

VES

VAUGHN ENERGY SERVICES

Company: Noble Energy
 Lease/Well: Dinnel / 26-4
 Location: S-26 T-4N R-64W

Rig Name: Production
 State/County: Colorado / Weld County

Latitude: 40.29, Longitude: -104.53
 GRID North is 0.63 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: 2/22/2011 / 06:43

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	0.17	29.99	100.00	0.13	0.07	0.13	0.15	29.99	0.17
200.00	0.06	257.01	200.00	0.25	0.10	0.25	0.26	21.27	0.22
300.00	0.04	50.86	300.00	0.26	0.07	0.26	0.27	15.50	0.10
400.00	0.32	323.24	400.00	0.51	-0.07	0.51	0.51	352.28	0.32
500.00	0.18	90.75	500.00	0.73	-0.08	0.73	0.73	353.66	0.45
600.00	0.09	53.25	600.00	0.78	0.14	0.78	0.79	10.14	0.12
700.00	0.32	80.41	700.00	0.87	0.48	0.87	0.99	28.86	0.24
800.00	0.25	92.73	800.00	0.91	0.98	0.91	1.33	47.13	0.09
900.00	0.04	347.26	900.00	0.93	1.19	0.93	1.51	51.87	0.27
1000.00	0.16	4.71	1000.00	1.10	1.19	1.10	1.62	47.15	0.11
1100.00	0.05	247.98	1100.00	1.22	1.16	1.22	1.68	43.48	0.19
1200.00	0.33	215.40	1200.00	0.97	0.95	0.97	1.35	44.41	0.29
1300.00	0.37	288.51	1299.99	0.83	0.47	0.83	0.96	29.59	0.42
1400.00	0.36	281.29	1399.99	1.00	-0.14	1.00	1.01	351.73	0.05
1500.00	0.33	300.33	1499.99	1.20	-0.70	1.20	1.39	329.75	0.12
1600.00	0.27	307.04	1599.99	1.49	-1.14	1.49	1.87	322.67	0.06
1700.00	0.16	210.45	1699.99	1.51	-1.39	1.51	2.06	317.31	0.33
1800.00	0.31	281.57	1799.99	1.45	-1.73	1.45	2.25	309.94	0.30
1900.00	0.25	290.51	1899.99	1.58	-2.19	1.58	2.70	305.70	0.07
2000.00	0.07	312.02	1999.99	1.69	-2.44	1.69	2.97	304.73	0.19
2100.00	0.40	311.73	2099.98	1.97	-2.75	1.97	3.38	305.58	0.33
2200.00	0.50	319.28	2199.98	2.53	-3.29	2.53	4.15	307.52	0.12
2300.00	0.55	339.23	2299.98	3.30	-3.74	3.30	4.99	311.41	0.19
2400.00	0.47	280.96	2399.97	3.82	-4.31	3.82	5.76	311.57	0.50
2500.00	0.70	280.16	2499.97	4.01	-5.31	4.01	6.66	307.04	0.24
2600.00	1.10	304.04	2599.96	4.66	-6.71	4.66	8.17	304.75	0.54
2700.00	1.69	317.77	2699.93	6.29	-8.50	6.29	10.58	306.49	0.67
2800.00	1.92	320.00	2799.88	8.67	-10.57	8.67	13.67	309.34	0.24
2900.00	1.74	320.16	2899.83	11.11	-12.62	11.11	16.82	311.37	0.19
3000.00	1.44	308.80	2999.79	13.06	-14.57	13.06	19.57	311.88	0.43
3100.00	1.08	275.51	3099.76	13.94	-16.49	13.94	21.59	310.21	0.80
3200.00	1.01	228.72	3199.75	13.45	-18.09	13.45	22.54	306.63	0.83
3300.00	1.22	229.31	3299.73	12.18	-19.56	12.18	23.04	301.91	0.21
3400.00	1.06	227.19	3399.71	10.86	-21.04	10.86	23.68	297.29	0.16

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	1.08	197.31	3499.69	9.33	-22.00	9.33	23.90	292.97	0.55
3600.00	1.10	201.98	3599.68	7.54	-22.64	7.54	23.86	288.41	0.09
3700.00	1.25	219.65	3699.66	5.81	-23.69	5.81	24.40	283.77	0.39
3800.00	1.22	203.17	3799.63	3.99	-24.81	3.99	25.13	279.14	0.35
3900.00	1.37	221.53	3899.61	2.12	-26.02	2.12	26.11	274.65	0.44
4000.00	1.18	204.28	3999.58	0.28	-27.24	0.28	27.24	270.59	0.43
4100.00	1.47	216.84	4099.56	-1.69	-28.43	-1.69	28.48	266.60	0.41
4200.00	1.55	225.96	4199.52	-3.66	-30.17	-3.66	30.39	263.09	0.25
4300.00	1.41	201.58	4299.49	-5.74	-31.59	-5.74	32.11	259.71	0.64
4400.00	1.29	198.58	4399.46	-7.95	-32.41	-7.95	33.37	256.22	0.14
4500.00	0.81	167.16	4499.45	-9.71	-32.61	-9.71	34.02	253.42	0.73
4600.00	0.36	142.53	4599.44	-10.66	-32.26	-10.66	33.97	251.72	0.51
4700.00	0.67	279.86	4699.44	-10.81	-32.64	-10.81	34.38	251.68	0.97
4800.00	1.16	307.52	4799.43	-10.09	-34.02	-10.09	35.48	253.47	0.64
4900.00	1.18	324.69	4899.40	-8.64	-35.42	-8.64	36.45	256.30	0.35
5000.00	0.57	316.14	4999.39	-7.43	-36.36	-7.43	37.11	258.45	0.62
5100.00	0.13	86.73	5099.39	-7.07	-36.60	-7.07	37.27	259.07	0.66
5200.00	0.77	36.42	5199.39	-6.52	-36.08	-6.52	36.67	259.76	0.70
5300.00	0.87	56.90	5299.38	-5.56	-35.05	-5.56	35.48	260.99	0.31
5400.00	0.82	105.00	5399.37	-5.33	-33.72	-5.33	34.13	261.02	0.69
5500.00	0.64	117.95	5499.36	-5.77	-32.53	-5.77	33.04	259.94	0.25
5600.00	0.60	68.20	5599.35	-5.84	-31.56	-5.84	32.09	259.52	0.52
5700.00	0.66	112.66	5699.35	-5.86	-30.54	-5.86	31.10	259.13	0.48
5800.00	0.52	86.04	5799.34	-6.05	-29.55	-6.05	30.16	258.42	0.30
5900.00	0.43	306.68	5899.34	-5.80	-29.40	-5.80	29.96	258.85	0.90
6000.00	0.33	308.62	5999.34	-5.39	-29.92	-5.39	30.41	259.79	0.11
6100.00	0.45	332.74	6099.34	-4.86	-30.33	-4.86	30.71	260.89	0.20
6200.00	0.51	294.35	6199.33	-4.33	-30.91	-4.33	31.21	262.02	0.32
6300.00	0.47	289.62	6299.33	-4.01	-31.70	-4.01	31.95	262.79	0.05
6400.00	0.57	245.10	6399.33	-4.08	-32.54	-4.08	32.79	262.85	0.40
6500.00	1.14	238.08	6499.32	-4.82	-33.83	-4.82	34.17	261.89	0.58
6600.00	1.32	201.48	6599.29	-6.42	-35.10	-6.42	35.68	259.64	0.79
6700.00	1.24	157.52	6699.27	-8.49	-35.10	-8.49	36.11	256.40	0.96
HORIZONTAL DISPLACEMENT IS 36.11 FEET AT 256.40 DEGREES									