

VES

VAUGHN ENERGY SERVICES

Company: Noble Energy
 Lease/Well: UPV / 25-114
 Location: S-25 T-4N R-64W
 Rig Name: Production
 State/County: Colorado / Weld County
 Latitude: 40.29, Longitude: -104.49
 GRID North is 0.65 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 / 12:55

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	0.39	318.27	100.00	0.25	-0.22	0.25	0.34	318.27	0.39
200.00	0.44	265.79	200.00	0.48	-0.83	0.48	0.96	299.81	0.37
300.00	0.43	314.01	299.99	0.71	-1.48	0.71	1.64	295.57	0.35
400.00	0.25	323.29	399.99	1.14	-1.88	1.14	2.20	301.28	0.19
500.00	0.28	223.25	499.99	1.14	-2.18	1.14	2.45	297.55	0.40
600.00	0.39	228.49	599.99	0.73	-2.60	0.73	2.70	285.69	0.11
700.00	0.39	313.40	699.99	0.74	-3.10	0.74	3.19	283.38	0.53
800.00	0.28	222.23	799.99	0.79	-3.51	0.79	3.60	282.73	0.48
900.00	0.28	218.81	899.99	0.43	-3.82	0.43	3.85	276.39	0.02
1000.00	0.29	233.91	999.99	0.09	-4.18	0.09	4.18	271.27	0.07
1100.00	0.47	286.44	1099.98	0.06	-4.77	0.06	4.77	270.74	0.37
1200.00	0.37	321.79	1199.98	0.43	-5.37	0.43	5.39	274.62	0.27
1300.00	0.31	299.94	1299.98	0.83	-5.81	0.83	5.87	278.10	0.14
1400.00	0.58	298.11	1399.98	1.20	-6.49	1.20	6.60	280.49	0.27
1500.00	0.66	298.02	1499.97	1.71	-7.45	1.71	7.64	282.93	0.08
1600.00	0.86	342.74	1599.96	2.70	-8.18	2.70	8.61	288.25	0.61
1700.00	0.56	311.98	1699.95	3.74	-8.76	3.74	9.53	293.11	0.48
1800.00	0.44	319.84	1799.95	4.36	-9.37	4.36	10.34	294.94	0.14
1900.00	0.51	9.74	1899.95	5.09	-9.55	5.09	10.82	298.06	0.40
2000.00	0.52	18.06	1999.94	5.95	-9.33	5.95	11.07	302.52	0.07
2100.00	0.40	336.30	2099.94	6.70	-9.33	6.70	11.49	305.66	0.34
2200.00	0.45	327.46	2199.94	7.35	-9.68	7.35	12.16	307.19	0.08
2300.00	0.25	322.64	2299.94	7.85	-10.03	7.85	12.73	308.06	0.20
2400.00	0.21	341.75	2399.94	8.20	-10.22	8.20	13.10	308.74	0.09
2500.00	0.26	20.16	2499.93	8.58	-10.19	8.58	13.33	310.10	0.16
2600.00	0.40	45.55	2599.93	9.04	-9.87	9.04	13.38	312.51	0.20
2700.00	0.52	80.80	2699.93	9.36	-9.17	9.36	13.10	315.60	0.30
2800.00	0.40	80.84	2799.93	9.49	-8.37	9.49	12.65	318.57	0.12
2900.00	0.30	50.61	2899.92	9.71	-7.82	9.71	12.47	321.14	0.20
3000.00	0.28	51.16	2999.92	10.03	-7.43	10.03	12.48	323.47	0.03
3100.00	0.32	106.28	3099.92	10.10	-6.98	10.10	12.28	325.38	0.28
3200.00	0.22	189.28	3199.92	9.84	-6.74	9.84	11.92	325.59	0.37
3300.00	0.17	335.21	3299.92	9.78	-6.83	9.78	11.93	325.08	0.37
3400.00	0.75	298.82	3399.92	10.23	-7.46	10.23	12.66	323.89	0.62

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	1.52	285.68	3499.90	10.90	-9.31	10.90	14.34	319.49	0.81
3600.00	1.87	255.98	3599.86	10.87	-12.17	10.87	16.32	311.76	0.93
3700.00	1.97	273.03	3699.80	10.56	-15.47	10.56	18.73	304.33	0.58
3800.00	2.09	264.14	3799.74	10.47	-18.99	10.47	21.69	298.86	0.33
3900.00	1.98	273.21	3899.68	10.38	-22.53	10.38	24.80	294.74	0.34
4000.00	1.98	263.27	3999.62	10.27	-25.96	10.27	27.92	291.59	0.34
4100.00	2.03	277.33	4099.56	10.30	-29.43	10.30	31.18	289.29	0.49
4200.00	2.30	280.93	4199.48	10.90	-33.15	10.90	34.90	288.21	0.31
4300.00	2.69	285.40	4299.39	11.91	-37.39	11.91	39.24	287.67	0.44
4400.00	2.63	291.33	4399.28	13.37	-41.79	13.37	43.88	287.74	0.28
4500.00	2.97	294.61	4499.16	15.28	-46.29	15.28	48.74	288.27	0.38
4600.00	2.86	298.19	4599.03	17.54	-50.85	17.54	53.79	289.03	0.21
4700.00	2.77	305.64	4698.91	20.13	-55.01	20.13	58.58	290.10	0.38
4800.00	2.58	311.28	4798.80	23.02	-58.66	23.02	63.02	291.43	0.32
4900.00	2.57	320.13	4898.70	26.23	-61.79	26.23	67.13	293.00	0.40
5000.00	2.55	333.40	4998.60	29.94	-64.23	29.94	70.86	294.99	0.59
5100.00	1.86	330.96	5098.53	33.35	-66.01	33.35	73.96	296.80	0.69
5200.00	1.66	344.35	5198.48	36.16	-67.19	36.16	76.31	298.29	0.46
5300.00	1.74	17.99	5298.44	39.00	-67.11	39.00	77.62	300.16	0.99
5400.00	2.26	34.72	5398.38	42.07	-65.52	42.07	77.86	302.70	0.78
5500.00	2.52	55.50	5498.29	44.94	-62.58	44.94	77.04	305.68	0.90
5600.00	2.61	76.22	5598.20	46.73	-58.56	46.73	74.91	308.59	0.93
5700.00	2.76	96.19	5698.09	47.01	-53.95	47.01	71.56	311.07	0.94
5800.00	2.79	113.89	5797.97	45.76	-49.33	45.76	67.28	312.85	0.85
5900.00	2.80	112.16	5897.85	43.85	-44.84	43.85	62.72	314.37	0.08
6000.00	2.63	118.94	5997.74	41.82	-40.57	41.82	58.26	315.87	0.36
6100.00	1.78	115.42	6097.67	40.05	-37.16	40.05	54.63	317.14	0.86
6200.00	1.03	134.92	6197.64	38.75	-35.12	38.75	52.29	317.81	0.88
6300.00	0.29	73.22	6297.63	38.18	-34.24	38.18	51.29	318.12	0.93
6400.00	0.14	275.77	6397.63	38.27	-34.12	38.27	51.27	318.28	0.42
6500.00	0.85	220.61	6497.63	37.72	-34.72	37.72	51.26	317.37	0.78
6600.00	0.92	241.09	6597.61	36.77	-35.90	36.77	51.39	315.68	0.32
6700.00	1.45	246.79	6697.59	35.88	-37.77	35.88	52.10	313.53	0.55
6800.00	1.51	262.85	6797.56	35.22	-40.24	35.22	53.47	311.19	0.42
6900.00	1.55	257.79	6897.52	34.77	-42.87	34.77	55.19	309.05	0.14

<div> HORIZONTAL DISPLACEMENT IS 55.19 FEET AT 309.05 DEGREES </div>
