



Company/Rig: Noble Energy/ VES
WELL/API#: UPV 5-3H3/05-123-18859

DECLINATION: 8.27 Degrees

TD AS DRILLED: 6971 Feet

COUNTY/STATE: Weld/Colorado

VS-Azi: 0.000 Degrees

Latitude: 40.43402, Longitude: -104.46303

Grid Convergence Applied = -0.67 degs (NAD 27)

Grid North = True North -0.67 degs



DEPTH REFERENCE : RKB=GL/ ELEVATION= 4678 Feet

DRILLOG GYRO SURVEY CALCULATIONS

Filename: gyro-de_01.ut

Minimum Curvature Method

Report Date/Time: 5/22/2015 / 10:08

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: Sean Bratt

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	0.285	117.672	100.000	-0.115	0.220	-0.115	0.248	117.672	0.285
200.000	0.209	54.443	199.999	-0.125	0.588	-0.125	0.601	101.975	0.267
300.000	0.084	60.282	299.998	0.017	0.800	0.017	0.800	88.758	0.126
400.000	0.011	270.166	399.998	0.053	0.853	0.053	0.855	86.414	0.093
500.000	0.247	75.558	499.998	0.107	1.053	0.107	1.058	84.179	0.258
600.000	0.408	14.875	599.997	0.505	1.353	0.505	1.445	69.525	0.359
700.000	0.284	357.719	699.995	1.097	1.435	1.097	1.806	52.606	0.161
800.000	0.180	28.369	799.994	1.483	1.500	1.483	2.109	45.330	0.158
900.000	0.167	125.551	899.994	1.536	1.693	1.536	2.286	47.779	0.261
1000.000	0.273	82.389	999.993	1.483	2.048	1.483	2.528	54.083	0.189
1100.000	0.305	6.612	1099.992	1.779	2.314	1.779	2.919	52.449	0.356
1200.000	0.053	5.399	1199.992	2.089	2.349	2.089	3.144	48.350	0.252
1300.000	0.326	29.643	1299.991	2.383	2.494	2.383	3.449	46.312	0.279
1400.000	0.282	358.887	1399.990	2.875	2.630	2.875	3.897	42.449	0.167
1500.000	0.224	352.563	1499.989	3.315	2.600	3.315	4.213	38.114	0.064
1600.000	0.028	27.319	1599.988	3.529	2.586	3.529	4.375	36.231	0.201
1700.000	0.262	195.276	1699.988	3.331	2.537	3.331	4.187	37.297	0.289
1800.000	0.416	185.904	1799.986	2.749	2.440	2.749	3.676	41.583	0.164

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	0.499	200.677	1899.983	1.981	2.248	1.981	2.996	48.621	0.144
2000.000	0.595	219.854	1999.979	1.175	1.762	1.175	2.118	56.305	0.205
2100.000	0.378	239.801	2099.975	0.611	1.145	0.611	1.298	61.916	0.272
2200.000	0.395	243.205	2199.973	0.290	0.552	0.290	0.623	62.320	0.029
2300.000	0.649	246.440	2299.969	-0.092	-0.275	-0.092	0.290	251.443	0.255
2400.000	0.615	244.084	2399.962	-0.553	-1.277	-0.553	1.392	246.573	0.042
2500.000	0.288	121.656	2499.961	-0.920	-1.546	-0.920	1.799	239.237	0.808
2600.000	0.391	197.504	2599.959	-1.378	-1.434	-1.378	1.989	226.151	0.425
2700.000	0.401	208.307	2699.957	-2.011	-1.703	-2.011	2.635	220.252	0.075
2800.000	0.567	228.103	2799.953	-2.650	-2.237	-2.650	3.468	220.174	0.234
2900.000	0.534	236.388	2899.949	-3.239	-2.994	-3.239	4.411	222.753	0.086
3000.000	0.467	208.203	2999.945	-3.856	-3.575	-3.856	5.259	222.835	0.252
3100.000	0.170	189.146	3099.943	-4.362	-3.792	-4.362	5.780	220.997	0.311
3200.000	0.275	69.906	3199.943	-4.426	-3.590	-4.426	5.699	219.045	0.387
3300.000	0.218	64.327	3299.942	-4.262	-3.193	-4.262	5.325	216.847	0.061
3400.000	0.671	11.870	3399.939	-3.606	-2.902	-3.606	4.629	218.819	0.565
3500.000	0.730	2.093	3499.932	-2.397	-2.758	-2.397	3.654	229.004	0.133
3600.000	0.824	15.818	3599.923	-1.069	-2.539	-1.069	2.755	247.159	0.208
3700.000	0.584	43.449	3699.915	-0.008	-1.992	-0.008	1.992	269.773	0.409
3800.000	0.481	25.455	3799.911	0.741	-1.461	0.741	1.639	296.886	0.195
3900.000	0.233	45.080	3899.909	1.263	-1.137	1.263	1.700	318.005	0.273
4000.000	0.303	6.994	3999.908	1.669	-0.961	1.669	1.926	330.068	0.187
4100.000	0.882	310.300	4099.903	2.430	-1.516	2.430	2.864	328.042	0.759
4200.000	1.689	319.544	4199.877	4.049	-3.059	4.049	5.075	322.928	0.831
4300.000	1.838	307.701	4299.830	6.151	-5.284	6.151	8.109	319.335	0.393
4400.000	2.356	310.066	4399.763	8.455	-8.126	8.455	11.727	316.135	0.525
4500.000	2.890	313.221	4499.658	11.504	-11.536	11.504	16.292	314.920	0.553
4600.000	2.643	302.150	4599.542	14.457	-15.325	14.457	21.068	313.331	0.587
4700.000	1.892	299.271	4699.463	16.491	-18.717	16.491	24.946	311.383	0.759
4800.000	1.048	286.586	4799.429	17.559	-21.033	17.559	27.399	309.856	0.900
4900.000	1.088	271.698	4899.412	17.848	-22.858	17.848	29.001	307.983	0.280
5000.000	0.973	268.247	4999.396	17.850	-24.656	17.850	30.440	305.903	0.130
5100.000	0.728	268.057	5099.385	17.803	-26.140	17.803	31.627	304.257	0.246
5200.000	0.781	284.044	5199.376	17.947	-27.436	17.947	32.784	303.190	0.216
5300.000	0.476	257.591	5299.370	18.023	-28.502	18.023	33.722	302.307	0.413
5400.000	0.727	155.664	5399.367	17.355	-28.646	17.355	33.493	301.210	0.948
5500.000	0.267	31.221	5499.364	16.977	-28.263	16.977	32.970	300.991	0.905
5600.000	0.289	277.496	5599.364	17.209	-28.393	17.209	33.201	301.220	0.466
5700.000	0.389	256.787	5699.362	17.164	-28.974	17.164	33.676	300.643	0.157
5800.000	0.763	264.549	5799.357	17.023	-29.968	17.023	34.465	299.599	0.381

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	0.906	269.910	5899.346	16.959	-31.421	16.959	35.706	298.357	0.163
6000.000	1.084	278.425	5999.331	17.096	-33.148	17.096	37.297	297.282	0.231
6100.000	1.279	302.121	6099.310	17.828	-35.029	17.828	39.305	296.974	0.521
6200.000	1.824	294.277	6199.273	19.076	-37.425	19.076	42.007	297.008	0.584
6300.000	2.132	309.525	6299.214	20.914	-40.311	20.914	45.414	297.421	0.607
6400.000	2.615	298.780	6399.129	23.197	-43.746	23.197	49.516	297.935	0.655
6500.000	2.874	312.900	6499.015	26.002	-47.582	26.002	54.223	298.655	0.722
6600.000	4.748	316.645	6598.790	30.718	-52.260	30.718	60.620	300.447	1.890