



Company: NOBLE ENERGY

Well: ALOYSIUS C34-6

Rig Name: PRODUCTION

State/County: COLORADO/WELD

Latitude: 40.26

GRID North is 0.62 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: 12/9/2010 / 17:09

Vaughn Energy Services

Rifle, Colorado

800-606-4976

Surveyor: Nick Campbell

ALOYSIUS C34-6

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	0.08	40.52	100.00	0.06	0.05	0.06	0.07	40.52	0.08
200.00	0.17	263.66	200.00	0.09	-0.06	0.09	0.11	329.66	0.24
300.00	0.23	166.18	300.00	-0.12	-0.16	-0.12	0.20	232.77	0.31
400.00	0.22	356.54	400.00	-0.12	-0.12	-0.12	0.17	223.95	0.45
500.00	0.18	119.30	500.00	-0.01	0.00	-0.01	0.01	165.54	0.35
600.00	0.38	350.92	600.00	0.25	0.08	0.25	0.26	18.68	0.51
700.00	0.32	320.11	700.00	0.79	-0.15	0.79	0.81	349.30	0.20
800.00	0.50	358.38	799.99	1.44	-0.34	1.44	1.48	346.63	0.31
900.00	0.50	354.34	899.99	2.31	-0.40	2.31	2.34	350.23	0.04
1000.00	0.54	354.19	999.99	3.21	-0.49	3.21	3.25	351.36	0.03
1100.00	0.45	45.43	1099.98	3.95	-0.26	3.95	3.96	356.27	0.43
1200.00	0.64	0.30	1199.98	4.79	0.02	4.79	4.79	0.27	0.45
1300.00	0.44	333.25	1299.97	5.69	-0.15	5.69	5.69	358.53	0.32
1400.00	0.03	359.43	1399.97	6.06	-0.32	6.06	6.07	357.00	0.41
1500.00	0.60	7.14	1499.97	6.61	-0.25	6.61	6.61	357.81	0.57
1600.00	0.21	335.37	1599.97	7.29	-0.26	7.29	7.30	357.94	0.44
1700.00	0.10	100.89	1699.97	7.44	-0.25	7.44	7.44	358.04	0.27
1800.00	0.77	105.93	1799.97	7.24	0.48	7.24	7.25	3.77	0.68
1900.00	0.17	128.48	1899.96	6.96	1.24	6.96	7.07	10.09	0.62
2000.00	0.78	160.73	1999.96	6.23	1.58	6.23	6.42	14.22	0.64
2100.00	0.27	158.91	2099.95	5.37	1.89	5.37	5.69	19.37	0.51
2200.00	0.41	197.92	2199.95	4.81	1.86	4.81	5.16	21.15	0.26
2300.00	0.57	217.60	2299.95	4.08	1.45	4.08	4.33	19.55	0.23
2400.00	0.54	203.44	2399.94	3.25	0.96	3.25	3.39	16.41	0.14
2500.00	0.66	219.73	2499.94	2.38	0.41	2.38	2.42	9.66	0.20
2600.00	0.65	211.11	2599.93	1.45	-0.25	1.45	1.48	350.08	0.10
2700.00	0.87	197.00	2699.92	0.24	-0.77	0.24	0.81	287.20	0.29
2800.00	0.98	217.58	2799.91	-1.17	-1.51	-1.17	1.91	232.40	0.35

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	1.11	203.24	2899.89	-2.74	-2.42	-2.74	3.65	221.48	0.29
3000.00	1.05	201.20	2999.88	-4.48	-3.13	-4.48	5.47	214.95	0.07
3100.00	0.73	186.92	3099.86	-5.97	-3.54	-5.97	6.94	210.68	0.39
3200.00	1.32	180.10	3199.85	-7.75	-3.62	-7.75	8.56	205.04	0.60
3300.00	1.57	170.30	3299.82	-10.25	-3.39	-10.25	10.80	198.31	0.35
3400.00	1.78	174.19	3399.77	-13.15	-3.00	-13.15	13.49	192.87	0.24
3500.00	2.08	180.05	3499.72	-16.50	-2.85	-16.50	16.75	189.80	0.36
3600.00	2.34	182.57	3599.64	-20.35	-2.94	-20.35	20.56	188.23	0.28
3700.00	2.47	181.99	3699.55	-24.54	-3.11	-24.54	24.74	187.22	0.13
3800.00	1.86	187.29	3799.48	-28.30	-3.39	-28.30	28.51	186.83	0.64
3900.00	2.55	186.91	3899.41	-32.12	-3.86	-32.12	32.35	186.86	0.69
4000.00	3.06	195.02	3999.29	-36.91	-4.82	-36.91	37.22	187.44	0.65
4100.00	2.85	192.44	4099.15	-41.91	-6.05	-41.91	42.35	188.21	0.26
4200.00	3.24	195.73	4199.01	-47.06	-7.35	-47.06	47.63	188.88	0.43
4300.00	3.83	194.47	4298.82	-53.02	-8.95	-53.02	53.77	189.58	0.60
4400.00	4.19	190.34	4398.58	-59.85	-10.44	-59.85	60.75	189.90	0.46
4500.00	4.85	186.71	4498.27	-67.64	-11.59	-67.64	68.63	189.73	0.71
4600.00	4.27	189.91	4597.95	-75.51	-12.73	-75.51	76.57	189.57	0.63
4700.00	3.82	200.72	4697.70	-82.29	-14.55	-82.29	83.57	190.02	0.89
4800.00	3.21	210.96	4797.51	-87.81	-17.17	-87.81	89.47	191.06	0.87
4900.00	3.04	206.84	4897.36	-92.58	-19.81	-92.58	94.68	192.08	0.28
5000.00	3.15	211.49	4997.22	-97.29	-22.44	-97.29	99.85	192.99	0.27
5100.00	2.53	208.73	5097.10	-101.57	-24.94	-101.57	104.59	193.79	0.63
5200.00	1.76	214.99	5197.02	-104.77	-26.88	-104.77	108.16	194.39	0.80
5300.00	1.61	209.82	5296.98	-107.24	-28.46	-107.24	110.95	194.86	0.22
5400.00	1.11	219.15	5396.95	-109.21	-29.76	-109.21	113.19	195.25	0.54
5500.00	2.09	217.42	5496.91	-111.40	-31.48	-111.40	115.77	195.78	0.98
5600.00	1.56	212.53	5596.86	-114.00	-33.32	-114.00	118.77	196.29	0.55
5700.00	1.89	208.10	5696.82	-116.60	-34.83	-116.60	121.69	196.63	0.35
5800.00	1.65	204.00	5796.77	-119.37	-36.19	-119.37	124.73	196.87	0.27
5900.00	1.68	230.21	5896.73	-121.62	-37.90	-121.62	127.39	197.31	0.76
6000.00	1.32	250.65	5996.69	-122.94	-40.12	-122.94	129.32	198.07	0.64
6100.00	0.72	285.62	6096.68	-123.15	-41.81	-123.15	130.06	198.75	0.84
6200.00	0.56	300.71	6196.67	-122.74	-42.84	-122.74	130.00	199.24	0.23
6300.00	0.63	275.20	6296.67	-122.44	-43.81	-122.44	130.04	199.69	0.27
6400.00	0.26	55.56	6396.67	-122.26	-44.17	-122.26	129.99	199.86	0.84
6500.00	0.37	99.12	6496.66	-122.18	-43.66	-122.18	129.75	199.66	0.26
6600.00	0.31	198.28	6596.66	-122.49	-43.43	-122.49	129.96	199.52	0.52
6650.00	0.17	187.67	6646.66	-122.69	-43.48	-122.69	130.17	199.51	0.30
HORIZONTAL DISPLACEMENT IS 130.17 FEET AT 199.51 DEGREES									