



Company/Rig: Noble Energy/CoreTech  
WELL: Farr 3  
DECLINATION: 8.4  
TD AS DRILLED: 7286'  
COUNTY/STATE: Weld/Colorado  
Latitude: 40.497, Longitude: -104.723  
GRID North is 0.500 Degrees East of True North  
VS-Azi: 0.000 Degrees



DEPTH REFERENCE : RKB=Surface Elevation=4788'

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro\_run01-01-de\_01.ut

Minimum Curvature Method

Report Date/Time: 10/22/2014 / 15:55

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	0.204	322.774	100.000	0.142	-0.108	0.142	0.178	322.774	0.204
200.000	0.183	278.056	199.999	0.306	-0.374	0.306	0.483	309.310	0.149
300.000	0.130	161.750	299.999	0.221	-0.497	0.221	0.543	293.985	0.267
400.000	0.108	324.598	399.999	0.190	-0.516	0.190	0.550	290.247	0.235
500.000	0.237	252.394	499.999	0.204	-0.768	0.204	0.794	284.906	0.229
600.000	0.034	22.590	599.998	0.169	-0.954	0.169	0.969	280.045	0.260
700.000	0.083	212.659	699.998	0.135	-0.981	0.135	0.991	277.851	0.116
800.000	0.190	293.981	799.998	0.142	-1.172	0.142	1.180	276.898	0.195
900.000	0.167	212.478	899.998	0.086	-1.401	0.086	1.404	273.527	0.233
1000.000	0.471	280.960	999.996	0.042	-1.883	0.042	1.883	271.274	0.439
1100.000	0.449	248.291	1099.993	-0.025	-2.651	-0.025	2.651	269.460	0.260
1200.000	0.361	234.956	1199.991	-0.351	-3.274	-0.351	3.293	263.879	0.129
1300.000	0.369	248.418	1299.989	-0.651	-3.831	-0.651	3.886	260.363	0.086
1400.000	0.269	216.208	1399.987	-0.958	-4.270	-0.958	4.376	257.348	0.202
1500.000	0.238	214.490	1499.986	-1.319	-4.526	-1.319	4.715	253.749	0.031
1600.000	0.380	218.207	1599.985	-1.752	-4.849	-1.752	5.156	250.140	0.143
1700.000	0.308	235.821	1699.983	-2.163	-5.277	-2.163	5.703	247.708	0.127
1800.000	0.302	269.872	1799.982	-2.315	-5.763	-2.315	6.211	248.114	0.179
1900.000	0.286	232.703	1899.980	-2.467	-6.226	-2.467	6.697	248.382	0.188

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	0.303	241.258	1999.979	-2.746	-6.656	-2.746	7.200	247.584	0.047
2100.000	0.345	257.373	2099.978	-2.939	-7.182	-2.939	7.760	247.747	0.100
2200.000	0.140	274.196	2199.977	-2.996	-7.598	-2.996	8.167	248.482	0.216
2300.000	0.334	285.738	2299.976	-2.908	-8.000	-2.908	8.512	250.024	0.199
2400.000	0.300	254.285	2399.974	-2.900	-8.532	-2.900	9.011	251.228	0.175
2500.000	0.364	329.307	2499.973	-2.697	-8.946	-2.697	9.344	253.221	0.407
2600.000	0.429	324.203	2599.971	-2.121	-9.327	-2.121	9.565	257.191	0.074
2700.000	0.317	328.877	2699.968	-1.580	-9.689	-1.580	9.817	260.737	0.116
2800.000	0.419	329.198	2799.966	-1.030	-10.019	-1.030	10.072	264.132	0.102
2900.000	0.407	335.359	2899.964	-0.393	-10.354	-0.393	10.361	267.825	0.046
3000.000	0.167	348.054	2999.962	0.072	-10.532	0.072	10.532	270.391	0.247
3100.000	0.183	26.016	3099.962	0.358	-10.492	0.358	10.498	271.954	0.115
3200.000	0.258	3.834	3199.961	0.726	-10.407	0.726	10.432	273.992	0.112
3300.000	0.284	293.731	3299.960	1.050	-10.619	1.050	10.670	275.649	0.312
3400.000	0.712	243.758	3399.957	0.876	-11.403	0.876	11.436	274.391	0.572
3500.000	0.831	253.934	3499.948	0.400	-12.656	0.400	12.663	271.811	0.181
3600.000	1.383	253.456	3599.929	-0.144	-14.510	-0.144	14.510	269.432	0.552
3700.000	2.059	261.650	3699.883	-0.748	-17.444	-0.748	17.460	267.543	0.718
3800.000	2.078	267.826	3799.818	-1.078	-21.033	-1.078	21.060	267.066	0.224
3900.000	2.174	260.702	3899.749	-1.453	-24.716	-1.453	24.759	266.635	0.281
4000.000	2.003	258.479	3999.683	-2.109	-28.300	-2.109	28.378	265.739	0.189
4100.000	1.572	256.425	4099.634	-2.780	-31.345	-2.780	31.468	264.933	0.435
4200.000	1.255	253.818	4199.604	-3.407	-33.730	-3.407	33.902	264.233	0.324
4300.000	1.335	251.997	4299.578	-4.072	-35.890	-4.072	36.120	263.527	0.091
4400.000	1.041	256.401	4399.557	-4.646	-37.881	-4.646	38.165	263.008	0.308
4500.000	0.898	269.200	4499.542	-4.870	-39.548	-4.870	39.847	262.980	0.259
4600.000	0.618	258.360	4599.533	-4.990	-40.860	-4.990	41.163	263.037	0.314
4700.000	0.288	303.780	4699.530	-4.959	-41.597	-4.959	41.892	263.202	0.464
4800.000	0.227	162.862	4799.530	-5.009	-41.748	-5.009	42.047	263.159	0.486
4900.000	0.053	95.935	4899.530	-5.203	-41.643	-5.203	41.967	262.878	0.212
5000.000	0.780	127.903	4999.526	-5.626	-41.059	-5.626	41.443	262.198	0.736
5100.000	0.627	169.379	5099.520	-6.582	-40.421	-6.582	40.954	260.751	0.519
5200.000	0.902	150.880	5199.511	-7.808	-39.937	-7.808	40.693	258.938	0.366
5300.000	0.490	114.587	5299.504	-8.673	-39.165	-8.673	40.114	257.513	0.584
5400.000	0.578	171.794	5399.500	-9.351	-38.705	-9.351	39.818	256.418	0.517
5500.000	0.019	250.365	5499.498	-9.856	-38.648	-9.856	39.885	255.693	0.575
5600.000	0.086	80.450	5599.498	-9.849	-38.590	-9.849	39.827	255.682	0.106
5700.000	0.315	31.888	5699.497	-9.603	-38.370	-9.603	39.554	255.949	0.266
5800.000	0.333	28.426	5799.496	-9.114	-38.087	-9.114	39.162	256.542	0.027
5900.000	0.603	6.009	5899.492	-8.335	-37.893	-8.335	38.799	257.595	0.321

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	0.562	26.866	5999.487	-7.374	-37.616	-7.374	38.332	258.909	0.215
6100.000	0.796	77.748	6099.481	-6.789	-36.716	-6.789	37.338	259.524	0.621
6200.000	0.394	21.918	6199.476	-6.323	-35.909	-6.323	36.461	260.014	0.661
6300.000	0.691	23.692	6299.472	-5.452	-35.538	-5.452	35.954	261.278	0.298
6400.000	0.260	6.763	6399.468	-4.674	-35.269	-4.674	35.577	262.451	0.449
6500.000	0.625	23.879	6499.465	-3.950	-35.021	-3.950	35.243	263.566	0.383
6600.000	0.658	32.101	6599.459	-2.965	-34.496	-2.965	34.623	265.088	0.098
6700.000	0.767	40.304	6699.451	-1.968	-33.757	-1.968	33.815	266.664	0.149
6800.000	0.853	72.271	6799.441	-1.230	-32.615	-1.230	32.638	267.840	0.454
6900.000	0.652	65.367	6899.433	-0.766	-31.389	-0.766	31.398	268.601	0.220
7000.000	0.707	92.763	6999.426	-0.559	-30.255	-0.559	30.261	268.942	0.326
7090.000	0.334	90.432	7089.422	-0.588	-29.438	-0.588	29.444	268.856	0.415