



Company/Rig: Noble Energy/ CoreTech
WELL/API#: Nikoloric C 5-5/05-123-20235
DECLINATION: 8.27 Degrees
TD AS DRILLED: 7140 Feet
COUNTY/STATE: Weld/Colorado
Latitude: 40.343, Longitude: -104.581
GRID North is 0.590 Degrees East of True North
VS-Azi: 0.000 Degrees



DEPTH REFERENCE : RKB=GL/ ELEVATION= 4753 Feet

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 3/16/2015 / 15:12

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: Sean Bratt

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	0.430	292.871	99.999	0.146	-0.346	0.146	0.376	292.871	0.430
200.000	0.203	272.019	199.997	0.298	-0.869	0.298	0.919	288.929	0.251
300.000	0.268	314.985	299.997	0.470	-1.212	0.470	1.300	291.186	0.183
400.000	0.171	6.493	399.996	0.784	-1.361	0.784	1.571	299.924	0.210
500.000	0.143	190.393	499.996	0.809	-1.367	0.809	1.588	300.624	0.313
600.000	0.254	244.192	599.995	0.590	-1.589	0.590	1.695	290.373	0.205
700.000	0.081	359.540	699.995	0.564	-1.789	0.564	1.876	287.495	0.298
800.000	0.486	300.453	799.994	0.849	-2.156	0.849	2.317	291.509	0.450
900.000	0.357	280.554	899.991	1.121	-2.827	1.121	3.042	291.635	0.193
1000.000	0.692	315.063	999.987	1.606	-3.560	1.606	3.906	294.279	0.446
1100.000	0.750	318.574	1099.979	2.524	-4.420	2.524	5.090	299.731	0.073
1200.000	0.831	332.358	1199.970	3.658	-5.190	3.658	6.350	305.176	0.206
1300.000	1.054	304.731	1299.957	4.824	-6.282	4.824	7.921	307.522	0.499
1400.000	0.512	335.731	1399.947	5.756	-7.222	5.756	9.235	308.555	0.669
1500.000	0.738	351.720	1499.941	6.801	-7.498	6.801	10.123	312.208	0.283
1600.000	0.598	354.333	1599.934	7.958	-7.643	7.958	11.034	316.158	0.143
1700.000	0.953	310.446	1699.926	9.017	-8.327	9.017	12.274	317.278	0.667
1800.000	1.006	317.010	1799.911	10.198	-9.558	10.198	13.978	316.855	0.124
1900.000	1.115	283.939	1899.895	11.075	-11.101	11.075	15.681	314.932	0.613

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	0.549	252.824	1999.885	11.168	-12.503	11.168	16.765	311.770	0.705
2100.000	0.246	88.926	2099.883	11.030	-12.747	11.030	16.857	310.871	0.788
2200.000	0.050	76.547	2199.883	11.044	-12.490	11.044	16.673	311.484	0.198
2300.000	0.343	113.384	2299.882	10.936	-12.174	10.936	16.364	311.934	0.305
2400.000	0.360	192.241	2399.881	10.510	-11.966	10.510	15.926	311.295	0.446
2500.000	0.485	236.907	2499.879	9.972	-12.387	9.972	15.902	308.835	0.342
2600.000	0.551	227.552	2599.874	9.416	-13.097	9.416	16.130	305.715	0.107
2700.000	0.683	220.274	2699.869	8.637	-13.837	8.637	16.311	301.973	0.153
2800.000	0.743	226.591	2799.861	7.737	-14.693	7.737	16.605	297.771	0.099
2900.000	0.798	215.531	2899.852	6.725	-15.568	6.725	16.959	293.363	0.158
3000.000	0.654	223.432	2999.844	5.744	-16.365	5.744	17.344	289.341	0.175
3100.000	0.669	174.127	3099.838	4.749	-16.698	4.749	17.360	285.875	0.552
3200.000	0.692	144.598	3199.831	3.675	-16.288	3.675	16.698	282.715	0.348
3300.000	0.848	116.985	3299.823	2.847	-15.279	2.847	15.542	280.556	0.397
3400.000	1.154	97.250	3399.807	2.384	-13.621	2.384	13.828	279.929	0.457
3500.000	0.863	65.497	3499.793	2.570	-11.937	2.570	12.211	282.148	0.619
3600.000	0.677	138.702	3599.786	2.438	-10.863	2.438	11.133	282.651	0.930
3700.000	0.646	177.340	3699.779	1.431	-10.447	1.431	10.544	277.801	0.439
3800.000	0.763	144.401	3799.772	0.326	-10.033	0.326	10.038	271.862	0.415
3900.000	0.766	144.918	3899.763	-0.763	-9.261	-0.763	9.292	265.291	0.008
4000.000	0.933	158.070	3999.752	-2.066	-8.572	-2.066	8.817	256.452	0.256
4100.000	0.665	192.211	4099.743	-3.388	-8.391	-3.388	9.049	248.009	0.534
4200.000	0.809	181.283	4199.735	-4.662	-8.529	-4.662	9.720	241.339	0.201
4300.000	0.740	189.855	4299.726	-6.004	-8.656	-6.004	10.534	235.251	0.135
4400.000	0.772	159.534	4399.717	-7.271	-8.531	-7.271	11.209	229.556	0.396
4500.000	0.770	179.925	4499.709	-8.574	-8.294	-8.574	11.929	224.051	0.273
4600.000	0.728	170.587	4599.700	-9.872	-8.190	-9.872	12.827	219.678	0.129
4700.000	0.347	192.146	4699.696	-10.795	-8.150	-10.795	13.526	217.050	0.424
4800.000	0.285	171.123	4799.694	-11.337	-8.175	-11.337	13.977	215.794	0.131
4900.000	0.200	28.437	4899.694	-11.430	-8.054	-11.430	13.982	215.169	0.460
5000.000	0.174	233.341	4999.694	-11.368	-8.093	-11.368	13.954	215.448	0.365
5100.000	0.269	341.473	5099.693	-11.236	-8.290	-11.236	13.963	216.420	0.364
5200.000	0.198	104.464	5199.693	-11.056	-8.197	-11.056	13.763	216.553	0.412
5300.000	0.072	111.588	5299.692	-11.122	-7.970	-11.122	13.683	215.626	0.127
5400.000	0.559	195.545	5399.691	-11.615	-8.042	-11.615	14.128	214.698	0.556
5500.000	0.195	186.406	5499.688	-12.254	-8.192	-12.254	14.740	213.763	0.368
5600.000	0.754	86.166	5599.685	-12.379	-7.554	-12.379	14.502	211.393	0.812
5700.000	0.748	108.321	5699.677	-12.540	-6.278	-12.540	14.024	206.593	0.289
5800.000	0.722	65.685	5799.670	-12.486	-5.084	-12.486	13.481	202.154	0.535
5900.000	0.105	137.641	5899.667	-12.294	-4.448	-12.294	13.074	199.890	0.697

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	0.188	192.573	5999.666	-12.521	-4.422	-12.521	13.279	199.451	0.154
6100.000	0.076	131.943	6099.666	-12.726	-4.408	-12.726	13.468	199.106	0.165
6200.000	0.196	195.909	6199.666	-12.935	-4.406	-12.935	13.665	198.809	0.176
6300.000	0.659	257.180	6299.663	-13.227	-5.013	-13.227	14.145	200.759	0.591
6400.000	1.469	276.014	6399.645	-13.220	-6.849	-13.220	14.889	207.388	0.871
6500.000	1.885	289.527	6499.603	-12.536	-9.674	-12.536	15.835	217.657	0.572
6600.000	1.429	265.190	6599.562	-12.091	-12.467	-12.091	17.367	225.878	0.829
6700.000	0.872	245.458	6699.542	-12.511	-14.402	-12.511	19.077	229.018	0.675
6800.000	0.636	187.844	6799.534	-13.377	-15.170	-13.377	20.225	228.594	0.756
6900.000	0.462	98.997	6899.531	-13.989	-14.848	-13.989	20.400	226.705	0.778
7000.000	0.672	107.552	6999.526	-14.229	-13.890	-14.229	19.885	224.310	0.226
7100.000	0.926	99.923	7099.516	-14.545	-12.535	-14.545	19.202	220.755	0.275
7200.000	1.180	99.289	7199.499	-14.851	-10.723	-14.851	18.318	215.832	0.255
7300.000	0.658	102.384	7299.486	-15.140	-9.146	-15.140	17.688	211.135	0.524
7400.000	1.221	93.109	7399.472	-15.321	-7.521	-15.321	17.068	206.146	0.581