



Company: Noble Energy
 Rig: Production/Core-Tech
 API # 05-123-26334
 Date: 12/2/2013
 Surveyor: Nick Kula
 VS: 0.000
 Lat : 40.485
 Long: -104.849

Well: Stromberger 13-32
 Location: Weld County, Colorado
 North Reference: GRID
 Convergence: GRID North is 0.420 Degrees East
 Declination: 8.59
 Depth Reference: Ground Level
 Elevation: 4831'
 Total Depth as Drilled: 7355'

Lat & Long obtained by handheld GPS at wellhead

MS 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	0.000
100.000	0.644	182.041	-0.562	-0.020	99.998	0.644	-0.562	0.562	182.041
200.000	0.728	199.691	-1.722	-0.254	199.991	0.226	-1.722	1.740	188.397
300.000	0.700	207.771	-2.860	-0.753	299.983	0.105	-2.860	2.957	194.744
400.000	0.836	158.071	-4.077	-0.765	399.975	0.657	-4.077	4.148	190.625
500.000	1.005	161.514	-5.585	-0.214	499.962	0.178	-5.585	5.589	182.198
600.000	1.339	149.106	-7.419	0.664	599.941	0.418	-7.419	7.449	174.889
700.000	1.456	152.792	-9.552	1.845	699.912	0.148	-9.552	9.728	169.070
800.000	1.397	157.585	-11.808	2.890	799.881	0.133	-11.808	12.157	166.247
900.000	1.189	150.701	-13.840	3.863	899.855	0.259	-13.840	14.369	164.406
1000.000	1.147	177.410	-15.744	4.416	999.835	0.541	-15.744	16.352	164.334
1100.000	1.081	191.773	-17.668	4.268	1099.816	0.286	-17.668	18.176	166.418
1200.000	0.841	174.595	-19.322	4.145	1199.802	0.372	-19.322	19.762	167.892
1300.000	1.142	203.927	-20.964	3.810	1299.788	0.580	-20.964	21.307	169.699
1400.000	0.895	182.371	-22.655	3.374	1399.772	0.451	-22.655	22.905	171.530
1500.000	0.696	215.834	-23.928	2.986	1499.763	0.496	-23.928	24.114	172.887
1600.000	0.269	199.558	-24.642	2.551	1599.760	0.444	-24.642	24.774	174.089
1700.000	0.419	303.992	-24.660	2.170	1699.758	0.551	-24.660	24.755	174.972
1800.000	0.732	291.404	-24.222	1.272	1799.753	0.336	-24.222	24.256	176.994
1900.000	0.477	248.096	-24.145	0.291	1899.748	0.505	-24.145	24.146	179.308
2000.000	0.781	252.482	-24.505	-0.744	1999.742	0.307	-24.505	24.516	181.740
2100.000	1.087	279.595	-24.552	-2.329	2099.729	0.529	-24.552	24.662	185.419
2200.000	0.998	241.197	-24.814	-4.027	2199.714	0.691	-24.814	25.138	189.219
2300.000	1.203	249.236	-25.606	-5.772	2299.695	0.256	-25.606	26.248	192.704
2400.000	1.301	263.623	-26.104	-7.882	2399.672	0.328	-26.104	27.268	196.802
2500.000	1.350	257.067	-26.494	-10.158	2499.645	0.159	-26.494	28.374	200.978
2600.000	1.384	254.251	-27.085	-12.468	2599.617	0.075	-27.085	29.817	204.719
2700.000	1.768	260.904	-27.657	-15.154	2699.579	0.425	-27.657	31.536	208.719
2800.000	1.988	269.984	-27.901	-18.411	2799.525	0.369	-27.901	33.428	213.420
2900.000	1.991	282.738	-27.518	-21.840	2899.465	0.442	-27.518	35.132	218.437
3000.000	2.036	260.787	-27.420	-25.287	2999.405	0.768	-27.420	37.300	222.683
3100.000	1.480	276.915	-27.549	-28.322	3099.358	0.739	-27.549	39.511	225.793
3200.000	0.854	293.577	-27.095	-30.288	3199.337	0.705	-27.095	40.638	228.184
3300.000	0.913	302.604	-26.368	-31.642	3299.325	0.151	-26.368	41.188	230.195
3400.000	0.820	314.397	-25.438	-32.825	3399.314	0.200	-25.438	41.527	232.226
3500.000	0.979	292.013	-24.617	-34.128	3499.302	0.383	-24.617	42.080	234.197

3600.000	1.255	305.226	-23.665	-35.815	3599.283	0.376	-23.665	42.927	236.545
3700.000	1.430	312.447	-22.191	-37.630	3699.256	0.243	-22.191	43.686	239.471
3800.000	1.467	320.304	-20.365	-39.368	3799.224	0.202	-20.365	44.323	242.648
3900.000	1.257	313.071	-18.631	-40.987	3899.196	0.270	-18.631	45.022	245.556
4000.000	1.319	291.877	-17.452	-42.856	3999.171	0.478	-17.452	46.274	247.843
4100.000	1.133	252.413	-17.322	-44.867	4099.150	0.846	-17.322	48.095	248.890
4200.000	0.476	204.568	-17.999	-45.983	4199.140	0.887	-17.999	49.380	248.623
4300.000	0.224	197.290	-18.564	-46.214	4299.138	0.256	-18.564	49.803	248.115
4400.000	0.363	213.140	-19.016	-46.445	4399.137	0.160	-19.016	50.187	247.734
4500.000	0.769	329.831	-18.701	-46.956	4499.134	0.988	-18.701	50.543	248.284
4600.000	1.641	351.521	-16.705	-47.504	4599.111	0.968	-16.705	50.356	250.626
4700.000	2.091	346.418	-13.516	-48.144	4699.058	0.480	-13.516	50.005	254.319
4800.000	2.334	357.025	-9.709	-48.678	4798.984	0.475	-9.709	49.637	258.720
4900.000	1.602	6.850	-6.288	-48.617	4898.924	0.803	-6.288	49.022	262.631
5000.000	0.838	353.812	-4.173	-48.529	4998.901	0.808	-4.173	48.708	265.085
5100.000	0.403	354.548	-3.095	-48.641	5098.895	0.435	-3.095	48.740	266.359
5200.000	0.435	2.365	-2.365	-48.659	5198.892	0.065	-2.365	48.717	267.217
5300.000	0.351	261.531	-2.031	-48.946	5298.891	0.608	-2.031	48.988	267.624
5400.000	0.513	280.049	-1.998	-49.689	5398.888	0.212	-1.998	49.729	267.698
5500.000	0.939	1.224	-1.101	-50.112	5498.882	0.998	-1.101	50.124	268.741
5600.000	0.817	355.795	0.429	-50.147	5598.870	0.147	0.429	50.149	270.490
5700.000	0.531	4.932	1.602	-50.159	5698.863	0.305	1.602	50.185	271.829
5800.000	0.376	15.017	2.380	-50.035	5798.860	0.173	2.380	50.091	272.723
5900.000	0.021	224.321	2.683	-49.963	5898.859	0.395	2.683	50.035	273.074
6000.000	0.113	184.171	2.572	-49.983	5998.859	0.097	2.572	50.049	272.946
6100.000	0.477	84.092	2.517	-49.576	6098.858	0.509	2.517	49.640	272.906
6200.000	0.223	157.239	2.380	-49.086	6198.857	0.465	2.380	49.144	272.776
6300.000	0.231	132.230	2.065	-48.861	6298.856	0.099	2.065	48.905	272.420
6400.000	0.555	140.554	1.555	-48.404	6398.853	0.327	1.555	48.429	271.840
6500.000	0.991	156.767	0.387	-47.756	6498.844	0.484	0.387	47.757	270.464
6600.000	0.589	189.513	-0.914	-47.499	6598.835	0.589	-0.914	47.508	268.898
6700.000	1.240	182.113	-2.502	-47.624	6698.822	0.660	-2.502	47.690	266.993
6800.000	1.490	191.642	-4.856	-47.926	6798.793	0.337	-4.856	48.172	264.214
6900.000	1.227	210.018	-7.056	-48.724	6898.766	0.506	-7.056	49.232	261.760
7000.000	0.355	207.431	-8.258	-49.402	6998.755	0.872	-8.258	50.088	260.511
7100.000	0.421	143.765	-8.829	-49.328	7098.753	0.413	-8.829	50.112	259.853

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