



COMPANY/RIG: Noble Energy/Production/CoreTech
WELL/API: Ocoma B29-25/05-123-22215
DECLINATION: 8.2 Degrees
TD AS DRILLED: 7133 Feet
COUNTY/STATE: Weld/Colorado
VS-Azi: 0.000 Degrees
Latitude: 40.36701, Longitude: -104.57814
Grid North = True North -0.60 degs (NAD 27)
Grid Correction Applied = -0.60 degs



DEPTH REFERENCE : RKB = GL Elevation = 4718

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyrosurvey.ut

Minimum Curvature Method

Report Date/Time: 7/6/2016 / 09:23

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: JUSTIN WILLIAMS / Ocoma B29-25

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	0.418	215.163	99.999	-0.298	-0.210	-0.298	0.364	215.163	0.418
200.000	0.226	216.254	199.997	-0.755	-0.536	-0.755	0.926	215.395	0.192
300.000	0.207	180.385	299.997	-1.095	-0.654	-1.095	1.275	210.859	0.135
400.000	0.106	188.925	399.996	-1.367	-0.670	-1.367	1.522	206.101	0.104
500.000	0.160	101.233	499.996	-1.485	-0.547	-1.485	1.583	200.221	0.188
600.000	0.151	113.934	599.996	-1.566	-0.290	-1.566	1.592	190.482	0.035
700.000	0.089	146.730	699.996	-1.684	-0.127	-1.684	1.689	184.295	0.090
800.000	0.182	41.974	799.995	-1.631	0.022	-1.631	1.631	179.210	0.222
900.000	0.259	100.501	899.995	-1.554	0.351	-1.554	1.594	167.260	0.226
1000.000	0.101	75.555	999.994	-1.574	0.659	-1.574	1.706	157.263	0.173
1100.000	0.095	131.135	1099.994	-1.606	0.807	-1.606	1.798	153.313	0.092
1200.000	0.100	136.897	1199.994	-1.725	0.930	-1.725	1.959	151.672	0.011
1300.000	0.106	129.160	1299.994	-1.847	1.061	-1.847	2.130	150.122	0.015
1400.000	0.020	180.469	1399.994	-1.923	1.132	-1.923	2.232	149.505	0.094
1500.000	0.053	300.285	1499.994	-1.917	1.093	-1.917	2.207	150.323	0.065
1600.000	0.200	254.984	1599.994	-1.940	0.884	-1.940	2.132	155.495	0.168
1700.000	0.259	266.019	1699.993	-2.001	0.490	-2.001	2.060	166.251	0.073
1800.000	0.173	269.998	1799.992	-2.016	0.112	-2.016	2.019	176.808	0.087

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	0.261	331.097	1899.991	-1.816	-0.149	-1.816	1.823	184.696	0.234
2000.000	0.654	347.916	1999.988	-1.059	-0.379	-1.059	1.124	199.700	0.411
2100.000	0.895	2.230	2099.979	0.280	-0.468	0.280	0.545	300.880	0.307
2200.000	1.055	5.593	2199.964	1.976	-0.348	1.976	2.007	350.012	0.170
2300.000	1.066	17.954	2299.947	3.777	0.028	3.777	3.777	0.429	0.229
2400.000	1.103	26.169	2399.930	5.525	0.739	5.525	5.575	7.622	0.160
2500.000	1.127	18.841	2499.911	7.320	1.482	7.320	7.469	11.442	0.145
2600.000	1.398	18.189	2599.886	9.410	2.180	9.410	9.659	13.043	0.271
2700.000	1.514	10.529	2699.854	11.867	2.802	11.867	12.194	13.285	0.226
2800.000	1.581	7.463	2799.818	14.534	3.223	14.534	14.887	12.502	0.107
2900.000	1.899	356.704	2899.772	17.557	3.307	17.557	17.865	10.666	0.455
3000.000	2.008	356.812	2999.714	20.960	3.114	20.960	21.190	8.450	0.108
3100.000	1.297	8.476	3099.672	23.828	3.183	23.828	24.040	7.609	0.783
3200.000	0.615	23.713	3199.657	25.439	3.566	25.439	25.687	7.980	0.722
3300.000	0.559	32.687	3299.652	26.340	4.045	26.340	26.649	8.731	0.108
3400.000	0.528	44.994	3399.648	27.077	4.634	27.077	27.470	9.712	0.121
3500.000	0.432	104.885	3499.645	27.305	5.324	27.305	27.819	11.033	0.486
3600.000	0.932	156.804	3599.638	26.460	6.009	26.460	27.134	12.795	0.748
3700.000	1.080	163.208	3699.623	24.810	6.602	24.810	25.674	14.901	0.185
3800.000	1.109	163.150	3799.604	22.982	7.155	22.982	24.070	17.292	0.029
3900.000	1.107	168.646	3899.586	21.109	7.625	21.109	22.444	19.862	0.106
4000.000	1.105	166.035	3999.567	19.225	8.048	19.225	20.842	22.716	0.050
4100.000	1.024	174.157	4099.550	17.400	8.372	17.400	19.310	25.694	0.171
4200.000	0.980	197.997	4199.535	15.698	8.199	15.698	17.710	27.577	0.416
4300.000	0.652	214.281	4299.525	14.415	7.614	14.415	16.303	27.844	0.398
4400.000	0.615	249.414	4399.519	13.757	6.792	13.757	15.342	26.275	0.384
4500.000	0.729	265.989	4499.512	13.523	5.654	13.523	14.658	22.690	0.224
4600.000	0.800	256.673	4599.503	13.318	4.339	13.318	14.007	18.048	0.143
4700.000	0.876	257.164	4699.493	12.987	2.915	12.987	13.310	12.649	0.076
4800.000	0.749	261.806	4799.483	12.724	1.523	12.724	12.815	6.825	0.143
4900.000	0.264	280.790	4899.479	12.674	0.650	12.674	12.691	2.937	0.507
5000.000	0.240	296.041	4999.478	12.809	0.236	12.809	12.811	1.056	0.071
5100.000	0.399	354.650	5099.476	13.247	0.016	13.247	13.247	0.068	0.342
5200.000	0.487	19.357	5199.473	13.994	0.124	13.994	13.995	0.508	0.208
5300.000	0.665	29.001	5299.468	14.903	0.546	14.903	14.913	2.099	0.203
5400.000	0.702	28.274	5399.461	15.950	1.118	15.950	15.989	4.010	0.038
5500.000	0.144	334.314	5499.458	16.603	1.354	16.603	16.658	4.661	0.628
5600.000	0.503	236.909	5599.457	16.477	0.932	16.477	16.503	3.236	0.540
5700.000	0.645	241.669	5699.452	15.971	0.069	15.971	15.971	0.248	0.150
5800.000	0.771	249.366	5799.444	15.467	-1.056	15.467	15.503	356.093	0.158

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	0.776	257.812	5899.435	15.086	-2.348	15.086	15.268	351.152	0.114
6000.000	0.714	247.299	5999.427	14.703	-3.585	14.703	15.134	346.295	0.150
6100.000	0.542	252.247	6099.421	14.318	-4.610	14.318	15.042	342.152	0.181
6200.000	0.465	270.953	6199.417	14.181	-5.466	14.181	15.198	338.920	0.180
6300.000	0.549	272.082	6299.413	14.205	-6.351	14.205	15.560	335.912	0.084
6400.000	0.560	275.543	6399.408	14.270	-7.315	14.270	16.036	332.858	0.035
6500.000	0.608	273.178	6499.403	14.346	-8.331	14.346	16.590	329.856	0.053
6600.000	0.257	264.972	6599.400	14.356	-9.084	14.356	16.989	327.675	0.355
6700.000	0.383	144.771	6699.399	14.063	-9.115	14.063	16.759	327.050	0.559
6800.000	0.270	144.698	6799.398	13.598	-8.786	13.598	16.190	327.132	0.114
6850.000	0.301	140.778	6849.397	13.401	-8.636	13.401	15.942	327.202	0.073