



Company: NOBLE
 Lease/Well: WELLS RANCH USX BB/# 15-09
 Location:
 Rig Name: PRODUCTION
 State/County: COLORADO/WELD COUNTY
 Latitude: 40.38
 GRID North is 0.71 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.ut
 Minimum Curvature Method
 Report Date/Time: 4/12/2011 / 09:32

Vaughn Energy Services
 Rifle, Colorado
 970-456-2071
 Garry Fowler
 Wells Ranch USX BB 15-09/05-123-26526

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	0.47	56.12	100.00	0.23	0.34	0.23	0.41	56.12	0.47
200.00	0.70	53.30	199.99	0.82	1.17	0.82	1.43	54.91	0.24
300.00	0.50	57.46	299.99	1.42	2.03	1.42	2.48	54.96	0.21
400.00	0.33	43.91	399.99	1.86	2.59	1.86	3.19	54.31	0.19
500.00	0.15	20.15	499.98	2.19	2.84	2.19	3.59	52.29	0.20
600.00	0.24	357.73	599.98	2.52	2.87	2.52	3.82	48.71	0.11
700.00	0.04	304.96	699.98	2.75	2.84	2.75	3.95	45.90	0.21
800.00	0.13	277.74	799.98	2.78	2.70	2.78	3.88	44.11	0.09
900.00	0.21	236.43	899.98	2.70	2.43	2.70	3.63	42.07	0.15
1000.00	0.17	276.50	999.98	2.61	2.13	2.61	3.37	39.26	0.14
1100.00	0.16	232.07	1099.98	2.54	1.88	2.54	3.16	36.49	0.12
1200.00	0.29	193.92	1199.98	2.21	1.71	2.21	2.80	37.71	0.19
1300.00	0.26	301.31	1299.98	2.09	1.45	2.09	2.54	34.82	0.45
1400.00	0.05	69.30	1399.98	2.22	1.29	2.22	2.57	30.20	0.30
1500.00	0.23	214.17	1499.98	2.07	1.22	2.07	2.40	30.49	0.27
1600.00	0.21	219.29	1599.98	1.75	0.98	1.75	2.01	29.30	0.03
1700.00	0.12	284.29	1699.98	1.64	0.76	1.64	1.81	24.92	0.20
1800.00	0.27	185.86	1799.98	1.43	0.63	1.43	1.56	23.81	0.31
1900.00	1.02	180.88	1899.97	0.31	0.59	0.31	0.67	62.60	0.75
2000.00	0.64	186.57	1999.96	-1.14	0.52	-1.14	1.25	155.57	0.39
2100.00	0.84	162.06	2099.95	-2.39	0.68	-2.39	2.48	164.15	0.37
2200.00	0.62	225.99	2199.95	-3.46	0.51	-3.46	3.50	171.56	0.79
2300.00	0.17	219.11	2299.94	-3.95	0.03	-3.95	3.95	179.55	0.45
2400.00	0.14	265.39	2399.94	-4.07	-0.18	-4.07	4.08	182.57	0.12
2500.00	0.21	347.26	2499.94	-3.91	-0.34	-3.91	3.92	185.04	0.23
2600.00	0.19	15.98	2599.94	-3.57	-0.34	-3.57	3.59	185.43	0.10
2700.00	0.35	356.10	2699.94	-3.11	-0.31	-3.11	3.13	185.78	0.18
2800.00	0.35	312.00	2799.94	-2.61	-0.56	-2.61	2.66	192.15	0.26
2900.00	0.72	325.50	2899.94	-1.88	-1.14	-1.88	2.20	211.28	0.39
3000.00	0.76	344.94	2999.93	-0.72	-1.67	-0.72	1.82	246.69	0.25
3100.00	0.85	342.34	3099.92	0.62	-2.07	0.62	2.16	286.79	0.09

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	0.69	0.22	3199.91	1.93	-2.29	1.93	3.00	310.14	0.28
3300.00	0.57	297.57	3299.90	2.77	-2.73	2.77	3.88	315.40	0.66
3400.00	0.24	326.77	3399.90	3.17	-3.28	3.17	4.56	314.01	0.38
3500.00	0.92	308.63	3499.90	3.84	-4.01	3.84	5.55	313.71	0.70
3600.00	0.68	324.93	3599.89	4.82	-4.98	4.82	6.93	314.07	0.33
3700.00	0.89	329.88	3699.88	5.97	-5.71	5.97	8.26	316.31	0.22
3800.00	1.20	319.37	3799.86	7.44	-6.78	7.44	10.07	317.66	0.37
3900.00	1.93	295.20	3899.82	8.95	-8.99	8.95	12.68	314.90	0.97
4000.00	2.81	288.47	3999.74	10.45	-12.83	10.45	16.54	309.15	0.92
4100.00	2.91	299.12	4099.61	12.46	-17.37	12.46	21.37	305.65	0.54
4200.00	3.05	317.77	4199.48	15.66	-21.37	15.66	26.50	306.23	0.98
4300.00	3.27	334.12	4299.33	20.20	-24.40	20.20	31.68	309.61	0.92
4400.00	3.53	342.00	4399.15	25.69	-26.60	25.69	36.98	314.00	0.53
4500.00	4.09	339.23	4498.93	31.95	-28.82	31.95	43.03	317.95	0.59
4600.00	3.60	334.92	4598.71	38.14	-31.41	38.14	49.41	320.52	0.57
4700.00	3.75	338.17	4698.50	44.02	-33.96	44.02	55.60	322.35	0.26
4800.00	3.53	330.17	4798.30	49.72	-36.71	49.72	61.81	323.56	0.55
4900.00	3.00	328.50	4898.14	54.63	-39.61	54.63	67.48	324.06	0.54
5000.00	2.20	327.79	4998.03	58.48	-42.00	58.48	72.00	324.32	0.80
5100.00	1.55	324.12	5097.98	61.20	-43.81	61.20	75.27	324.40	0.66
5200.00	0.64	334.04	5197.96	62.80	-44.85	62.80	77.17	324.47	0.93
5300.00	0.13	346.17	5297.96	63.41	-45.12	63.41	77.83	324.57	0.51
5400.00	0.36	36.49	5397.96	63.78	-44.96	63.78	78.04	324.82	0.30
5500.00	0.28	70.00	5497.96	64.12	-44.55	64.12	78.07	325.21	0.20
5600.00	0.26	25.49	5597.95	64.41	-44.22	64.41	78.13	325.53	0.21
5700.00	0.29	94.87	5697.95	64.59	-43.87	64.59	78.08	325.82	0.31
5800.00	0.67	53.85	5797.95	64.92	-43.15	64.92	77.95	326.39	0.49
5900.00	0.50	23.47	5897.95	65.67	-42.50	65.67	78.22	327.09	0.35
6000.00	0.43	344.29	5997.94	66.43	-42.42	66.43	78.83	327.44	0.32
6100.00	0.19	39.82	6097.94	66.93	-42.42	66.93	79.24	327.63	0.36
6200.00	0.24	71.86	6197.94	67.12	-42.11	67.12	79.24	327.90	0.13
6300.00	0.27	118.56	6297.94	67.08	-41.70	67.08	78.98	328.13	0.20
6400.00	0.34	92.50	6397.94	66.95	-41.20	66.95	78.61	328.39	0.15
6500.00	0.37	66.52	6497.94	67.07	-40.61	67.07	78.41	328.80	0.16
6550.00	0.61	118.52	6547.93	67.01	-40.23	67.01	78.15	329.02	0.96
HORIZONTAL DISPLACEMENT IS 78.15 FEET AT 329.02 DEGREES									