



Company: Noble Energy

Well: Highland 12-20

Rig: Production/Coretech

Location: Weld County, Colorado

API # 05-123-22168

North Reference: GRID

Date: 6/13/2014

Convergence: Grid north is 0.59 East of True North

Surveyor: Randy Holcomb

Declination: 8.36

VS: 0.000

Depth Reference: Ground Level

Lat : 40.296

Elevation: 4768 Feet

Long: -104.582

Total Depth as Drilled: 7160 Feet

Lat & Long obtained by handheld GPS at wellhead

Field copy only not definitive.

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	0.174	46.763	0.104	0.111	100.000	0.174	0.104	0.152	46.763
200.000	0.087	79.387	0.222	0.296	200.000	0.111	0.222	0.370	53.135
300.000	0.165	119.773	0.164	0.496	299.999	0.114	0.164	0.522	71.674
400.000	0.145	86.085	0.101	0.747	399.999	0.092	0.101	0.754	82.283
500.000	0.241	83.145	0.135	1.083	499.998	0.097	0.135	1.091	82.890
600.000	0.377	131.217	-0.057	1.539	599.997	0.281	-0.057	1.540	92.113
700.000	0.407	144.570	-0.563	1.993	699.995	0.096	-0.563	2.071	105.785
800.000	0.387	144.425	-1.128	2.396	799.992	0.021	-1.128	2.648	115.207
900.000	0.432	147.708	-1.721	2.793	899.990	0.051	-1.721	3.281	121.636
1000.000	0.513	149.600	-2.426	3.222	999.986	0.083	-2.426	4.033	126.983
1100.000	0.770	144.651	-3.361	3.837	1099.980	0.262	-3.361	5.101	131.213
1200.000	0.826	131.409	-4.386	4.767	1199.970	0.192	-4.386	6.478	132.617
1300.000	0.723	135.372	-5.312	5.751	1299.961	0.117	-5.312	7.828	132.727
1400.000	0.919	140.975	-6.384	6.699	1399.951	0.212	-6.384	9.253	133.620
1500.000	0.741	142.998	-7.523	7.593	1499.940	0.181	-7.523	10.689	134.735
1600.000	0.858	141.257	-8.623	8.451	1599.931	0.119	-8.623	12.074	135.580
1700.000	0.784	131.802	-9.663	9.429	1699.920	0.154	-9.663	13.501	135.703
1800.000	0.766	103.790	-10.278	10.587	1799.912	0.375	-10.278	14.756	134.151
1900.000	1.212	80.656	-10.266	12.280	1899.897	0.591	-10.266	16.006	129.894
2000.000	1.785	72.532	-9.626	14.809	1999.862	0.609	-9.626	17.663	123.025
2100.000	1.840	68.829	-8.579	17.792	2099.812	0.130	-8.579	19.752	115.743
2200.000	1.949	70.827	-7.441	20.896	2199.758	0.127	-7.441	22.181	109.600
2300.000	2.210	70.924	-6.252	24.324	2299.692	0.261	-6.252	25.115	104.415
2400.000	2.334	75.898	-5.126	28.122	2399.613	0.233	-5.126	28.585	100.330
2500.000	2.470	75.695	-4.097	32.185	2499.525	0.136	-4.097	32.444	97.255
2600.000	2.765	74.380	-2.915	36.595	2599.421	0.301	-2.915	36.711	94.555
2700.000	2.884	76.342	-1.672	41.363	2699.299	0.154	-1.672	41.397	92.314
2800.000	2.789	78.587	-0.596	46.192	2799.177	0.146	-0.596	46.196	90.740
2900.000	2.820	73.484	0.585	50.936	2899.057	0.252	0.585	50.939	89.343
3000.000	2.483	71.962	1.955	55.354	2998.950	0.345	1.955	55.388	87.978
3100.000	2.405	69.818	3.349	59.382	3098.859	0.120	3.349	59.477	86.772
3200.000	2.089	62.194	4.923	62.964	3198.782	0.434	4.923	63.156	85.529
3300.000	2.019	56.629	6.743	66.048	3298.718	0.211	6.743	66.391	84.171
3400.000	1.954	41.019	8.998	68.638	3398.659	0.543	8.998	69.226	82.531
3500.000	2.494	23.615	12.279	70.629	3498.584	0.859	12.279	71.688	80.138
3600.000	3.451	18.291	17.130	72.445	3598.449	0.994	17.130	74.443	76.697
3700.000	3.896	19.683	23.186	74.534	3698.243	0.454	23.186	78.057	72.720

3800.000	4.043	18.280	29.732	76.784	3798.003	0.176	29.732	82.339	68.833
3900.000	3.999	19.060	36.375	79.028	3897.757	0.070	36.375	86.998	65.284
4000.000	3.512	17.796	42.587	81.103	3997.542	0.493	42.587	91.605	62.296
4100.000	2.776	20.650	47.770	82.893	4097.391	0.753	47.770	95.673	60.046
4200.000	2.515	17.739	52.125	84.416	4197.284	0.293	52.125	99.212	58.306
4300.000	2.112	13.974	56.003	85.529	4297.203	0.430	56.003	102.233	56.784
4400.000	2.011	18.005	59.460	86.516	4397.138	0.176	59.460	104.979	55.501
4500.000	1.863	28.480	62.557	87.834	4497.081	0.383	62.557	107.834	54.541
4600.000	1.213	53.366	64.618	89.459	4597.046	0.917	64.618	110.355	54.159
4700.000	1.282	81.029	65.424	91.413	4697.023	0.600	65.424	112.413	54.409
4800.000	1.935	94.527	65.465	94.201	4796.983	0.751	65.465	114.715	55.203
4900.000	1.936	94.872	65.188	97.567	4896.926	0.012	65.188	117.341	56.252
5000.000	2.021	96.023	64.860	101.004	4996.867	0.094	64.860	120.036	57.293
5100.000	1.238	108.524	64.332	103.782	5096.826	0.855	64.332	122.103	58.206
5200.000	0.913	131.268	63.463	105.405	5196.808	0.531	63.463	123.035	58.948
5300.000	0.744	135.883	62.472	106.455	5296.798	0.182	62.472	123.432	59.594
5400.000	0.787	141.945	61.466	107.330	5396.789	0.092	61.466	123.684	60.201
5500.000	0.869	150.816	60.263	108.123	5496.779	0.152	60.263	123.783	60.867
5600.000	0.743	159.073	58.995	108.724	5596.769	0.171	58.995	123.699	61.515
5700.000	0.546	155.498	57.956	109.154	5696.762	0.201	57.956	123.585	62.034
5800.000	0.365	114.892	57.388	109.640	5796.759	0.359	57.388	123.751	62.372
5900.000	0.425	99.204	57.194	110.295	5896.757	0.123	57.194	124.242	62.591
6000.000	0.243	87.863	57.143	110.873	5996.755	0.193	57.143	124.732	62.734
6100.000	0.243	62.788	57.248	111.273	6096.754	0.106	57.248	125.136	62.775
6200.000	0.303	62.739	57.466	111.698	6196.753	0.060	57.466	125.613	62.775
6300.000	0.449	33.076	57.916	112.147	6296.751	0.239	57.916	126.219	62.687
6400.000	0.421	25.685	58.576	112.520	6396.748	0.063	58.576	126.854	62.499
6500.000	0.399	32.374	59.201	112.866	6496.746	0.053	59.201	127.449	62.322
6600.000	0.376	42.977	59.734	113.276	6596.743	0.075	59.734	128.061	62.196
6700.000	0.362	59.831	60.133	113.772	6696.741	0.109	60.133	128.685	62.142
6800.000	0.451	60.957	60.482	114.389	6796.739	0.090	60.482	129.394	62.133
6900.000	0.476	67.682	60.831	115.117	6896.736	0.060	60.831	130.201	62.147