



Company/Rig: NOBLE ENERGY/ CORETECH
WELL: HARSH H 26-10
DECLINATION: 8.33
TD AS DRILLED: 7,750 FEET
COUNTY/STATE: WELD/COLORADO
Latitude: 40.195, Longitude: -104.628
GRID North is 0.560 Degrees East of True North
VS-Azi: 0.000 Degrees



DEPTH REFERENCE : RKB=SURFACE ELEVATION=4,857 FEET

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro.ut
Minimum Curvature Method
Report Date/Time: 10/13/2014 / 16:02

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD
NORTH REFERENCE: GRID
HENDERSON, COLORADO
303-853-4976
Surveyor: LEVI SHELDON

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	0.181	243.744	100.000	-0.070	-0.142	-0.070	0.158	243.744	0.181
200.000	0.037	215.620	200.000	-0.166	-0.302	-0.166	0.345	241.229	0.150
300.000	0.214	118.658	299.999	-0.282	-0.157	-0.282	0.322	209.159	0.221
400.000	0.150	80.825	399.999	-0.350	0.136	-0.350	0.376	158.806	0.133
500.000	0.050	59.661	499.999	-0.307	0.303	-0.307	0.431	135.444	0.105
600.000	0.279	9.742	599.998	-0.045	0.381	-0.045	0.384	96.768	0.250
700.000	0.394	342.396	699.997	0.523	0.319	0.523	0.612	31.373	0.195
800.000	0.539	349.800	799.993	1.313	0.131	1.313	1.320	5.711	0.157
900.000	0.383	315.160	899.990	2.013	-0.188	2.013	2.022	354.668	0.312
1000.000	0.345	301.512	999.988	2.408	-0.681	2.408	2.502	344.217	0.095
1100.000	0.382	317.122	1099.986	2.810	-1.164	2.810	3.042	337.492	0.105
1200.000	0.506	259.870	1199.984	2.977	-1.826	2.977	3.492	328.472	0.439
1300.000	0.283	271.911	1299.981	2.907	-2.508	2.907	3.839	319.217	0.237
1400.000	0.224	244.992	1399.980	2.833	-2.932	2.833	4.077	314.010	0.131
1500.000	0.398	245.181	1499.979	2.604	-3.425	2.604	4.303	307.246	0.174
1600.000	0.524	280.539	1599.976	2.542	-4.190	2.542	4.901	301.242	0.305
1700.000	0.826	279.713	1699.969	2.747	-5.351	2.747	6.015	297.178	0.302
1800.000	0.850	286.172	1799.958	3.075	-6.774	3.075	7.439	294.420	0.097
1900.000	0.885	291.873	1899.947	3.570	-8.203	3.570	8.946	293.518	0.093

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	0.616	332.189	1999.938	4.333	-9.171	4.333	10.143	295.292	0.575
2100.000	0.825	11.120	2099.931	5.515	-9.283	5.515	10.797	300.717	0.519
2200.000	0.708	19.429	2199.922	6.805	-8.938	6.805	11.234	307.282	0.161
2300.000	0.701	48.623	2299.915	7.792	-8.274	7.792	11.365	313.282	0.355
2400.000	0.581	91.347	2399.909	8.184	-7.308	8.184	10.972	318.237	0.480
2500.000	0.355	127.705	2499.906	7.983	-6.556	7.983	10.330	320.603	0.362
2600.000	0.489	195.149	2599.904	7.381	-6.422	7.381	9.784	318.973	0.482
2700.000	0.139	192.395	2699.902	6.851	-6.560	6.851	9.485	316.243	0.350
2800.000	0.480	322.578	2799.901	7.065	-6.841	7.065	9.834	315.926	0.580
2900.000	0.503	2.275	2899.898	7.837	-7.078	7.837	10.560	317.914	0.335
3000.000	0.666	10.556	2999.892	8.847	-6.954	8.847	11.253	321.833	0.183
3100.000	0.964	0.989	3099.882	10.260	-6.833	10.260	12.327	326.338	0.326
3200.000	1.053	359.753	3199.867	12.020	-6.822	12.020	13.822	330.422	0.092
3300.000	1.504	326.566	3299.843	14.035	-7.550	14.035	15.937	331.723	0.849
3400.000	1.971	326.672	3399.797	16.567	-9.218	16.567	18.959	330.909	0.467
3500.000	1.819	345.926	3499.743	19.544	-10.549	19.544	22.209	331.642	0.651
3600.000	1.883	0.615	3599.691	22.726	-10.917	22.726	25.212	334.341	0.477
3700.000	1.823	21.530	3699.640	25.849	-10.316	25.849	27.831	338.244	0.675
3800.000	1.659	39.833	3799.595	28.440	-8.805	28.440	29.772	342.799	0.577
3900.000	1.422	33.028	3899.559	30.592	-7.201	30.592	31.428	346.754	0.299
4000.000	1.266	30.205	3999.531	32.587	-5.969	32.587	33.129	349.620	0.169
4100.000	1.179	32.354	4099.508	34.411	-4.863	34.411	34.753	351.956	0.098
4200.000	1.547	23.859	4199.480	36.514	-3.766	36.514	36.708	354.111	0.418
4300.000	2.412	16.441	4299.420	39.766	-2.625	39.766	39.853	356.223	0.901
4400.000	3.364	19.239	4399.291	44.554	-1.063	44.554	44.567	358.634	0.962
4500.000	3.946	22.406	4499.088	50.506	1.216	50.506	50.520	1.379	0.616
4600.000	4.345	20.444	4598.826	57.237	3.850	57.237	57.366	3.849	0.423
4700.000	4.076	10.946	4698.557	64.276	5.849	64.276	64.542	5.199	0.746
4800.000	3.137	6.811	4798.358	70.483	6.848	70.483	70.815	5.549	0.973
4900.000	1.281	323.971	4898.285	74.105	6.515	74.105	74.390	5.024	2.364
5000.000	1.238	278.540	4998.263	75.169	4.790	75.169	75.321	3.646	0.973
5100.000	1.479	259.887	5098.235	75.103	2.451	75.103	75.143	1.869	0.501
5200.000	1.242	263.487	5198.207	74.753	0.103	74.753	74.753	0.079	0.252
5300.000	0.998	266.733	5298.188	74.580	-1.844	74.580	74.603	358.584	0.252
5400.000	0.830	278.330	5398.175	74.636	-3.429	74.636	74.714	357.369	0.249
5500.000	0.753	299.614	5498.166	75.065	-4.717	75.065	75.213	356.404	0.302
5600.000	0.871	343.065	5598.157	76.117	-5.510	76.117	76.316	355.860	0.611
5700.000	1.231	28.075	5698.141	77.792	-5.226	77.792	77.967	356.157	0.871
5800.000	0.604	15.076	5798.128	79.249	-4.583	79.249	79.381	356.690	0.656
5900.000	0.274	341.123	5898.125	79.985	-4.524	79.985	80.112	356.763	0.407

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	0.360	321.022	5998.124	80.455	-4.799	80.455	80.598	356.587	0.139
6100.000	0.354	309.606	6098.122	80.896	-5.234	80.896	81.066	356.298	0.071
6200.000	0.110	343.837	6198.121	81.185	-5.499	81.185	81.371	356.125	0.270
6300.000	0.061	341.307	6298.121	81.328	-5.543	81.328	81.517	356.101	0.049
6400.000	0.571	264.556	6398.119	81.331	-6.056	81.331	81.556	355.742	0.560
6500.000	0.527	259.968	6498.115	81.204	-7.004	81.204	81.505	355.070	0.062
6600.000	0.440	234.724	6598.111	80.902	-7.769	80.902	81.275	354.514	0.228
6700.000	0.449	208.706	6698.108	80.337	-8.271	80.337	80.762	354.122	0.200
6800.000	0.320	239.815	6798.106	79.853	-8.700	79.853	80.326	353.782	0.241
6900.000	0.316	249.051	6898.104	79.614	-9.199	79.614	80.144	353.409	0.051
7000.000	0.170	296.981	6998.104	79.583	-9.589	79.583	80.159	353.129	0.238
7100.000	0.366	352.457	7098.103	79.967	-9.764	79.967	80.561	353.039	0.304
7200.000	0.115	182.559	7198.102	80.184	-9.810	80.184	80.782	353.025	0.479
7300.000	0.390	159.432	7298.101	79.766	-9.695	79.766	80.353	353.070	0.288
7400.000	0.590	152.743	7398.097	78.990	-9.340	78.990	79.540	353.257	0.208
7450.000	0.618	179.305	7448.095	78.492	-9.219	78.492	79.031	353.301	0.558