



Rig Name: PRODUCTION  
State/County: COLORADO/WELD COUNTY  
Latitude: 40.40, Longitude: -104.55  
GRID North is 0.61 Degrees East of True North  
VS-Azi: 0.00 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : GL

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: run1-01\_ed.ut  
Minimum Curvature Method  
Report Date/Time: 7/12/2011 / 14:49

Vaughn Energy Services  
Rifle Colorado  
866-835-8333  
Jay Hinman  
Patriot B 16-01/ 05-123-23169

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	0.09	335.62	100.00	0.07	-0.03	0.07	0.08	335.62	0.09
200.00	0.31	60.57	200.00	0.28	0.17	0.28	0.33	31.77	0.32
300.00	0.47	80.72	300.00	0.48	0.82	0.48	0.95	59.63	0.21
400.00	0.37	93.32	399.99	0.53	1.55	0.53	1.64	71.13	0.14
500.00	0.17	46.09	499.99	0.61	1.97	0.61	2.07	72.72	0.28
600.00	0.06	144.22	599.99	0.67	2.11	0.67	2.22	72.36	0.19
700.00	0.13	112.56	699.99	0.58	2.25	0.58	2.32	75.41	0.08
800.00	0.35	32.78	799.99	0.80	2.51	0.80	2.64	72.33	0.35
900.00	0.45	13.47	899.99	1.45	2.77	1.45	3.13	62.47	0.17
1000.00	0.47	20.04	999.99	2.22	3.01	2.22	3.73	53.61	0.06
1100.00	0.44	26.25	1099.98	2.94	3.31	2.94	4.43	48.41	0.06
1200.00	0.62	38.47	1199.98	3.70	3.82	3.70	5.32	45.86	0.21
1300.00	0.54	22.84	1299.97	4.56	4.34	4.56	6.29	43.55	0.17
1400.00	0.55	14.81	1399.97	5.46	4.64	5.46	7.17	40.37	0.08
1500.00	0.33	8.41	1499.97	6.21	4.81	6.21	7.86	37.73	0.22
1600.00	1.31	18.47	1599.96	7.59	5.21	7.59	9.21	34.49	0.98
1700.00	4.03	26.75	1699.84	11.81	7.16	11.81	13.81	31.22	2.74
1800.00	5.96	38.59	1799.46	19.00	11.98	19.00	22.46	32.22	2.18
1900.00	6.83	40.73	1898.83	27.56	19.09	27.56	33.53	34.71	0.90
2000.00	8.45	41.31	1997.94	37.59	27.82	37.59	46.77	36.51	1.62
2100.00	9.60	39.43	2096.70	49.55	37.97	49.55	62.42	37.46	1.19
2200.00	10.83	42.50	2195.12	62.92	49.62	62.92	80.13	38.26	1.35
2300.00	12.47	42.33	2293.05	77.83	63.23	77.83	100.28	39.09	1.63
2400.00	13.84	43.49	2390.43	94.48	78.73	94.48	122.99	39.80	1.40
2500.00	14.62	41.43	2487.36	112.63	95.32	112.63	147.55	40.24	0.93
2600.00	15.63	40.18	2583.89	132.38	112.36	132.38	173.64	40.32	1.06
2700.00	16.88	42.03	2679.89	153.46	130.77	153.46	201.63	40.44	1.36
2800.00	16.66	42.58	2775.64	174.81	150.20	174.81	230.47	40.67	0.27
2900.00	16.29	41.84	2871.53	195.81	169.26	195.81	258.83	40.84	0.43
3000.00	15.77	42.60	2967.64	216.27	187.81	216.27	286.44	40.97	0.57
3100.00	13.81	41.91	3064.32	235.16	204.98	235.16	311.96	41.08	1.96
3200.00	13.77	43.68	3161.44	252.65	221.17	252.65	335.78	41.20	0.43
3300.00	14.69	41.35	3258.37	270.77	237.77	270.77	360.35	41.29	1.09
3400.00	13.50	43.61	3355.36	288.74	254.20	288.74	384.70	41.36	1.31

<i>Measured Depth FT</i>	<i>Incl Angle Deg</i>	<i>Drift Direction Deg</i>	<i>TVD FT</i>	<i>+N/-S FT</i>	<i>+E/-W FT</i>	<i>Vertical Section FT</i>	<i>Closure Distance FT</i>	<i>Closure Direction Deg</i>	<i>Dogleg Severity Deg/100</i>
3500.00	16.44	40.74	3451.96	307.93	271.49	307.93	410.52	41.40	3.03
3600.00	17.09	42.01	3547.70	329.57	290.57	329.57	439.37	41.40	0.74
3700.00	16.95	41.56	3643.33	351.39	310.07	351.39	468.64	41.43	0.20
3800.00	16.68	43.08	3739.05	372.78	329.54	372.78	497.55	41.48	0.51
3900.00	15.40	41.82	3835.16	393.16	348.19	393.16	525.18	41.53	1.33
4000.00	15.42	42.78	3931.56	412.81	366.08	412.81	551.74	41.57	0.25
4100.00	15.13	42.73	4028.03	432.15	383.96	432.15	578.08	41.62	0.29
4200.00	14.91	44.24	4124.62	450.95	401.79	450.95	603.98	41.70	0.45
4300.00	15.20	45.76	4221.18	469.32	420.16	469.32	629.91	41.84	0.49
4400.00	15.45	46.70	4317.63	487.60	439.24	487.60	656.27	42.01	0.35
4500.00	14.15	44.01	4414.31	505.53	457.43	505.53	681.76	42.14	1.47
4600.00	14.71	44.27	4511.15	523.41	474.79	523.41	706.67	42.21	0.56
4700.00	14.87	46.03	4607.84	541.41	492.89	541.41	732.16	42.31	0.48
4800.00	15.31	48.89	4704.39	558.99	512.07	558.99	758.08	42.49	0.86
4900.00	16.51	46.68	4800.56	577.43	532.36	577.43	785.38	42.67	1.35
5000.00	16.56	44.57	4896.43	597.33	552.70	597.33	813.80	42.78	0.60
5100.00	13.85	46.25	4992.92	615.76	571.35	615.76	840.00	42.86	2.74
5200.00	10.90	48.04	5090.58	630.36	587.03	630.36	861.37	42.96	2.97
5300.00	9.26	47.43	5189.04	642.13	599.98	642.13	878.81	43.06	1.65
5400.00	8.05	51.22	5287.90	651.96	611.37	651.96	893.77	43.16	1.33
5500.00	7.09	59.95	5387.03	659.44	622.17	659.44	906.62	43.33	1.50
5600.00	5.25	63.82	5486.44	664.54	631.61	664.54	916.82	43.54	1.89
5700.00	4.73	65.49	5586.06	668.27	639.47	668.27	924.94	43.74	0.53
5800.00	2.87	71.51	5685.84	670.78	645.60	670.78	930.99	43.90	1.90
5900.00	1.89	87.23	5785.75	671.65	649.63	671.65	934.42	44.05	1.17
6000.00	0.91	97.50	5885.72	671.63	652.06	671.63	936.09	44.15	1.01
6100.00	0.85	106.26	5985.71	671.32	653.56	671.32	936.91	44.23	0.15
6200.00	1.03	117.51	6085.70	670.69	655.07	670.69	937.52	44.32	0.26
6300.00	0.66	114.92	6185.69	670.03	656.39	670.03	937.98	44.41	0.37
6400.00	0.93	112.19	6285.68	669.48	657.67	669.48	938.48	44.49	0.27
6500.00	0.84	121.93	6385.66	668.79	659.05	668.79	938.95	44.58	0.17
6600.00	0.45	130.07	6485.66	668.15	659.97	668.15	939.14	44.65	0.41
6700.00	0.40	148.19	6585.66	667.60	660.45	667.60	939.09	44.69	0.14
6800.00	0.48	158.62	6685.65	666.91	660.79	666.91	938.84	44.74	0.11
HORIZONTAL DISPLACEMENT IS 938.84 FEET AT 44.74 DEGREES									