

**GyroTracer Directional:**

Date: 12/20/2018  
 Operator : Adrian Bruner  
 API : 05-123-26974  
 Well Name : **HKS 6-23**  
 Field : Noble Energy Inc  
 Tool Number: 1719  
 Bottom Depth : 6900.00  
 Total Well Depth: 7553.00  
 Latitude : 40.5178 N  
 Longitude : 104.82921 W  
 Grid Offset : 0.43  
 Datum: NAD 83

**Starting Point Coordinates (in local grid):**

Northing: 0.00      Easting: 0.00      GLE: 4877.00

**Description:**

*Azimuth measured in degrees and referenced to local grid*

*Inclination measured from Vertical*

*Length measured in US survey feet*

*Lat/Long/Elevation obtained by handheld GPS at wellhead. Device error ± 9 Feet*

*RKB = Ground Level Elevation*

Start Time: 12/20/2018 10:58

End Time: 12/20/2018 12:01

Depth	Inclination	Azimuth	Closure Direction	True Depth	Coordinates		Dogleg Severity	Closure Distance
					+N/-S	+E/-W		
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100.000	0.280	358.682	342.300	100.000	0.470	-0.150	0.280	0.493
200.000	0.706	358.329	358.946	199.996	1.258	-0.023	0.458	1.259
300.000	0.543	11.977	355.198	299.992	2.002	-0.168	0.194	2.009
400.000	0.261	10.259	354.063	399.988	2.781	-0.289	0.306	2.796
500.000	0.333	336.951	354.092	499.984	3.601	-0.373	0.264	3.620
600.000	0.828	357.899	355.284	599.980	4.464	-0.368	0.622	4.479
700.000	1.276	14.375	357.233	699.966	6.038	-0.292	0.404	6.045
800.000	1.190	26.528	0.498	799.945	8.001	0.070	0.224	8.001
900.000	0.661	49.460	4.643	899.932	9.378	0.762	0.656	9.409
1000.000	0.466	36.210	7.320	999.923	10.502	1.349	0.271	10.588
1100.000	0.308	340.678	8.742	1099.918	11.367	1.748	0.293	11.501
1200.000	0.170	342.425	9.287	1199.915	11.961	1.956	0.125	12.120
1300.000	0.561	300.884	7.786	1299.912	12.472	1.705	0.445	12.588
1400.000	0.630	306.897	5.942	1399.910	12.847	1.337	0.144	12.916
1500.000	0.500	262.128	3.138	1499.906	13.121	0.719	0.440	13.140
1600.000	0.456	261.674	0.004	1599.903	13.328	0.001	0.109	13.328
1700.000	0.749	249.824	356.303	1699.898	13.379	-0.864	0.309	13.407
1800.000	0.754	237.868	351.494	1799.890	13.204	-1.975	0.180	13.351
1900.000	0.778	275.827	346.053	1899.881	13.055	-3.242	0.514	13.451
2000.000	1.172	288.114	339.473	1999.866	13.141	-4.920	0.473	14.032
2100.000	1.163	274.936	333.089	2099.848	13.331	-6.766	0.253	14.950

2200.000	1.436	274.944	327.269	2199.828	13.593	-8.737	0.265	16.158
2300.000	1.418	254.381	320.966	2299.802	13.497	-10.943	0.455	17.376
2400.000	1.126	265.236	315.355	2399.775	13.375	-13.210	0.319	18.799
2500.000	1.400	271.425	310.238	2499.748	13.121	-15.506	0.331	20.312
2600.000	1.444	243.821	305.371	2599.716	12.724	-17.923	0.688	21.981
2700.000	1.343	250.080	300.361	2699.686	11.805	-20.153	0.300	23.356
2800.000	1.430	248.282	295.169	2799.652	10.512	-22.371	0.121	24.717
2900.000	2.228	227.077	289.288	2899.602	8.707	-24.879	0.989	26.358
3000.000	2.262	231.753	282.333	2999.521	6.106	-27.928	0.193	28.587
3100.000	2.908	226.915	276.022	3099.411	3.338	-31.639	0.734	31.815
3200.000	2.714	248.904	271.241	3199.294	0.774	-35.708	1.082	35.716
3300.000	2.929	251.118	268.091	3299.170	-1.339	-40.172	0.320	40.195
3400.000	2.781	230.055	265.468	3399.046	-3.536	-44.609	1.072	44.748
3500.000	2.603	228.844	262.448	3498.945	-6.367	-48.029	0.155	48.449
3600.000	2.721	217.774	259.242	3598.847	-9.674	-50.916	0.589	51.827
3700.000	2.340	237.521	256.437	3698.757	-12.931	-53.601	0.926	55.139
3800.000	2.249	220.754	254.196	3798.665	-16.000	-56.529	0.673	58.750
3900.000	2.668	236.615	252.578	3898.575	-18.739	-59.716	0.780	62.588
4000.000	2.279	254.615	251.126	3998.481	-21.521	-62.953	0.872	66.530
4100.000	1.840	235.505	250.091	4098.397	-23.973	-66.193	0.903	70.400
4200.000	1.792	223.542	249.467	4198.333	-25.901	-69.154	0.444	73.846
4300.000	1.863	240.808	248.754	4298.284	-27.817	-71.547	0.544	76.764
4400.000	1.973	219.214	248.020	4398.229	-29.893	-74.063	0.707	79.868
4500.000	2.052	225.059	247.171	4498.161	-32.333	-76.809	0.233	83.337
4600.000	1.795	236.038	246.473	4598.101	-34.561	-79.384	0.409	86.581
4700.000	1.367	210.314	245.948	4698.060	-36.390	-81.534	0.811	89.286
4800.000	1.299	233.722	245.279	4798.030	-38.234	-83.047	0.542	91.425
4900.000	1.058	229.466	244.832	4898.001	-39.834	-84.776	0.352	93.668
5000.000	1.437	242.438	244.655	4997.977	-40.987	-86.532	0.625	95.748
5100.000	0.825	223.467	244.496	5097.957	-42.044	-88.131	0.717	97.646
5200.000	0.450	181.665	244.167	5197.951	-42.912	-88.636	0.532	98.477
5300.000	0.680	221.458	243.816	5297.946	-43.730	-88.932	0.424	99.102
5400.000	0.278	146.323	243.318	5397.940	-44.680	-88.904	0.610	99.500
5500.000	0.712	168.580	242.752	5497.933	-45.614	-88.572	0.451	99.627
5600.000	1.375	106.085	241.985	5597.918	-46.381	-87.173	1.235	98.744
5700.000	1.692	81.352	241.049	5697.864	-46.438	-83.946	0.733	95.935
5800.000	1.326	109.530	240.228	5797.838	-46.770	-81.760	0.818	94.192
5900.000	0.892	145.208	239.312	5897.821	-47.900	-80.711	0.778	93.855
6000.000	1.369	168.236	238.235	5997.804	-49.584	-80.079	0.693	94.187
6100.000	0.967	153.341	237.032	6097.783	-51.331	-79.140	0.395	94.330
6200.000	1.635	130.397	235.660	6197.756	-53.130	-77.768	0.802	94.184
6300.000	1.270	119.750	234.264	6297.725	-54.617	-75.906	0.435	93.513
6400.000	1.528	129.497	232.790	6397.690	-55.928	-73.656	0.527	92.484
6500.000	1.610	107.053	231.170	6497.647	-57.213	-71.082	0.675	91.247
6600.000	2.212	103.880	229.351	6597.593	-58.485	-68.117	0.140	89.780
6700.000	2.422	108.786	227.321	6697.522	-59.495	-64.522	0.252	87.765
6800.000	2.555	87.669	224.946	6797.404	-59.934	-59.820	0.938	84.679
6900.000	2.870	106.860	222.233	6897.267	-60.200	-54.649	0.991	81.305