1899.92	-5.69	-5.69	12.67	0.56	13.89	114.18°
2000	1.50	160.78	1999.89	-7.84	-7.84	13.48	0.37	15.59	120.19°
2100	1.44	154.52	2099.86	-10.21	-10.21	14.45	0.17	17.69	125.25°
2200	1.44	155.75	2199.82	-12.49	-12.49	15.51	0.03	19.91	128.85°
2300	1.08	155.45	2299.80	-14.49	-14.49	16.41	0.36	21.90	131.45°
2400	0.95	152.20	2399.78	-16.09	-16.09	17.19	0.14	23.54	133.09°
2500	0.86	152.41	2499.77	-17.48	-17.48	17.93	0.09	25.04	134.28°
2600	0.76	143.54	2599.76	-18.68	-18.68	18.67	0.16	26.41	135.02°
2700	0.90	138.43	2699.75	-19.80	-19.80	19.58	0.16	27.85	135.32°
2800	1.07	143.27	2799.74	-21.14	-21.14	20.66	0.19	29.56	135.65°
2900	1.12	146.56	2899.72	-22.70	-22.70	21.76	0.08	31.45	136.21°
3000	1.06	144.38	2999.70	-24.27	-24.27	22.84	0.07	33.33	136.74°
3100	0.85	134.84	3099.69	-25.55	-25.55	23.90	0.26	34.98	136.90°
3200	0.30	71.00	3199.68	-25.98	-25.98	24.68	0.77	35.83	136.48°
3300	0.89	340.23	3299.68	-25.17	-25.17	24.66	0.94	35.24	135.58°
3400	1.41	339.29	3399.66	-23.29	-23.29	23.96	0.52	33.41	134.18°
3500	1.47	347.15	3499.63	-20.88	-20.88	23.24	0.21	31.25	131.94°
3600	1.58	356.11	3599.59	-18.26	-18.26	22.86	0.26	29.26	128.61°
3700	1.49	5.61	3699.55	-15.59	-15.59	22.90	0.27	27.70	124.25°
3800	1.42	10.85	3799.52	-13.08	-13.08	23.26	0.15	26.68	119.35°
3900	1.05	21.11	3899.50	-11.01	-11.01	23.82	0.43	26.24	114.80°
4000	0.71	25.61	3999.49	-9.59	-9.59	24.42	0.35	26.24	111.45°
4100	0.46	4.21	4099.48	-8.63	-8.63	24.72	0.33	26.18	109.26°
4200	0.43	299.51	4199.48	-8.05	-8.05	24.42	0.48	25.71	108.24°
4300	0.44	273.34	4299.48	-7.84	-7.84	23.71	0.20	24.97	108.30°
4400	0.84	248.43	4399.47	-8.09	-8.09	22.64	0.48	24.05	109.66°
4500	1.24	231.65	4499.45	-9.03	-9.03	21.11	0.50	22.96	113.15°
4600	0.94	239.77	4599.44	-10.11	-10.11	19.56	0.34	22.02	117.35°
4700	0.64	253.85	4699.43	-10.68	-10.68	18.31	0.36	21.20	120.26°
4800	0.39	267.74	4799.42	-10.85	-10.85	17.44	0.28	20.54	121.90°

Directional Survey Report									
Measured Depth (ft.)	Inclination	Azimuth Bearing	Vertical Depth	Vertical Section	Coordinates (+N/-S) (+E/-W)		Dog-Leg / 100 ft.	Closure Distance	Closure Direction
4900	0.24	249.61	4899.42	-10.94	-10.94	16.90	0.18	20.13	122.91°
5000	0.23	207.26	4999.42	-11.19	-11.19	16.61	0.17	20.03	123.96°
5100	0.31	180.61	5099.42	-11.64	-11.64	16.52	0.15	20.20	125.17°
5200	0.47	157.88	5199.42	-12.29	-12.29	16.67	0.22	20.71	126.40°
5300	0.56	141.27	5299.41	-13.05	-13.05	17.13	0.17	21.53	127.30°
5400	0.45	84.33	5399.41	-13.39	-13.39	17.82	0.49	22.29	126.92°
5500	0.44	104.37	5499.41	-13.45	-13.45	18.59	0.16	22.94	125.89°
5600	0.18	69.76	5599.40	-13.49	-13.49	19.11	0.31	23.39	125.22°
5700	0.42	48.16	5699.40	-13.19	-13.19	19.53	0.26	23.56	124.04°
5800	0.40	48.33	5799.40	-12.71	-12.71	20.06	0.02	23.75	122.37°
5900	0.13	10.09	5899.40	-12.37	-12.37	20.34	0.31	23.81	121.31°
6000	0.25	309.88	5999.40	-12.12	-12.12	20.19	0.22	23.55	120.97°
6100	0.61	338.09	6099.40	-11.48	-11.48	19.83	0.41	22.91	120.08°
6200	0.39	358.26	6199.39	-10.65	-10.65	19.62	0.28	22.32	118.50°
6300	0.20	15.04	6299.39	-10.14	-10.14	19.65	0.21	22.12	117.30°
6400	0.30	330.32	6399.39	-9.75	-9.75	19.57	0.21	21.86	116.47°
6500	0.17	320.21	6499.39	-9.40	-9.40	19.34	0.14	21.51	115.93°
6600	0.20	350.08	6599.39	-9.12	-9.12	19.22	0.10	21.27	115.38°
6700	0.28	5.03	6699.39	-8.70	-8.70	19.21	0.10	21.09	114.37°

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