



**Company:** Noble Energy Inc.

**Rig:** Production/VES

**Latitude:** 40.241

**Longitude:** -104.799

**API #** 05-123-15836

**Date:** 2/28/13

**Well:** Eisenach & Preston 8-7K

**Location:** Weld / Colorado

**North Reference:** -0.45

**Depth Reference:** RKB=Ground Level

**Surveyor:** Levi Sheldon

**VS:** 0.000

HA Gyro Survey Calculations

Depth	Inc	AzG	N/-S	E/-W	TVD	DL	VS	CD	Cbrg
0.000	0.000	0.000	0.000	0.000	0.000	****	0.000	0.000	0.000
100.000	0.227	234.161	-0.116	-0.161	100.000	0.227	-0.116	0.198	234.161
200.000	0.128	260.294	-0.251	-0.432	199.999	0.125	-0.251	0.499	239.831
300.000	0.141	244.514	-0.323	-0.653	299.999	0.039	-0.323	0.729	243.704
400.000	0.149	245.631	-0.430	-0.883	399.999	0.009	-0.430	0.982	244.061
500.000	0.167	286.937	-0.441	-1.142	499.998	0.113	-0.441	1.224	248.887
600.000	0.636	352.036	0.151	-1.358	599.996	0.586	0.151	1.367	276.359
700.000	0.639	4.966	1.256	-1.387	699.990	0.144	1.256	1.871	312.166
800.000	0.667	358.497	2.393	-1.354	799.983	0.079	2.393	2.750	330.501
900.000	0.857	7.613	3.717	-1.270	899.974	0.224	3.717	3.928	341.129
1000.000	0.839	13.084	5.170	-1.006	999.963	0.083	5.170	5.267	348.993
1100.000	0.951	23.880	6.642	-0.504	1099.951	0.202	6.642	6.661	355.659
1200.000	1.050	21.699	8.251	0.170	1199.936	0.106	8.251	8.253	1.183
1300.000	1.165	23.736	10.033	0.918	1299.917	0.122	10.033	10.075	5.229
1400.000	1.255	22.819	11.973	1.752	1399.895	0.092	11.973	12.101	8.326
1500.000	1.302	22.562	14.032	2.613	1499.870	0.047	14.032	14.273	10.548
1600.000	1.274	24.450	16.094	3.509	1599.845	0.051	16.094	16.472	12.300
1700.000	1.432	23.127	18.254	4.460	1699.817	0.161	18.254	18.791	13.730
1800.000	1.438	29.999	20.490	5.578	1799.786	0.172	20.490	21.236	15.229
1900.000	1.689	35.015	22.784	7.051	1899.748	0.285	22.784	23.850	17.196
2000.000	1.799	42.109	25.155	8.949	1999.702	0.242	25.155	26.699	19.583
2100.000	2.247	52.882	27.502	11.564	2099.640	0.586	27.502	29.834	22.806
2200.000	2.602	61.104	29.782	15.114	2199.551	0.497	29.782	33.397	26.908
2300.000	2.869	72.552	31.629	19.489	2299.437	0.606	31.629	37.151	31.641
2400.000	2.967	79.961	32.830	24.424	2399.308	0.389	32.830	40.919	36.648
2500.000	3.289	83.478	33.607	29.822	2499.159	0.375	33.607	44.931	41.585
2600.000	3.480	87.191	34.082	35.703	2598.985	0.291	34.082	49.358	46.331
2700.000	3.469	88.628	34.303	41.758	2698.801	0.088	34.303	54.041	50.598
2800.000	3.176	95.808	34.095	47.539	2798.633	0.508	34.095	58.502	54.352
2900.000	2.946	97.220	33.492	52.845	2898.491	0.242	33.492	62.564	57.635
3000.000	2.666	100.988	32.725	57.678	2998.371	0.336	32.725	66.315	60.430
3100.000	2.239	105.112	31.773	61.847	3098.279	0.461	31.773	69.531	62.809
3200.000	1.870	105.220	30.835	65.307	3198.214	0.369	30.835	72.221	64.726
3300.000	1.379	107.628	30.042	68.029	3298.174	0.496	30.042	74.367	66.173
3400.000	1.216	105.372	29.396	70.199	3398.148	0.171	29.396	76.106	67.278
3500.000	0.991	118.773	28.698	71.981	3498.130	0.341	28.698	77.491	68.263
3600.000	0.797	113.313	28.007	73.378	3598.118	0.211	28.007	78.541	69.109
3700.000	0.783	120.475	27.385	74.607	3698.108	0.100	27.385	79.474	69.844
3800.000	0.757	109.121	26.822	75.819	3798.099	0.155	26.822	80.424	70.518

3900.000	0.576	120.343	26.351	76.877	3898.092	0.222	26.351	81.268	71.080
4000.000	0.514	130.331	25.807	77.653	3998.088	0.113	25.807	81.829	71.616
4100.000	0.305	138.648	25.317	78.171	4098.085	0.217	25.317	82.168	72.054
4200.000	0.166	177.083	24.973	78.354	4198.084	0.203	24.973	82.237	72.322
4300.000	0.263	232.683	24.690	78.179	4298.084	0.218	24.690	81.985	72.473
4400.000	0.399	234.076	24.347	77.715	4398.082	0.136	24.347	81.439	72.605
4500.000	0.713	257.648	24.009	76.825	4498.077	0.383	24.009	80.489	72.645
4600.000	1.056	267.226	23.832	75.296	4598.065	0.372	23.832	78.978	72.437
4700.000	0.884	265.511	23.727	73.607	4698.051	0.174	23.727	77.336	72.134
4800.000	0.100	61.761	23.707	72.914	4798.047	0.977	23.707	76.672	71.988
4900.000	0.584	135.330	23.386	73.350	4898.046	0.564	23.386	76.988	72.316
5000.000	0.747	133.309	22.576	74.182	4998.039	0.164	22.576	77.542	73.073
5100.000	0.602	136.326	21.749	75.020	5098.032	0.149	21.749	78.109	73.833
5200.000	0.737	138.352	20.888	75.810	5198.025	0.137	20.888	78.635	74.596
5300.000	0.578	134.155	20.056	76.600	5298.018	0.166	20.056	79.182	75.328
5400.000	0.529	140.516	19.348	77.256	5398.014	0.079	19.348	79.641	75.940
5500.000	0.417	152.753	18.668	77.716	5498.010	0.151	18.668	79.926	76.493
5600.000	0.424	143.430	18.048	78.103	5598.008	0.069	18.048	80.161	76.989
5700.000	0.354	151.838	17.479	78.469	5698.005	0.090	17.479	80.392	77.443
5800.000	0.210	138.724	17.068	78.736	5798.004	0.156	17.068	80.564	77.769
5900.000	0.427	342.332	17.286	78.743	5898.003	0.626	17.286	80.618	77.619
6000.000	0.671	332.934	18.163	78.364	5997.999	0.259	18.163	80.441	76.951
6100.000	0.531	325.773	19.068	77.837	6097.993	0.159	19.068	80.138	76.235
6200.000	0.582	333.222	19.904	77.347	6197.988	0.089	19.904	79.867	75.569
6300.000	0.530	312.717	20.672	76.778	6297.984	0.204	20.672	79.512	74.931
6400.000	0.500	292.412	21.152	76.035	6397.980	0.184	21.152	78.923	74.454
6500.000	0.277	306.338	21.461	75.438	6497.978	0.240	21.461	78.431	74.120
6600.000	0.241	297.104	21.700	75.056	6597.977	0.055	21.700	78.130	73.874
6700.000	0.223	322.320	21.950	74.750	6697.976	0.103	21.950	77.906	73.635
6800.000	0.236	330.362	22.283	74.529	6797.975	0.034	22.283	77.789	73.354
6900.000	0.120	0.732	22.566	74.428	6897.974	0.145	22.566	77.774	73.133
7000.000	0.141	81.251	22.690	74.552	6997.974	0.170	22.690	77.928	73.072
7100.000	0.339	73.206	22.794	74.957	7097.973	0.200	22.794	78.346	73.086
7200.000	0.682	73.639	23.047	75.811	7197.969	0.343	23.047	79.236	73.090
7300.000	0.843	83.391	23.299	77.112	7297.960	0.206	23.299	80.555	73.188