



Company: Noble Energy
Rig: Production/ CoreTech
API # 05-123-28034
Date: 4/24/2013
Surveyor: Sean Bratt
VS: 0.000
Lat : 40.5751
Long: -104.52332

Well: Shable 14-23
Location: Weld County, Colorado
North Reference: GRID
Convergence: Grid north is -0.63 of True North
Declination: 8.5 Degrees
Depth Reference: Ground Level
Elevation: 4811 Feet
Total Depth as Drilled: 7237 Feet

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
100.000	0.491	275.805	0.043	-0.426	99.999	0.491	0.043	0.428	275.805
200.000	0.287	300.119	0.213	-1.069	199.996	0.258	0.213	1.090	281.240
300.000	0.359	227.477	0.126	-1.517	299.995	0.387	0.126	1.523	274.763
400.000	0.376	279.343	-0.032	-2.072	399.993	0.322	-0.032	2.072	269.108
500.000	0.260	286.194	0.084	-2.614	499.992	0.122	0.084	2.615	271.847
600.000	0.291	224.010	-0.035	-3.008	599.991	0.286	-0.035	3.009	269.330
700.000	0.280	295.056	-0.115	-3.406	699.990	0.332	-0.115	3.408	268.074
800.000	0.347	214.405	-0.261	-3.799	799.989	0.409	-0.261	3.808	266.069
900.000	0.432	178.836	-0.888	-3.962	899.987	0.251	-0.888	4.061	257.368
1000.000	0.314	245.159	-1.380	-4.203	999.985	0.420	-1.380	4.424	251.823
1100.000	0.633	216.020	-1.942	-4.777	1099.982	0.390	-1.942	5.157	247.874
1200.000	0.919	212.506	-3.065	-5.533	1199.972	0.289	-3.065	6.325	241.013
1300.000	1.065	211.146	-4.537	-6.445	1299.957	0.148	-4.537	7.881	234.854
1400.000	1.024	212.395	-6.087	-7.404	1399.941	0.047	-6.087	9.585	230.576
1500.000	0.920	216.498	-7.487	-8.360	1499.926	0.125	-7.487	11.223	228.155
1600.000	0.779	194.557	-8.790	-9.009	1599.916	0.352	-8.790	12.587	225.703
1700.000	0.888	208.533	-10.129	-9.550	1699.905	0.230	-10.129	13.921	223.314
1800.000	0.741	209.001	-11.375	-10.233	1799.895	0.147	-11.375	15.300	221.976
1900.000	0.633	197.313	-12.468	-10.711	1899.888	0.176	-12.468	16.437	220.665
2000.000	0.660	239.565	-13.287	-11.372	1999.882	0.467	-13.287	17.489	220.559
2100.000	1.132	256.936	-13.802	-12.831	2099.870	0.539	-13.802	18.845	222.910
2200.000	1.291	247.350	-14.459	-14.832	2199.847	0.257	-14.459	20.714	225.729
2300.000	1.295	227.952	-15.650	-16.711	2299.822	0.436	-15.650	22.894	226.878
2400.000	1.493	227.064	-17.293	-18.503	2399.793	0.199	-17.293	25.326	226.935
2500.000	1.444	235.065	-18.902	-20.489	2499.760	0.210	-18.902	27.877	227.307
2600.000	1.555	235.793	-20.387	-22.645	2599.726	0.113	-20.387	30.470	228.004
2700.000	1.168	235.710	-21.724	-24.609	2699.697	0.387	-21.724	32.826	228.563
2800.000	0.916	237.080	-22.733	-26.123	2799.681	0.253	-22.733	34.629	228.969
2900.000	0.657	245.501	-23.405	-27.315	2899.671	0.283	-23.405	35.971	229.409
3000.000	0.554	257.867	-23.744	-28.310	2999.666	0.166	-23.744	36.949	230.012
3100.000	0.476	256.077	-23.946	-29.186	3099.662	0.079	-23.946	37.753	230.633
3200.000	0.630	253.622	-24.201	-30.117	3199.657	0.155	-24.201	38.636	231.216
3300.000	0.557	260.417	-24.437	-31.123	3299.652	0.101	-24.437	39.571	231.862
3400.000	0.405	266.496	-24.539	-31.955	3399.648	0.160	-24.539	40.291	232.478
3500.000	0.149	132.102	-24.648	-32.211	3499.647	0.520	-24.648	40.560	232.577

3600.000	1.069	90.949	-24.751	-31.182	3599.641	0.962	-24.751	39.811	231.559
3700.000	1.281	78.264	-24.539	-29.155	3699.620	0.334	-24.539	38.108	229.914
3800.000	1.471	90.626	-24.326	-26.778	3799.591	0.351	-24.326	36.177	227.747
3900.000	1.485	120.135	-24.990	-24.374	3899.559	0.753	-24.990	34.908	224.284
4000.000	1.442	90.372	-25.649	-21.995	3999.528	0.753	-25.649	33.789	220.614
4100.000	1.473	81.370	-25.464	-19.466	4099.496	0.231	-25.464	32.053	217.396
4200.000	1.364	95.119	-25.378	-17.010	4199.466	0.356	-25.378	30.551	213.833
4300.000	1.291	102.558	-25.729	-14.725	4299.439	0.187	-25.729	29.645	209.783
4400.000	1.105	85.344	-25.896	-12.663	4399.417	0.403	-25.896	28.826	206.059
4500.000	0.801	102.405	-25.968	-11.019	4499.403	0.413	-25.968	28.209	202.994
4600.000	0.607	101.520	-26.224	-9.817	4599.396	0.194	-26.224	28.001	200.525
4700.000	0.450	134.480	-26.604	-9.018	4699.392	0.336	-26.604	28.091	198.725
4800.000	0.317	144.774	-27.105	-8.579	4799.390	0.149	-27.105	28.430	197.563
4900.000	0.331	75.038	-27.256	-8.141	4899.388	0.370	-27.256	28.446	196.629
5000.000	0.436	129.744	-27.425	-7.569	4999.386	0.364	-27.425	28.450	195.430
5100.000	0.490	148.531	-28.033	-7.054	5099.383	0.160	-28.033	28.907	194.124
5200.000	0.529	156.669	-28.822	-6.648	5199.379	0.082	-28.822	29.578	192.988
5300.000	0.522	239.372	-29.478	-6.857	5299.376	0.695	-29.478	30.265	193.094
5400.000	0.425	219.307	-29.997	-7.484	5399.373	0.191	-29.997	30.917	194.008
5500.000	0.249	213.389	-30.466	-7.838	5499.371	0.179	-30.466	31.458	194.428
5600.000	0.900	140.351	-31.252	-7.457	5599.366	0.861	-31.252	32.129	193.421
5700.000	1.114	125.071	-32.415	-6.161	5699.351	0.342	-32.415	32.995	190.761
5800.000	1.026	135.241	-33.609	-4.734	5799.334	0.209	-33.609	33.941	188.018
5900.000	0.716	146.254	-34.765	-3.757	5899.322	0.350	-34.765	34.967	186.168
6000.000	0.716	162.486	-35.880	-3.222	5999.314	0.202	-35.880	36.025	185.131
6100.000	0.800	157.192	-37.120	-2.763	6099.306	0.109	-37.120	37.222	184.257
6200.000	0.952	128.271	-38.278	-1.840	6199.294	0.462	-38.278	38.322	182.752
6300.000	0.707	162.124	-39.380	-0.998	6299.284	0.537	-39.380	39.393	181.451
6400.000	0.331	239.673	-40.114	-1.057	6399.281	0.713	-40.114	40.128	181.510
6500.000	0.749	264.059	-40.327	-1.957	6499.276	0.468	-40.327	40.374	182.778
6600.000	1.592	245.960	-40.961	-3.875	6599.255	0.911	-40.961	41.144	185.405
6700.000	2.477	238.811	-42.646	-6.993	6699.191	0.918	-42.646	43.215	189.312
6800.000	3.272	232.269	-45.511	-11.098	6799.065	0.859	-45.511	46.844	193.704
6900.000	3.975	232.204	-49.381	-16.094	6898.864	0.703	-49.381	51.938	198.051
7000.000	3.381	244.622	-52.769	-21.497	6998.659	0.990	-52.769	56.980	202.165
7100.000	3.231	244.131	-55.263	-26.697	7098.493	0.153	-55.263	61.374	205.785
7200.000	2.830	242.253	-57.642	-31.418	7198.353	0.413	-57.642	65.648	208.593

