



COMPANY/RIG: Noble Energy/Production/CoreTech
WELL/API: Wilmoth C 5-6/05-123-22051
DECLINATION: 8.21 Degrees
TD AS DRILLED: 7113 Feet
COUNTY/STATE: Weld/Colorado
VS-Azi: 0.000 Degrees
Latitude: 40.34316, Longitude: -104.57655
Grid North = True North -0.60 degs (NAD 27)
Grid Correction Applied = -0.60 degs



DEPTH REFERENCE : RKB = GL Elevation = 4731

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyrosurvey.ut

Minimum Curvature Method

Report Date/Time: 6/16/2016 / 10:41

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: JUSTIN WILLIAMS / Wilmoth C 5-6

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	0.194	249.373	100.000	-0.060	-0.158	-0.060	0.169	249.373	0.194
200.000	0.410	215.786	199.998	-0.409	-0.526	-0.409	0.667	232.096	0.271
300.000	0.555	198.591	299.995	-1.159	-0.890	-1.159	1.461	217.507	0.204
400.000	0.512	203.206	399.991	-2.029	-1.220	-2.029	2.368	211.020	0.061
500.000	0.632	197.738	499.986	-2.965	-1.564	-2.965	3.353	207.814	0.132
600.000	0.909	189.569	599.976	-4.273	-1.864	-4.273	4.663	203.571	0.298
700.000	0.780	181.105	699.966	-5.737	-2.010	-5.737	6.078	199.305	0.180
800.000	0.911	177.361	799.955	-7.211	-1.986	-7.211	7.480	195.398	0.142
900.000	1.163	179.440	899.938	-9.020	-1.940	-9.020	9.226	192.135	0.254
1000.000	1.223	176.372	999.917	-11.099	-1.862	-11.099	11.254	189.524	0.088
1100.000	1.095	182.192	1099.896	-13.119	-1.831	-13.119	13.247	187.946	0.174
1200.000	1.122	173.314	1199.878	-15.046	-1.754	-15.046	15.148	186.648	0.174
1300.000	0.953	166.439	1299.861	-16.827	-1.445	-16.827	16.889	184.907	0.209
1400.000	0.785	157.594	1399.850	-18.268	-0.989	-18.268	18.295	183.098	0.215
1500.000	0.576	139.223	1499.843	-19.282	-0.399	-19.282	19.286	181.186	0.299
1600.000	0.153	177.209	1599.840	-19.796	-0.065	-19.796	19.796	180.187	0.465
1700.000	0.052	301.731	1699.840	-19.906	-0.096	-19.906	19.906	180.277	0.187
1800.000	0.623	230.348	1799.838	-20.229	-0.553	-20.229	20.237	181.567	0.609

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	0.599	235.452	1899.833	-20.873	-1.403	-20.873	20.920	183.845	0.059
2000.000	0.629	228.269	1999.827	-21.535	-2.243	-21.535	21.652	185.948	0.082
2100.000	0.791	266.592	2099.820	-21.941	-3.342	-21.941	22.195	188.661	0.491
2200.000	0.876	276.578	2199.809	-21.895	-4.791	-21.895	22.413	192.342	0.168
2300.000	0.932	280.854	2299.797	-21.654	-6.349	-21.654	22.566	196.341	0.088
2400.000	0.795	304.232	2399.786	-21.111	-7.722	-21.111	22.479	200.091	0.375
2500.000	0.835	309.559	2499.776	-20.256	-8.857	-20.256	22.108	203.618	0.086
2600.000	0.616	306.030	2599.768	-19.476	-9.854	-19.476	21.827	206.837	0.224
2700.000	0.742	314.598	2699.760	-18.705	-10.750	-18.705	21.574	209.886	0.162
2800.000	0.903	305.321	2799.750	-17.795	-11.854	-17.795	21.381	213.669	0.208
2900.000	0.727	301.125	2899.740	-17.011	-13.039	-17.011	21.434	217.471	0.185
3000.000	0.366	338.613	2999.736	-16.386	-13.699	-16.386	21.358	219.897	0.490
3100.000	0.278	70.652	3099.735	-16.008	-13.587	-16.008	20.997	220.323	0.468
3200.000	0.621	99.521	3199.731	-16.017	-12.824	-16.017	20.518	218.682	0.400
3300.000	1.187	100.911	3299.719	-16.303	-11.272	-16.303	19.820	214.662	0.567
3400.000	1.621	101.736	3399.688	-16.787	-8.870	-16.787	18.986	207.853	0.434
3500.000	1.263	108.769	3499.657	-17.429	-6.442	-17.429	18.581	200.286	0.399
3600.000	1.114	148.465	3599.637	-18.612	-4.890	-18.612	19.244	194.722	0.819
3700.000	1.380	172.564	3699.614	-20.635	-4.226	-20.635	21.063	191.574	0.582
3800.000	1.306	173.086	3799.586	-22.959	-3.933	-22.959	23.294	189.720	0.075
3900.000	1.245	173.564	3899.561	-25.170	-3.674	-25.170	25.437	188.305	0.061
4000.000	0.769	160.330	3999.546	-26.882	-3.326	-26.882	27.087	187.054	0.527
4100.000	0.683	124.868	4099.538	-27.855	-2.611	-27.855	27.977	185.356	0.450
4200.000	0.614	69.709	4199.533	-28.010	-1.620	-28.010	28.057	183.310	0.603
4300.000	0.988	47.024	4299.523	-27.236	-0.487	-27.236	27.241	181.024	0.483
4400.000	1.052	50.466	4399.507	-26.064	0.852	-26.064	26.078	178.128	0.089
4500.000	1.616	50.091	4499.480	-24.575	2.642	-24.575	24.717	173.864	0.564
4600.000	2.163	54.668	4599.425	-22.579	5.264	-22.579	23.184	166.877	0.567
4700.000	3.057	51.144	4699.320	-19.814	8.880	-19.814	21.713	155.860	0.908
4800.000	3.318	51.195	4799.165	-16.328	13.212	-16.328	21.003	141.021	0.261
4900.000	2.340	52.124	4899.042	-13.261	17.079	-13.261	21.622	127.827	0.979
5000.000	2.140	51.943	4998.966	-10.856	20.160	-10.856	22.897	118.303	0.200
5100.000	1.607	60.150	5098.912	-9.008	22.846	-9.008	24.558	111.519	0.595
5200.000	1.081	72.083	5198.885	-8.020	24.959	-8.020	26.216	107.813	0.593
5300.000	0.694	103.985	5298.873	-7.876	26.444	-7.876	27.592	106.585	0.613
5400.000	0.852	129.861	5398.864	-8.499	27.603	-8.499	28.881	107.113	0.379
5500.000	1.565	103.597	5498.842	-9.296	29.500	-9.296	30.930	107.491	0.885
5600.000	1.318	75.893	5598.811	-9.337	31.942	-9.337	33.279	106.294	0.730
5700.000	0.937	37.360	5698.793	-8.406	33.554	-8.406	34.591	104.065	0.826
5800.000	0.973	2.754	5798.780	-6.908	34.091	-6.908	34.784	101.454	0.569

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	0.824	354.994	5898.768	-5.343	34.069	-5.343	34.486	98.912	0.192
6000.000	0.675	2.031	5998.759	-4.037	34.027	-4.037	34.266	96.766	0.175
6100.000	0.555	10.822	6098.754	-2.972	34.139	-2.972	34.268	94.976	0.152
6200.000	0.493	344.189	6198.750	-2.083	34.113	-2.083	34.177	93.494	0.249
6300.000	0.417	343.094	6298.746	-1.321	33.890	-1.321	33.916	92.231	0.076
6400.000	0.030	92.490	6398.745	-0.973	33.810	-0.973	33.824	91.649	0.428
6500.000	0.263	116.918	6498.745	-1.078	34.040	-1.078	34.058	91.814	0.236
6600.000	0.225	137.465	6598.744	-1.327	34.378	-1.327	34.403	92.210	0.095
6700.000	0.382	169.893	6698.743	-1.799	34.569	-1.799	34.616	92.980	0.227
6800.000	0.337	152.198	6798.741	-2.388	34.765	-2.388	34.847	93.930	0.119
6850.000	0.570	132.314	6848.739	-2.686	35.017	-2.686	35.120	94.386	0.555