

COMPANY/RIG: Noble Energy/Production/CoreTech

WELL: Wells Ranch AF 06-07

DECLINATION: 8.21

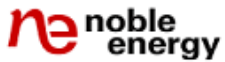
TD AS DRILLED: 6773

COUNTY/STATE: Weld/Colorado

Latitude: 40.431, Longitude: -104.364

GRID North is 0.730 Degrees East of True North

VS-Azi: 0.000 Degrees



DEPTH REFERENCE : RKB = GL Elevation = 4670

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro.ut

Minimum Curvature Method

Report Date/Time: 10/14/2014 / 14:29

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: JUSTIN WILLIAMS

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	0.330	294.348	99.999	0.119	-0.262	0.119	0.288	294.348	0.330
200.000	0.405	306.839	199.997	0.449	-0.807	0.449	0.923	299.098	0.110
300.000	0.234	277.478	299.996	0.688	-1.292	0.688	1.464	298.021	0.232
400.000	0.259	346.942	399.995	0.934	-1.545	0.934	1.806	301.149	0.281
500.000	0.308	188.251	499.995	0.888	-1.635	0.888	1.860	298.513	0.557
600.000	0.507	145.657	599.992	0.257	-1.424	0.257	1.447	280.248	0.349
700.000	0.495	160.324	699.989	-0.514	-1.029	-0.514	1.151	243.442	0.128
800.000	0.736	182.120	799.983	-1.563	-0.907	-1.563	1.807	210.136	0.332
900.000	0.832	183.727	899.973	-2.929	-0.978	-2.929	3.088	198.469	0.098
1000.000	0.927	175.862	999.962	-4.460	-0.967	-4.460	4.563	192.236	0.153
1100.000	1.317	196.429	1099.943	-6.368	-1.234	-6.368	6.487	190.965	0.555
1200.000	1.057	195.376	1199.921	-8.360	-1.803	-8.360	8.552	192.173	0.261
1300.000	1.629	207.231	1299.894	-10.513	-2.698	-10.513	10.853	194.395	0.633
1400.000	1.376	219.742	1399.859	-12.700	-4.116	-12.700	13.350	197.958	0.413
1500.000	1.656	203.509	1499.825	-14.947	-5.460	-14.947	15.913	200.066	0.510
1600.000	0.961	217.836	1599.798	-16.934	-6.551	-16.934	18.157	201.148	0.762
1700.000	0.867	218.156	1699.786	-18.192	-7.532	-18.192	19.689	202.493	0.094
1800.000	0.391	223.188	1799.779	-19.035	-8.233	-19.035	20.739	203.390	0.479
1900.000	0.281	169.951	1899.778	-19.525	-8.424	-19.525	21.264	203.337	0.316

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
2000.000	0.813	157.617	1999.773	-20.422	-8.111	-20.422	21.974	201.660	0.542
2100.000	1.374	124.587	2099.755	-21.759	-6.853	-21.759	22.813	197.483	0.822
2200.000	1.577	125.698	2199.722	-23.242	-4.749	-23.242	23.722	191.548	0.205
2300.000	1.626	116.336	2299.683	-24.675	-2.360	-24.675	24.787	185.463	0.266
2400.000	1.693	105.043	2399.641	-25.688	0.339	-25.688	25.690	179.245	0.333
2500.000	1.538	112.844	2499.602	-26.592	3.002	-26.592	26.761	173.560	0.269
2600.000	1.444	116.501	2599.568	-27.675	5.366	-27.675	28.191	169.027	0.133
2700.000	1.453	129.567	2699.536	-29.045	7.472	-29.045	29.991	165.574	0.330
2800.000	1.964	134.725	2799.491	-31.059	9.667	-31.059	32.529	162.711	0.533
2900.000	2.294	123.906	2899.423	-33.382	12.546	-33.382	35.662	159.402	0.519
3000.000	2.092	105.333	2999.351	-34.981	15.968	-34.981	38.453	155.465	0.735
3100.000	2.223	107.267	3099.280	-36.039	19.580	-36.039	41.015	151.485	0.149
3200.000	2.451	99.465	3199.197	-36.967	23.541	-36.967	43.826	147.510	0.391
3300.000	2.366	110.981	3299.109	-38.057	27.578	-38.057	46.999	144.071	0.491
3400.000	2.354	103.917	3399.024	-39.291	31.499	-39.291	50.358	141.281	0.291
3500.000	2.197	98.094	3498.946	-40.054	35.390	-40.054	53.449	138.538	0.279
3600.000	2.619	85.913	3598.858	-40.161	39.566	-40.161	56.377	135.428	0.661
3700.000	2.785	98.788	3698.747	-40.370	44.245	-40.370	59.895	132.377	0.628
3800.000	1.961	103.031	3798.661	-41.127	48.313	-41.127	63.447	130.406	0.842
3900.000	1.945	90.816	3898.603	-41.536	51.676	-41.536	66.300	128.792	0.416
4000.000	1.827	95.567	3998.549	-41.715	54.960	-41.715	68.998	127.199	0.196
4100.000	1.812	95.216	4098.499	-42.014	58.121	-42.014	71.716	125.862	0.019
4200.000	1.534	110.659	4198.457	-42.630	60.948	-42.630	74.377	124.971	0.527
4300.000	1.129	114.478	4298.429	-43.510	63.097	-43.510	76.645	124.589	0.415
4400.000	1.243	101.584	4398.408	-44.136	65.056	-44.136	78.615	124.154	0.289
4500.000	1.099	99.184	4498.387	-44.507	67.066	-44.507	80.490	123.570	0.152
4600.000	1.077	99.584	4598.369	-44.817	68.939	-44.817	82.226	123.028	0.024
4700.000	1.117	91.556	4698.351	-45.000	70.839	-45.000	83.924	122.425	0.159
4800.000	0.841	88.772	4798.336	-45.010	72.548	-45.010	85.376	121.816	0.279
4900.000	0.849	69.013	4898.326	-44.729	73.973	-44.729	86.445	121.160	0.290
5000.000	1.058	62.560	4998.312	-44.038	75.484	-44.038	87.392	120.260	0.235
5100.000	1.161	65.095	5098.293	-43.186	77.223	-43.186	88.478	119.216	0.114
5200.000	1.197	91.284	5198.272	-42.783	79.186	-42.783	90.004	118.382	0.535
5300.000	1.921	102.329	5298.235	-43.164	81.867	-43.164	92.550	117.800	0.781
5400.000	2.092	99.964	5398.174	-43.838	85.303	-43.838	95.908	117.199	0.190
5500.000	1.906	76.610	5498.114	-43.769	88.719	-43.769	98.928	116.259	0.829
5600.000	1.317	55.963	5598.075	-42.740	91.289	-42.740	100.799	115.088	0.818
5700.000	0.958	39.950	5698.056	-41.456	92.778	-41.456	101.619	114.077	0.477
5800.000	0.974	29.455	5798.041	-40.076	93.733	-40.076	101.941	113.149	0.177
5900.000	1.128	46.693	5898.025	-38.660	94.867	-38.660	102.442	112.172	0.350

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
6000.000	1.209	22.285	5998.005	-37.008	95.984	-37.008	102.871	111.085	0.500
6100.000	0.783	11.971	6097.989	-35.364	96.526	-35.364	102.800	110.121	0.461
6200.000	0.600	16.972	6197.982	-34.194	96.820	-34.194	102.681	109.452	0.192
6300.000	0.494	26.348	6297.978	-33.307	97.165	-33.307	102.715	108.921	0.139
6400.000	0.618	11.807	6397.973	-32.392	97.466	-32.392	102.708	108.384	0.187
6450.000	0.336	27.507	6447.971	-31.998	97.589	-31.998	102.701	108.154	0.617