



COMPANY/RIG: Noble Energy/Production/CoreTech  
WELL/API: Reistad 1/05-123-10835  
DECLINATION: 8.2 Degrees  
TD AS DRILLED: 7030 Feet  
COUNTY/STATE: Weld/Colorado  
VS-Azi: 0.000 Degrees  
Latitude: 40.33595, Longitude: -104.56744  
Grid North = True North -0.60 degs (NAD 27)  
Grid Correction Applied = -0.60 degs



DEPTH REFERENCE : RKB = GL Elevation = 4758

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyrosurvey.ut

Minimum Curvature Method

Report Date/Time: 7/6/2016 / 09:35

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: JUSTIN WILLIAMS / Reistad 1

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	0.526	56.240	99.999	0.255	0.382	0.255	0.459	56.240	0.526
200.000	0.290	68.297	199.996	0.604	0.998	0.604	1.166	58.833	0.250
300.000	0.453	351.560	299.994	1.089	1.175	1.089	1.602	47.183	0.479
400.000	0.584	26.425	399.991	1.936	1.343	1.936	2.357	34.756	0.335
500.000	0.416	64.830	499.987	2.547	1.899	2.547	3.177	36.709	0.365
600.000	0.403	6.501	599.985	3.051	2.268	3.051	3.802	36.620	0.400
700.000	0.515	53.267	699.982	3.670	2.668	3.670	4.537	36.014	0.378
800.000	0.374	85.831	799.979	3.962	3.353	3.962	5.190	40.239	0.284
900.000	0.376	94.689	899.977	3.959	4.005	3.959	5.632	45.333	0.058
1000.000	0.197	101.265	999.976	3.899	4.501	3.899	5.955	49.106	0.181
1100.000	0.219	82.941	1099.975	3.888	4.860	3.888	6.224	51.338	0.070
1200.000	0.224	41.394	1199.974	4.058	5.179	4.058	6.580	51.915	0.157
1300.000	0.191	44.397	1299.974	4.324	5.425	4.324	6.937	51.440	0.035
1400.000	0.167	12.366	1399.973	4.585	5.572	4.585	7.216	50.550	0.101
1500.000	0.170	12.515	1499.973	4.872	5.636	4.872	7.450	49.155	0.003
1600.000	0.078	142.126	1599.973	4.963	5.709	4.963	7.565	48.999	0.228
1700.000	0.076	173.451	1699.972	4.844	5.759	4.844	7.525	49.931	0.042
1800.000	0.102	106.695	1799.972	4.753	5.852	4.753	7.539	50.918	0.101

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
1900.000	0.339	104.354	1899.972	4.653	6.224	4.653	7.772	53.217	0.237
2000.000	0.624	100.100	1999.968	4.484	7.048	4.484	8.354	57.531	0.287
2100.000	0.985	108.039	2099.958	4.123	8.402	4.123	9.359	63.862	0.376
2200.000	0.989	113.573	2199.943	3.511	10.010	3.511	10.608	70.670	0.095
2300.000	0.855	115.568	2299.930	2.844	11.474	2.844	11.821	76.078	0.138
2400.000	0.800	117.898	2399.920	2.196	12.763	2.196	12.951	80.238	0.064
2500.000	0.755	91.961	2499.911	1.847	14.038	1.847	14.159	82.506	0.352
2600.000	0.749	88.391	2599.902	1.843	15.350	1.843	15.460	83.155	0.047
2700.000	0.820	87.007	2699.893	1.898	16.718	1.898	16.825	83.522	0.074
2800.000	0.791	87.400	2799.883	1.967	18.122	1.967	18.229	83.805	0.029
2900.000	0.764	110.590	2899.874	1.764	19.436	1.764	19.516	84.814	0.314
3000.000	0.589	101.574	2999.867	1.426	20.564	1.426	20.613	86.032	0.204
3100.000	0.647	94.251	3099.861	1.281	21.631	1.281	21.669	86.610	0.098
3200.000	0.674	90.099	3199.855	1.238	22.782	1.238	22.816	86.888	0.055
3300.000	0.646	116.204	3299.848	0.988	23.877	0.988	23.897	87.630	0.299
3400.000	0.796	119.060	3399.840	0.402	24.990	0.402	24.993	89.078	0.153
3500.000	0.885	98.166	3499.830	-0.045	26.361	-0.045	26.361	90.098	0.317
3600.000	0.843	110.994	3599.818	-0.418	27.813	-0.418	27.816	90.861	0.198
3700.000	0.915	110.765	3699.807	-0.965	29.246	-0.965	29.262	91.889	0.072
3800.000	0.961	110.025	3799.793	-1.535	30.781	-1.535	30.819	92.855	0.048
3900.000	1.118	109.995	3899.777	-2.156	32.486	-2.156	32.557	93.797	0.156
4000.000	0.889	102.849	3999.761	-2.662	34.158	-2.662	34.262	94.456	0.261
4100.000	0.390	79.928	4099.755	-2.775	35.250	-2.775	35.359	94.501	0.550
4200.000	0.335	42.089	4199.753	-2.498	35.781	-2.498	35.868	93.994	0.241
4300.000	0.694	357.545	4299.749	-1.676	35.951	-1.676	35.990	92.670	0.513
4400.000	0.906	350.473	4399.739	-0.292	35.794	-0.292	35.795	90.467	0.233
4500.000	1.014	347.248	4499.725	1.351	35.468	1.351	35.494	87.819	0.121
4600.000	1.126	336.151	4599.708	3.112	34.876	3.112	35.014	84.901	0.235
4700.000	1.312	328.135	4699.685	4.983	33.874	4.983	34.239	81.632	0.252
4800.000	1.192	322.555	4799.662	6.781	32.637	6.781	33.334	78.262	0.171
4900.000	1.107	321.625	4899.641	8.364	31.405	8.364	32.500	75.086	0.088
5000.000	1.055	320.352	4999.624	9.830	30.218	9.830	31.777	71.979	0.057
5100.000	1.159	327.250	5099.605	11.390	29.083	11.390	31.234	68.612	0.169
5200.000	1.135	322.020	5199.585	13.022	27.926	13.022	30.813	65.001	0.107
5300.000	1.056	331.906	5299.567	14.616	26.883	14.616	30.599	61.468	0.205
5400.000	1.033	329.839	5399.550	16.208	25.996	16.208	30.635	58.057	0.044
5500.000	0.744	354.857	5499.538	17.634	25.485	17.634	30.991	55.320	0.477
5600.000	0.614	352.414	5599.531	18.811	25.356	18.811	31.572	53.429	0.133
5700.000	0.840	342.633	5699.523	20.041	25.067	20.041	32.093	51.357	0.257
5800.000	1.020	5.866	5799.510	21.626	24.939	21.626	33.010	49.069	0.414

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
5900.000	0.962	17.269	5899.496	23.313	25.279	23.313	34.388	47.317	0.205
6000.000	0.954	33.658	5999.482	24.807	25.989	24.807	35.928	46.333	0.273
6100.000	0.916	51.057	6099.469	26.002	27.072	26.002	37.537	46.155	0.285
6200.000	0.875	52.511	6199.457	26.969	28.300	26.969	39.093	46.379	0.047
6300.000	0.673	55.096	6299.447	27.770	29.388	27.770	40.433	46.621	0.205
6400.000	0.346	67.256	6399.443	28.223	30.148	28.223	41.297	46.889	0.343
6500.000	0.391	35.973	6499.441	28.617	30.628	28.617	41.916	46.944	0.204
6600.000	0.197	39.554	6599.440	29.026	30.938	29.026	42.422	46.827	0.195
6700.000	0.118	344.033	6699.440	29.257	31.019	29.257	42.640	46.674	0.163
6800.000	0.649	339.809	6799.437	29.888	30.795	29.888	42.914	45.857	0.531
6850.000	0.761	359.318	6849.433	30.486	30.694	30.486	43.261	45.195	0.527