



Company/Rig: NOBLE ENERGY / PRODUCTION

WELL/API#: WIESS 02-34 / 05-123-10895

DECLINATION: 8.46 DEGREES

TD AS DRILLED: 7357 FEET

COUNTY/STATE: WELD/ COLORADO

Latitude: 40.275, Longitude: -104.878

Directions are relative to True North

VS-Azi: 0.000 Degrees



DEPTH REFERENCE : RKB=SURFACE ELEVATION=4884 FEET

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 11/7/2014 / 10:32

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

SURVEYOR: NORMAN COWAN

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	0.177	142.191	100.000	-0.121	0.095	-0.121	0.154	141.791	0.177
200.000	0.096	219.490	200.000	-0.307	0.138	-0.307	0.337	155.823	0.182
300.000	0.121	228.525	299.999	-0.443	0.007	-0.443	0.443	179.153	0.030
400.000	0.449	199.242	399.998	-0.884	-0.199	-0.884	0.906	192.660	0.348
500.000	0.537	205.289	499.994	-1.680	-0.522	-1.680	1.759	197.270	0.102
600.000	0.640	212.470	599.989	-2.577	-1.016	-2.577	2.770	201.507	0.127
700.000	0.533	216.542	699.984	-3.427	-1.587	-3.427	3.776	204.847	0.114
800.000	0.609	240.066	799.979	-4.071	-2.320	-4.071	4.685	209.676	0.244
900.000	0.675	244.860	899.973	-4.593	-3.309	-4.593	5.661	215.773	0.085
1000.000	0.777	249.251	999.965	-5.091	-4.472	-5.091	6.776	221.298	0.116
1100.000	0.784	243.693	1099.955	-5.643	-5.715	-5.643	8.032	225.365	0.076
1200.000	0.774	248.060	1199.946	-6.207	-6.951	-6.207	9.319	228.236	0.060
1300.000	0.911	251.018	1299.935	-6.728	-8.326	-6.728	10.704	231.061	0.144
1400.000	1.035	260.464	1399.921	-7.148	-9.966	-7.148	12.264	234.352	0.202
1500.000	1.134	257.606	1499.903	-7.523	-11.821	-7.523	14.012	237.529	0.113
1600.000	1.015	255.844	1599.886	-7.964	-13.643	-7.964	15.798	239.726	0.124
1700.000	0.927	263.654	1699.871	-8.282	-15.304	-8.282	17.401	241.579	0.159
1800.000	0.948	260.561	1799.858	-8.518	-16.922	-8.518	18.945	243.280	0.055
1900.000	0.646	268.109	1899.848	-8.682	-18.301	-8.682	20.256	244.619	0.319

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	0.586	249.586	1999.842	-8.886	-19.342	-8.886	21.285	245.324	0.207
2100.000	0.714	267.252	2099.836	-9.102	-20.442	-9.102	22.377	245.997	0.236
2200.000	0.743	266.782	2199.828	-9.177	-21.711	-9.177	23.571	247.086	0.030
2300.000	0.799	264.123	2299.819	-9.295	-23.052	-9.295	24.855	248.040	0.067
2400.000	0.815	269.234	2399.809	-9.385	-24.456	-9.385	26.195	249.005	0.074
2500.000	0.667	267.346	2499.801	-9.431	-25.748	-9.431	27.421	249.883	0.149
2600.000	0.797	270.001	2599.792	-9.467	-27.025	-9.467	28.635	250.695	0.134
2700.000	0.780	257.722	2699.783	-9.621	-28.384	-9.621	29.970	251.276	0.169
2800.000	0.768	268.755	2799.774	-9.790	-29.719	-9.790	31.290	251.768	0.149
2900.000	0.794	267.314	2899.765	-9.846	-31.081	-9.846	32.604	252.422	0.033
3000.000	0.662	261.142	2999.757	-9.977	-32.344	-9.977	33.848	252.857	0.153
3100.000	0.707	264.315	3099.749	-10.135	-33.528	-10.135	35.026	253.181	0.059
3200.000	0.516	264.862	3199.744	-10.244	-34.589	-10.244	36.074	253.503	0.192
3300.000	0.566	248.780	3299.739	-10.469	-35.496	-10.469	37.008	253.567	0.159
3400.000	0.562	254.716	3399.734	-10.784	-36.427	-10.784	37.990	253.510	0.059
3500.000	0.322	287.483	3499.732	-10.834	-37.168	-10.834	38.715	253.750	0.340
3600.000	0.171	244.801	3599.731	-10.816	-37.572	-10.816	39.097	253.940	0.228
3700.000	0.193	245.861	3699.730	-10.950	-37.860	-10.950	39.411	253.868	0.022
3800.000	0.244	314.544	3799.730	-10.872	-38.165	-10.872	39.684	254.099	0.250
3900.000	0.321	283.620	3899.728	-10.660	-38.591	-10.660	40.036	254.558	0.168
4000.000	0.478	251.948	3999.726	-10.728	-39.259	-10.728	40.698	254.717	0.265
4100.000	0.260	274.387	4099.724	-10.844	-39.880	-10.844	41.328	254.788	0.257
4200.000	0.364	286.283	4199.722	-10.741	-40.411	-10.741	41.815	255.115	0.122
4300.000	0.493	275.374	4299.720	-10.617	-41.146	-10.617	42.493	255.531	0.153
4400.000	0.584	252.590	4399.715	-10.736	-42.060	-10.736	43.409	255.681	0.231
4500.000	0.639	247.893	4499.710	-11.105	-43.061	-11.105	44.470	255.539	0.074
4600.000	0.699	230.071	4599.703	-11.714	-44.041	-11.714	45.573	255.106	0.215
4700.000	0.704	224.243	4699.695	-12.551	-44.932	-12.551	46.652	254.393	0.071
4800.000	0.700	221.042	4799.688	-13.458	-45.755	-13.458	47.694	253.610	0.039
4900.000	0.718	222.633	4899.680	-14.386	-46.575	-14.386	48.746	252.835	0.026
5000.000	0.350	229.031	4999.676	-15.051	-47.225	-15.051	49.566	252.322	0.372
5100.000	0.333	226.093	5099.674	-15.457	-47.663	-15.457	50.106	252.032	0.024
5200.000	0.465	215.612	5199.672	-15.992	-48.105	-15.992	50.693	251.612	0.150
5300.000	0.397	216.876	5299.669	-16.601	-48.545	-16.601	51.305	251.120	0.069
5400.000	0.328	305.244	5399.667	-16.716	-48.985	-16.716	51.759	251.158	0.507
5500.000	0.244	327.465	5499.666	-16.374	-49.336	-16.374	51.982	251.640	0.138
5600.000	0.387	328.768	5599.665	-15.908	-49.628	-15.908	52.116	252.227	0.143
5700.000	0.111	220.251	5699.664	-15.695	-49.868	-15.695	52.279	252.529	0.435
5800.000	0.409	270.262	5799.663	-15.771	-50.286	-15.771	52.701	252.588	0.348
5900.000	0.219	45.616	5899.662	-15.637	-50.507	-15.637	52.872	252.798	0.585

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	0.281	312.496	5999.661	-15.337	-50.553	-15.337	52.829	253.123	0.366
6100.000	0.442	339.165	6099.659	-14.814	-50.875	-14.814	52.988	253.766	0.229
6200.000	0.433	68.737	6199.658	-14.315	-50.663	-14.315	52.647	254.223	0.616
6300.000	0.096	93.021	6299.656	-14.179	-50.228	-14.179	52.191	254.236	0.348
6400.000	0.473	175.436	6399.655	-14.594	-50.109	-14.594	52.191	253.762	0.470
6500.000	0.251	140.241	6499.653	-15.173	-49.932	-15.173	52.186	253.098	0.305
6600.000	0.392	153.447	6599.652	-15.645	-49.636	-15.645	52.043	252.506	0.158
6700.000	0.190	125.183	6699.650	-16.044	-49.345	-16.044	51.888	251.988	0.242
6800.000	0.474	173.993	6799.649	-16.550	-49.163	-16.550	51.873	251.395	0.377
6900.000	0.385	154.965	6899.646	-17.264	-48.972	-17.264	51.926	250.581	0.167
7000.000	0.405	156.163	6999.644	-17.889	-48.683	-17.889	51.866	249.824	0.022
7100.000	0.426	156.583	7099.641	-18.551	-48.388	-18.551	51.822	249.024	0.021
7150.000	0.872	164.133	7149.638	-19.086	-48.207	-19.086	51.847	248.400	0.906