



Company/Rig: Noble Energy/ CoreTech  
WELL/API#: Ocoma UPRR Lease B29-14/05-123-13393  
DECLINATION: 8.21 Degrees  
TD AS DRILLED: 7098 Feet  
COUNTY/STATE: Weld/Colorado  
VS-Azi: 0.000 Degrees  
Latitude: 40.36465, Longitude: -104.57607  
Grid North = True North -0.60 degs (NAD 27)  
Grid Correction Applied = -0.60 degs



DEPTH REFERENCE : RKB=GL/ ELEVATION= 4714 Feet

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro\_run01-01-de\_01.ut

Minimum Curvature Method

Report Date/Time: 7/6/2016 / 08:49

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: Sean Bratt / Ocoma UPRR Lease B29-14

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	0.309	137.660	100.000	-0.199	0.182	-0.199	0.270	137.660	0.309
200.000	0.491	43.150	199.998	-0.086	0.656	-0.086	0.662	97.461	0.600
300.000	0.549	50.994	299.994	0.528	1.322	0.528	1.423	68.208	0.092
400.000	0.439	11.837	399.990	1.205	1.773	1.205	2.144	55.788	0.347
500.000	0.680	15.594	499.985	2.152	2.011	2.152	2.945	43.060	0.243
600.000	0.725	34.924	599.978	3.242	2.533	3.242	4.114	37.995	0.240
700.000	0.390	37.031	699.973	4.033	3.100	4.033	5.087	37.549	0.336
800.000	0.286	24.788	799.971	4.531	3.410	4.531	5.671	36.961	0.126
900.000	0.284	5.289	899.970	5.005	3.537	5.005	6.128	35.252	0.097
1000.000	0.479	12.385	999.968	5.659	3.650	5.659	6.734	32.817	0.200
1100.000	0.227	33.084	1099.966	6.233	3.847	6.233	7.325	31.683	0.279
1200.000	0.346	71.650	1199.965	6.494	4.242	6.494	7.757	33.152	0.220
1300.000	0.279	65.844	1299.963	6.689	4.751	6.689	8.205	35.385	0.074
1400.000	0.412	81.124	1399.962	6.844	5.329	6.844	8.674	37.903	0.161
1500.000	0.542	92.665	1499.958	6.878	6.156	6.878	9.231	41.832	0.161
1600.000	0.566	89.731	1599.953	6.858	7.122	6.858	9.887	46.082	0.037
1700.000	0.544	97.247	1699.949	6.800	8.087	6.800	10.566	49.938	0.076
1800.000	0.158	3.746	1799.947	6.878	8.567	6.878	10.986	51.241	0.576

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	0.408	6.206	1899.946	7.369	8.614	7.369	11.336	49.454	0.251
2000.000	0.439	14.801	1999.943	8.094	8.751	8.094	11.920	47.232	0.071
2100.000	0.621	352.571	2099.939	9.003	8.779	9.003	12.574	44.279	0.271
2200.000	0.496	18.982	2199.934	9.949	8.849	9.949	13.315	41.651	0.283
2300.000	0.559	17.522	2299.930	10.824	9.137	10.824	14.164	40.170	0.064
2400.000	0.626	21.699	2399.925	11.796	9.486	11.796	15.137	38.804	0.080
2500.000	0.738	8.816	2499.918	12.941	9.787	12.941	16.225	37.098	0.189
2600.000	0.456	14.864	2599.912	13.963	9.988	13.963	17.167	35.576	0.289
2700.000	0.320	13.440	2699.910	14.620	10.155	14.620	17.800	34.783	0.136
2800.000	0.461	346.550	2799.908	15.283	10.126	15.283	18.333	33.528	0.227
2900.000	0.139	59.363	2899.906	15.736	10.137	15.736	18.718	32.791	0.440
3000.000	0.054	135.600	2999.906	15.764	10.275	15.764	18.817	33.098	0.137
3100.000	0.286	103.124	3099.906	15.673	10.552	15.673	18.894	33.950	0.242
3200.000	0.410	92.724	3199.904	15.599	11.152	15.599	19.176	35.560	0.138
3300.000	0.575	89.436	3299.900	15.587	12.010	15.587	19.678	37.615	0.167
3400.000	0.494	92.042	3399.896	15.577	12.943	15.577	20.252	39.723	0.084
3500.000	0.461	95.977	3499.892	15.520	13.774	15.520	20.751	41.590	0.047
3600.000	0.328	92.377	3599.890	15.466	14.461	15.466	21.173	43.076	0.135
3700.000	0.274	94.494	3699.888	15.435	14.986	15.435	21.513	44.153	0.055
3800.000	0.121	98.198	3799.888	15.401	15.329	15.401	21.730	44.864	0.154
3900.000	0.080	317.131	3899.888	15.437	15.386	15.437	21.795	44.904	0.190
4000.000	0.444	326.573	3999.887	15.812	15.125	15.812	21.881	43.727	0.366
4100.000	0.436	315.674	4099.884	16.408	14.645	16.408	21.994	41.750	0.084
4200.000	0.778	324.050	4199.878	17.230	13.981	17.230	22.189	39.056	0.352
4300.000	1.341	316.133	4299.860	18.624	12.771	18.624	22.582	34.440	0.581
4400.000	1.458	317.975	4399.831	20.412	11.108	20.412	23.239	28.555	0.125
4500.000	1.725	308.567	4499.792	22.295	9.080	22.295	24.074	22.160	0.372
4600.000	1.874	323.622	4599.743	24.550	6.934	24.550	25.510	15.772	0.494
4700.000	2.068	316.952	4699.684	27.184	4.733	27.184	27.593	9.876	0.300
4800.000	2.390	319.708	4799.608	30.093	2.153	30.093	30.170	4.092	0.340
4900.000	2.494	319.679	4899.518	33.343	-0.604	33.343	33.348	358.963	0.103
5000.000	2.217	313.337	4999.433	36.329	-3.418	36.329	36.490	354.625	0.380
5100.000	1.341	316.100	5099.384	38.500	-5.637	38.500	38.910	351.671	0.880
5200.000	0.542	302.548	5199.370	39.598	-6.847	39.598	40.185	350.190	0.824
5300.000	0.506	272.751	5299.366	39.873	-7.687	39.873	40.608	349.088	0.272
5400.000	0.842	216.436	5399.360	39.304	-8.564	39.304	40.226	347.707	0.701
5500.000	1.344	209.177	5499.341	37.689	-9.572	37.689	38.885	345.749	0.520
5600.000	1.439	180.007	5599.313	35.408	-10.144	35.408	36.833	344.013	0.707
5700.000	0.963	184.613	5699.291	33.315	-10.212	33.315	34.845	342.958	0.486
5800.000	1.183	168.216	5799.273	31.467	-10.069	31.467	33.039	342.256	0.376

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	1.629	173.215	5899.243	29.045	-9.690	29.045	30.619	341.550	0.463
6000.000	1.681	181.186	5999.202	26.167	-9.553	26.167	27.856	339.945	0.236
6100.000	1.718	178.102	6099.158	23.202	-9.533	23.202	25.084	337.663	0.099