



Company/Rig: NOBLE ENERGY/CORE-TECH
WELL: MOORE 1
DECLINATION: 8.4
TD AS DRILLED: 7280'
COUNTY/STATE: WELD/COLORADO
Latitude: 40.494, Longitude: -104.719
GRID North is 0.500 Degrees East of True North
VS-Azi: 0.000 Degrees



DEPTH REFERENCE : RKB=SURFACE ELEVATION= 4778'

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 11/3/2014 / 12:37

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

SURVEYOR: NICK KULA

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	****
100.000	0.280	22.608	100.000	0.226	0.094	0.226	0.245	22.608	0.280
200.000	0.401	99.315	199.998	0.395	0.533	0.395	0.664	53.462	0.433
300.000	0.318	6.740	299.997	0.615	0.911	0.615	1.099	56.001	0.523
400.000	0.368	139.701	399.996	0.645	1.152	0.645	1.320	60.739	0.630
500.000	0.392	129.608	499.994	0.182	1.623	0.182	1.634	83.605	0.071
600.000	0.365	123.783	599.992	-0.213	2.152	-0.213	2.162	95.658	0.047
700.000	0.250	329.293	699.991	-0.202	2.305	-0.202	2.313	95.019	0.600
800.000	0.333	178.641	799.991	-0.305	2.200	-0.305	2.221	97.897	0.565
900.000	0.335	111.710	899.989	-0.704	2.478	-0.704	2.576	105.852	0.368
1000.000	0.211	295.625	999.989	-0.732	2.584	-0.732	2.686	105.822	0.545
1100.000	0.250	43.817	1099.988	-0.495	2.569	-0.495	2.617	100.914	0.374
1200.000	0.187	247.466	1199.988	-0.400	2.570	-0.400	2.601	98.859	0.428
1300.000	0.178	11.862	1299.988	-0.311	2.451	-0.311	2.471	97.239	0.322
1400.000	0.242	103.556	1399.987	-0.209	2.688	-0.209	2.696	94.449	0.304
1500.000	0.126	270.100	1499.987	-0.258	2.783	-0.258	2.795	95.304	0.365
1600.000	0.274	179.195	1599.987	-0.497	2.677	-0.497	2.723	100.525	0.303
1700.000	0.266	170.120	1699.986	-0.966	2.720	-0.966	2.887	109.542	0.043
1800.000	0.229	195.997	1799.985	-1.387	2.705	-1.387	3.040	117.144	0.117
1900.000	0.172	203.049	1899.984	-1.717	2.591	-1.717	3.109	123.528	0.062

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
2000.000	0.300	277.142	1999.983	-1.822	2.273	-1.822	2.913	128.720	0.302
2100.000	0.318	281.501	2099.982	-1.735	1.742	-1.735	2.458	134.881	0.029
2200.000	0.496	326.555	2199.980	-1.318	1.232	-1.318	1.804	136.942	0.352
2300.000	0.460	319.817	2299.976	-0.651	0.735	-0.651	0.981	131.540	0.067
2400.000	0.774	321.790	2399.970	0.186	0.058	0.186	0.195	17.318	0.315
2500.000	0.769	300.347	2499.961	1.056	-0.938	1.056	1.413	318.365	0.287
2600.000	0.607	322.839	2599.954	1.817	-1.837	1.817	2.584	314.677	0.312
2700.000	0.629	324.347	2699.949	2.685	-2.477	2.685	3.653	317.304	0.028
2800.000	0.296	316.777	2799.945	3.319	-2.974	3.319	4.456	318.139	0.338
2900.000	0.318	299.124	2899.944	3.642	-3.393	3.642	4.978	317.028	0.097
3000.000	0.452	313.086	2999.942	4.047	-3.924	4.047	5.637	315.885	0.163
3100.000	0.392	326.540	3099.939	4.602	-4.401	4.602	6.368	316.281	0.116
3200.000	0.215	283.791	3199.938	4.932	-4.772	4.932	6.863	315.949	0.276
3300.000	0.134	313.539	3299.937	5.058	-5.038	5.058	7.139	315.109	0.119
3400.000	0.025	8.101	3399.937	5.160	-5.120	5.160	7.269	315.222	0.121
3500.000	0.017	169.467	3499.937	5.167	-5.114	5.167	7.270	315.295	0.042
3600.000	0.274	115.646	3599.937	5.049	-4.896	5.049	7.033	315.881	0.264
3700.000	0.297	128.414	3699.935	4.785	-4.478	4.785	6.553	316.897	0.068
3800.000	0.272	165.911	3799.934	4.394	-4.217	4.394	6.090	316.173	0.184
3900.000	0.257	191.099	3899.933	3.943	-4.203	3.943	5.763	313.175	0.116
4000.000	0.275	186.924	3999.932	3.485	-4.275	3.485	5.515	309.189	0.026
4100.000	0.312	185.393	4099.931	2.976	-4.329	2.976	5.253	304.507	0.038
4200.000	0.227	103.546	4199.930	2.659	-4.162	2.659	4.939	302.570	0.359
4300.000	0.559	93.811	4299.927	2.580	-3.483	2.580	4.335	306.530	0.338
4400.000	1.028	88.655	4399.918	2.569	-2.099	2.569	3.317	320.750	0.474
4500.000	1.169	93.730	4499.899	2.523	-0.183	2.523	2.530	355.843	0.171
4600.000	1.310	96.229	4599.876	2.333	1.971	2.333	3.054	40.189	0.151
4700.000	1.457	102.288	4699.847	1.938	4.349	1.938	4.761	65.975	0.207
4800.000	1.514	106.748	4799.813	1.287	6.856	1.287	6.975	79.365	0.129
4900.000	1.455	109.071	4899.780	0.492	9.321	0.492	9.334	86.980	0.084
5000.000	1.266	100.463	4999.751	-0.124	11.607	-0.124	11.608	90.611	0.278
5100.000	1.245	109.949	5099.728	-0.695	13.715	-0.695	13.732	92.902	0.209
5200.000	1.087	111.283	5199.707	-1.410	15.620	-1.410	15.683	95.158	0.161
5300.000	1.019	121.963	5299.690	-2.225	17.258	-2.225	17.401	97.347	0.207
5400.000	0.892	123.855	5399.676	-3.129	18.659	-3.129	18.919	99.521	0.132
5500.000	0.919	119.947	5499.664	-3.963	19.999	-3.963	20.388	101.208	0.067
5600.000	1.098	112.591	5599.648	-4.731	21.578	-4.731	22.091	102.367	0.221
5700.000	0.823	103.688	5699.634	-5.269	23.160	-5.269	23.752	102.817	0.312
5800.000	0.708	80.717	5799.625	-5.339	24.468	-5.339	25.044	102.310	0.325
5900.000	0.155	22.791	5899.622	-5.115	25.130	-5.115	25.645	101.504	0.640

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
6000.000	0.207	83.156	5999.622	-4.968	25.362	-4.968	25.844	101.084	0.188
6100.000	0.189	70.407	6099.621	-4.891	25.698	-4.891	26.159	100.777	0.048
6200.000	0.375	15.957	6199.620	-4.522	25.943	-4.522	26.334	99.887	0.306
6300.000	0.449	18.729	6299.618	-3.836	26.159	-3.836	26.439	98.343	0.077
6400.000	0.454	23.508	6399.615	-3.102	26.443	-3.102	26.624	96.691	0.038
6500.000	0.457	25.088	6499.611	-2.378	26.769	-2.378	26.875	95.077	0.013
6600.000	0.428	26.525	6599.608	-1.683	27.105	-1.683	27.157	93.553	0.031
6700.000	0.270	54.603	6699.607	-1.212	27.464	-1.212	27.491	92.528	0.228
6800.000	0.144	54.276	6799.606	-1.002	27.758	-1.002	27.777	92.068	0.126
6900.000	0.200	106.349	6899.606	-0.978	28.028	-0.978	28.045	91.998	0.159
7000.000	0.215	92.620	6999.605	-1.036	28.382	-1.036	28.401	92.090	0.052