

COMPANY/RIG: Noble Energy/Production/CoreTech

WELL/API: Thompson 01/05-123-11315

DECLINATION: 8.07

TD AS DRILLED: 7020

COUNTY/STATE: Weld/Colorado

VS-Azi: 0.000 Degrees

Latitude: 40.28166, Longitude: -104.54884

Grid North = True North -0.61 degs (NAD 27)

Grid Correction Applied = -0.61 degs



DEPTH REFERENCE : RKB = GL Elevation = 4723

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyrosurvey.ut

Minimum Curvature Method

Report Date/Time: 7/20/2017 / 15:06

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: JUSTIN WILLIAMS / Thompson 01

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	0.246	48.595	100.000	0.142	0.161	0.142	0.215	48.595	0.246
200.000	0.414	53.171	199.998	0.501	0.612	0.501	0.790	50.686	0.170
300.000	0.200	66.962	299.997	0.786	1.062	0.786	1.321	53.489	0.225
400.000	0.305	128.307	399.996	0.689	1.431	0.689	1.588	64.274	0.273
500.000	0.503	161.783	499.993	0.108	1.776	0.108	1.780	86.524	0.300
600.000	0.798	171.348	599.987	-0.997	2.018	-0.997	2.251	116.292	0.313
700.000	0.791	154.839	699.977	-2.310	2.416	-2.310	3.343	133.712	0.228
800.000	0.771	163.772	799.968	-3.581	2.898	-3.581	4.607	141.019	0.123
900.000	0.890	153.761	899.958	-4.924	3.429	-4.924	6.001	145.143	0.187
1000.000	0.814	167.044	999.947	-6.313	3.932	-6.313	7.437	148.083	0.211
1100.000	0.823	170.942	1099.936	-7.715	4.204	-7.715	8.786	151.410	0.056
1200.000	0.608	170.765	1199.929	-8.948	4.403	-8.948	9.972	153.801	0.216
1300.000	0.385	192.360	1299.925	-9.800	4.416	-9.800	10.749	155.743	0.287
1400.000	0.555	176.403	1399.921	-10.611	4.374	-10.611	11.477	157.597	0.213
1500.000	0.355	199.719	1499.918	-11.386	4.300	-11.386	12.171	159.310	0.269
1600.000	0.360	164.162	1599.916	-11.980	4.281	-11.980	12.722	160.333	0.218

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	0.540	177.840	1699.913	-12.752	4.385	-12.752	13.485	161.024	0.208
1800.000	0.510	187.948	1799.909	-13.663	4.341	-13.663	14.337	162.373	0.097
1900.000	0.629	221.065	1899.905	-14.518	3.919	-14.518	15.037	164.892	0.344
2000.000	0.683	224.285	1999.898	-15.358	3.143	-15.358	15.676	168.434	0.065
2100.000	0.883	236.085	2099.889	-16.214	2.087	-16.214	16.348	172.665	0.256
2200.000	0.802	227.975	2199.878	-17.113	0.927	-17.113	17.138	176.898	0.144
2300.000	0.624	237.126	2299.870	-17.877	-0.050	-17.877	17.877	180.159	0.211
2400.000	0.726	250.229	2399.863	-18.387	-1.103	-18.387	18.420	183.433	0.185
2500.000	0.344	238.255	2499.859	-18.759	-1.955	-18.759	18.861	185.950	0.396
2600.000	0.313	216.985	2599.857	-19.136	-2.375	-19.136	19.283	187.075	0.125
2700.000	0.277	212.623	2699.856	-19.558	-2.670	-19.558	19.739	187.773	0.043
2800.000	0.247	210.861	2799.855	-19.946	-2.910	-19.946	20.157	188.302	0.031
2900.000	0.297	204.865	2899.854	-20.366	-3.130	-20.366	20.605	188.737	0.057
3000.000	0.319	171.895	2999.852	-20.877	-3.200	-20.877	21.120	188.713	0.176
3100.000	0.523	180.996	3099.849	-21.609	-3.168	-21.609	21.840	188.341	0.214
3200.000	0.520	190.085	3199.845	-22.512	-3.256	-22.512	22.746	188.229	0.083
3300.000	0.134	192.916	3299.844	-23.073	-3.361	-23.073	23.317	188.289	0.387
3400.000	0.371	270.849	3399.843	-23.182	-3.711	-23.182	23.477	189.094	0.367
3500.000	0.686	276.186	3499.838	-23.113	-4.630	-23.113	23.572	191.327	0.319
3600.000	0.834	276.093	3599.830	-22.971	-5.948	-22.971	23.729	194.518	0.148
3700.000	0.583	263.822	3699.822	-22.949	-7.178	-22.949	24.045	197.369	0.291
3800.000	0.615	252.864	3799.816	-23.162	-8.197	-23.162	24.569	199.489	0.119
3900.000	0.510	220.675	3899.812	-23.657	-9.000	-23.657	25.312	200.828	0.328
4000.000	0.376	243.275	3999.809	-24.143	-9.583	-24.143	25.975	201.650	0.218
4100.000	0.253	235.454	4099.807	-24.416	-10.059	-24.416	26.407	202.390	0.130
4200.000	0.186	203.387	4199.807	-24.690	-10.305	-24.690	26.755	202.654	0.137
4300.000	0.166	207.337	4299.806	-24.968	-10.436	-24.968	27.062	202.684	0.023
4400.000	0.170	198.552	4399.806	-25.238	-10.550	-25.238	27.354	202.686	0.026
4500.000	0.252	170.079	4499.805	-25.595	-10.559	-25.595	27.687	202.419	0.131
4600.000	0.539	158.551	4599.803	-26.249	-10.349	-26.249	28.216	201.518	0.296
4700.000	0.563	179.488	4699.798	-27.178	-10.173	-27.178	29.020	200.521	0.202
4800.000	1.151	191.200	4799.787	-28.656	-10.364	-28.656	30.472	199.883	0.611
4900.000	1.068	210.465	4899.768	-30.445	-11.032	-30.445	32.382	199.918	0.380
5000.000	0.761	211.509	4999.755	-31.815	-11.851	-31.815	33.951	200.431	0.308
5100.000	0.613	180.885	5099.748	-32.916	-12.207	-32.916	35.106	200.347	0.390
5200.000	0.433	188.467	5199.744	-33.824	-12.271	-33.824	35.981	199.940	0.192
5300.000	0.510	161.130	5299.741	-34.618	-12.182	-34.618	36.699	199.387	0.235
5400.000	0.142	19.787	5399.740	-34.922	-11.997	-34.922	36.925	198.959	0.627
5500.000	0.258	86.463	5499.739	-34.792	-11.729	-34.792	36.716	198.631	0.241

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	0.370	41.929	5599.738	-34.538	-11.289	-34.538	36.336	198.100	0.259
5700.000	0.256	50.947	5699.736	-34.157	-10.900	-34.157	35.854	197.698	0.123
5800.000	0.528	83.003	5799.734	-33.960	-10.269	-33.960	35.479	196.824	0.340
5900.000	0.285	80.500	5899.731	-33.863	-9.566	-33.863	35.188	195.774	0.244
6000.000	0.518	108.668	5999.729	-33.966	-8.892	-33.966	35.111	194.670	0.298
6100.000	0.786	103.297	6099.722	-34.269	-7.796	-34.269	35.144	192.817	0.275
6200.000	0.933	114.761	6199.711	-34.767	-6.389	-34.767	35.350	190.413	0.225
6300.000	1.147	113.172	6299.695	-35.502	-4.730	-35.502	35.816	187.588	0.216
6400.000	1.372	118.929	6399.671	-36.475	-2.762	-36.475	36.580	184.330	0.257
6500.000	1.442	117.526	6499.640	-37.636	-0.598	-37.636	37.641	180.911	0.078
6600.000	1.551	123.256	6599.606	-38.959	1.649	-38.959	38.994	177.576	0.185
6650.000	1.489	124.251	6649.589	-39.696	2.752	-39.696	39.791	176.034	0.135