



Company: Noble Energy
 Rig: Production/CoreTech
 API # 05-123-23806
 Date: 1/7/2014
 Surveyor: Randy Holcomb
 VS: 0.000
 Lat : 40.488
 Long: -104.482

Well: Strohauer 18-24
 Location: Weld County, Colorado
 North Reference: GRID
 Convergence: Grid north is 0.66 East of True North
 Declination: 8.37
 Depth Reference: Ground Level
 Elevation: 4656 Feet
 Total Depth as Drilled: 7008 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	0.667	199.712	-0.548	-0.196	99.998	0.667	-0.548	0.582	199.712
200.000	0.097	77.351	-1.077	-0.310	199.996	0.724	-1.077	1.121	196.037
300.000	0.356	317.546	-0.829	-0.436	299.995	0.413	-0.829	0.937	207.755
400.000	0.347	356.281	-0.298	-0.666	399.993	0.233	-0.298	0.729	245.896
500.000	0.265	23.467	0.217	-0.593	499.992	0.164	0.217	0.631	290.055
600.000	0.083	289.095	0.452	-0.569	599.992	0.284	0.452	0.727	308.485
700.000	0.189	90.020	0.476	-0.472	699.991	0.269	0.476	0.670	315.235
800.000	0.669	115.814	0.222	0.218	799.988	0.505	0.222	0.311	44.553
900.000	0.686	113.137	-0.268	1.294	899.981	0.036	-0.268	1.322	101.683
1000.000	0.643	117.831	-0.765	2.341	999.975	0.069	-0.765	2.463	108.094
1100.000	0.436	73.621	-0.920	3.203	1099.971	0.449	-0.920	3.332	106.024
1200.000	0.524	85.690	-0.778	4.023	1199.967	0.134	-0.778	4.098	100.947
1300.000	0.485	76.386	-0.644	4.890	1299.963	0.091	-0.644	4.933	97.505
1400.000	0.453	61.719	-0.357	5.650	1399.960	0.124	-0.357	5.661	93.619
1500.000	0.374	50.884	0.036	6.252	1499.957	0.111	0.036	6.252	89.669
1600.000	0.340	37.343	0.478	6.685	1599.955	0.091	0.478	6.702	85.909
1700.000	0.192	336.516	0.868	6.798	1699.954	0.298	0.868	6.853	82.724
1800.000	0.460	17.974	1.404	6.855	1799.953	0.341	1.404	6.997	78.423
1900.000	0.425	351.549	2.153	6.924	1899.950	0.205	2.153	7.252	72.727
2000.000	0.399	0.615	2.868	6.874	1999.947	0.070	2.868	7.448	67.353
2100.000	0.408	0.360	3.572	6.880	2099.945	0.010	3.572	7.752	62.559
2200.000	0.471	345.686	4.327	6.780	2199.942	0.128	4.327	8.043	57.458
2300.000	0.281	29.256	4.938	6.799	2299.940	0.330	4.938	8.403	54.007
2400.000	0.210	329.756	5.310	6.826	2399.939	0.251	5.310	8.648	52.118
2500.000	0.380	33.549	5.745	6.917	2499.938	0.344	5.745	8.992	50.286
2600.000	0.329	36.886	6.252	7.273	2599.936	0.055	6.252	9.591	49.318
2700.000	0.173	23.183	6.621	7.505	2699.935	0.166	6.621	10.008	48.582
2800.000	0.568	50.004	7.078	7.944	2799.933	0.421	7.078	10.640	48.299
2900.000	0.111	25.100	7.484	8.365	2899.931	0.470	7.484	11.225	48.180
3000.000	0.221	3.766	7.764	8.419	2999.930	0.124	7.764	11.452	47.316
3100.000	0.231	317.759	8.105	8.296	3099.930	0.177	8.105	11.598	45.665
3200.000	1.189	290.111	8.611	7.186	3199.921	0.990	8.611	11.216	39.846
3300.000	2.852	281.896	9.481	3.778	3299.856	1.684	9.481	10.206	21.727
3400.000	3.252	286.844	10.815	-1.371	3399.714	0.479	10.815	10.902	352.776
3500.000	3.137	289.796	12.564	-6.660	3499.558	0.201	12.564	14.220	332.072
3600.000	3.420	287.659	14.396	-12.077	3599.395	0.308	14.396	18.791	320.005
3700.000	3.803	282.128	15.997	-18.162	3699.196	0.517	15.997	24.202	311.374

3800.000	4.342	279.134	17.295	-25.141	3798.943	0.580	17.295	30.516	304.524
3900.000	4.159	284.072	18.778	-32.397	3898.669	0.409	18.778	37.445	300.097
4000.000	3.606	281.191	20.270	-38.999	3998.439	0.586	20.270	43.952	297.463
4100.000	3.103	282.190	21.451	-44.730	4098.267	0.506	21.451	49.607	295.622
4200.000	2.037	276.709	22.231	-49.140	4198.165	1.093	22.231	53.935	294.342
4300.000	1.724	270.159	22.442	-52.409	4298.112	0.379	22.442	57.012	293.181
4400.000	0.645	174.644	21.887	-53.861	4398.095	1.898	21.887	58.138	292.114
4500.000	0.623	161.356	20.812	-53.635	4498.089	0.148	20.812	57.531	291.207
4600.000	0.503	126.455	20.036	-53.108	4598.084	0.356	20.036	56.762	290.670
4700.000	0.781	88.855	19.789	-52.074	4698.078	0.490	19.789	55.707	290.807
4800.000	0.634	63.393	20.050	-50.898	4798.071	0.343	20.050	54.705	291.501
4900.000	0.621	51.764	20.633	-49.978	4898.065	0.128	20.633	54.069	292.433
5000.000	0.663	30.600	21.466	-49.258	4998.059	0.239	21.466	53.732	293.548
5100.000	0.855	10.746	22.697	-48.824	5098.050	0.323	22.697	53.842	294.932
5200.000	1.292	4.992	24.553	-48.587	5198.032	0.450	24.553	54.438	296.809
5300.000	1.652	358.015	27.116	-48.539	5297.999	0.401	27.116	55.600	299.190
5400.000	0.796	357.958	29.251	-48.613	5397.976	0.855	29.251	56.735	301.035
5500.000	0.459	43.210	30.237	-48.364	5497.970	0.575	30.237	57.038	302.014
5600.000	0.617	101.811	30.419	-47.563	5597.966	0.544	30.419	56.458	302.601
5700.000	0.800	102.135	30.162	-46.354	5697.959	0.183	30.162	55.303	303.052
5800.000	0.861	118.438	29.658	-45.011	5797.948	0.243	29.658	53.903	303.381
5900.000	0.929	116.760	28.935	-43.626	5897.936	0.074	28.935	52.350	303.554
6000.000	1.145	118.197	28.098	-42.022	5997.920	0.217	28.098	50.550	303.769
6100.000	1.267	114.540	27.167	-40.136	6097.897	0.144	27.167	48.466	304.093
6200.000	1.386	111.246	26.270	-38.004	6197.871	0.141	26.270	46.199	304.654
6300.000	1.253	113.542	25.395	-35.874	6297.844	0.142	25.395	43.953	305.294
6400.000	1.554	127.695	24.129	-33.799	6397.814	0.457	24.129	41.528	305.523
6500.000	1.528	104.546	22.965	-31.435	6497.779	0.619	22.965	38.930	306.150
6600.000	1.897	102.174	22.281	-28.527	6597.734	0.375	22.281	36.197	307.992
6700.000	1.828	100.237	21.648	-25.339	6697.681	0.093	21.648	33.328	310.509