



Company: Noble
 Lease/Well: Atkinson-Gale/3-13
 Location:
 Rig Name: Production
 State/County: Colorado/Weld County
 Latitude: 40.33
 GRID North is 0.62 Degrees East of True North
 VS-Azi: 0.00 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : GL

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: run1-01_ed.ut
 Minimum Curvature Method
 Report Date/Time: 3/23/2011 / 14:36

Vaughn Energy Services
 Rifle, Colorado
 970-456-2071
 Garry Fowler
 Atkinson-Gale 3-13/05-123-17160

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	0.51	90.09	100.00	0.00	0.44	0.00	0.44	90.09	0.51
200.00	0.47	89.86	200.00	0.00	1.29	0.00	1.29	90.02	0.04
300.00	0.37	99.22	299.99	-0.05	2.02	-0.05	2.02	91.46	0.12
400.00	0.28	99.01	399.99	-0.14	2.58	-0.14	2.58	93.14	0.10
500.00	0.01	162.30	499.99	-0.19	2.82	-0.19	2.82	93.78	0.27
600.00	0.32	264.63	599.99	-0.22	2.54	-0.22	2.55	94.92	0.32
700.00	0.46	262.36	699.99	-0.30	1.87	-0.30	1.89	99.08	0.14
800.00	0.43	269.86	799.98	-0.35	1.10	-0.35	1.15	107.80	0.06
900.00	0.44	265.49	899.98	-0.38	0.33	-0.38	0.51	138.86	0.04
1000.00	0.36	261.66	999.98	-0.46	-0.36	-0.46	0.58	218.24	0.09
1100.00	0.31	266.94	1099.98	-0.52	-0.94	-0.52	1.08	241.16	0.06
1200.00	0.23	260.46	1199.98	-0.57	-1.41	-0.57	1.52	248.10	0.09
1300.00	0.52	265.76	1299.97	-0.63	-2.06	-0.63	2.16	252.93	0.30
1400.00	0.54	267.48	1399.97	-0.69	-2.99	-0.69	3.07	257.04	0.02
1500.00	0.51	256.29	1499.97	-0.81	-3.89	-0.81	3.98	258.18	0.11
1600.00	0.55	215.06	1599.96	-1.32	-4.60	-1.32	4.79	254.05	0.38
1700.00	0.52	219.19	1699.96	-2.07	-5.17	-2.07	5.57	248.21	0.05
1800.00	0.76	216.70	1799.95	-2.96	-5.86	-2.96	6.56	243.22	0.24
1900.00	0.88	216.69	1899.94	-4.11	-6.71	-4.11	7.87	238.55	0.12
2000.00	1.34	215.90	1999.92	-5.67	-7.86	-5.67	9.69	234.19	0.46
2100.00	1.34	215.48	2099.89	-7.57	-9.23	-7.57	11.94	230.62	0.01
2200.00	1.34	224.42	2199.87	-9.36	-10.72	-9.36	14.23	228.88	0.21
2300.00	1.40	233.41	2299.84	-10.93	-12.53	-10.93	16.62	228.90	0.22
2400.00	1.31	245.31	2399.81	-12.13	-14.55	-12.13	18.94	230.17	0.30
2500.00	1.27	254.02	2499.79	-12.92	-16.65	-12.92	21.07	232.20	0.20
2600.00	1.29	252.23	2599.76	-13.56	-18.78	-13.56	23.17	234.17	0.04
2700.00	1.37	259.24	2699.73	-14.13	-21.02	-14.13	25.33	236.10	0.18
2800.00	1.33	250.51	2799.71	-14.74	-23.29	-14.74	27.56	237.67	0.21
2900.00	1.16	258.27	2899.68	-15.33	-25.37	-15.33	29.64	238.86	0.24
3000.00	1.06	246.43	2999.66	-15.91	-27.21	-15.91	31.52	239.69	0.25
3100.00	1.05	219.89	3099.65	-16.98	-28.65	-16.98	33.30	239.34	0.48

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
3200.00	1.05	184.34	3199.63	-18.59	-29.30	-18.59	34.70	237.60	0.64
3300.00	1.44	151.99	3299.61	-20.62	-28.78	-20.62	35.40	234.39	0.79
3400.00	1.88	121.43	3399.57	-22.58	-26.79	-22.58	35.04	229.88	0.97
3500.00	2.40	104.17	3499.50	-23.95	-23.36	-23.95	33.46	224.30	0.82
3600.00	2.63	97.20	3599.40	-24.75	-19.05	-24.75	31.23	217.60	0.38
3700.00	2.54	84.38	3699.30	-24.82	-14.57	-24.82	28.78	210.42	0.58
3800.00	2.43	79.71	3799.21	-24.22	-10.28	-24.22	26.31	202.99	0.23
3900.00	1.65	94.61	3899.15	-23.96	-6.76	-23.96	24.89	195.75	0.94
4000.00	1.11	94.09	3999.12	-24.14	-4.36	-24.14	24.53	190.23	0.53
4100.00	1.07	95.33	4099.10	-24.30	-2.46	-24.30	24.42	185.78	0.05
4200.00	0.82	143.41	4199.09	-24.96	-1.10	-24.96	24.99	182.52	0.81
4300.00	0.88	204.90	4299.08	-26.24	-1.00	-26.24	26.26	182.17	0.87
4400.00	1.09	246.96	4399.06	-27.31	-2.20	-27.31	27.40	184.60	0.73
4500.00	1.82	245.22	4499.03	-28.35	-4.52	-28.35	28.71	189.05	0.74
4600.00	2.14	247.32	4598.97	-29.74	-7.68	-29.74	30.72	194.49	0.32
4700.00	1.80	262.86	4698.91	-30.65	-10.97	-30.65	32.56	199.69	0.63
4800.00	1.65	264.04	4798.87	-31.00	-13.96	-31.00	34.00	204.25	0.16
4900.00	1.52	260.95	4898.83	-31.36	-16.70	-31.36	35.53	208.05	0.15
5000.00	1.44	256.19	4998.79	-31.87	-19.24	-31.87	37.22	211.12	0.15
5100.00	1.12	241.55	5098.77	-32.63	-21.32	-32.63	38.98	213.16	0.45
5200.00	0.97	226.04	5198.75	-33.69	-22.80	-33.69	40.68	214.08	0.32
5300.00	0.96	192.97	5298.74	-35.09	-23.59	-35.09	42.29	213.92	0.55
5400.00	0.54	160.49	5398.73	-36.35	-23.62	-36.35	43.35	213.02	0.58
5500.00	0.62	152.18	5498.73	-37.28	-23.21	-37.28	43.91	211.91	0.11
5600.00	0.74	152.69	5598.72	-38.33	-22.66	-38.33	44.53	210.60	0.12
5700.00	0.76	152.38	5698.71	-39.49	-22.06	-39.49	45.23	209.19	0.02
5800.00	0.88	136.27	5798.70	-40.63	-21.22	-40.63	45.84	207.58	0.26
5900.00	1.09	139.99	5898.68	-41.91	-20.09	-41.91	46.47	205.61	0.22
6000.00	1.84	138.25	5998.65	-43.84	-18.40	-43.84	47.54	202.78	0.75
6100.00	2.47	138.23	6098.58	-46.64	-15.90	-46.64	49.28	198.82	0.63
6200.00	3.25	129.52	6198.46	-50.05	-12.28	-50.05	51.54	193.78	0.89
6300.00	3.07	122.78	6298.30	-53.30	-7.84	-53.30	53.88	188.37	0.41
6400.00	2.44	113.04	6398.19	-55.59	-3.63	-55.59	55.71	183.74	0.78
6500.00	2.36	103.61	6498.10	-56.91	0.33	-56.91	56.91	179.66	0.40
6600.00	2.16	101.57	6598.02	-57.77	4.19	-57.77	57.92	175.85	0.22
6700.00	1.68	127.83	6697.97	-59.05	7.20	-59.05	59.49	173.05	0.99
6800.00	1.38	132.16	6797.93	-60.76	9.25	-60.76	61.46	171.34	0.32
6850.00	1.40	146.66	6847.92	-61.68	10.03	-61.68	62.49	170.76	0.70

HORIZONTAL DISPLACEMENT IS

62.49 FEET AT 170.76 DEGREES