

**VES**

VAUGHN ENERGY SERVICES

Company: NOBLE ENERGY

Well: UPRC 7-9G

Rig Name: PRODUCTION

State/County: COLORADO/WELD

Latitude: 40.33

GRID North is 0.52 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 / 11:14

Vaughn Energy Services

Rifle, Colorado

800-606-4976

Surveyor: Nick Campbell

UPRC 7-9G

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	0.34	250.70	100.00	-0.10	-0.28	-0.10	0.30	250.70	0.34
200.00	0.23	272.63	200.00	-0.19	-0.77	-0.19	0.79	256.13	0.16
300.00	0.46	274.22	300.00	-0.15	-1.37	-0.15	1.38	263.75	0.24
400.00	0.54	318.40	399.99	0.23	-2.08	0.23	2.10	276.29	0.38
500.00	0.38	329.75	499.99	0.86	-2.56	0.86	2.70	288.65	0.18
600.00	0.41	333.54	599.99	1.47	-2.89	1.47	3.24	296.94	0.04
700.00	0.42	321.91	699.98	2.07	-3.27	2.07	3.87	302.35	0.08
800.00	0.66	322.60	799.98	2.81	-3.84	2.81	4.76	306.22	0.24
900.00	0.36	332.51	899.98	3.55	-4.34	3.55	5.61	309.31	0.31
1000.00	0.48	328.56	999.97	4.19	-4.70	4.19	6.29	311.68	0.12
1100.00	0.38	298.65	1099.97	4.70	-5.21	4.70	7.01	312.07	0.24
1200.00	0.40	296.62	1199.97	5.02	-5.81	5.02	7.68	310.80	0.03
1300.00	0.44	299.97	1299.97	5.36	-6.46	5.36	8.39	309.72	0.04
1400.00	0.37	294.19	1399.96	5.68	-7.08	5.68	9.08	308.77	0.08
1500.00	0.74	330.81	1499.96	6.38	-7.69	6.38	9.99	309.70	0.50
1600.00	0.45	344.43	1599.95	7.33	-8.11	7.33	10.93	312.11	0.32
1700.00	0.72	295.12	1699.95	7.98	-8.79	7.98	11.87	312.24	0.55
1800.00	0.62	221.61	1799.94	7.85	-9.72	7.85	12.49	308.92	0.81
1900.00	0.87	246.52	1899.93	7.14	-10.77	7.14	12.92	303.56	0.40
2000.00	0.93	242.69	1999.92	6.47	-12.19	6.47	13.80	297.95	0.09
2100.00	0.81	234.56	2099.91	5.68	-13.49	5.68	14.63	292.85	0.18
2200.00	0.77	231.36	2199.90	4.85	-14.59	4.85	15.37	288.41	0.06
2300.00	0.53	239.03	2299.90	4.20	-15.51	4.20	16.07	285.14	0.25
2400.00	0.40	294.73	2399.89	4.10	-16.22	4.10	16.74	284.20	0.45
2500.00	0.43	271.40	2499.89	4.26	-16.92	4.26	17.45	284.13	0.17
2600.00	0.23	226.93	2599.89	4.13	-17.45	4.13	17.93	283.32	0.31
2700.00	0.21	268.18	2699.89	3.99	-17.78	3.99	18.22	282.64	0.16
2800.00	0.08	215.84	2799.89	3.93	-18.01	3.93	18.43	282.31	0.18

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	0.16	241.11	2899.89	3.81	-18.17	3.81	18.57	281.83	0.10
3000.00	0.07	256.24	2999.89	3.72	-18.36	3.72	18.73	281.46	0.09
3100.00	0.76	255.12	3099.88	3.54	-19.06	3.54	19.38	280.51	0.68
3200.00	0.97	260.87	3199.87	3.23	-20.53	3.23	20.79	278.95	0.23
3300.00	0.28	245.90	3299.87	3.00	-21.59	3.00	21.80	277.91	0.70
3400.00	0.45	249.17	3399.86	2.76	-22.19	2.76	22.36	277.09	0.17
3500.00	0.69	241.03	3499.86	2.33	-23.08	2.33	23.20	275.76	0.25
3600.00	0.64	226.62	3599.85	1.65	-24.01	1.65	24.07	273.94	0.17
3700.00	0.71	252.21	3699.85	1.08	-25.00	1.08	25.03	272.47	0.31
3800.00	0.43	204.64	3799.84	0.55	-25.75	0.55	25.75	271.23	0.52
3900.00	0.70	263.42	3899.84	0.14	-26.51	0.14	26.51	270.30	0.60
4000.00	0.39	187.89	3999.83	-0.27	-27.17	-0.27	27.17	269.44	0.71
4100.00	0.75	208.69	4099.83	-1.18	-27.53	-1.18	27.55	267.56	0.41
4200.00	0.78	198.30	4199.82	-2.39	-28.05	-2.39	28.15	265.13	0.14
4300.00	0.97	180.36	4299.81	-3.89	-28.27	-3.89	28.54	262.17	0.33
4400.00	0.75	157.04	4399.80	-5.34	-28.02	-5.34	28.53	259.21	0.41
4500.00	0.92	174.58	4499.79	-6.74	-27.69	-6.74	28.50	256.32	0.30
4600.00	0.59	212.19	4599.78	-7.97	-27.89	-7.97	29.01	254.05	0.58
4700.00	0.73	225.43	4699.77	-8.86	-28.62	-8.86	29.96	252.80	0.21
4800.00	0.83	221.99	4799.76	-9.84	-29.56	-9.84	31.15	251.58	0.11
4900.00	0.53	226.10	4899.75	-10.70	-30.38	-10.70	32.21	250.59	0.30
5000.00	0.36	195.28	4999.75	-11.33	-30.80	-11.33	32.82	249.80	0.29
5100.00	0.44	292.19	5099.75	-11.49	-31.23	-11.49	33.28	249.80	0.60
5200.00	0.54	171.50	5199.75	-11.81	-31.52	-11.81	33.66	249.45	0.85
5300.00	0.58	225.84	5299.74	-12.63	-31.81	-12.63	34.23	248.34	0.51
5400.00	0.18	299.48	5399.74	-12.91	-32.31	-12.91	34.80	248.22	0.56
5500.00	0.77	258.14	5499.74	-12.98	-33.11	-12.98	35.56	248.60	0.65
5600.00	0.48	240.20	5599.73	-13.32	-34.13	-13.32	36.64	248.68	0.35
5700.00	0.76	208.72	5699.73	-14.12	-34.82	-14.12	37.57	247.93	0.43
5800.00	0.40	198.30	5799.72	-15.03	-35.25	-15.03	38.32	246.91	0.37
5900.00	1.03	226.79	5899.71	-15.98	-36.01	-15.98	39.40	246.08	0.71
6000.00	0.42	202.01	5999.70	-16.93	-36.80	-16.93	40.51	245.30	0.68
6100.00	0.97	163.54	6099.70	-18.08	-36.70	-18.08	40.91	243.77	0.70
6200.00	0.83	173.26	6199.69	-19.61	-36.37	-19.61	41.33	241.66	0.21
6300.00	0.82	162.24	6299.67	-21.02	-36.07	-21.02	41.75	239.77	0.16
6400.00	0.85	164.66	6399.66	-22.42	-35.65	-22.42	42.12	237.84	0.05
6500.00	0.75	184.18	6499.65	-23.79	-35.51	-23.79	42.74	236.18	0.29
6600.00	0.51	143.92	6599.65	-24.80	-35.29	-24.80	43.13	234.91	0.49
6700.00	0.93	167.14	6699.64	-25.95	-34.85	-25.95	43.45	233.33	0.51
6800.00	1.16	143.91	6799.62	-27.56	-34.07	-27.56	43.82	231.03	0.47
6900.00	0.43	155.78	6899.61	-28.72	-33.32	-28.72	43.99	229.25	0.74
7000.00	0.38	65.64	6999.61	-28.92	-32.87	-28.92	43.78	228.65	0.58
7100.00	0.29	210.94	7099.61	-29.00	-32.69	-29.00	43.70	228.42	0.64
7120.00	0.25	212.50	7119.61	-29.08	-32.74	-29.08	43.79	228.39	0.23
HORIZONTAL DISPLACEMENT IS 43.79 FEET AT 228.39 DEGREES									