



Rig Name: PRODUCTION
State/County: COLORADO/WELD
Latitude: 40.45, Longitude: 0.00
GRID North is 0.72 Degrees East of True North
VS-Azi: 0.00 Degrees



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: 6/23/2011 / 10:41

VAUGHN ENERGY SERVICES
DENVER, COLORADO
866-835-8333
NICK CAMPBELL

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	0.12	217.84	100.00	-0.08	-0.06	-0.08	0.10	217.84	0.12
200.00	0.40	224.24	200.00	-0.42	-0.37	-0.42	0.56	221.85	0.28
300.00	0.35	288.83	300.00	-0.57	-0.91	-0.57	1.07	238.02	0.41
400.00	0.40	279.08	399.99	-0.41	-1.54	-0.41	1.60	255.01	0.08
500.00	0.61	191.57	499.99	-0.88	-1.99	-0.88	2.18	246.26	0.71
600.00	0.66	203.37	599.99	-1.92	-2.33	-1.92	3.02	230.40	0.14
700.00	0.56	155.47	699.98	-2.90	-2.35	-2.90	3.73	219.09	0.51
800.00	1.00	174.45	799.97	-4.21	-2.07	-4.21	4.69	206.17	0.51
900.00	1.12	161.66	899.95	-6.01	-1.68	-6.01	6.24	195.58	0.27
1000.00	1.17	186.05	999.94	-7.95	-1.47	-7.95	8.09	190.51	0.49
1100.00	1.10	153.57	1099.92	-9.82	-1.16	-9.82	9.89	186.71	0.64
1200.00	1.32	161.12	1199.89	-11.77	-0.36	-11.77	11.77	181.74	0.27
1300.00	1.41	178.33	1299.87	-14.09	0.05	-14.09	14.09	179.80	0.42
1400.00	0.87	157.42	1399.85	-16.02	0.38	-16.02	16.03	178.65	0.68
1500.00	1.35	190.75	1499.83	-17.88	0.45	-17.88	17.89	178.56	0.79
1600.00	0.78	171.96	1599.81	-19.72	0.32	-19.72	19.72	179.06	0.67
1700.00	0.96	203.56	1699.80	-21.16	0.08	-21.16	21.16	179.78	0.51
1800.00	0.79	212.72	1799.79	-22.51	-0.63	-22.51	22.52	181.59	0.23
1900.00	0.98	194.45	1899.78	-23.91	-1.21	-23.91	23.94	182.89	0.34
2000.00	0.69	204.13	1999.77	-25.28	-1.67	-25.28	25.34	183.77	0.32
2100.00	0.32	178.26	2099.76	-26.10	-1.90	-26.10	26.17	184.17	0.42
2200.00	0.34	100.79	2199.76	-26.43	-1.60	-26.43	26.48	183.47	0.41
2300.00	0.40	199.38	2299.76	-26.82	-1.42	-26.82	26.86	183.04	0.57
2400.00	0.96	204.01	2399.75	-27.92	-1.88	-27.92	27.98	183.85	0.56
2500.00	0.63	211.44	2499.74	-29.15	-2.51	-29.15	29.25	184.91	0.35
2600.00	0.61	188.25	2599.74	-30.14	-2.87	-30.14	30.28	185.44	0.25
2700.00	0.29	210.67	2699.73	-30.89	-3.08	-30.89	31.04	185.69	0.36
2800.00	0.37	260.89	2799.73	-31.16	-3.52	-31.16	31.36	186.45	0.29
2900.00	0.69	224.90	2899.73	-31.64	-4.26	-31.64	31.92	187.67	0.45

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
3000.00	0.64	203.38	2999.72	-32.58	-4.91	-32.58	32.94	188.57	0.25
3100.00	0.61	198.21	3099.72	-33.59	-5.30	-33.59	34.01	188.96	0.06
3200.00	0.34	271.27	3199.71	-34.09	-5.76	-34.09	34.58	189.59	0.61
3300.00	0.61	191.01	3299.71	-34.61	-6.16	-34.61	35.16	190.09	0.65
3400.00	0.68	229.31	3399.70	-35.52	-6.71	-35.52	36.15	190.70	0.43
3500.00	0.46	319.33	3499.70	-35.61	-7.42	-35.61	36.37	191.77	0.82
3600.00	0.15	2.90	3599.70	-35.17	-7.67	-35.17	36.00	192.30	0.36
3700.00	0.51	7.04	3699.70	-34.59	-7.61	-34.59	35.42	192.40	0.36
3800.00	0.96	29.60	3799.69	-33.42	-7.14	-33.42	34.17	192.06	0.53
3900.00	0.73	59.82	3899.68	-32.37	-6.17	-32.37	32.95	190.79	0.49
4000.00	0.55	335.54	3999.67	-31.61	-5.81	-31.61	32.14	190.43	0.87
4100.00	0.74	259.56	4099.67	-31.28	-6.65	-31.28	31.98	192.00	0.81
4200.00	1.30	275.89	4199.65	-31.28	-8.41	-31.28	32.39	195.04	0.62
4300.00	1.18	285.23	4299.63	-30.90	-10.52	-30.90	32.64	198.80	0.23
4400.00	1.38	257.98	4399.61	-30.88	-12.69	-30.88	33.39	202.34	0.63
4500.00	1.44	261.18	4499.58	-31.32	-15.11	-31.32	34.78	205.75	0.10
4600.00	0.90	264.00	4599.55	-31.60	-17.13	-31.60	35.94	208.46	0.54
4700.00	0.51	327.42	4699.55	-31.30	-18.15	-31.30	36.19	210.10	0.81
4800.00	0.37	38.69	4799.55	-30.68	-18.19	-30.68	35.67	210.66	0.52
4900.00	0.36	354.99	4899.54	-30.11	-18.02	-30.11	35.09	210.89	0.27
5000.00	0.55	62.42	4999.54	-29.58	-17.62	-29.58	34.43	210.78	0.53
5100.00	0.07	353.13	5099.54	-29.29	-17.20	-29.29	33.97	210.42	0.53
5200.00	0.64	42.96	5199.54	-28.81	-16.82	-28.81	33.37	210.28	0.60
5300.00	0.24	79.56	5299.53	-28.37	-16.23	-28.37	32.68	209.78	0.47
5400.00	0.25	94.37	5399.53	-28.34	-15.80	-28.34	32.45	209.14	0.06
5500.00	0.30	304.30	5499.53	-28.21	-15.80	-28.21	32.34	209.25	0.54
5600.00	0.10	215.99	5599.53	-28.13	-16.07	-28.13	32.40	209.74	0.32
5700.00	0.04	208.04	5699.53	-28.23	-16.14	-28.23	32.52	209.75	0.06
5800.00	0.19	105.05	5799.53	-28.30	-15.99	-28.30	32.51	209.47	0.20
5900.00	0.68	311.93	5899.53	-27.95	-16.27	-27.95	32.34	210.21	0.85
6000.00	0.03	338.36	5999.53	-27.53	-16.72	-27.53	32.21	211.28	0.65
6100.00	0.18	54.50	6099.53	-27.41	-16.61	-27.41	32.05	211.21	0.17
6200.00	0.42	311.07	6199.53	-27.08	-16.75	-27.08	31.84	211.74	0.49
6300.00	0.81	37.04	6299.52	-26.27	-16.60	-26.27	31.08	212.28	0.89
6400.00	0.62	70.91	6399.52	-25.53	-15.66	-25.53	29.95	211.53	0.46
6500.00	0.68	39.34	6499.51	-24.90	-14.78	-24.90	28.95	210.69	0.36
6600.00	0.70	39.71	6599.50	-23.97	-14.01	-23.97	27.76	210.31	0.02
6700.00	0.69	36.05	6699.49	-23.01	-13.27	-23.01	26.56	209.97	0.05

<div> HORIZONTAL DISPLACEMENT IS 26.56 FEET AT 209.97 DEGREES </div>
