

**VES**

VAUGHN ENERGY SERVICES

Company: Nobel Energy

Lease/Well: Coors V / 6-13JI

Location: S-6 T-2N R-67W

Rig Name: Production

State/County: Colorado / Weld County

Latitude: 40.16, Longitude: -104.94

GRID North is 0.36 Degrees East of True North

VS-Azi: 0.00 Degrees

**GTI**

GYRO TECHNOLOGIES, INC

## FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB = Ground Level

## DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: inrun\_ed.ut

Minimum Curvature Method

Report Date/Time: 6/1/2011 / 20:55

Vaughn Energy Services

Denver, CO

720-215-1841

Robert Davis

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	0.43	0.67	100.00	0.38	0.00	0.38	0.38	0.67	0.43
200.00	0.28	54.52	200.00	0.89	0.21	0.89	0.92	13.23	0.35
300.00	0.45	26.86	300.00	1.39	0.59	1.39	1.50	22.98	0.24
400.00	0.34	269.23	399.99	1.73	0.47	1.73	1.79	15.18	0.67
500.00	0.22	0.54	499.99	1.92	0.18	1.92	1.93	5.25	0.41
600.00	0.68	357.64	599.99	2.70	0.15	2.70	2.70	3.26	0.46
700.00	0.74	337.27	699.98	3.88	-0.12	3.88	3.88	358.24	0.26
800.00	0.93	298.39	799.97	4.86	-1.08	4.86	4.98	347.43	0.59
900.00	0.86	314.33	899.96	5.77	-2.34	5.77	6.23	337.97	0.26
1000.00	0.97	303.22	999.95	6.76	-3.58	6.76	7.65	332.10	0.21
1100.00	0.54	267.12	1099.94	7.20	-4.76	7.20	8.63	326.53	0.62
1200.00	1.00	278.78	1199.93	7.31	-6.09	7.31	9.52	320.18	0.48
1300.00	0.82	271.70	1299.92	7.46	-7.67	7.46	10.70	314.21	0.21
1400.00	1.05	286.81	1399.90	7.75	-9.27	7.75	12.08	309.90	0.34
1500.00	1.03	277.14	1499.89	8.13	-11.05	8.13	13.71	306.35	0.18
1600.00	1.03	266.64	1599.87	8.19	-12.84	8.19	15.23	302.53	0.19
1700.00	1.40	240.25	1699.85	7.53	-14.79	7.53	16.60	296.98	0.66
1800.00	1.45	236.52	1799.82	6.22	-16.91	6.22	18.02	290.20	0.11
1900.00	1.61	251.25	1899.78	5.07	-19.30	5.07	19.96	284.72	0.42
2000.00	0.98	249.57	1999.76	4.32	-21.44	4.32	21.87	281.39	0.63
2100.00	1.05	239.56	2099.74	3.55	-23.04	3.55	23.31	278.77	0.19
2200.00	1.05	278.06	2199.73	3.22	-24.73	3.22	24.94	277.41	0.69
2300.00	1.26	282.90	2299.71	3.59	-26.71	3.59	26.95	277.66	0.24
2400.00	1.62	277.56	2399.67	4.02	-29.19	4.02	29.46	277.85	0.38
2500.00	0.94	251.96	2499.65	3.96	-31.37	3.96	31.62	277.19	0.87
2600.00	0.73	245.90	2599.64	3.44	-32.73	3.44	32.91	276.00	0.23
2700.00	0.41	248.60	2699.63	3.05	-33.64	3.05	33.78	275.18	0.31
2800.00	0.32	271.62	2799.63	2.93	-34.25	2.93	34.38	274.89	0.17
2900.00	0.44	295.70	2899.63	3.10	-34.87	3.10	35.01	275.08	0.20
3000.00	0.51	277.92	2999.63	3.33	-35.66	3.33	35.82	275.33	0.16
3100.00	0.57	233.84	3099.62	3.10	-36.51	3.10	36.64	274.85	0.41
3200.00	0.49	174.77	3199.62	2.38	-36.87	2.38	36.94	273.69	0.53
3300.00	0.84	212.56	3299.61	1.33	-37.22	1.33	37.25	272.05	0.54
3400.00	1.01	241.04	3399.60	0.29	-38.38	0.29	38.39	270.43	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
3500.00	1.37	274.65	3499.58	-0.04	-40.34	-0.04	40.34	269.94	0.77
3600.00	2.02	285.00	3599.53	0.51	-43.23	0.51	43.24	270.68	0.72
3700.00	2.22	289.13	3699.47	1.60	-46.77	1.60	46.80	271.96	0.26
3800.00	2.00	284.33	3799.40	2.67	-50.30	2.67	50.37	273.04	0.28
3900.00	1.54	278.86	3899.35	3.31	-53.32	3.31	53.42	273.55	0.49
4000.00	1.25	273.97	3999.32	3.59	-55.73	3.59	55.84	273.69	0.32
4100.00	0.61	275.31	4099.31	3.72	-57.35	3.72	57.47	273.71	0.63
4200.00	0.77	218.89	4199.30	3.24	-58.30	3.24	58.39	273.19	0.67
4300.00	0.60	253.77	4299.29	2.58	-59.22	2.58	59.28	272.49	0.44
4400.00	0.68	296.71	4399.29	2.70	-60.25	2.70	60.31	272.56	0.47
4500.00	1.03	302.99	4499.28	3.46	-61.54	3.46	61.64	273.21	0.36
4600.00	0.98	282.05	4599.26	4.13	-63.13	4.13	63.27	273.74	0.37
4700.00	1.00	259.75	4699.25	4.15	-64.83	4.15	64.96	273.66	0.38
4800.00	0.65	224.12	4799.24	3.58	-66.08	3.58	66.18	273.10	0.60
4900.00	0.35	221.67	4899.23	2.94	-66.68	2.94	66.75	272.53	0.30
5000.00	0.47	299.41	4999.23	2.91	-67.25	2.91	67.31	272.48	0.52
5100.00	0.58	295.19	5099.23	3.33	-68.06	3.33	68.14	272.80	0.12
5200.00	0.51	241.53	5199.22	3.33	-68.91	3.33	68.99	272.77	0.49
5300.00	0.53	243.46	5299.22	2.91	-69.71	2.91	69.77	272.39	0.03
5400.00	0.65	244.46	5399.21	2.46	-70.64	2.46	70.68	271.99	0.12
5500.00	0.80	218.01	5499.21	1.66	-71.58	1.66	71.60	271.33	0.36
5600.00	1.50	247.73	5599.19	0.62	-73.23	0.62	73.23	270.48	0.90
5700.00	2.39	257.68	5699.13	-0.33	-76.48	-0.33	76.49	269.76	0.95
5800.00	1.94	280.67	5799.06	-0.46	-80.18	-0.46	80.19	269.67	0.97
5900.00	1.04	284.25	5899.02	0.08	-82.73	0.08	82.73	270.05	0.90
6000.00	0.59	277.51	5999.01	0.37	-84.12	0.37	84.12	270.25	0.46
6100.00	0.76	248.17	6099.01	0.19	-85.25	0.19	85.25	270.13	0.38
6200.00	0.78	231.77	6199.00	-0.47	-86.39	-0.47	86.39	269.69	0.22
6300.00	0.99	223.92	6298.98	-1.52	-87.53	-1.52	87.54	269.01	0.25
6400.00	0.85	193.10	6398.97	-2.87	-88.30	-2.87	88.35	268.14	0.51
6500.00	0.81	230.05	6498.96	-4.05	-89.01	-4.05	89.10	267.40	0.53
6600.00	1.12	232.18	6598.95	-5.10	-90.32	-5.10	90.47	266.77	0.31
6700.00	1.20	244.96	6698.93	-6.14	-92.04	-6.14	92.25	266.18	0.27
6800.00	0.87	252.42	6798.91	-6.81	-93.71	-6.81	93.96	265.84	0.35
6900.00	1.05	272.70	6898.90	-7.00	-95.35	-7.00	95.61	265.80	0.38
7000.00	1.11	227.11	6998.88	-7.62	-96.98	-7.62	97.27	265.51	0.84
7100.00	0.80	172.49	7098.87	-8.97	-97.60	-8.97	98.01	264.75	0.92
7200.00	1.42	199.77	7198.85	-10.83	-97.92	-10.83	98.52	263.69	0.80
7300.00	0.86	177.64	7298.83	-12.74	-98.31	-12.74	99.13	262.62	0.70
7400.00	0.72	188.63	7398.82	-14.11	-98.38	-14.11	99.38	261.84	0.20
7500.00	0.47	202.89	7498.82	-15.11	-98.63	-15.11	99.78	261.29	0.29
7600.00	0.19	226.19	7598.82	-15.60	-98.91	-15.60	100.13	261.04	0.31
7700.00	0.62	180.94	7698.81	-16.26	-99.03	-16.26	100.36	260.68	0.51

HORIZONTAL DISPLACEMENT IS

100.36 FEET AT 260.68 DEGREES