



Company: NOBLE ENERGY

Well: STEWART 7 -12G

Rig Name: PRODUCTION

State/County: COLORADO/WELD

Latitude: 40.33

GRID North is 0.51 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_ed.ut

Minimum Curvature Method

Report Date/Time: 12/13/2010 / 13:28

Vaughn Energy Services

RIFLE, COLORADO

800-606-4976

Surveyor: Nick Campbell

STEWART 7-12G

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	0.14	188.92	100.00	-0.12	-0.02	-0.12	0.13	188.92	0.14
200.00	0.27	36.68	200.00	-0.06	0.10	-0.06	0.12	118.66	0.41
300.00	0.23	300.60	300.00	0.24	0.07	0.24	0.25	17.00	0.38
400.00	0.46	89.91	400.00	0.34	0.30	0.34	0.45	40.86	0.67
500.00	0.38	222.33	500.00	0.10	0.47	0.10	0.48	77.97	0.76
600.00	0.64	161.18	599.99	-0.67	0.43	-0.67	0.80	147.11	0.56
700.00	0.64	202.11	699.99	-1.72	0.40	-1.72	1.76	166.83	0.45
800.00	0.55	226.68	799.98	-2.56	-0.16	-2.56	2.57	183.49	0.27
900.00	0.72	176.01	899.98	-3.52	-0.46	-3.52	3.54	187.44	0.56
1000.00	0.81	219.64	999.97	-4.68	-0.87	-4.68	4.76	190.48	0.57
1100.00	0.87	232.20	1099.96	-5.69	-1.92	-5.69	6.01	198.60	0.19
1200.00	0.42	222.72	1199.95	-6.43	-2.76	-6.43	7.00	203.27	0.46
1300.00	0.44	242.64	1299.95	-6.87	-3.35	-6.87	7.65	205.99	0.15
1400.00	0.60	228.98	1399.95	-7.39	-4.08	-7.39	8.44	208.93	0.20
1500.00	0.41	258.60	1499.94	-7.80	-4.83	-7.80	9.18	211.73	0.32
1600.00	0.33	237.87	1599.94	-8.03	-5.42	-8.03	9.68	214.01	0.15
1700.00	0.61	267.58	1699.94	-8.20	-6.19	-8.20	10.28	217.03	0.36
1800.00	0.35	258.51	1799.93	-8.29	-7.01	-8.29	10.86	220.25	0.27
1900.00	0.74	274.96	1899.93	-8.29	-7.96	-8.29	11.49	223.83	0.42
2000.00	0.45	275.80	1999.92	-8.19	-9.00	-8.19	12.17	227.68	0.29
2100.00	0.59	270.10	2099.92	-8.15	-9.91	-8.15	12.83	230.56	0.15
2200.00	0.94	251.29	2199.91	-8.41	-11.20	-8.41	14.01	233.09	0.42
2300.00	0.50	229.79	2299.90	-8.96	-12.31	-8.96	15.23	233.96	0.50
2400.00	0.91	266.31	2399.89	-9.29	-13.44	-9.29	16.34	235.33	0.59
2500.00	0.86	208.47	2499.88	-10.00	-14.59	-10.00	17.69	235.56	0.85
2600.00	0.73	209.26	2599.87	-11.22	-15.25	-11.22	18.93	233.68	0.12
2700.00	1.17	234.20	2699.86	-12.37	-16.40	-12.37	20.54	232.96	0.59
2800.00	0.42	210.86	2799.85	-13.28	-17.41	-13.28	21.90	232.66	0.81

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	0.63	263.19	2899.85	-13.66	-18.14	-13.66	22.71	233.02	0.50
3000.00	1.02	245.04	2999.84	-14.10	-19.49	-14.10	24.05	234.12	0.47
3100.00	0.97	208.78	3099.82	-15.22	-20.70	-15.22	25.69	233.69	0.62
3200.00	0.32	208.22	3199.82	-16.21	-21.24	-16.21	26.72	232.66	0.65
3300.00	0.06	279.32	3299.81	-16.44	-21.43	-16.44	27.01	232.50	0.31
3400.00	0.34	128.60	3399.81	-16.62	-21.25	-16.62	26.98	231.97	0.39
3500.00	0.77	143.83	3499.81	-17.34	-20.63	-17.34	26.95	229.95	0.45
3600.00	1.39	102.21	3599.79	-18.14	-19.05	-18.14	26.30	226.41	0.96
3700.00	1.68	74.21	3699.76	-17.99	-16.45	-17.99	24.38	222.44	0.80
3800.00	1.73	80.32	3799.71	-17.34	-13.55	-17.34	22.01	218.01	0.19
3900.00	1.56	88.34	3899.67	-17.05	-10.70	-17.05	20.13	212.12	0.28
4000.00	1.61	89.05	3999.63	-16.98	-7.93	-16.98	18.74	205.03	0.05
4100.00	2.01	114.22	4099.59	-17.68	-4.92	-17.68	18.35	195.56	0.88
4200.00	2.04	136.10	4199.52	-19.68	-2.09	-19.68	19.79	186.05	0.77
4300.00	2.34	138.58	4299.45	-22.50	0.50	-22.50	22.50	178.73	0.32
4400.00	2.26	155.47	4399.37	-25.82	2.67	-25.82	25.96	174.10	0.68
4500.00	2.00	133.20	4499.30	-28.81	4.76	-28.81	29.21	170.62	0.86
4600.00	2.72	140.75	4599.22	-31.85	7.54	-31.85	32.73	166.69	0.78
4700.00	2.02	148.46	4699.13	-35.19	9.96	-35.19	36.57	164.20	0.77
4800.00	1.37	143.02	4799.09	-37.64	11.60	-37.64	39.38	162.88	0.67
4900.00	1.51	122.80	4899.06	-39.30	13.42	-39.30	41.53	161.15	0.52
5000.00	1.08	149.07	4999.03	-40.82	15.01	-40.82	43.50	159.81	0.72
5100.00	0.59	129.23	5099.02	-41.96	15.89	-41.96	44.87	159.25	0.56
5200.00	0.85	147.22	5199.01	-42.90	16.69	-42.90	46.04	158.74	0.34
5300.00	0.77	109.75	5299.01	-43.75	17.72	-43.75	47.20	157.95	0.52
5400.00	0.76	127.56	5399.00	-44.38	18.88	-44.38	48.23	156.95	0.24
5500.00	0.66	116.69	5498.99	-45.05	19.93	-45.05	49.26	156.14	0.17
5600.00	0.30	62.29	5598.99	-45.19	20.68	-45.19	49.69	155.41	0.55
5700.00	0.44	122.82	5698.98	-45.27	21.23	-45.27	50.00	154.87	0.39
5800.00	0.32	140.02	5798.98	-45.69	21.73	-45.69	50.60	154.56	0.17
5900.00	0.28	84.69	5898.98	-45.88	22.15	-45.88	50.95	154.23	0.28
6000.00	0.20	316.95	5998.98	-45.73	22.28	-45.73	50.87	154.03	0.43
6100.00	0.41	4.10	6098.98	-45.25	22.18	-45.25	50.39	153.88	0.31
6200.00	0.15	195.01	6198.98	-45.02	22.17	-45.02	50.18	153.78	0.55
6300.00	0.42	317.68	6298.98	-44.87	21.89	-44.87	49.93	153.99	0.52
6400.00	0.70	348.24	6398.97	-44.01	21.52	-44.01	48.99	153.94	0.40
6500.00	0.37	62.24	6498.97	-43.26	21.69	-43.26	48.39	153.37	0.69
6600.00	0.55	74.41	6598.97	-42.98	22.43	-42.98	48.48	152.44	0.20
6700.00	0.64	136.40	6698.96	-43.25	23.28	-43.25	49.12	151.71	0.61
6800.00	1.08	150.60	6798.95	-44.48	24.13	-44.48	50.60	151.52	0.49
6900.00	1.14	173.57	6898.93	-46.29	24.70	-46.29	52.47	151.92	0.45
7000.00	0.58	163.04	6998.92	-47.76	24.96	-47.76	53.89	152.41	0.59
7100.00	0.44	162.65	7098.92	-48.61	25.22	-48.61	54.76	152.58	0.14
7168.00	0.35	142.66	7166.91	-49.02	25.42	-49.02	55.22	152.59	0.24

HORIZONTAL DISPLACEMENT IS
55.22 FEET AT 152.59 DEGREES