



**Company:** Noble Energy  
**Rig:** Production/Coretech  
**API #** 05-123-26935  
**Date:** 12/3/13  
**Surveyor:** Levi Sheldon  
**VS:** 0.000  
**Lat :** 40.519  
**Long:** -104.827

**Well:** HKS 06-25  
**Location:** Weld County, Colorado  
**North Reference:** GRID  
**Convergence:** GRID North is 0.430 Degrees East  
**Declination:** 8.58  
**Depth Reference:** Ground Level  
**Elevation:** 4,890 Feet  
**Total Depth as Drilled:** 7,525 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	0.493	186.558	-0.427	-0.049	99.999	0.493	-0.427	0.430	186.558
200.000	0.514	181.134	-1.303	-0.107	199.995	0.052	-1.303	1.308	184.699
300.000	0.444	190.513	-2.133	-0.187	299.991	0.105	-2.133	2.141	185.003
400.000	0.389	211.179	-2.805	-0.433	399.989	0.159	-2.805	2.838	188.782
500.000	0.191	234.344	-3.193	-0.745	499.988	0.226	-3.193	3.278	193.131
600.000	0.150	264.047	-3.304	-1.010	599.987	0.096	-3.304	3.455	197.007
700.000	0.079	309.782	-3.273	-1.193	699.987	0.110	-3.273	3.484	200.034
800.000	0.229	349.505	-3.032	-1.283	799.987	0.176	-3.032	3.292	202.937
900.000	0.230	1.483	-2.634	-1.314	899.986	0.048	-2.634	2.944	206.519
1000.000	0.260	327.052	-2.242	-1.433	999.985	0.148	-2.242	2.661	212.576
1100.000	0.289	285.213	-1.985	-1.800	1099.984	0.198	-1.985	2.680	222.195
1200.000	0.423	284.761	-1.825	-2.400	1199.982	0.133	-1.825	3.015	232.753
1300.000	0.348	268.180	-1.741	-3.061	1299.980	0.134	-1.741	3.521	240.371
1400.000	0.492	263.472	-1.799	-3.790	1399.977	0.148	-1.799	4.196	244.609
1500.000	0.451	251.469	-1.973	-4.590	1499.974	0.107	-1.973	4.996	246.740
1600.000	0.609	249.083	-2.288	-5.460	1599.969	0.160	-2.288	5.920	247.264
1700.000	0.609	243.736	-2.713	-6.433	1699.964	0.057	-2.713	6.982	247.134
1800.000	0.653	245.709	-3.183	-7.429	1799.958	0.049	-3.183	8.082	246.810
1900.000	0.534	221.123	-3.768	-8.255	1899.952	0.278	-3.768	9.074	245.466
2000.000	0.609	236.629	-4.411	-9.005	1999.947	0.171	-4.411	10.027	243.903
2100.000	0.480	226.096	-4.993	-9.750	2099.943	0.163	-4.993	10.954	242.881
2200.000	0.541	221.645	-5.636	-10.365	2199.939	0.073	-5.636	11.799	241.464
2300.000	0.808	224.628	-6.491	-11.174	2299.932	0.269	-6.491	12.922	239.849
2400.000	0.781	226.664	-7.460	-12.165	2399.922	0.039	-7.460	14.271	238.481
2500.000	0.809	237.923	-8.303	-13.259	2499.913	0.158	-8.303	15.644	237.945
2600.000	0.942	246.023	-9.012	-14.609	2599.901	0.182	-9.012	17.165	238.330
2700.000	0.958	248.177	-9.657	-16.136	2699.887	0.039	-9.657	18.805	239.101
2800.000	1.010	248.508	-10.290	-17.731	2799.873	0.052	-10.290	20.501	239.872
2900.000	1.013	255.705	-10.831	-19.407	2899.857	0.127	-10.831	22.225	240.834
3000.000	1.035	258.938	-11.223	-21.150	2999.841	0.062	-11.223	23.943	242.048
3100.000	1.117	252.718	-11.685	-22.967	3099.824	0.143	-11.685	25.768	243.033
3200.000	1.013	224.234	-12.608	-24.514	3199.807	0.534	-12.608	27.566	242.782
3300.000	1.727	237.636	-14.048	-26.404	3299.778	0.778	-14.048	29.908	241.984
3400.000	1.770	245.062	-15.506	-29.077	3399.731	0.231	-15.506	32.954	241.930
3500.000	2.168	261.670	-16.432	-32.349	3499.673	0.691	-16.432	36.283	243.072

3600.000	2.379	261.205	-17.023	-36.272	3599.594	0.212	-17.023	40.068	244.858
3700.000	2.583	259.776	-17.740	-40.541	3699.500	0.213	-17.740	44.252	246.366
3800.000	2.871	252.000	-18.914	-45.140	3799.387	0.468	-18.914	48.943	247.266
3900.000	3.143	254.632	-20.415	-50.166	3899.250	0.305	-20.415	54.160	247.856
4000.000	3.210	250.069	-22.096	-55.441	3999.096	0.262	-22.096	59.682	248.271
4100.000	3.060	249.562	-23.982	-60.575	4098.947	0.153	-23.982	65.150	248.401
4200.000	2.643	260.629	-25.290	-65.351	4198.823	0.689	-25.290	70.074	248.844
4300.000	1.845	274.260	-25.546	-69.232	4298.746	0.955	-25.546	73.794	249.746
4400.000	1.413	294.478	-24.915	-71.959	4398.707	0.712	-24.915	76.150	250.902
4500.000	1.462	257.450	-24.682	-74.326	4498.677	0.914	-24.682	78.317	251.630
4600.000	2.343	244.798	-25.829	-77.421	4598.622	0.971	-25.829	81.616	251.550
4700.000	2.485	234.774	-27.950	-81.041	4698.533	0.445	-27.950	85.726	250.971
4800.000	2.507	239.753	-30.303	-84.702	4798.438	0.218	-30.303	89.959	250.315
4900.000	2.462	232.694	-32.706	-88.300	4898.345	0.309	-32.706	94.162	249.675
5000.000	2.212	236.298	-35.079	-91.614	4998.261	0.290	-35.079	98.100	249.048
5100.000	1.523	232.699	-36.955	-94.277	5098.208	0.699	-36.955	101.261	248.595
5200.000	1.000	226.634	-38.360	-95.969	5198.183	0.539	-38.360	103.351	248.213
5300.000	0.483	239.222	-39.175	-96.965	5298.175	0.539	-39.175	104.580	248.001
5400.000	0.812	153.116	-40.023	-97.007	5398.170	0.916	-40.023	104.939	247.580
5500.000	1.780	149.753	-41.996	-95.904	5498.143	0.970	-41.996	104.696	246.351
5600.000	1.605	143.935	-44.470	-94.298	5598.100	0.245	-44.470	104.257	244.752
5700.000	1.297	180.616	-46.733	-93.485	5698.069	0.959	-46.733	104.516	243.440
5800.000	1.484	182.424	-49.159	-93.552	5798.040	0.192	-49.159	105.682	242.279
5900.000	1.444	178.834	-51.712	-93.581	5898.007	0.100	-51.712	106.919	241.076
6000.000	1.737	181.519	-54.487	-93.596	5997.969	0.303	-54.487	108.300	239.794
6100.000	1.496	182.038	-57.307	-93.683	6097.929	0.241	-57.307	109.820	238.545
6200.000	1.397	152.832	-59.697	-93.172	6197.898	0.736	-59.697	110.656	237.352
6300.000	1.535	130.119	-61.644	-91.591	6297.866	0.593	-61.644	110.404	236.058
6400.000	1.790	143.263	-63.759	-89.633	6397.825	0.457	-63.759	109.997	234.574
6500.000	1.855	145.566	-66.346	-87.783	6497.774	0.097	-66.346	110.035	232.918
6600.000	2.476	139.980	-69.334	-85.480	6597.702	0.655	-69.334	110.064	230.954
6700.000	3.026	142.748	-73.090	-82.493	6697.587	0.566	-73.090	110.214	228.459
6800.000	3.619	138.817	-77.566	-78.817	6797.418	0.634	-77.566	110.583	225.458
6900.000	4.539	142.516	-83.081	-74.331	6897.164	0.957	-83.081	111.479	221.819
7000.000	4.601	138.109	-89.206	-69.245	6996.846	0.356	-89.206	112.928	217.820
7100.000	4.580	137.472	-95.134	-63.868	7096.526	0.055	-95.134	114.585	213.875

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