



Company: NOBLE
 Lease/Well: WELLS RANCH USX BB/# 15-11
 Location:
 Rig Name: PRODUCTION
 State/County: COLORADO/WELD COUNTY
 Latitude: 40.38
 GRID North is 0.70 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: 4/13/2011 / 20:15

Vaughn Energy Services
 Rifle, Colorado
 970-456-2071
 Garry Fowler
 Wells Ranch USX BB 15-11/05-123-26560

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	0.70	191.36	100.00	-0.60	-0.12	-0.60	0.61	191.36	0.70
200.00	0.61	197.65	199.99	-1.71	-0.40	-1.71	1.75	193.27	0.12
300.00	0.39	155.57	299.99	-2.52	-0.42	-2.52	2.56	189.51	0.41
400.00	0.17	184.90	399.99	-2.99	-0.29	-2.99	3.00	185.64	0.25
500.00	0.30	252.96	499.99	-3.21	-0.56	-3.21	3.26	189.84	0.28
600.00	0.53	261.44	599.98	-3.36	-1.26	-3.36	3.59	200.58	0.23
700.00	0.48	223.75	699.98	-3.73	-2.00	-3.73	4.23	208.25	0.33
800.00	0.45	215.48	799.98	-4.35	-2.52	-4.35	5.02	210.08	0.07
900.00	0.43	253.87	899.97	-4.77	-3.11	-4.77	5.69	213.06	0.29
1000.00	0.44	253.09	999.97	-4.99	-3.83	-4.99	6.29	217.53	0.01
1100.00	0.47	255.81	1099.97	-5.20	-4.59	-5.20	6.93	221.44	0.04
1200.00	0.60	223.62	1199.96	-5.68	-5.35	-5.68	7.80	223.28	0.33
1300.00	0.54	223.22	1299.96	-6.41	-6.04	-6.41	8.80	223.30	0.06
1400.00	0.44	244.39	1399.95	-6.92	-6.71	-6.92	9.63	224.11	0.21
1500.00	0.40	244.74	1499.95	-7.23	-7.37	-7.23	10.32	225.53	0.04
1600.00	0.47	268.26	1599.95	-7.39	-8.09	-7.39	10.96	227.58	0.19
1700.00	0.55	287.24	1699.95	-7.27	-8.96	-7.27	11.53	230.95	0.18
1800.00	0.66	270.39	1799.94	-7.12	-9.98	-7.12	12.26	234.50	0.21
1900.00	0.57	288.64	1899.93	-6.96	-11.03	-6.96	13.04	237.74	0.21
2000.00	0.65	283.71	1999.93	-6.67	-12.05	-6.67	13.77	241.05	0.10
2100.00	0.76	276.50	2099.92	-6.45	-13.27	-6.45	14.75	244.05	0.14
2200.00	0.64	276.56	2199.91	-6.31	-14.49	-6.31	15.80	246.45	0.12
2300.00	0.79	282.76	2299.91	-6.10	-15.71	-6.10	16.86	248.79	0.16
2400.00	0.85	276.36	2399.90	-5.87	-17.12	-5.87	18.10	251.09	0.11
2500.00	0.97	271.04	2499.88	-5.77	-18.71	-5.77	19.57	252.86	0.14
2600.00	0.95	294.56	2599.87	-5.41	-20.30	-5.41	21.01	255.09	0.39
2700.00	1.10	304.46	2699.85	-4.52	-21.85	-4.52	22.31	258.31	0.23
2800.00	1.22	286.83	2799.83	-3.67	-23.66	-3.67	23.94	261.19	0.37
2900.00	1.42	293.22	2899.81	-2.87	-25.81	-2.87	25.97	263.65	0.25
3000.00	1.48	302.95	2999.77	-1.68	-28.03	-1.68	28.08	266.56	0.25
3100.00	1.24	306.52	3099.75	-0.34	-29.98	-0.34	29.99	269.35	0.25

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	1.10	344.19	3199.73	1.22	-31.11	1.22	31.14	272.25	0.77
3300.00	0.88	13.77	3299.71	2.89	-31.19	2.89	31.32	275.29	0.55
3400.00	0.91	47.10	3399.70	4.17	-30.42	4.17	30.71	277.81	0.51
3500.00	0.99	49.02	3499.69	5.28	-29.19	5.28	29.66	280.26	0.08
3600.00	0.92	37.83	3599.67	6.49	-28.04	6.49	28.78	283.02	0.20
3700.00	0.34	87.45	3699.67	7.14	-27.25	7.14	28.17	284.68	0.75
3800.00	0.29	349.83	3799.67	7.40	-27.00	7.40	28.00	285.33	0.48
3900.00	0.92	299.23	3899.66	8.05	-27.75	8.05	28.89	286.18	0.77
4000.00	1.53	311.95	3999.64	9.33	-29.44	9.33	30.89	287.59	0.66
4100.00	1.93	327.99	4099.59	11.65	-31.32	11.65	33.42	290.40	0.63
4200.00	2.12	315.82	4199.53	14.40	-33.50	14.40	36.47	293.26	0.47
4300.00	2.74	306.03	4299.44	17.13	-36.72	17.13	40.52	295.01	0.74
4400.00	3.00	300.61	4399.32	19.87	-40.91	19.87	45.48	295.91	0.38
4500.00	2.99	299.38	4499.18	22.48	-45.44	22.48	50.70	296.33	0.07
4600.00	2.94	294.16	4599.05	24.81	-50.05	24.81	55.86	296.37	0.28
4700.00	3.10	276.46	4698.91	26.17	-55.07	26.17	60.97	295.41	0.94
4800.00	3.45	288.78	4798.75	27.44	-60.61	27.44	66.53	294.36	0.78
4900.00	2.56	283.36	4898.61	28.92	-65.63	28.92	71.72	293.78	0.93
5000.00	2.24	277.51	4998.52	29.69	-69.75	29.69	75.80	293.06	0.41
5100.00	2.20	258.80	5098.45	29.58	-73.56	29.58	79.29	291.90	0.72
5200.00	2.19	235.47	5198.38	28.12	-77.02	28.12	81.99	290.06	0.89
5300.00	2.18	226.72	5298.30	25.73	-79.98	25.73	84.02	287.83	0.33
5400.00	2.20	237.10	5398.23	23.38	-82.98	23.38	86.21	285.74	0.40
5500.00	1.85	223.48	5498.17	21.16	-85.71	21.16	88.28	283.87	0.59
5600.00	1.50	195.60	5598.13	18.73	-87.17	18.73	89.16	282.13	0.88
5700.00	0.98	177.28	5698.10	16.62	-87.48	16.62	89.04	280.76	0.64
5800.00	0.64	150.74	5798.09	15.27	-87.16	15.27	88.49	279.94	0.50
5900.00	0.22	137.80	5898.09	14.64	-86.76	14.64	87.99	279.58	0.43
6000.00	1.10	90.45	5998.08	14.49	-85.67	14.49	86.88	279.60	0.97
6100.00	1.50	98.51	6098.06	14.29	-83.41	14.29	84.62	279.72	0.44
6200.00	1.38	98.78	6198.03	13.91	-80.93	13.91	82.12	279.75	0.12
6300.00	1.55	65.01	6297.99	14.30	-78.52	14.30	79.81	280.32	0.86
6400.00	1.13	60.24	6397.97	15.36	-76.44	15.36	77.96	281.36	0.43
6500.00	1.01	69.49	6497.95	16.16	-74.75	16.16	76.48	282.19	0.21
6585.00	0.95	75.70	6582.94	16.59	-73.37	16.59	75.22	282.74	0.14
HORIZONTAL DISPLACEMENT IS 75.22 FEET AT 282.74 DEGREES									