



COMPANY/RIG: Noble Energy/Production/CoreTech  
WELL/API: Cox PM C 8-5/05-123-14173  
DECLINATION: 8.21 Degrees  
TD AS DRILLED: 7189 Feet  
COUNTY/STATE: Weld/Colorado  
VS-Azi: 0.000 Degrees  
Latitude: 40.32917, Longitude: -104.58206  
Grid North = True North -0.59 degs (NAD 27)  
Grid Correction Applied = -0.59 degs



DEPTH REFERENCE : RKB = GL Elevation = 4802

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyrosurvey.ut

Minimum Curvature Method

Report Date/Time: 5/31/2016 / 16:08

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: JUSTIN WILLIAMS / Cox PM C 8-5

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	0.274	121.683	100.000	-0.126	0.204	-0.126	0.239	121.683	0.274
200.000	0.281	97.597	199.998	-0.284	0.650	-0.284	0.710	113.579	0.116
300.000	0.357	71.970	299.997	-0.220	1.190	-0.220	1.210	100.471	0.160
400.000	0.402	61.911	399.995	0.042	1.796	0.042	1.796	88.665	0.080
500.000	0.423	56.712	499.992	0.410	2.414	0.410	2.448	80.367	0.043
600.000	0.290	63.165	599.990	0.727	2.948	0.727	3.037	76.156	0.139
700.000	0.332	49.913	699.989	1.028	3.396	1.028	3.548	73.166	0.083
800.000	0.377	59.459	799.987	1.382	3.902	1.382	4.139	70.500	0.074
900.000	0.335	66.642	899.985	1.665	4.454	1.665	4.755	69.503	0.062
1000.000	0.232	78.763	999.984	1.820	4.921	1.820	5.246	69.700	0.118
1100.000	0.228	85.935	1099.983	1.874	5.318	1.874	5.639	70.590	0.029
1200.000	0.140	123.486	1199.982	1.820	5.619	1.820	5.907	72.050	0.145
1300.000	0.095	27.693	1299.982	1.826	5.760	1.826	6.043	72.407	0.178
1400.000	0.153	37.810	1399.982	2.006	5.881	2.006	6.214	71.166	0.062
1500.000	0.250	83.772	1499.981	2.135	6.180	2.135	6.539	70.938	0.181
1600.000	0.291	68.190	1599.980	2.254	6.633	2.254	7.005	71.235	0.084
1700.000	0.563	48.821	1699.978	2.671	7.239	2.671	7.716	69.745	0.303
1800.000	0.618	17.753	1799.972	3.508	7.772	3.508	8.527	65.710	0.320

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	0.736	25.707	1899.966	4.599	8.215	4.599	9.415	60.757	0.151
2000.000	0.803	20.806	1999.956	5.833	8.743	5.833	10.510	56.289	0.094
2100.000	1.020	14.069	2099.944	7.352	9.208	7.352	11.783	51.395	0.242
2200.000	1.150	6.316	2199.926	9.213	9.535	9.213	13.259	45.984	0.195
2300.000	1.094	7.208	2299.907	11.158	9.765	11.158	14.827	41.192	0.058
2400.000	0.794	349.200	2399.893	12.786	9.755	12.786	16.082	37.342	0.419
2500.000	0.662	335.126	2499.885	13.991	9.382	13.991	16.846	33.845	0.222
2600.000	0.639	309.239	2599.879	14.868	8.707	14.868	17.230	30.355	0.292
2700.000	0.584	321.495	2699.873	15.619	7.958	15.619	17.530	27.000	0.142
2800.000	0.638	319.698	2799.868	16.442	7.281	16.442	17.982	23.885	0.058
2900.000	0.578	316.077	2899.862	17.230	6.571	17.230	18.441	20.876	0.072
3000.000	0.813	297.132	2999.855	17.917	5.590	17.917	18.769	17.327	0.326
3100.000	0.788	316.987	3099.845	18.743	4.489	18.743	19.273	13.470	0.277
3200.000	0.962	309.827	3199.833	19.784	3.376	19.784	20.070	9.683	0.206
3300.000	0.575	290.785	3299.824	20.500	2.261	20.500	20.624	6.294	0.459
3400.000	0.224	334.815	3399.822	20.855	1.709	20.855	20.925	4.684	0.443
3500.000	0.569	134.147	3499.821	20.686	1.982	20.686	20.780	5.473	0.783
3600.000	1.552	134.632	3599.802	19.388	3.302	19.388	19.667	9.667	0.983
3700.000	1.699	134.807	3699.762	17.391	5.318	17.391	18.186	17.003	0.147
3800.000	1.715	131.746	3799.718	15.350	7.487	15.350	17.079	26.001	0.093
3900.000	1.350	132.318	3899.682	13.560	9.475	13.560	16.542	34.942	0.366
4000.000	1.140	137.411	3999.658	12.035	11.019	12.035	16.317	42.477	0.237
4100.000	0.493	125.799	4099.648	11.051	12.041	11.051	16.343	47.456	0.664
4200.000	0.315	136.022	4199.645	10.601	12.581	10.601	16.452	49.880	0.192
4300.000	0.250	277.596	4299.644	10.433	12.555	10.433	16.324	50.276	0.534
4400.000	0.859	281.287	4399.639	10.608	11.604	10.608	15.722	47.567	0.610
4500.000	1.164	294.350	4499.624	11.174	9.944	11.174	14.958	41.668	0.380
4600.000	1.209	295.535	4599.602	12.047	8.067	12.047	14.498	33.806	0.052
4700.000	1.286	298.407	4699.579	13.036	6.128	13.036	14.404	25.176	0.099
4800.000	1.371	312.629	4799.552	14.380	4.260	14.380	14.998	16.502	0.340
4900.000	0.803	316.537	4899.534	15.699	2.898	15.699	15.964	10.458	0.573
5000.000	0.864	351.391	4999.524	16.953	2.303	16.953	17.108	7.736	0.503
5100.000	1.312	338.528	5099.506	18.764	1.771	18.764	18.847	5.392	0.508
5200.000	1.465	323.953	5199.476	20.864	0.599	20.864	20.872	1.646	0.384
5300.000	1.017	322.203	5299.453	22.598	-0.697	22.598	22.609	358.234	0.450
5400.000	0.939	335.742	5399.438	24.046	-1.577	24.046	24.098	356.248	0.243
5500.000	0.956	11.972	5499.425	25.610	-1.741	25.610	25.669	356.112	0.589
5600.000	0.409	74.479	5599.419	26.521	-1.223	26.521	26.550	357.359	0.849
5700.000	0.468	105.778	5699.416	26.506	-0.486	26.506	26.510	358.949	0.243
5800.000	0.374	121.855	5799.414	26.222	0.185	26.222	26.223	0.403	0.150

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	0.359	108.425	5899.412	25.951	0.759	25.951	25.962	1.675	0.087
6000.000	0.586	103.484	5999.408	25.733	1.553	25.733	25.780	3.453	0.230
6100.000	0.849	126.204	6099.400	25.176	2.648	25.176	25.315	6.003	0.383
6200.000	0.455	106.558	6199.394	24.626	3.626	24.626	24.891	8.377	0.447
6300.000	0.658	117.958	6299.389	24.243	4.514	24.243	24.660	10.548	0.230
6400.000	0.711	118.651	6399.382	23.677	5.566	23.677	24.322	13.228	0.053
6500.000	0.675	109.417	6499.375	23.184	6.665	23.184	24.123	16.039	0.117
6600.000	0.733	128.851	6599.367	22.587	7.718	22.587	23.869	18.867	0.244
6700.000	0.426	108.367	6699.362	22.068	8.569	22.068	23.674	21.222	0.366
6800.000	0.511	128.230	6799.359	21.675	9.272	21.675	23.575	23.161	0.182
6900.000	0.417	145.162	6899.356	21.100	9.831	21.100	23.278	24.981	0.165
6950.000	0.532	142.228	6949.354	20.767	10.077	20.767	23.083	25.884	0.234