



Company: Noble Energy
Well: Bolet Red X15-15JI
API: 05-123-19647
Rig Name: Production/VES
State/County: Colorado/ Weld
Latitude: 40.133, Longitude: -104.648
GRID North is 0.550 Degrees East of True North
VS-Azi: 0.000 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB = Ground Level

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: bolet red x15-15ji_ed.ut

Minimum Curvature Method

Report Date/Time: 7/7/2012 / 19:56

Vaughn Energy Services
Henderson, Colorado
866-835-8333
Jason Kinchelow

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
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	****
100.000	0.517	5.770	99.999	0.449	0.045	0.449	0.451	5.770	0.517
200.000	0.326	352.110	199.996	1.180	0.052	1.180	1.181	2.504	0.214
300.000	0.419	29.745	299.994	1.779	0.194	1.779	1.790	6.217	0.256
400.000	0.392	341.835	399.992	2.422	0.268	2.422	2.436	6.327	0.330
500.000	0.300	344.192	499.990	2.998	0.091	2.998	3.000	1.730	0.093
600.000	0.368	41.949	599.988	3.489	0.234	3.489	3.497	3.834	0.328
700.000	0.249	356.360	699.987	3.945	0.435	3.945	3.969	6.286	0.263
800.000	0.252	93.445	799.987	4.149	0.640	4.149	4.198	8.772	0.376
900.000	0.478	58.367	899.985	4.354	1.215	4.354	4.521	15.591	0.308
1000.000	0.310	43.478	999.982	4.769	1.756	4.769	5.083	20.217	0.196
1100.000	0.229	150.016	1099.981	4.792	2.042	4.792	5.209	23.083	0.435
1200.000	0.237	202.250	1199.981	4.427	2.064	4.427	4.885	24.996	0.205
1300.000	0.120	312.745	1299.980	4.307	1.909	4.307	4.711	23.900	0.301
1400.000	0.185	98.030	1399.980	4.356	1.992	4.356	4.790	24.570	0.292
1500.000	0.333	148.038	1499.979	4.087	2.305	4.087	4.692	29.425	0.257
1600.000	0.256	251.125	1599.979	3.768	2.248	3.768	4.388	30.814	0.463
1700.000	0.244	169.904	1699.978	3.486	2.074	3.486	4.056	30.743	0.326
1800.000	0.612	238.497	1799.975	2.998	1.656	2.998	3.424	28.913	0.570
1900.000	0.511	220.030	1899.971	2.377	0.913	2.377	2.546	21.021	0.206
2000.000	0.925	281.597	1999.964	2.198	-0.164	2.198	2.204	355.723	0.817
2100.000	1.319	278.953	2099.944	2.539	-2.092	2.539	3.290	320.510	0.397
2200.000	1.614	276.312	2199.912	2.873	-4.629	2.873	5.449	301.826	0.302
2300.000	1.419	284.053	2299.877	3.329	-7.230	3.329	7.959	294.721	0.283
2400.000	1.236	284.650	2399.850	3.902	-9.475	3.902	10.247	292.384	0.183
2500.000	0.891	329.427	2499.834	4.844	-10.914	4.844	11.941	293.936	0.871
2600.000	1.067	15.604	2599.821	6.411	-11.059	6.411	12.783	300.100	0.785
2700.000	0.731	11.363	2699.808	7.933	-10.683	7.933	13.306	306.597	0.342
2800.000	0.883	30.084	2799.799	9.225	-10.171	9.225	13.731	312.209	0.302
2900.000	0.990	15.512	2899.785	10.725	-9.553	10.725	14.363	318.306	0.260
3000.000	1.090	7.285	2999.769	12.501	-9.202	12.501	15.522	323.644	0.179
3100.000	1.244	326.362	3099.750	14.348	-9.682	14.348	17.309	325.988	0.828
3200.000	1.323	336.819	3199.725	16.313	-10.738	16.313	19.530	326.645	0.247
3300.000	1.724	316.405	3299.690	18.464	-12.230	18.464	22.147	326.481	0.669
3400.000	1.428	309.675	3399.652	20.349	-14.226	20.349	24.829	325.043	0.349

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
3500.000	1.809	311.839	3499.612	22.197	-16.361	22.197	27.575	323.607	0.386
3600.000	1.859	305.107	3599.561	24.183	-18.864	24.183	30.670	322.044	0.221
3700.000	2.304	302.851	3699.495	26.206	-21.879	26.206	34.139	320.142	0.452
3800.000	1.928	312.149	3799.427	28.425	-24.815	28.425	37.733	318.880	0.507
3900.000	1.885	325.960	3899.372	30.917	-26.983	30.917	41.036	318.887	0.460
4000.000	1.937	320.205	3999.316	33.578	-28.985	33.578	44.358	319.199	0.199
4100.000	2.162	319.183	4099.252	36.305	-31.300	36.305	47.934	319.234	0.228
4200.000	2.059	337.568	4199.186	39.393	-33.218	39.393	51.529	319.860	0.682
4300.000	2.576	350.645	4299.104	43.270	-34.269	43.270	55.196	321.621	0.736
4400.000	2.148	359.368	4399.019	47.361	-34.655	47.361	58.686	323.806	0.558
4500.000	2.313	350.350	4498.944	51.224	-35.014	51.224	62.047	325.646	0.387
4600.000	1.479	345.752	4598.888	54.464	-35.670	54.464	65.105	326.778	0.848
4700.000	1.423	344.081	4698.856	56.909	-36.328	56.909	67.515	327.448	0.070
4800.000	2.190	349.356	4798.806	59.981	-37.021	59.981	70.486	328.316	0.784
4900.000	2.365	13.691	4898.729	63.863	-36.886	63.863	73.750	329.990	0.975
5000.000	2.560	3.228	4998.637	68.097	-36.272	68.097	77.155	331.958	0.489
5100.000	2.639	20.009	5098.536	72.490	-35.359	72.490	80.654	333.998	0.762
5200.000	2.669	19.626	5198.429	76.846	-33.789	76.846	83.947	336.265	0.035
5300.000	2.507	19.861	5298.327	81.096	-32.264	81.096	87.278	338.305	0.162
5400.000	2.180	28.523	5398.243	84.824	-30.613	84.824	90.179	340.155	0.481
5500.000	2.029	37.093	5498.176	87.907	-28.637	87.907	92.454	341.956	0.348
5600.000	1.267	21.566	5598.134	90.347	-27.163	90.347	94.342	343.266	0.877
5700.000	1.561	35.911	5698.104	92.478	-25.958	92.478	96.052	344.321	0.458
5800.000	1.434	50.364	5798.070	94.379	-24.196	94.379	97.431	345.621	0.397
5900.000	1.955	65.063	5898.027	95.897	-21.685	95.897	98.318	347.258	0.674
6000.000	2.503	64.893	5997.951	97.542	-18.162	97.542	99.218	349.453	0.548
6100.000	2.763	69.814	6097.845	99.300	-13.923	99.300	100.271	352.019	0.344
6200.000	3.633	69.632	6197.689	101.234	-8.691	101.234	101.607	355.093	0.870
6300.000	5.262	63.140	6297.385	104.409	-1.629	104.409	104.422	359.106	1.702
6400.000	4.605	51.084	6397.016	109.003	5.585	109.003	109.146	2.933	1.224
6500.000	2.333	42.691	6496.827	113.021	10.089	113.021	113.471	5.101	2.321
6600.000	1.714	31.580	6596.765	115.791	12.252	115.791	116.438	6.040	0.731
6700.000	1.688	6.199	6696.722	118.530	13.194	118.530	119.262	6.352	0.748
6800.000	1.127	334.528	6796.693	120.882	12.931	120.882	121.572	6.106	0.939
6900.000	0.864	298.403	6896.679	122.129	11.845	122.129	122.702	5.539	0.666
7000.000	0.864	322.054	6996.668	123.082	10.718	123.082	123.548	4.977	0.354
7100.000	0.418	11.820	7096.662	124.034	10.328	124.034	124.463	4.760	0.675
7200.000	0.679	67.629	7196.658	124.616	10.951	124.616	125.096	5.022	0.563
7300.000	0.795	48.190	7296.650	125.304	12.016	125.304	125.879	5.478	0.274
7400.000	0.856	74.683	7396.640	125.964	13.254	125.964	126.659	6.006	0.383
7500.000	1.220	60.835	7496.623	126.680	14.904	126.680	127.554	6.710	0.439
7580.000	0.543	48.589	7576.613	127.345	15.931	127.345	128.338	7.131	0.873
HORIZONTAL DISPLACEMENT IS 128.338 FEET AT 7.131 DEGREES									