



Company: Noble Energy
Lease/Well: State A/36-7
Location: Sec 36, T6N, R64W
Rig Name: Lightning Wire
State/County: Colorado/Weld
Latitude: 40.45

GRID North is 0.65 Degrees East of True North
VS-Azi: 0.00 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Service Company : Vaughn Energy Services

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: statea36-7-01.ut

Minimum Curvature Method

Report Date/Time: 10/29/2010 / 16:58

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.74	43.24	100.00	0.47	0.44	0.47	0.64	43.24	0.74
200.00	0.63	51.22	199.99	1.28	1.31	1.28	1.83	45.63	0.14
300.00	0.32	93.96	299.99	1.60	2.01	1.60	2.57	51.46	0.45
400.00	0.37	41.06	399.99	1.83	2.50	1.83	3.10	53.88	0.31
500.00	0.38	71.00	499.98	2.17	3.02	2.17	3.72	54.27	0.19
600.00	0.42	74.03	599.98	2.38	3.68	2.38	4.39	57.12	0.04
700.00	0.40	78.54	699.98	2.55	4.37	2.55	5.06	59.75	0.04
800.00	0.36	77.19	799.98	2.69	5.01	2.69	5.69	61.81	0.04
900.00	0.45	77.08	899.97	2.85	5.70	2.85	6.37	63.49	0.10
1000.00	0.47	66.61	999.97	3.10	6.47	3.10	7.17	64.41	0.09
1100.00	0.31	61.40	1099.97	3.39	7.08	3.39	7.85	64.42	0.16
1200.00	0.22	21.07	1199.97	3.69	7.39	3.69	8.26	63.43	0.20
1300.00	0.29	23.13	1299.97	4.10	7.55	4.10	8.59	61.51	0.07
1400.00	0.16	25.39	1399.97	4.46	7.71	4.46	8.91	59.97	0.12
1500.00	0.25	32.43	1499.96	4.77	7.89	4.77	9.22	58.84	0.09
1600.00	0.23	39.22	1599.96	5.10	8.13	5.10	9.60	57.88	0.04
1700.00	0.22	48.94	1699.96	5.38	8.40	5.38	9.98	57.34	0.04
1800.00	0.22	52.47	1799.96	5.63	8.70	5.63	10.36	57.10	0.02
1900.00	0.20	62.91	1899.96	5.82	9.00	5.82	10.72	57.11	0.04
2000.00	0.15	84.11	1999.96	5.91	9.29	5.91	11.01	57.51	0.08
2100.00	0.21	40.20	2099.96	6.07	9.53	6.07	11.30	57.53	0.14
2200.00	0.31	44.33	2199.96	6.40	9.84	6.40	11.74	56.96	0.10
2300.00	0.58	350.32	2299.96	7.09	9.94	7.09	12.21	54.50	0.47
2400.00	0.66	348.46	2399.95	8.16	9.74	8.16	12.71	50.05	0.09
2500.00	0.74	342.29	2499.94	9.34	9.43	9.34	13.27	45.28	0.11
2600.00	0.87	346.31	2599.93	10.69	9.05	10.69	14.01	40.25	0.15
2700.00	0.77	348.73	2699.92	12.10	8.74	12.10	14.93	35.85	0.11
2800.00	0.94	342.47	2799.91	13.54	8.36	13.54	15.92	31.69	0.19
2900.00	1.04	326.25	2899.90	15.08	7.61	15.08	16.89	26.78	0.30
3000.00	1.01	317.71	2999.88	16.49	6.51	16.49	17.73	21.56	0.15
3100.00	0.91	315.93	3099.87	17.71	5.37	17.71	18.50	16.86	0.11
3200.00	0.30	246.08	3199.86	18.18	4.58	18.18	18.74	14.14	0.85

Measured	Incl	Drift				Vertical	Closure	Closure	Dogleg
Depth	Angle	Direction	TVD	+N/-S	+E/-W	Section	Distance	Direction	Severity
FT	Deg	Deg	FT	FT	FT	FT	FT	Deg	Deg/100
3300.00	0.49	198.53	3299.86	17.67	4.21	17.67	18.16	13.40	0.36
3400.00	0.93	191.71	3399.85	16.47	3.91	16.47	16.93	13.35	0.44
3500.00	1.01	171.19	3499.84	14.81	3.88	14.81	15.31	14.68	0.36
3600.00	1.08	171.08	3599.82	13.00	4.16	13.00	13.65	17.74	0.06
3700.00	0.94	171.34	3699.81	11.27	4.43	11.27	12.11	21.47	0.14
3800.00	0.85	169.79	3799.79	9.73	4.68	9.73	10.80	25.71	0.10
3900.00	0.96	170.44	3899.78	8.18	4.95	8.18	9.56	31.20	0.11
4000.00	0.96	178.80	3999.77	6.52	5.11	6.52	8.28	38.09	0.14
4100.00	0.97	182.91	4099.75	4.84	5.08	4.84	7.02	46.42	0.07
4200.00	1.06	190.72	4199.74	3.09	4.87	3.09	5.77	57.65	0.16
4300.00	1.27	202.52	4299.72	1.16	4.28	1.16	4.43	74.85	0.32
4400.00	1.14	209.87	4399.70	-0.73	3.35	-0.73	3.43	102.27	0.20
4500.00	1.32	227.25	4499.67	-2.38	2.01	-2.38	3.11	139.78	0.41
4600.00	1.86	247.17	4599.63	-3.79	-0.33	-3.79	3.80	184.96	0.76
4700.00	2.13	241.20	4699.57	-5.31	-3.45	-5.31	6.33	213.00	0.34
4800.00	2.19	247.14	4799.50	-6.95	-6.84	-6.95	9.75	224.53	0.23
4900.00	2.08	250.89	4899.43	-8.29	-10.31	-8.29	13.23	231.22	0.17
5000.00	1.73	260.42	4999.38	-9.13	-13.52	-9.13	16.32	235.97	0.47
5100.00	1.28	293.80	5099.35	-8.93	-16.04	-8.93	18.36	240.88	0.97
5200.00	1.29	321.71	5199.32	-7.60	-17.76	-7.60	19.31	246.84	0.62
5300.00	1.37	340.53	5299.29	-5.58	-18.86	-5.58	19.67	253.51	0.44
5400.00	1.57	323.42	5399.26	-3.36	-20.07	-3.36	20.35	260.51	0.48
5500.00	2.27	355.56	5499.21	-0.27	-21.04	-0.27	21.05	269.25	1.26
5600.00	1.16	353.32	5599.16	2.71	-21.32	2.71	21.49	277.25	1.11
5700.00	0.40	2.37	5699.15	4.07	-21.42	4.07	21.80	280.77	0.77
5800.00	1.51	9.15	5799.14	5.73	-21.19	5.73	21.96	285.13	1.11
5900.00	1.47	15.23	5899.10	8.27	-20.65	8.27	22.24	291.83	0.16
6000.00	0.20	32.54	5999.09	9.66	-20.21	9.66	22.40	295.55	1.28
6100.00	0.42	63.62	6099.09	9.98	-19.79	9.98	22.16	296.76	0.27
6200.00	0.51	66.08	6199.08	10.32	-19.05	10.32	21.67	298.45	0.09
6300.00	0.50	76.75	6299.08	10.60	-18.22	10.60	21.08	300.20	0.09
6400.00	0.28	79.80	6399.08	10.75	-17.55	10.75	20.58	301.49	0.22
6500.00	0.18	90.88	6499.08	10.79	-17.15	10.79	20.26	302.18	0.11
6600.00	0.26	99.91	6599.08	10.75	-16.77	10.75	19.92	302.66	0.09
6700.00	0.32	107.62	6699.08	10.62	-16.27	10.62	19.43	303.13	0.07
6800.00	0.22	109.23	6799.07	10.47	-15.83	10.47	18.98	303.50	0.10
6875.00	0.28	110.73	6874.07	10.36	-15.52	10.36	18.66	303.74	0.08

<div> <div> HORIZONTAL DISPLACEMENT IS 18.66 FEET AT 303.74 DEGREES </div> </div>									
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