

VES

VAUGHN ENERGY SERVICES

Company: NOBLE ENERGY

Well: UPRC 7-15G

Rig Name: PRODUCTION

State/County: COLORADO/WELD

Latitude: 40.32

GRID North is 0.51 Degrees East of True North

VS-Azi: 0.00 Degrees

GTI

GYRO TECHNOLOGIES, INC.

FIELD COPY ONLY (NOT DEFINITIVE)

Service Company : VAUGHN ENERGY SERVICES

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01.ut

Minimum Curvature Method

Report Date/Time: 12/10/2010 / 17:09

Vaughn Energy Services

Rifle, Colorado

800-606-4976

Surveyor: Nick Campbell

UPRC 7-15G

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	0.46	313.07	100.00	0.27	-0.29	0.27	0.40	313.07	0.46
200.00	0.14	174.44	200.00	0.42	-0.57	0.42	0.71	306.54	0.57
300.00	0.26	44.32	300.00	0.47	-0.40	0.47	0.61	319.52	0.37
400.00	0.32	219.82	400.00	0.42	-0.42	0.42	0.59	315.08	0.58
500.00	0.36	273.20	500.00	0.22	-0.91	0.22	0.93	283.64	0.31
600.00	0.20	307.49	599.99	0.35	-1.36	0.35	1.40	284.24	0.22
700.00	0.15	308.60	699.99	0.53	-1.60	0.53	1.69	288.43	0.05
800.00	0.51	233.42	799.99	0.35	-2.06	0.35	2.09	279.66	0.49
900.00	0.22	172.39	899.99	-0.10	-2.39	-0.10	2.39	267.49	0.45
1000.00	0.13	318.52	999.99	-0.21	-2.44	-0.21	2.45	265.05	0.34
1100.00	0.34	202.57	1099.99	-0.40	-2.63	-0.40	2.66	261.33	0.41
1200.00	0.44	249.24	1199.99	-0.81	-3.11	-0.81	3.21	255.33	0.32
1300.00	0.18	223.47	1299.99	-1.06	-3.57	-1.06	3.73	253.44	0.29
1400.00	0.46	254.26	1399.98	-1.28	-4.07	-1.28	4.27	252.47	0.32
1500.00	0.40	327.03	1499.98	-1.10	-4.64	-1.10	4.77	256.63	0.51
1600.00	0.79	283.70	1599.98	-0.65	-5.50	-0.65	5.54	263.27	0.57
1700.00	0.66	283.41	1699.97	-0.35	-6.73	-0.35	6.74	267.00	0.14
1800.00	0.88	305.19	1799.96	0.22	-7.92	0.22	7.92	271.60	0.36
1900.00	0.74	315.43	1899.95	1.12	-8.99	1.12	9.06	277.11	0.20
2000.00	0.20	44.63	1999.95	1.71	-9.33	1.71	9.48	280.37	0.76
2100.00	0.09	68.49	2099.95	1.86	-9.13	1.86	9.32	281.50	0.12
2200.00	0.50	69.42	2199.95	2.04	-8.65	2.04	8.89	283.28	0.42
2300.00	0.18	351.64	2299.94	2.35	-8.26	2.35	8.59	285.86	0.50
2400.00	0.47	332.05	2399.94	2.86	-8.48	2.86	8.95	288.66	0.31
2500.00	0.40	52.06	2499.94	3.44	-8.40	3.44	9.07	292.29	0.56
2600.00	0.58	341.36	2599.94	4.14	-8.28	4.14	9.26	296.55	0.59
2700.00	0.43	329.93	2699.93	4.95	-8.63	4.95	9.95	299.80	0.18
2800.00	0.15	312.07	2799.93	5.36	-8.92	5.36	10.41	300.99	0.29

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
2900.00	0.26	188.91	2899.93	5.22	-9.05	5.22	10.45	299.98	0.36
3000.00	0.41	251.29	2999.93	4.88	-9.43	4.88	10.62	297.39	0.37
3100.00	0.30	131.53	3099.93	4.60	-9.57	4.60	10.62	295.65	0.61
3200.00	0.35	240.43	3199.93	4.27	-9.65	4.27	10.55	293.90	0.53
3300.00	0.09	24.55	3299.93	4.20	-9.88	4.20	10.73	293.02	0.43
3400.00	0.17	103.14	3399.93	4.24	-9.70	4.24	10.59	293.60	0.17
3500.00	0.25	150.57	3499.93	4.02	-9.46	4.02	10.27	293.02	0.18
3600.00	0.35	100.78	3599.93	3.77	-9.05	3.77	9.81	292.62	0.26
3700.00	1.10	80.75	3699.92	3.87	-7.81	3.87	8.72	296.36	0.79
3800.00	1.35	68.58	3799.89	4.46	-5.76	4.46	7.28	307.72	0.36
3900.00	1.48	65.32	3899.86	5.43	-3.49	5.43	6.45	327.26	0.15
4000.00	1.57	69.10	3999.83	6.45	-1.04	6.45	6.54	350.88	0.13
4100.00	1.60	62.98	4099.79	7.58	1.49	7.58	7.72	11.13	0.17
4200.00	1.32	83.67	4199.76	8.34	3.88	8.34	9.20	24.96	0.60
4300.00	0.96	90.92	4299.74	8.46	5.86	8.46	10.29	34.73	0.39
4400.00	0.44	119.69	4399.73	8.25	7.03	8.25	10.84	40.44	0.61
4500.00	0.39	181.83	4499.73	7.72	7.36	7.72	10.66	43.61	0.43
4600.00	0.41	214.37	4599.73	7.09	7.14	7.09	10.07	45.21	0.22
4700.00	0.73	239.12	4699.72	6.47	6.40	6.47	9.10	44.67	0.40
4800.00	1.11	281.89	4799.71	6.34	4.90	6.34	8.02	37.69	0.76
4900.00	0.74	315.52	4899.70	7.01	3.50	7.01	7.83	26.54	0.64
5000.00	0.78	328.42	4999.69	8.05	2.69	8.05	8.48	18.49	0.17
5100.00	0.66	322.12	5099.68	9.08	1.98	9.08	9.29	12.31	0.14
5200.00	0.60	315.89	5199.67	9.91	1.26	9.91	9.99	7.26	0.09
5300.00	0.84	344.99	5299.67	11.00	0.71	11.00	11.02	3.68	0.43
5400.00	0.69	356.71	5399.66	12.31	0.48	12.31	12.31	2.25	0.22
5500.00	0.82	16.48	5499.65	13.59	0.65	13.59	13.60	2.74	0.29
5600.00	0.41	34.70	5599.64	14.56	1.06	14.56	14.60	4.14	0.45
5700.00	0.67	103.79	5699.64	14.72	1.83	14.72	14.83	7.08	0.65
5800.00	0.21	151.88	5799.64	14.41	2.48	14.41	14.63	9.78	0.55
5900.00	0.92	123.66	5899.63	13.80	3.24	13.80	14.18	13.22	0.74
6000.00	0.76	120.79	5999.62	13.01	4.49	13.01	13.77	19.02	0.17
6100.00	0.34	74.53	6099.62	12.75	5.35	12.75	13.83	22.75	0.58
6200.00	0.64	108.71	6199.61	12.65	6.17	12.65	14.08	25.98	0.41
6300.00	0.23	128.37	6299.61	12.35	6.85	12.35	14.12	29.03	0.43
6400.00	0.46	32.36	6399.61	12.56	7.23	12.56	14.49	29.92	0.53
6500.00	0.55	327.80	6499.61	13.30	7.18	13.30	15.12	28.38	0.54
6600.00	0.41	57.20	6599.60	13.90	7.23	13.90	15.67	27.49	0.68
6700.00	0.71	117.08	6699.60	13.81	8.09	13.81	16.01	30.35	0.62
6800.00	0.54	75.44	6799.59	13.65	9.09	13.65	16.40	33.68	0.47
6900.00	0.33	325.97	6899.59	14.00	9.39	14.00	16.85	33.84	0.71
7000.00	0.46	45.90	6999.59	14.51	9.51	14.51	17.35	33.25	0.51
7100.00	0.62	91.77	7099.59	14.77	10.34	14.77	18.03	34.99	0.45
7145.00	0.72	98.62	7144.58	14.72	10.86	14.72	18.30	36.43	0.29

HORIZONTAL DISPLACEMENT IS

18.30 FEET AT 36.43 DEGREES