



Company/Rig: Noble Energy/CoreTech
WELL/API#: Sinjin E 36-13/05-123-16306
DECLINATION: 8.32
TD AS DRILLED: 7038'
COUNTY/STATE: Weld/Colorado
Latitude: 40.438, Longitude: -104.618
GRID North is 0.570 Degrees East of True North
VS-Azi: 0.000 Degrees



DEPTH REFERENCE : RKB=Surface Elevation=4644'

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 1/5/2015 / 15:25

Lat & Long Obtained By Handheld GPS At Wellhead

North Reference: Grid

Henderson, Co.

303-853-4976

Surveyor: Mark Simmons

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	0.553	261.861	99.998	-0.068	-0.478	-0.068	0.483	261.861	0.553
200.000	0.139	311.714	199.997	-0.056	-1.046	-0.056	1.048	266.932	0.476
300.000	0.046	211.911	299.996	-0.009	-1.158	-0.009	1.158	269.536	0.153
400.000	0.164	111.114	399.996	-0.095	-1.045	-0.095	1.050	264.812	0.178
500.000	0.320	167.975	499.995	-0.420	-0.853	-0.420	0.951	243.800	0.268
600.000	0.380	167.886	599.994	-1.017	-0.726	-1.017	1.249	215.502	0.059
700.000	0.435	146.113	699.991	-1.656	-0.445	-1.656	1.715	195.024	0.163
800.000	0.381	148.476	799.989	-2.255	-0.059	-2.255	2.256	181.497	0.056
900.000	0.470	153.211	899.986	-2.904	0.300	-2.904	2.920	174.107	0.095
1000.000	0.415	137.288	999.983	-3.536	0.730	-3.536	3.611	168.334	0.134
1100.000	0.340	141.261	1099.981	-4.034	1.161	-4.034	4.197	163.938	0.080
1200.000	0.299	121.240	1199.979	-4.400	1.570	-4.400	4.672	160.365	0.118
1300.000	0.265	180.267	1299.978	-4.767	1.792	-4.767	5.092	159.399	0.279
1400.000	0.242	219.781	1399.977	-5.160	1.656	-5.160	5.420	162.212	0.173
1500.000	0.659	239.886	1499.974	-5.611	1.023	-5.611	5.704	169.667	0.440
1600.000	0.227	248.714	1599.971	-5.972	0.341	-5.972	5.981	176.733	0.436
1700.000	0.527	274.452	1699.969	-6.008	-0.302	-6.008	6.016	182.877	0.337
1800.000	1.047	238.690	1799.959	-6.447	-1.540	-6.447	6.629	193.438	0.692
1900.000	0.936	253.989	1899.945	-7.147	-3.106	-7.147	7.793	203.492	0.286

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	0.871	241.497	1999.932	-7.735	-4.560	-7.735	8.979	210.520	0.207
2100.000	1.034	249.855	2099.918	-8.409	-6.075	-8.409	10.374	215.847	0.213
2200.000	1.378	275.363	2199.897	-8.607	-8.119	-8.607	11.832	223.330	0.630
2300.000	1.491	273.316	2299.865	-8.419	-10.616	-8.419	13.549	231.582	0.124
2400.000	1.550	279.924	2399.830	-8.111	-13.247	-8.111	15.533	238.522	0.185
2500.000	1.635	276.321	2499.792	-7.721	-15.997	-7.721	17.763	244.237	0.131
2600.000	1.816	268.817	2599.746	-7.597	-18.999	-7.597	20.462	248.207	0.290
2700.000	1.788	280.220	2699.697	-7.353	-22.119	-7.353	23.309	251.612	0.359
2800.000	1.659	278.543	2799.652	-6.861	-25.085	-6.861	26.006	254.703	0.138
2900.000	1.395	276.918	2899.616	-6.499	-27.724	-6.499	28.476	256.807	0.267
3000.000	1.367	278.803	2999.587	-6.170	-30.111	-6.170	30.737	258.420	0.054
3100.000	1.371	278.699	3099.559	-5.807	-32.472	-5.807	32.987	259.862	0.005
3200.000	1.147	291.963	3199.535	-5.251	-34.583	-5.251	34.980	261.366	0.366
3300.000	1.578	267.391	3299.507	-4.940	-36.887	-4.940	37.216	262.373	0.716
3400.000	2.216	284.901	3399.453	-4.505	-40.130	-4.505	40.382	263.595	0.855
3500.000	2.761	275.819	3499.358	-3.764	-44.394	-3.764	44.554	265.154	0.671
3600.000	3.011	283.252	3599.232	-2.917	-49.347	-2.917	49.434	266.617	0.450
3700.000	3.049	286.470	3699.092	-1.561	-54.455	-1.561	54.477	268.358	0.174
3800.000	3.081	286.457	3798.949	-0.046	-59.582	-0.046	59.582	269.956	0.032
3900.000	3.004	284.223	3898.808	1.359	-64.699	1.359	64.714	271.203	0.141
4000.000	2.767	288.497	3998.681	2.769	-69.529	2.769	69.584	272.280	0.320
4100.000	2.742	290.933	4098.566	4.389	-74.053	4.389	74.183	273.392	0.120
4200.000	2.762	298.249	4198.451	6.384	-78.409	6.384	78.669	274.655	0.352
4300.000	2.678	299.960	4298.338	8.691	-82.555	8.691	83.012	276.010	0.117
4400.000	2.710	300.606	4398.228	11.061	-86.614	11.061	87.317	277.278	0.044
4500.000	2.143	304.818	4498.138	13.333	-90.183	13.333	91.164	278.410	0.593
4600.000	1.347	303.824	4598.091	15.054	-92.695	15.054	93.909	279.225	0.797
4700.000	1.306	298.701	4698.064	16.256	-94.670	16.256	96.056	279.743	0.125
4800.000	1.180	304.893	4798.040	17.392	-96.514	17.392	98.068	280.215	0.184
4900.000	1.224	318.688	4898.018	18.783	-98.063	18.783	99.846	280.843	0.292
5000.000	1.226	302.846	4997.996	20.165	-99.667	20.165	101.687	281.438	0.338
5100.000	1.105	302.970	5097.975	21.271	-101.375	21.271	103.583	281.850	0.121
5200.000	1.010	292.764	5197.958	22.136	-102.997	22.136	105.349	282.130	0.211
5300.000	1.032	308.923	5297.943	23.044	-104.511	23.044	107.021	282.434	0.288
5400.000	0.558	326.243	5397.933	24.015	-105.483	24.015	108.182	282.826	0.526
5500.000	0.707	281.247	5497.927	24.540	-106.358	24.540	109.152	282.993	0.503
5600.000	0.703	276.972	5597.920	24.735	-107.572	24.735	110.379	282.949	0.053
5700.000	0.306	135.650	5697.918	24.618	-107.993	24.618	110.764	282.842	0.961
5800.000	0.763	144.769	5797.913	23.883	-107.423	23.883	110.046	282.535	0.463
5900.000	0.853	145.157	5897.903	22.729	-106.613	22.729	109.009	282.035	0.090

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	1.115	119.229	5997.889	21.643	-105.339	21.643	107.540	281.610	0.510
6100.000	1.140	128.856	6097.869	20.544	-103.716	20.544	105.731	281.204	0.191
6200.000	1.531	133.443	6197.842	19.001	-101.971	19.001	103.726	280.555	0.404
6300.000	1.842	133.060	6297.799	16.985	-99.827	16.985	101.262	279.656	0.311
6400.000	1.973	130.777	6397.743	14.764	-97.350	14.764	98.463	278.624	0.151
6500.000	2.539	132.196	6497.665	12.152	-94.405	12.152	95.184	277.335	0.569
6600.000	2.619	132.492	6597.564	9.121	-91.080	9.121	91.535	275.719	0.081
6700.000	2.456	129.398	6697.466	6.218	-87.740	6.218	87.960	274.054	0.212