



Job Number: SVGJ-120736

Company: PDC

Lease/Well: Alm 42-33

Location: Weld County, CO

Rig Name: Lightning Wireline

RKB: 0'

G.L. or M.S.L.: GL

State/Country: Colorado/USA

Declination: 8.70°

Grid: East To True North

File name: F:\SURVEY\2012SU~1\PDC\LORENZ\ALM4233.SVY

Date/Time: 23-Jul-12 / 12:57

Curve Name: Surface - 7100' M.D. (Rate Gyro)

WINSERVE SURVEY CALCULATIONS

Minimum Curvature Method

Vertical Section Plane .00

Vertical Section Referenced to Wellhead

Rectangular Coordinates Referenced to Wellhead

We hereby certify that our survey data from
Surface MD to 7,100' MD is, to the best of
our knowledge a true and accurate account of
the well bore.

Mark Simmons
MS Energy Services

7/23/12
Date

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
100.00	.49	20.94	100.00	.40	.15	.40	.43	20.94	.49
200.00	.41	23.97	200.00	1.13	.45	1.13	1.21	21.83	.08
300.00	.38	32.40	299.99	1.73	.77	1.73	1.90	24.07	.07
400.00	.32	24.77	399.99	2.27	1.07	2.27	2.51	25.25	.08
500.00	.14	284.66	499.99	2.55	1.07	2.55	2.77	22.71	.37
600.00	.14	263.86	599.99	2.57	.83	2.57	2.70	17.87	.05
700.00	.15	245.46	699.99	2.50	.59	2.50	2.57	13.22	.05
800.00	.16	270.63	799.99	2.45	.33	2.45	2.47	7.65	.07
900.00	.13	233.51	899.99	2.38	.10	2.38	2.38	2.35	.10

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
1000.00	.16	214.66	999.99	2.20	-.07	2.20	2.20	358.10	.06
1100.00	.20	191.95	1099.99	1.91	-.19	1.91	1.92	354.38	.08
1200.00	.29	189.82	1199.99	1.49	-.27	1.49	1.52	349.84	.09
1300.00	.33	189.07	1299.99	.96	-.36	.96	1.02	339.65	.04
1400.00	.27	223.11	1399.99	.50	-.56	.50	.76	311.86	.18
1500.00	.22	234.45	1499.98	.22	-.88	.22	.91	284.07	.07
1600.00	.25	213.37	1599.98	-.07	-1.16	-.07	1.16	266.37	.09
1700.00	.31	204.04	1699.98	-.50	-1.39	-.50	1.47	250.07	.08
1800.00	.37	241.79	1799.98	-.90	-1.78	-.90	2.00	243.13	.23
1900.00	.52	239.89	1899.98	-1.28	-2.46	-1.28	2.77	242.45	.15
2000.00	.67	201.44	1999.97	-2.05	-3.06	-2.05	3.69	236.16	.42
2100.00	.81	179.57	2099.96	-3.31	-3.27	-3.31	4.65	224.72	.31
2200.00	.84	183.35	2199.95	-4.74	-3.31	-4.74	5.78	214.91	.06
2300.00	.58	202.99	2299.95	-5.94	-3.55	-5.94	6.92	210.86	.35
2400.00	.61	229.35	2399.94	-6.75	-4.15	-6.75	7.93	211.58	.27
2500.00	.78	245.14	2499.93	-7.39	-5.17	-7.39	9.02	215.01	.25
2600.00	.80	254.16	2599.92	-7.86	-6.46	-7.86	10.18	219.41	.13
2700.00	.88	257.26	2699.91	-8.22	-7.88	-8.22	11.39	223.79	.09
2800.00	.93	269.41	2799.90	-8.40	-9.44	-8.40	12.64	228.34	.20
2900.00	.97	269.58	2899.89	-8.42	-11.10	-8.42	13.93	232.84	.04
3000.00	.96	257.19	2999.87	-8.61	-12.77	-8.61	15.40	236.01	.21
3100.00	.97	236.34	3099.86	-9.26	-14.29	-9.26	17.03	237.04	.35
3200.00	.83	208.18	3199.85	-10.37	-15.33	-10.37	18.51	235.93	.46
3300.00	.83	207.62	3299.84	-11.65	-16.01	-11.65	19.80	233.96	.01
3400.00	.83	204.22	3399.83	-12.95	-16.64	-12.95	21.09	232.11	.05
3500.00	.72	183.41	3499.82	-14.24	-16.98	-14.24	22.16	230.01	.30
3600.00	.84	179.11	3599.81	-15.60	-17.00	-15.60	23.08	227.46	.13
3700.00	.91	178.22	3699.80	-17.13	-16.97	-17.13	24.11	224.73	.07
3800.00	1.23	160.96	3799.78	-18.94	-16.59	-18.94	25.18	221.23	.45

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
3900.00	1.54	148.98	3899.75	-21.10	-15.55	-21.10	26.21	216.39	.42
4000.00	1.59	144.43	3999.71	-23.38	-14.05	-23.38	27.28	211.00	.13
4100.00	1.52	140.75	4099.68	-25.54	-12.41	-25.54	28.39	205.91	.12
4200.00	1.53	140.30	4199.64	-27.59	-10.71	-27.59	29.60	201.22	.02
4300.00	1.49	148.86	4299.61	-29.73	-9.19	-29.73	31.12	197.17	.23
4400.00	1.58	155.43	4399.57	-32.10	-7.94	-32.10	33.07	193.90	.20
4500.00	1.67	154.20	4499.53	-34.66	-6.74	-34.66	35.31	191.00	.10
4600.00	1.36	151.46	4599.50	-37.02	-5.53	-37.02	37.43	188.50	.32
4700.00	1.41	179.41	4699.47	-39.29	-4.95	-39.29	39.60	187.19	.67
4800.00	1.62	196.38	4799.43	-41.88	-5.34	-41.88	42.22	187.27	.49
4900.00	1.60	196.31	4899.39	-44.57	-6.13	-44.57	44.99	187.83	.02
5000.00	1.50	197.86	4999.36	-47.16	-6.92	-47.16	47.67	188.35	.11
5100.00	1.49	194.88	5099.32	-49.66	-7.66	-49.66	50.25	188.77	.08
5200.00	1.32	201.19	5199.29	-51.99	-8.41	-51.99	52.67	189.19	.23
5300.00	1.19	202.17	5299.27	-54.03	-9.22	-54.03	54.81	189.68	.13
5400.00	1.12	198.30	5399.25	-55.92	-9.92	-55.92	56.79	190.06	.10
5500.00	1.14	184.84	5499.23	-57.84	-10.31	-57.84	58.75	190.11	.27
5600.00	1.96	170.59	5599.19	-60.51	-10.11	-60.51	61.35	189.49	.90
5700.00	2.19	174.21	5699.13	-64.10	-9.64	-64.10	64.82	188.55	.26
5800.00	2.21	188.70	5799.05	-67.91	-9.74	-67.91	68.60	188.16	.56
5900.00	1.95	207.80	5898.99	-71.32	-10.82	-71.32	72.14	188.63	.74
6000.00	1.93	211.32	5998.93	-74.26	-12.49	-74.26	75.31	189.55	.12
6100.00	1.82	224.04	6098.88	-76.84	-14.47	-76.84	78.20	190.67	.43
6200.00	1.73	232.09	6198.83	-78.91	-16.77	-78.91	80.67	192.00	.26
6300.00	1.68	244.37	6298.79	-80.47	-19.28	-80.47	82.75	193.47	.37
6400.00	1.41	257.77	6398.75	-81.37	-21.80	-81.37	84.24	195.00	.45
6500.00	1.55	257.41	6498.72	-81.92	-24.33	-81.92	85.46	196.54	.14
6600.00	1.51	250.68	6598.68	-82.66	-26.89	-82.66	86.92	198.02	.18
6700.00	1.25	239.13	6698.65	-83.65	-29.07	-83.65	88.56	199.16	.38

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
6800.00	1.23	232.56	6798.63	-84.86	-30.86	-84.86	90.30	199.98	.14
6900.00	1.18	218.53	6898.61	-86.32	-32.35	-86.32	92.18	200.54	.30
7000.00	.86	217.16	6998.59	-87.72	-33.45	-87.72	93.88	200.87	.32
Last Survey Depth Recorded									
7100.00	.50	231.83	7098.58	-88.59	-34.24	-88.59	94.98	201.13	.40