



Company/Rig: Noble Energy/ CoreTech  
WELL/API#: Sitzman C 4-22/05-123-25181  
DECLINATION: 8.17 Degrees  
TD AS DRILLED: 7011 Feet  
COUNTY/STATE: Weld/Colorado  
VS-Azi: 0.000 Degrees  
Latitude: 40.34167, Longitude: -104.55061  
Grid North = True North -0.61 degs (NAD 27)  
Grid Correction Applied = -0.61 degs



DEPTH REFERENCE : RKB=GL/ ELEVATION= 4694 Feet

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro\_run01-01.ut

Minimum Curvature Method

Report Date/Time: 9/27/2016 / 10:47

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: Sean Bratt / Sitzman C 4-22

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	0.094	316.779	100.000	0.060	-0.056	0.060	0.082	316.779	0.094
200.000	0.322	146.493	200.000	-0.114	0.042	-0.114	0.121	159.741	0.415
300.000	0.260	109.982	299.998	-0.425	0.410	-0.425	0.591	136.062	0.191
400.000	0.235	102.053	399.997	-0.546	0.823	-0.546	0.987	123.539	0.042
500.000	0.332	125.410	499.996	-0.756	1.260	-0.756	1.469	120.983	0.150
600.000	0.446	144.389	599.994	-1.241	1.723	-1.241	2.123	125.769	0.171
700.000	0.449	142.795	699.991	-1.870	2.186	-1.870	2.877	130.535	0.013
800.000	0.504	149.145	799.987	-2.559	2.649	-2.559	3.683	134.013	0.076
900.000	1.241	189.923	899.976	-4.003	2.688	-4.003	4.822	146.125	0.920
1000.000	1.786	198.589	999.941	-6.547	2.004	-6.547	6.847	162.979	0.589
1100.000	2.719	205.636	1099.863	-10.162	0.481	-10.162	10.174	177.288	0.971
1200.000	3.468	209.507	1199.716	-14.933	-2.034	-14.933	15.071	187.758	0.778
1300.000	3.456	210.891	1299.534	-20.152	-5.072	-20.152	20.780	194.126	0.084
1400.000	3.114	211.689	1399.369	-25.050	-8.046	-25.050	26.310	197.807	0.346
1500.000	2.898	208.771	1499.232	-29.576	-10.689	-29.576	31.449	199.871	0.264
1600.000	2.573	212.236	1599.118	-33.690	-13.103	-33.690	36.149	201.252	0.365

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
1700.000	2.508	211.249	1699.019	-37.459	-15.435	-37.459	40.515	202.394	0.078
1800.000	2.506	213.525	1798.924	-41.152	-17.778	-41.152	44.828	203.364	0.100
1900.000	2.893	211.638	1898.813	-45.123	-20.309	-45.123	49.483	204.231	0.397
2000.000	2.924	212.594	1998.684	-49.420	-23.006	-49.420	54.513	204.963	0.057
2100.000	2.767	202.679	2098.561	-53.796	-25.311	-53.796	59.453	205.197	0.516
2200.000	2.907	205.271	2198.439	-58.316	-27.324	-58.316	64.400	205.105	0.190
2300.000	3.047	194.783	2298.304	-63.179	-29.084	-63.179	69.552	204.719	0.561
2400.000	3.008	191.989	2398.165	-68.315	-30.308	-68.315	74.736	203.924	0.152
2500.000	2.985	190.550	2498.028	-73.441	-31.329	-73.441	79.845	203.103	0.079
2600.000	2.456	200.175	2597.916	-78.012	-32.545	-78.012	84.529	202.645	0.697
2700.000	2.469	203.657	2697.823	-81.997	-34.148	-81.997	88.823	202.610	0.150
2800.000	2.500	192.577	2797.730	-86.098	-35.487	-86.098	93.125	202.400	0.480
2900.000	2.342	194.986	2897.641	-90.199	-36.491	-90.199	97.301	202.026	0.188
3000.000	2.168	188.678	2997.563	-94.043	-37.304	-94.043	101.171	201.637	0.303
3100.000	1.644	168.239	3097.509	-97.317	-37.297	-97.317	104.219	200.970	0.850
3200.000	0.852	183.045	3197.485	-99.464	-37.044	-99.464	106.139	200.427	0.849
3300.000	0.276	71.860	3297.481	-100.132	-36.855	-100.132	106.700	200.207	0.986
3400.000	0.828	53.303	3397.476	-99.626	-36.047	-99.626	105.946	199.891	0.574
3500.000	1.221	36.552	3497.460	-98.338	-34.833	-98.338	104.325	199.505	0.490
3600.000	1.668	36.127	3597.428	-96.306	-33.340	-96.306	101.914	199.095	0.447
3700.000	1.525	28.772	3697.389	-93.965	-31.842	-93.965	99.213	198.720	0.250
3800.000	1.969	41.312	3797.343	-91.508	-30.068	-91.508	96.321	198.189	0.584
3900.000	1.878	53.383	3897.287	-89.240	-27.618	-89.240	93.416	197.196	0.414
4000.000	1.975	33.513	3997.231	-86.826	-25.351	-86.826	90.451	196.277	0.672
4100.000	2.041	34.755	4097.170	-83.926	-23.385	-83.926	87.123	195.570	0.079
4200.000	1.943	16.345	4197.111	-80.836	-21.892	-80.836	83.748	195.154	0.644
4300.000	2.172	14.669	4297.046	-77.376	-20.935	-77.376	80.158	195.140	0.237
4400.000	1.762	10.153	4396.987	-74.029	-20.184	-74.029	76.731	195.251	0.438
4500.000	2.048	6.133	4496.932	-70.739	-19.722	-70.739	73.437	195.579	0.315
4600.000	2.922	7.247	4596.837	-66.434	-19.210	-66.434	69.156	196.128	0.875
4700.000	3.602	0.780	4696.674	-60.765	-18.846	-60.765	63.620	197.231	0.773
4800.000	4.137	5.122	4796.446	-54.031	-18.481	-54.031	57.104	198.883	0.609
4900.000	3.936	6.907	4896.198	-47.031	-17.746	-47.031	50.268	200.673	0.237
5000.000	3.334	10.394	4995.997	-40.764	-16.809	-40.764	44.094	202.408	0.641
5100.000	2.517	4.255	5095.866	-35.714	-16.121	-35.714	39.184	204.294	0.873
5200.000	1.880	356.541	5195.792	-31.887	-16.057	-31.887	35.702	206.729	0.701
5300.000	1.993	356.031	5295.735	-28.515	-16.277	-28.515	32.834	209.718	0.114
5400.000	1.189	350.007	5395.696	-25.759	-16.577	-25.759	30.632	212.763	0.820
5500.000	1.097	328.376	5495.676	-23.922	-17.259	-23.922	29.498	215.809	0.438

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
5600.000	1.057	278.988	5595.660	-22.963	-18.672	-22.963	29.596	219.115	0.901
5700.000	1.095	241.682	5695.644	-23.272	-20.424	-23.272	30.963	221.270	0.689
5800.000	0.611	210.774	5795.633	-24.184	-21.538	-24.184	32.384	221.688	0.651
5900.000	0.693	216.756	5895.627	-25.127	-22.173	-25.127	33.511	221.426	0.106
6000.000	0.579	205.340	5995.621	-26.068	-22.751	-26.068	34.600	221.113	0.170
6100.000	0.557	176.482	6095.616	-27.009	-22.937	-27.009	35.435	220.339	0.284
6200.000	0.215	82.545	6195.614	-27.470	-22.721	-27.470	35.649	219.595	0.611
6300.000	0.242	135.534	6295.613	-27.596	-22.387	-27.596	35.535	219.050	0.205
6400.000	0.240	319.305	6395.613	-27.588	-22.375	-27.588	35.521	219.044	0.481
6500.000	0.512	261.828	6495.611	-27.493	-22.954	-27.493	35.815	219.858	0.433
6600.000	0.538	220.040	6595.607	-27.916	-23.698	-27.916	36.618	220.328	0.375
6700.000	0.386	203.096	6695.604	-28.585	-24.132	-28.585	37.410	220.171	0.203
6750.000	0.431	151.879	6745.603	-28.907	-24.109	-28.907	37.641	219.830	0.711