



Company/Rig: Noble Energy/CoreTech
WELL/API#: Pauline 1/05-123-12138
DECLINATION: 8.28 Degrees
TD AS DRILLED: 6964 Feet
COUNTY/STATE: Weld/Colorado
VS-Azi: 0.000 Degrees
Latitude: 40.40813, Longitude: -104.58136
Grid North = True North -0.59 degs (NAD 27)
Grid Correction Applied = -0.59 degs



DEPTH REFERENCE : RKB=GL Elevation=4596 Feet

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: survey-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 12/1/2015 / 10:14

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: Geof Davis

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	0.244	35.505	100.000	0.173	0.124	0.173	0.213	35.505	0.244
200.000	0.238	57.020	199.999	0.459	0.421	0.459	0.623	42.515	0.090
300.000	0.234	39.967	299.998	0.728	0.726	0.728	1.028	44.905	0.070
400.000	0.388	41.527	399.996	1.138	1.082	1.138	1.570	43.536	0.155
500.000	0.253	40.301	499.995	1.561	1.449	1.561	2.130	42.881	0.135
600.000	0.170	61.327	599.994	1.801	1.723	1.801	2.492	43.734	0.112
700.000	0.154	60.833	699.994	1.938	1.971	1.938	2.764	45.486	0.016
800.000	0.167	40.845	799.993	2.113	2.183	2.113	3.038	45.935	0.057
900.000	0.143	148.192	899.993	2.117	2.344	2.117	3.159	47.910	0.250
1000.000	0.189	182.809	999.993	1.847	2.402	1.847	3.030	52.440	0.108
1100.000	0.331	223.412	1099.992	1.472	2.195	1.472	2.643	56.147	0.225
1200.000	0.275	229.713	1199.990	1.107	1.813	1.107	2.124	58.594	0.065
1300.000	0.431	238.763	1299.989	0.757	1.308	0.757	1.511	59.958	0.164
1400.000	0.396	244.250	1399.986	0.412	0.676	0.412	0.791	58.653	0.052
1500.000	0.414	223.765	1499.983	0.001	0.115	0.001	0.115	89.681	0.145
1600.000	0.449	221.945	1599.981	-0.552	-0.397	-0.552	0.680	215.752	0.038
1700.000	0.535	190.185	1699.977	-1.303	-0.742	-1.303	1.499	209.658	0.282
1800.000	0.802	184.085	1799.970	-2.460	-0.874	-2.460	2.611	199.561	0.276

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	1.067	167.114	1899.957	-4.066	-0.716	-4.066	4.128	189.992	0.380
2000.000	1.269	156.185	1999.936	-5.986	-0.062	-5.986	5.987	180.589	0.300
2100.000	1.535	158.188	2099.906	-8.243	0.883	-8.243	8.290	173.884	0.270
2200.000	1.585	161.113	2199.869	-10.795	1.829	-10.795	10.949	170.386	0.094
2300.000	1.323	165.210	2299.837	-13.220	2.571	-13.220	13.468	168.994	0.282
2400.000	1.302	162.346	2399.811	-15.419	3.210	-15.419	15.750	168.239	0.069
2500.000	1.199	160.662	2499.787	-17.489	3.901	-17.489	17.919	167.425	0.109
2600.000	1.052	171.058	2599.768	-19.382	4.390	-19.382	19.873	167.237	0.251
2700.000	0.964	172.970	2699.752	-21.124	4.636	-21.124	21.627	167.622	0.094
2800.000	0.996	171.766	2799.738	-22.820	4.864	-22.820	23.332	167.969	0.038
2900.000	0.838	184.403	2899.725	-24.409	4.932	-24.409	24.902	168.577	0.256
3000.000	0.770	207.650	2999.715	-25.733	4.564	-25.733	26.134	169.942	0.331
3100.000	1.025	210.115	3099.703	-27.102	3.803	-27.102	27.367	172.011	0.258
3200.000	1.010	214.178	3199.687	-28.604	2.860	-28.604	28.747	174.291	0.074
3300.000	0.682	223.357	3299.676	-29.766	1.956	-29.766	29.831	176.241	0.354
3400.000	0.674	232.432	3399.669	-30.558	1.081	-30.558	30.577	177.974	0.108
3500.000	0.631	237.786	3499.663	-31.210	0.149	-31.210	31.210	179.727	0.075
3600.000	0.609	247.476	3599.657	-31.707	-0.808	-31.707	31.718	181.461	0.107
3700.000	0.527	256.252	3699.652	-32.020	-1.746	-32.020	32.068	183.121	0.120
3800.000	0.463	273.517	3799.648	-32.105	-2.595	-32.105	32.210	184.622	0.161
3900.000	0.497	291.589	3899.645	-31.920	-3.402	-31.920	32.101	186.084	0.155
4000.000	0.535	304.048	3999.641	-31.499	-4.193	-31.499	31.777	187.582	0.118
4100.000	0.609	301.644	4099.636	-30.959	-5.032	-30.959	31.365	189.232	0.078
4200.000	0.887	327.504	4199.628	-30.027	-5.901	-30.027	30.601	191.118	0.431
4300.000	0.865	332.428	4299.616	-28.705	-6.666	-28.705	29.469	193.073	0.079
4400.000	0.908	352.575	4399.604	-27.251	-7.117	-27.251	28.165	194.638	0.313
4500.000	0.963	0.935	4499.591	-25.625	-7.206	-25.625	26.619	195.707	0.147
4600.000	0.774	343.640	4599.579	-24.136	-7.383	-24.136	25.240	197.008	0.321
4700.000	0.806	339.982	4699.570	-22.827	-7.814	-22.827	24.127	198.896	0.060
4800.000	0.677	341.248	4799.562	-21.607	-8.245	-21.607	23.126	200.886	0.130
4900.000	0.707	334.621	4899.554	-20.490	-8.699	-20.490	22.260	203.003	0.085
5000.000	0.765	343.485	4999.546	-19.293	-9.153	-19.293	21.354	205.381	0.128
5100.000	0.834	351.625	5099.536	-17.933	-9.449	-17.933	20.270	207.785	0.133
5200.000	0.864	359.169	5199.525	-16.458	-9.566	-16.458	19.036	210.166	0.116
5300.000	1.009	6.770	5299.512	-14.829	-9.473	-14.829	17.597	212.570	0.190
5400.000	1.142	38.649	5399.495	-13.177	-8.747	-13.177	15.816	213.576	0.604
5500.000	1.267	25.512	5499.473	-11.401	-7.648	-11.401	13.729	213.856	0.302
5600.000	1.254	50.173	5599.450	-9.702	-6.332	-9.702	11.586	213.129	0.538
5700.000	1.280	24.608	5699.426	-7.987	-5.027	-7.987	9.437	212.187	0.561
5800.000	1.144	10.186	5799.404	-5.988	-4.385	-5.988	7.422	216.215	0.333

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	0.697	20.044	5899.391	-4.434	-4.000	-4.434	5.972	222.056	0.473
6000.000	0.682	355.525	5999.384	-3.269	-3.838	-3.269	5.042	229.579	0.293
6100.000	0.689	341.953	6099.377	-2.104	-4.071	-2.104	4.582	242.672	0.162
6200.000	0.782	338.605	6199.369	-0.896	-4.506	-0.896	4.594	258.749	0.102
6300.000	0.919	330.892	6299.358	0.439	-5.145	0.439	5.164	274.882	0.178
6400.000	0.804	328.691	6399.346	1.739	-5.900	1.739	6.151	286.426	0.119
6500.000	0.752	327.980	6499.337	2.895	-6.612	2.895	7.218	293.645	0.053