



Company: PDC Energy
Lease / Well: State Lease 81 11-16
County/Parish: WELD
State: COLORADO
Date: 3/26/2015
Rig: NA
Surveyor: SHON LANE
Job Number: 1222-512313963
Instrument Number: 3123 **Type:** MEMORY
Proposed Direction: 0 **GL Elev:** 4813
Magnetic Declination 9.69 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	0.26	181.93	100.00	-0.23	-0.23	-0.01	0.26	0.23	181.93°
200	0.49	208.38	200.00	-0.83	-0.83	-0.22	0.28	0.86	194.75°
300	0.65	211.94	299.99	-1.69	-1.69	-0.72	0.16	1.84	203.16°
400	0.52	180.08	399.99	-2.62	-2.62	-1.02	0.34	2.81	201.30°
500	0.47	190.96	499.98	-3.48	-3.48	-1.10	0.11	3.65	197.56°
600	0.59	205.46	599.98	-4.35	-4.35	-1.40	0.18	4.57	197.86°
700	0.54	191.58	699.97	-5.27	-5.27	-1.72	0.15	5.55	198.03°
800	0.52	185.47	799.97	-6.19	-6.19	-1.85	0.06	6.46	196.69°
900	0.59	186.46	899.97	-7.15	-7.15	-1.96	0.07	7.41	195.30°
1000	0.68	194.91	999.96	-8.23	-8.23	-2.17	0.13	8.51	194.74°
1100	0.59	185.76	1099.95	-9.32	-9.32	-2.37	0.14	9.62	194.27°
1200	0.56	186.06	1199.95	-10.32	-10.32	-2.47	0.03	10.61	193.48°
1300	0.74	191.17	1299.94	-11.44	-11.44	-2.65	0.19	11.74	193.05°
1400	0.65	203.08	1399.93	-12.59	-12.59	-3.00	0.17	12.95	193.39°
1500	0.77	225.75	1499.93	-13.58	-13.58	-3.70	0.30	14.08	195.24°
1600	0.59	236.41	1599.92	-14.34	-14.34	-4.61	0.22	15.06	197.83°
1700	0.58	222.79	1699.92	-14.99	-14.99	-5.38	0.14	15.93	199.75°
1800	0.74	218.49	1799.91	-15.87	-15.87	-6.13	0.17	17.01	201.12°
1900	0.59	227.02	1899.90	-16.73	-16.73	-6.91	0.18	18.10	202.44°
2000	0.67	193.09	1999.90	-17.65	-17.65	-7.42	0.38	19.14	202.80°
2100	0.58	192.26	2099.89	-18.71	-18.71	-7.66	0.09	20.22	202.26°
2200	0.74	155.19	2199.88	-19.79	-19.79	-7.49	0.45	21.16	200.74°
2300	0.90	131.48	2299.87	-20.90	-20.90	-6.63	0.37	21.93	197.61°
2400	0.53	103.04	2399.87	-21.52	-21.52	-5.60	0.50	22.24	194.57°
2500	0.74	351.02	2499.86	-20.99	-20.99	-5.25	1.06	21.64	194.03°
2600	0.79	355.19	2599.85	-19.67	-19.67	-5.40	0.07	20.39	195.37°
2700	0.78	344.44	2699.84	-18.32	-18.32	-5.65	0.15	19.17	197.12°
2800	0.64	3.37	2799.84	-17.11	-17.11	-5.79	0.27	18.06	198.71°
2900	0.50	6.20	2899.83	-16.12	-16.12	-5.71	0.14	17.10	199.52°
3000	0.43	6.70	2999.83	-15.31	-15.31	-5.62	0.07	16.31	200.17°
3100	0.21	308.31	3099.83	-14.83	-14.83	-5.72	0.37	15.89	201.11°
3200	0.12	187.17	3199.83	-14.82	-14.82	-5.88	0.29	15.94	201.65°
3300	0.11	201.91	3299.83	-15.01	-15.01	-5.93	0.03	16.14	201.56°
3400	0.16	344.54	3399.83	-14.96	-14.96	-6.00	0.26	16.12	201.86°
3500	0.21	298.84	3499.83	-14.74	-14.74	-6.20	0.15	15.99	202.81°
3600	0.23	306.94	3599.83	-14.53	-14.53	-6.52	0.04	15.93	204.17°
3700	0.11	337.10	3699.82	-14.32	-14.32	-6.72	0.15	15.82	205.13°
3800	0.15	263.07	3799.82	-14.25	-14.25	-6.89	0.16	15.83	205.79°
3900	0.09	290.32	3899.82	-14.24	-14.24	-7.09	0.08	15.91	206.47°
4000	0.17	230.71	3999.82	-14.30	-14.30	-7.28	0.15	16.05	206.97°
4100	0.25	224.20	4099.82	-14.55	-14.55	-7.55	0.08	16.39	207.40°
4200	0.37	183.35	4199.82	-15.03	-15.03	-7.72	0.24	16.90	207.17°
4300	0.36	168.10	4299.82	-15.66	-15.66	-7.67	0.10	17.44	206.09°
4400	0.89	161.41	4399.81	-16.71	-16.71	-7.36	0.53	18.26	203.77°
4500	1.04	150.39	4499.80	-18.23	-18.23	-6.66	0.24	19.41	200.07°
4600	0.91	157.28	4599.79	-19.75	-19.75	-5.91	0.17	20.62	196.65°
4700	0.91	155.48	4699.77	-21.21	-21.21	-5.27	0.03	21.85	193.96°
4800	0.90	116.96	4799.76	-22.29	-22.29	-4.24	0.60	22.69	190.77°

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	0.75	103.12	4899.75	-22.79	-22.79	-2.90	0.25	22.98	187.26°
5000	0.92	55.10	4999.74	-22.48	-22.48	-1.61	0.70	22.54	184.09°
5100	0.94	50.61	5099.73	-21.50	-21.50	-0.32	0.08	21.50	180.84°
5200	1.12	46.39	5199.71	-20.31	-20.31	1.03	0.20	20.33	177.11°
5300	0.73	17.43	5299.70	-19.02	-19.02	1.92	0.60	19.12	174.22°
5400	0.43	341.90	5399.69	-18.06	-18.06	2.00	0.45	18.17	173.69°
5500	0.66	337.21	5499.69	-17.17	-17.17	1.66	0.23	17.25	174.48°
5600	0.52	334.93	5599.68	-16.23	-16.23	1.24	0.14	16.28	175.62°
5700	0.79	316.22	5699.68	-15.32	-15.32	0.57	0.34	15.33	177.85°
5800	0.89	305.33	5799.67	-14.37	-14.37	-0.54	0.19	14.38	182.14°
5900	0.97	292.92	5899.65	-13.60	-13.60	-1.95	0.22	13.73	188.16°
6000	1.04	281.61	5999.64	-13.08	-13.08	-3.62	0.21	13.57	195.46°
6100	1.04	260.71	6099.62	-13.05	-13.05	-5.40	0.38	14.12	202.49°
6200	1.06	262.06	6199.61	-13.32	-13.32	-7.21	0.03	15.15	208.44°
6300	1.16	261.46	6299.59	-13.60	-13.60	-9.13	0.10	16.38	213.88°
6400	1.47	268.66	6399.56	-13.78	-13.78	-11.41	0.35	17.89	219.64°
6500	1.61	270.35	6499.52	-13.80	-13.80	-14.10	0.15	19.73	225.62°
6600	1.42	269.90	6599.49	-13.80	-13.80	-16.75	0.19	21.70	230.52°
6700	1.75	277.04	6699.45	-13.61	-13.61	-19.50	0.38	23.78	235.09°

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