

GyroTracer Directional:

Date: 12/17/2018
 Operator : Adrian Bruner
 API : 05-123-24496
 Well Name : **Howard USX A 9-11**
 Field : Noble Energy Inc
 Tool Number: 1719
 Bottom Depth : 6900.00
 Total Well Depth: 7222.00
 Latitude : 40.49935 N
 Longitude : 104.55713 W
 Grid Offset : 0.61
 Datum: NAD 83

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

Northing: 0.00 Easting: 0.00 GLE: 4824.00

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: 12/17/2018 13:48

End Time: 12/17/2018 15:00

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	0.230	188.319	267.207	100.000	-0.020	-0.410	0.230	0.410
200.000	0.210	178.245	218.309	199.995	-0.851	-0.673	0.049	1.085
300.000	0.460	234.187	219.385	299.992	-1.377	-1.130	0.378	1.781
400.000	0.190	16.784	217.658	399.991	-1.779	-1.373	0.624	2.247
500.000	0.140	239.458	227.298	499.989	-1.559	-1.689	0.313	2.299
600.000	0.540	265.623	240.484	599.986	-1.359	-2.401	0.407	2.759
700.000	0.400	278.811	250.112	699.983	-1.054	-2.914	0.159	3.099
800.000	0.550	294.681	258.359	799.981	-0.718	-3.484	0.198	3.557
900.000	0.650	301.289	265.202	899.978	-0.346	-4.124	0.130	4.139
1000.000	0.600	305.666	268.561	999.975	-0.120	-4.765	0.074	4.767
1100.000	0.220	269.086	272.198	1099.972	0.201	-5.250	0.436	5.254
1200.000	0.100	346.344	276.080	1199.971	0.542	-5.090	0.218	5.118
1300.000	0.390	44.068	280.753	1299.969	0.887	-4.669	0.341	4.753
1400.000	0.440	11.037	285.878	1399.968	1.267	-4.453	0.206	4.629
1500.000	0.410	3.968	291.589	1499.966	1.617	-4.085	0.054	4.393
1600.000	0.110	37.655	299.116	1599.964	2.069	-3.715	0.353	4.252
1700.000	0.570	56.980	307.599	1699.961	2.526	-3.280	0.437	4.140
1800.000	0.460	41.816	320.226	1799.957	3.096	-2.577	0.141	4.028
1900.000	0.550	43.120	329.946	1899.954	3.338	-1.932	0.079	3.857
2000.000	0.260	69.384	343.514	1999.949	3.623	-1.072	0.309	3.779
2100.000	0.690	126.761	358.466	2099.943	3.472	-0.093	0.573	3.474

2200.000	1.000	111.083	19.108	2199.935	3.011	1.043	0.350	3.187
2300.000	0.940	143.175	47.290	2299.922	2.037	2.206	0.523	3.003
2400.000	1.160	135.603	75.400	2399.906	0.929	3.566	0.224	3.685
2500.000	1.170	147.468	93.662	2499.888	-0.314	4.913	0.233	4.923
2600.000	0.770	143.121	106.262	2599.878	-1.594	5.464	0.382	5.692
2700.000	0.700	192.968	117.954	2699.866	-3.053	5.754	0.620	6.514
2800.000	0.740	167.972	126.172	2799.859	-4.170	5.704	0.322	7.066
2900.000	0.420	202.803	134.377	2899.850	-5.398	5.517	0.456	7.719
3000.000	0.360	197.861	140.053	2999.844	-6.442	5.395	0.074	8.403
3100.000	0.760	201.712	146.281	3099.837	-7.518	5.017	0.349	9.038
3200.000	0.750	166.170	152.778	3199.828	-8.676	4.463	0.461	9.757
3300.000	0.660	206.441	157.273	3299.818	-9.973	4.177	0.471	10.813
3400.000	0.690	162.283	161.070	3399.806	-11.395	3.908	0.525	12.047
3500.000	0.870	208.340	164.258	3499.795	-12.800	3.608	0.611	13.299
3600.000	1.300	199.496	167.202	3599.775	-14.750	3.351	0.343	15.126
3700.000	1.260	179.968	169.761	3699.754	-16.742	3.024	0.437	17.013
3800.000	1.710	195.514	172.840	3799.722	-19.154	2.406	0.571	19.305
3900.000	1.180	182.123	174.770	3899.692	-21.501	1.968	0.591	21.591
4000.000	1.410	192.767	176.114	3999.661	-23.960	1.628	0.184	24.016
4100.000	1.860	186.751	177.380	4099.626	-26.525	1.214	0.602	26.553
4200.000	1.240	211.158	178.322	4199.599	-28.742	0.842	0.897	28.755
4300.000	1.140	182.816	178.841	4299.580	-30.618	0.619	0.558	30.624
4400.000	1.450	220.765	180.281	4399.565	-32.129	-0.158	0.875	32.130
4500.000	0.770	269.164	182.447	4499.553	-32.819	-1.402	0.871	32.849
4600.000	1.420	263.341	185.854	4599.532	-33.015	-3.385	0.675	33.188
4700.000	1.300	272.601	189.897	4699.503	-32.944	-5.748	0.196	33.442
4800.000	1.820	308.342	195.105	4799.453	-31.621	-8.535	1.090	32.752
4900.000	1.770	299.667	201.208	4899.390	-29.921	-11.611	0.318	32.095
5000.000	2.360	290.702	207.665	4999.324	-28.470	-14.925	0.657	32.145
5100.000	1.420	271.412	212.343	5099.284	-27.872	-17.650	1.082	32.990
5200.000	1.380	295.784	216.480	5199.247	-27.392	-20.254	0.596	34.067
5300.000	1.180	278.022	220.612	5299.211	-26.520	-22.740	0.450	34.935
5400.000	1.430	293.963	224.617	5399.172	-25.719	-25.377	0.409	36.132
5500.000	1.360	292.595	228.094	5499.138	-24.991	-27.848	0.082	37.418
5600.000	1.400	285.712	231.171	5599.101	-24.532	-30.480	0.165	39.126
5700.000	1.460	272.961	233.260	5699.075	-24.455	-32.761	0.308	40.882
5800.000	1.140	236.736	234.027	5799.057	-25.053	-34.517	0.824	42.651
5900.000	1.230	233.347	234.392	5899.038	-25.912	-36.183	0.124	44.504
6000.000	1.110	193.466	233.193	5999.020	-27.585	-36.864	0.801	46.042
6100.000	1.230	196.055	231.087	6098.994	-29.825	-36.946	0.128	47.482
6200.000	1.250	160.817	228.688	6198.963	-32.248	-36.691	0.736	48.849
6300.000	2.110	187.680	226.097	6298.915	-35.257	-36.634	1.143	50.844
6400.000	1.560	169.280	223.154	6398.854	-38.684	-36.268	0.782	53.026
6500.000	1.650	160.120	220.461	6498.803	-41.747	-35.606	0.262	54.869
6600.000	1.820	136.130	217.366	6598.748	-44.618	-34.071	0.737	56.139
6700.000	1.930	146.450	214.192	6698.693	-47.164	-32.043	0.304	57.020
6800.000	2.130	138.460	210.703	6798.628	-49.529	-29.412	0.326	57.604
6900.000	2.200	134.180	207.507	6898.574	-51.416	-26.773	0.153	57.969