



Company: Noble Energy
Rig: Production/Coretech
API # 05-123-25800
Date: 9/17/13
Surveyor: Levi Sheldon
VS: 0.000
Lat : 40.258
Long: -104.607

Well: Houndskeeper H01-17
Location: Weld County, Colorado
North Reference: GRID
Convergence: GRID North is 0.580 Degrees East
Declination: 8.46
Depth Reference: Ground Level
Elevation: 4,866 Feet
Total Depth as Drilled: 7,264 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	0.000
100.000	0.234	5.657	0.204	0.020	100.000	0.234	0.204	0.205	5.657
200.000	0.172	69.418	0.460	0.181	199.999	0.221	0.460	0.494	21.459
300.000	0.090	40.271	0.572	0.372	299.999	0.103	0.572	0.682	33.009
400.000	0.412	70.588	0.752	0.762	399.998	0.338	0.752	1.070	45.381
500.000	0.348	22.089	1.153	1.215	499.996	0.318	1.153	1.675	46.508
600.000	0.574	26.799	1.882	1.555	599.993	0.228	1.882	2.441	39.577
700.000	0.659	50.154	2.697	2.223	699.987	0.263	2.697	3.495	39.493
800.000	1.088	45.275	3.734	3.339	799.975	0.435	3.734	5.009	41.805
900.000	1.084	55.406	4.939	4.792	899.957	0.192	4.939	6.881	44.136
1000.000	1.271	56.286	6.091	6.493	999.936	0.188	6.091	8.903	46.829
1100.000	1.668	51.653	7.610	8.557	1099.903	0.415	7.610	11.452	48.353
1200.000	1.879	51.189	9.541	10.977	1199.855	0.211	9.541	14.544	49.003
1300.000	2.155	47.683	11.834	13.645	1299.793	0.302	11.834	18.062	49.064
1400.000	2.422	47.438	14.529	16.591	1399.713	0.267	14.529	22.054	48.790
1500.000	2.908	49.100	17.619	20.065	1499.605	0.493	17.619	26.703	48.713
1600.000	3.280	48.194	21.187	24.115	1599.459	0.375	21.187	32.100	48.697
1700.000	3.443	48.356	25.089	28.491	1699.287	0.164	25.089	37.963	48.632
1800.000	3.408	49.387	29.020	32.991	1799.108	0.071	29.020	43.938	48.665
1900.000	3.483	48.540	32.966	37.524	1898.927	0.091	32.966	49.948	48.700
2000.000	3.272	48.127	36.882	41.925	1998.754	0.212	36.882	55.839	48.662
2100.000	2.923	46.865	40.530	45.911	2098.607	0.356	40.530	61.241	48.562
2200.000	2.499	39.209	43.962	49.150	2198.496	0.557	43.962	65.942	48.189
2300.000	1.961	41.860	46.926	51.670	2298.419	0.547	46.926	69.799	47.755
2400.000	1.681	29.353	49.479	53.531	2398.369	0.485	49.479	72.896	47.252
2500.000	1.619	44.902	51.758	55.247	2498.328	0.451	51.758	75.704	46.867
2600.000	2.101	54.024	53.836	57.728	2598.275	0.565	53.836	78.935	46.998
2700.000	2.129	55.409	55.967	60.741	2698.207	0.058	55.967	82.594	47.342
2800.000	2.099	55.211	58.067	63.774	2798.139	0.032	58.067	86.249	47.682
2900.000	2.432	55.096	60.326	67.018	2898.061	0.334	60.326	90.170	48.008
3000.000	2.188	56.830	62.584	70.356	2997.980	0.254	62.584	94.163	48.346
3100.000	1.645	60.914	64.326	73.208	3097.923	0.559	64.326	97.454	48.695
3200.000	1.313	60.035	65.597	75.456	3197.890	0.333	65.597	99.982	48.998
3300.000	0.553	20.724	66.621	76.619	3297.877	0.952	66.621	101.533	48.993
3400.000	0.640	320.890	67.506	76.438	3397.872	0.600	67.506	101.979	48.551

3500.000	0.686	318.588	68.388	75.690	3497.866	0.053	68.388	102.009	47.901
3600.000	0.374	331.764	69.125	75.139	3597.861	0.333	69.125	102.099	47.387
3700.000	0.311	355.635	69.683	74.964	3697.859	0.154	69.683	102.349	47.091
3800.000	0.346	12.573	70.248	75.009	3797.858	0.103	70.248	102.768	46.877
3900.000	0.547	42.271	70.897	75.396	3897.855	0.300	70.897	103.494	46.762
4000.000	0.730	60.178	71.567	76.270	3997.849	0.268	71.567	104.590	46.822
4100.000	1.427	83.132	72.033	78.059	4097.831	0.807	72.033	106.216	47.299
4200.000	1.556	100.207	71.941	80.631	4197.797	0.461	71.941	108.059	48.260
4300.000	2.042	96.559	71.497	83.737	4297.748	0.500	71.497	110.108	49.509
4400.000	1.671	88.111	71.341	86.965	4397.695	0.460	71.341	112.483	50.636
4500.000	2.036	76.230	71.812	90.147	4497.643	0.528	71.812	115.254	51.459
4600.000	1.908	99.140	71.971	93.516	4597.586	0.793	71.971	118.004	52.418
4700.000	2.564	115.315	70.750	97.181	4697.510	0.904	70.750	120.207	53.945
4800.000	2.619	117.715	68.731	101.226	4797.408	0.122	68.731	122.354	55.824
4900.000	2.291	122.251	66.601	104.939	4897.316	0.381	66.601	124.290	57.598
5000.000	2.210	132.720	64.226	108.046	4997.239	0.418	64.226	125.694	59.271
5100.000	2.286	125.055	61.773	111.095	5097.162	0.310	61.773	127.114	60.924
5200.000	2.316	125.131	59.465	114.380	5197.082	0.031	59.465	128.914	62.531
5300.000	2.286	119.252	57.327	117.773	5297.001	0.238	57.327	130.984	64.045
5400.000	2.268	111.392	55.631	121.356	5396.922	0.313	55.631	133.499	65.373
5500.000	2.419	108.655	54.234	125.198	5496.839	0.187	54.234	136.440	66.578
5600.000	2.642	104.359	52.987	129.430	5596.741	0.293	52.987	139.856	67.736
5700.000	2.974	96.815	52.108	134.239	5696.621	0.496	52.108	143.998	68.785
5800.000	2.741	90.842	51.765	139.206	5796.497	0.378	51.765	148.519	69.602
5900.000	2.078	78.343	52.096	143.373	5896.409	0.842	52.096	152.544	70.031
6000.000	1.877	87.704	52.528	146.785	5996.350	0.380	52.528	155.901	70.310
6100.000	1.490	99.477	52.380	149.703	6096.307	0.517	52.380	158.603	70.716
6200.000	1.135	109.017	51.843	151.922	6196.280	0.415	51.843	160.524	71.158
6300.000	0.495	83.203	51.571	153.287	6296.270	0.722	51.571	161.730	71.405
6400.000	0.658	110.361	51.423	154.255	6396.265	0.314	51.423	162.600	71.564
6500.000	0.335	45.985	51.426	155.003	6496.262	0.596	51.426	163.312	71.646
6600.000	0.205	280.411	51.661	155.038	6596.261	0.483	51.661	163.418	71.571
6700.000	0.118	335.378	51.787	154.819	6696.261	0.168	51.787	163.251	71.505
6800.000	0.506	313.739	52.185	154.458	6796.259	0.399	52.185	163.035	71.332
6900.000	0.896	292.993	52.795	153.419	6896.252	0.459	52.795	162.249	71.010
7000.000	1.323	322.795	54.020	152.002	6996.233	0.704	54.020	161.316	70.435
7050.000	1.531	324.273	55.022	151.263	7046.218	0.423	55.022	160.959	70.011

of True North