



Company: Noble Energy

Rig: Production/CoreTech

API # 05-123-16259

Date: 1/10/2014

Surveyor: Randy Holcomb

VS: 0.000

Lat : 40.318

Long: -104.770

Well: Kawata 15-22

Location: Weld County, Colorado

North Reference: GRID

Convergence: Grid north is -0.47 East of True North

Declination: 8.52

Depth Reference: Ground Level

Elevation: 4721

Total Depth as Drilled: 7360 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	0.147	352.416	0.127	-0.017	100.000	0.147	0.127	0.128	352.416
200.000	0.111	244.177	0.212	-0.121	200.000	0.210	0.212	0.244	330.353
300.000	0.174	270.034	0.170	-0.360	299.999	0.089	0.170	0.398	295.312
400.000	0.675	280.917	0.282	-1.091	399.996	0.505	0.282	1.127	284.490
500.000	0.631	259.169	0.290	-2.211	499.990	0.250	0.290	2.230	277.473
600.000	0.671	276.081	0.249	-3.334	599.984	0.196	0.249	3.344	274.263
700.000	0.651	249.622	0.113	-4.449	699.977	0.303	0.113	4.450	271.454
800.000	0.618	270.555	-0.080	-5.520	799.971	0.233	-0.080	5.521	269.174
900.000	0.876	248.948	-0.349	-6.773	899.963	0.378	-0.349	6.782	267.050
1000.000	1.031	247.612	-0.966	-8.319	999.949	0.156	-0.966	8.375	263.373
1100.000	1.262	251.574	-1.657	-10.196	1099.929	0.245	-1.657	10.330	260.767
1200.000	1.731	265.212	-2.132	-12.746	1199.895	0.586	-2.132	12.923	260.506
1300.000	2.043	267.976	-2.321	-16.033	1299.840	0.325	-2.321	16.200	261.764
1400.000	2.173	281.772	-1.997	-19.670	1399.773	0.522	-1.997	19.771	264.203
1500.000	2.122	283.875	-1.166	-23.323	1499.703	0.094	-1.166	23.352	267.137
1600.000	2.160	291.190	-0.041	-26.878	1599.634	0.276	-0.041	26.878	269.913
1700.000	2.315	299.540	1.636	-30.392	1699.558	0.360	1.636	30.436	273.081
1800.000	2.457	308.892	3.978	-33.818	1799.471	0.414	3.978	34.051	276.708
1900.000	2.536	315.442	6.900	-37.039	1899.376	0.296	6.900	37.676	280.553
2000.000	2.478	329.337	10.336	-39.694	1999.282	0.609	10.336	41.018	284.596
2100.000	2.507	343.315	14.291	-41.424	2099.188	0.607	14.291	43.820	289.034
2200.000	2.242	354.785	18.335	-42.230	2199.103	0.543	18.335	46.039	293.469
2300.000	2.029	5.685	22.045	-42.233	2299.033	0.458	22.045	47.640	297.564
2400.000	1.732	13.780	25.274	-41.697	2398.980	0.398	25.274	48.759	301.222
2500.000	1.603	20.718	28.051	-40.842	2498.937	0.239	28.051	49.547	304.482
2600.000	1.458	14.342	30.592	-40.032	2598.902	0.224	30.592	50.383	307.387
2700.000	1.372	18.795	32.958	-39.331	2698.871	0.140	32.958	51.315	309.962
2800.000	1.131	23.252	34.998	-38.556	2798.847	0.259	34.998	52.071	312.230
2900.000	0.747	58.124	36.249	-37.613	2898.835	0.671	36.249	52.237	313.942
3000.000	0.718	73.177	36.775	-36.459	2998.826	0.194	36.775	51.785	315.247
3100.000	0.821	82.942	37.044	-35.148	3098.817	0.166	37.044	51.065	316.505
3200.000	0.605	122.688	36.847	-33.992	3198.810	0.526	36.847	50.132	317.308
3300.000	0.956	197.943	35.769	-33.805	3298.803	0.992	35.769	49.216	316.617
3400.000	1.513	229.975	34.126	-35.073	3398.781	0.866	34.126	48.936	314.216
3500.000	1.510	227.955	32.395	-37.062	3498.746	0.053	32.395	49.224	311.156
3600.000	1.468	228.385	30.662	-38.999	3598.712	0.043	30.662	49.609	308.175
3700.000	1.439	218.899	28.833	-40.745	3698.680	0.242	28.833	49.915	305.285

3800.000	1.452	220.913	26.898	-42.364	3798.648	0.052	26.898	50.182	302.413
3900.000	1.500	232.914	25.152	-44.237	3898.615	0.312	25.152	50.888	299.621
4000.000	1.547	216.926	23.284	-46.092	3998.580	0.426	23.284	51.639	296.801
4100.000	1.744	186.065	20.691	-47.064	4098.541	0.896	20.691	51.411	293.733
4200.000	1.600	198.777	17.857	-47.674	4198.499	0.397	17.857	50.908	290.534
4300.000	1.185	188.042	15.511	-48.268	4298.469	0.488	15.511	50.699	287.815
4400.000	0.806	185.234	13.787	-48.477	4398.454	0.382	13.787	50.399	285.876
4500.000	0.909	186.236	12.297	-48.627	4498.443	0.104	12.297	50.158	284.192
4600.000	1.502	205.597	10.326	-49.279	4598.420	0.711	10.326	50.350	281.835
4700.000	1.588	191.683	7.787	-50.126	4698.384	0.384	7.787	50.728	278.830
4800.000	1.913	184.889	4.767	-50.549	4798.338	0.385	4.767	50.774	275.387
4900.000	1.766	189.614	1.584	-50.949	4898.286	0.211	1.584	50.974	271.780
5000.000	1.430	191.778	-1.157	-51.461	4998.247	0.342	-1.157	51.474	268.712
5100.000	1.227	191.156	-3.430	-51.923	5098.220	0.203	-3.430	52.036	266.221
5200.000	0.984	191.877	-5.320	-52.307	5198.201	0.244	-5.320	52.577	264.192
5300.000	0.840	193.543	-6.873	-52.655	5298.189	0.146	-6.873	53.102	262.564
5400.000	0.745	200.688	-8.194	-53.056	5398.179	0.136	-8.194	53.685	261.221
5500.000	0.749	209.720	-9.370	-53.610	5498.171	0.118	-9.370	54.423	260.086
5600.000	0.733	267.853	-9.961	-54.573	5598.164	0.720	-9.961	55.475	259.656
5700.000	1.128	280.867	-9.800	-56.179	5698.150	0.446	-9.800	57.027	260.105
5800.000	0.463	252.902	-9.733	-57.532	5798.141	0.751	-9.733	58.350	260.398
5900.000	0.982	236.186	-10.329	-58.631	5898.132	0.555	-10.329	59.533	260.009
6000.000	1.051	276.023	-10.709	-60.255	5998.118	0.696	-10.709	61.199	259.922
6100.000	0.493	271.192	-10.604	-61.597	6098.108	0.561	-10.604	62.503	260.232
6200.000	0.805	243.327	-10.911	-62.655	6198.102	0.435	-10.911	63.598	260.122
6300.000	1.072	268.428	-11.252	-64.218	6298.089	0.484	-11.252	65.196	260.062
6400.000	0.575	236.441	-11.555	-65.571	6398.079	0.659	-11.555	66.581	260.006
6500.000	0.347	250.399	-11.934	-66.275	6498.076	0.253	-11.934	67.341	259.792
6600.000	0.429	261.463	-12.091	-66.930	6598.073	0.111	-12.091	68.014	259.760
6700.000	0.683	254.014	-12.311	-67.874	6698.068	0.264	-12.311	68.981	259.719
6800.000	0.604	243.967	-12.707	-68.921	6798.062	0.138	-12.707	70.082	259.554
6900.000	0.714	256.055	-13.088	-70.000	6898.056	0.177	-13.088	71.213	259.409
7000.000	0.506	268.633	-13.249	-71.046	6998.050	0.247	-13.249	72.271	259.436
7100.000	0.450	274.605	-13.228	-71.878	7098.046	0.074	-13.228	73.085	259.572
7150.000	0.219	297.026	-13.169	-72.159	7148.046	0.523	-13.169	73.351	259.657