



Company/Rig: Noble Energy/ Coretech
WELL/API#: GEMINI B 31-11/05-123-13712
DECLINATION: 8.23 Degrees
TD AS DRILLED: 7225'
COUNTY/STATE: WELD/COLORADO
VS-Azi: 0.000 Degrees
Latitude: 40.35386, Longitude: -104.59499
Grid North = True North -0.58 degs (NAD 27)
Grid Correction Applied = -0.58 degs



Depth Reference : RKB=SURFACE ELEVATION=4814'

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: run2-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 6/2/2016 / 11:49

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: JAY HINMAN / Gemini B 31-11

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	0.613	316.255	99.998	0.387	-0.370	0.387	0.535	316.255	0.613
200.000	0.401	313.144	199.994	1.013	-0.995	1.013	1.420	315.488	0.213
300.000	0.131	280.696	299.993	1.273	-1.363	1.273	1.865	313.046	0.299
400.000	0.282	83.643	399.993	1.322	-1.231	1.322	1.806	317.028	0.408
500.000	0.311	299.916	499.992	1.484	-1.222	1.484	1.922	320.530	0.563
600.000	0.350	356.792	599.991	1.925	-1.474	1.925	2.424	322.549	0.317
700.000	0.308	324.932	699.989	2.450	-1.646	2.450	2.951	326.108	0.185
800.000	0.340	87.817	799.988	2.681	-1.504	2.681	3.074	330.713	0.569
900.000	0.320	78.501	899.987	2.748	-0.934	2.748	2.902	341.234	0.057
1000.000	0.450	7.106	999.985	3.193	-0.611	3.193	3.251	349.161	0.461
1100.000	0.399	345.851	1099.982	3.920	-0.648	3.920	3.973	350.615	0.164
1200.000	0.332	348.387	1199.980	4.541	-0.791	4.541	4.609	350.116	0.069
1300.000	0.568	46.787	1299.978	5.164	-0.488	5.164	5.187	354.596	0.485
1400.000	0.450	21.833	1399.974	5.867	0.018	5.867	5.867	0.180	0.248
1500.000	0.554	70.525	1499.970	6.393	0.620	6.393	6.423	5.540	0.424
1600.000	0.864	56.202	1599.963	6.973	1.702	6.973	7.178	13.718	0.355
1700.000	0.861	78.716	1699.952	7.539	3.066	7.539	8.139	22.128	0.337
1800.000	0.803	77.751	1799.941	7.835	4.487	7.835	9.029	29.800	0.060

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	0.421	60.210	1899.935	8.166	5.490	8.166	9.840	33.914	0.421
2000.000	0.652	91.002	1999.931	8.339	6.378	8.339	10.499	37.412	0.362
2100.000	0.698	116.052	2099.924	8.061	7.495	8.061	11.007	42.913	0.296
2200.000	0.564	126.547	2199.918	7.501	8.437	7.501	11.289	48.361	0.177
2300.000	1.027	164.724	2299.909	6.344	9.068	6.344	11.067	55.026	0.680
2400.000	1.286	178.760	2399.889	4.357	9.329	4.357	10.296	64.964	0.382
2500.000	1.483	213.704	2499.861	2.159	8.635	2.159	8.901	75.963	0.852
2600.000	1.661	205.776	2599.824	-0.223	7.287	-0.223	7.290	91.750	0.280
2700.000	1.413	216.856	2699.788	-2.514	5.917	-2.514	6.429	113.019	0.386
2800.000	1.544	213.946	2799.754	-4.618	4.425	-4.618	6.396	136.220	0.151
2900.000	1.038	189.632	2899.729	-6.628	3.522	-6.628	7.506	152.019	0.735
3000.000	0.907	201.374	2999.715	-8.259	3.082	-8.259	8.815	159.538	0.238
3100.000	0.943	178.015	3099.702	-9.818	2.822	-9.818	10.216	163.966	0.376
3200.000	0.940	206.902	3199.690	-11.373	2.479	-11.373	11.640	167.703	0.470
3300.000	0.644	232.989	3299.680	-12.443	1.659	-12.443	12.553	172.405	0.459
3400.000	0.743	277.388	3399.674	-12.697	0.567	-12.697	12.710	177.442	0.532
3500.000	1.049	295.495	3499.661	-12.220	-0.902	-12.220	12.253	184.222	0.413
3600.000	1.242	309.227	3599.642	-11.141	-2.568	-11.141	11.433	192.979	0.334
3700.000	1.543	320.511	3699.612	-9.416	-4.263	-9.416	10.337	204.359	0.406
3800.000	1.791	323.302	3799.570	-7.124	-6.054	-7.124	9.349	220.356	0.261
3900.000	1.781	333.570	3899.521	-4.479	-7.680	-4.479	8.890	239.747	0.320
4000.000	1.277	342.963	3999.486	-2.022	-8.698	-2.022	8.930	256.915	0.561
4100.000	0.935	296.549	4099.469	-0.591	-9.754	-0.591	9.772	266.532	0.927
4200.000	0.234	223.761	4199.464	-0.374	-10.626	-0.374	10.632	267.984	0.894
4300.000	0.812	178.241	4299.459	-1.230	-10.745	-1.230	10.816	263.470	0.669
4400.000	0.858	213.515	4399.449	-2.562	-11.137	-2.562	11.428	257.042	0.508
4500.000	0.972	218.609	4499.437	-3.849	-12.079	-3.849	12.678	252.325	0.140
4600.000	0.501	226.112	4599.428	-4.815	-12.924	-4.815	13.791	249.566	0.479
4700.000	1.192	201.935	4699.417	-6.083	-13.627	-6.083	14.923	245.945	0.763
4800.000	1.028	210.513	4799.398	-7.821	-14.472	-7.821	16.450	241.612	0.233
4900.000	1.242	232.957	4899.379	-9.247	-15.792	-9.247	18.300	239.650	0.489
5000.000	1.690	241.132	4999.346	-10.611	-17.948	-10.611	20.850	239.408	0.494
5100.000	1.369	229.235	5099.310	-12.104	-20.145	-12.104	23.501	239.001	0.450
5200.000	1.815	239.850	5199.272	-13.679	-22.420	-13.679	26.263	238.610	0.533
5300.000	2.166	241.777	5299.211	-15.369	-25.454	-15.369	29.734	238.877	0.357
5400.000	2.198	254.429	5399.139	-16.777	-28.967	-16.777	33.475	239.921	0.482
5500.000	2.452	253.258	5499.057	-17.908	-32.863	-17.908	37.425	241.412	0.258
5600.000	3.361	252.507	5598.927	-19.405	-37.707	-19.405	42.407	242.768	0.909
5700.000	3.536	258.948	5698.747	-20.878	-43.529	-20.878	48.277	244.376	0.425
5800.000	3.668	250.462	5798.550	-22.539	-49.570	-22.539	54.453	245.550	0.549

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	4.161	251.444	5898.316	-24.763	-56.024	-24.763	61.252	246.154	0.498
6000.000	4.726	259.375	5998.016	-26.677	-63.513	-26.677	68.888	247.216	0.833
6100.000	4.885	263.725	6097.665	-27.902	-71.794	-27.902	77.026	248.762	0.398
6200.000	3.942	263.040	6197.367	-28.784	-79.439	-28.784	84.493	250.082	0.945
6300.000	3.138	258.135	6297.176	-29.763	-85.529	-29.763	90.560	250.813	0.858
6400.000	2.667	255.750	6397.047	-30.899	-90.462	-30.899	95.593	251.142	0.486
6500.000	2.133	256.416	6496.959	-31.908	-94.526	-31.908	99.766	251.347	0.534
6600.000	1.437	241.414	6596.911	-32.946	-97.436	-32.946	102.855	251.318	0.833
6700.000	1.587	236.853	6696.876	-34.303	-99.696	-34.303	105.433	251.013	0.192
6800.000	2.200	232.641	6796.821	-36.224	-102.381	-36.224	108.601	250.515	0.629
6900.000	1.713	233.596	6896.762	-38.277	-105.111	-38.277	111.863	249.991	0.488