



Company: NOBLE
 Lease/Well: CLEMONS/# 15-01
 Location:
 Rig Name: PRODUCTION
 State/County: COLORADO/WELD COUNTY
 Latitude: 40.30
 GRID North is 0.62 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: 3/18/2011 / 19:36

Vaughn Energy Services
 Rifle, Colorado
 970-456-2071
 Garry Fowler
 Clemons 15-01/05-123-12896

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	0.13	335.06	100.00	0.10	-0.05	0.10	0.11	335.06	0.13
200.00	0.15	341.54	200.00	0.33	-0.14	0.33	0.36	337.49	0.03
300.00	0.18	347.06	300.00	0.61	-0.21	0.61	0.65	340.67	0.03
400.00	0.06	350.19	400.00	0.82	-0.26	0.82	0.86	342.47	0.12
500.00	0.33	354.51	500.00	1.17	-0.30	1.17	1.20	345.71	0.27
600.00	0.08	354.13	600.00	1.52	-0.33	1.52	1.56	347.71	0.25
700.00	0.33	358.75	700.00	1.88	-0.35	1.88	1.91	349.59	0.25
800.00	0.11	77.74	800.00	2.19	-0.25	2.19	2.20	353.37	0.33
900.00	0.41	37.25	900.00	2.49	0.06	2.49	2.50	1.34	0.33
1000.00	0.16	109.97	999.99	2.73	0.41	2.73	2.76	8.44	0.39
1100.00	0.30	97.04	1099.99	2.65	0.79	2.65	2.77	16.69	0.15
1200.00	0.29	19.79	1199.99	2.86	1.14	2.86	3.07	21.72	0.37
1300.00	0.16	42.33	1299.99	3.19	1.31	3.19	3.45	22.37	0.16
1400.00	0.21	118.34	1399.99	3.21	1.56	3.21	3.57	25.99	0.23
1500.00	0.24	127.68	1499.99	2.99	1.89	2.99	3.54	32.26	0.05
1600.00	0.07	52.10	1599.99	2.90	2.10	2.90	3.58	35.96	0.24
1700.00	0.28	122.29	1699.99	2.81	2.36	2.81	3.66	40.04	0.27
1800.00	0.43	153.80	1799.99	2.34	2.73	2.34	3.59	49.40	0.24
1900.00	0.60	140.58	1899.98	1.60	3.23	1.60	3.60	63.64	0.21
2000.00	0.60	116.51	1999.98	0.96	4.02	0.96	4.14	76.54	0.25
2100.00	0.74	106.36	2099.97	0.55	5.11	0.55	5.14	83.88	0.19
2200.00	1.06	107.59	2199.96	0.09	6.62	0.09	6.62	89.26	0.32
2300.00	0.88	112.57	2299.94	-0.49	8.21	-0.49	8.22	93.40	0.20
2400.00	0.72	98.79	2399.94	-0.88	9.53	-0.88	9.57	95.26	0.25
2500.00	0.67	106.82	2499.93	-1.14	10.71	-1.14	10.77	96.08	0.11
2600.00	0.61	99.32	2599.92	-1.40	11.79	-1.40	11.87	96.76	0.10
2700.00	0.66	112.29	2699.92	-1.70	12.85	-1.70	12.96	97.54	0.15
2800.00	0.50	140.79	2799.91	-2.26	13.66	-2.26	13.84	99.39	0.32
2900.00	0.49	140.34	2899.91	-2.92	14.20	-2.92	14.50	101.63	0.02
3000.00	0.31	118.51	2999.90	-3.38	14.72	-3.38	15.10	102.93	0.23
3100.00	0.41	135.85	3099.90	-3.77	15.21	-3.77	15.67	103.91	0.14

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
3200.00	0.75	141.05	3199.90	-4.53	15.86	-4.53	16.50	105.93	0.34
3300.00	0.74	151.82	3299.89	-5.61	16.58	-5.61	17.50	108.68	0.14
3400.00	1.13	153.27	3399.88	-7.06	17.33	-7.06	18.71	112.16	0.39
3500.00	1.22	155.83	3499.85	-8.91	18.21	-8.91	20.27	116.07	0.11
3600.00	1.42	157.56	3599.83	-11.02	19.12	-11.02	22.07	119.97	0.20
3700.00	1.48	157.39	3699.80	-13.36	20.08	-13.36	24.12	123.63	0.07
3800.00	1.51	161.99	3799.76	-15.80	20.99	-15.80	26.27	126.98	0.12
3900.00	1.56	164.79	3899.73	-18.37	21.75	-18.37	28.47	130.18	0.09
4000.00	1.76	169.21	3999.68	-21.19	22.40	-21.19	30.83	133.41	0.24
4100.00	1.76	166.59	4099.64	-24.19	23.04	-24.19	33.40	136.39	0.08
4200.00	1.78	170.85	4199.59	-27.22	23.64	-27.22	36.05	139.02	0.13
4300.00	1.92	175.73	4299.54	-30.43	24.01	-30.43	38.76	141.72	0.21
4400.00	2.08	182.16	4399.48	-33.92	24.07	-33.92	41.59	144.64	0.28
4500.00	2.28	188.44	4499.40	-37.70	23.71	-37.70	44.54	147.83	0.31
4600.00	2.61	176.49	4599.31	-41.94	23.56	-41.94	48.11	150.68	0.61
4700.00	2.35	181.46	4699.22	-46.26	23.65	-46.26	51.96	152.93	0.34
4800.00	1.99	184.97	4799.15	-50.04	23.44	-50.04	55.26	154.90	0.38
4900.00	1.76	189.45	4899.09	-53.29	23.04	-53.29	58.06	156.62	0.28
5000.00	0.98	193.33	4999.06	-55.64	22.59	-55.64	60.05	157.90	0.78
5100.00	0.82	187.37	5099.05	-57.18	22.30	-57.18	61.37	158.69	0.19
5200.00	0.87	158.51	5199.04	-58.60	22.49	-58.60	62.76	159.00	0.42
5300.00	0.46	152.81	5299.03	-59.66	22.95	-59.66	63.92	158.96	0.42
5400.00	0.36	149.96	5399.03	-60.29	23.29	-60.29	64.63	158.88	0.10
5500.00	0.57	142.64	5499.03	-60.95	23.75	-60.95	65.41	158.71	0.22
5600.00	0.68	164.88	5599.02	-61.92	24.20	-61.92	66.48	158.65	0.27
5700.00	0.32	164.04	5699.02	-62.77	24.44	-62.77	67.36	158.73	0.36
5800.00	0.26	165.18	5799.02	-63.26	24.57	-63.26	67.86	158.77	0.07
5900.00	0.60	188.70	5899.01	-64.00	24.55	-64.00	68.54	159.01	0.38
6000.00	0.36	224.00	5999.01	-64.74	24.25	-64.74	69.13	159.46	0.37
6100.00	0.10	212.05	6099.01	-65.04	23.99	-65.04	69.32	159.75	0.25
6200.00	0.35	192.71	6199.01	-65.41	23.88	-65.41	69.63	159.95	0.25
6300.00	0.12	321.91	6299.01	-65.62	23.75	-65.62	69.79	160.11	0.43
6400.00	0.11	32.70	6399.01	-65.46	23.73	-65.46	69.63	160.07	0.13
6500.00	0.14	231.66	6499.01	-65.45	23.69	-65.45	69.61	160.10	0.25
6600.00	0.22	353.84	6599.01	-65.34	23.57	-65.34	69.46	160.16	0.32
6700.00	0.06	53.48	6699.01	-65.12	23.59	-65.12	69.26	160.09	0.19
6800.00	0.24	52.05	6799.01	-64.96	23.79	-64.96	69.19	159.88	0.18

HORIZONTAL DISPLACEMENT IS
69.19 FEET AT 159.88 DEGREES