



Company: NOBLE ENERGY  
Lease/Well: WELLS RANCH USX AA/ #35-8  
Location:  
Rig Name: PRODUCTION  
State/County: COLORADO/WELD  
Latitude: 40.434, Longitude: -104.384  
GRID North is 0.720 Degrees East of True North  
VS-Azi: 0.000 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : GL

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: run1-01\_ed.ut  
Minimum Curvature Method  
Report Date/Time: 8/2/2011 / 19:33

Vaughn Energy Services  
Rifle, Colorado  
866-835-8333  
Jay Hinman  
Wells Ranch USX AA 35-8/ 05-123-25883

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	0.775	290.789	99.997	0.240	-0.632	0.240	0.676	290.789	0.775
200.000	0.696	301.879	199.989	0.801	-1.780	0.801	1.952	294.219	0.162
300.000	0.876	271.753	299.980	1.145	-3.060	1.145	3.267	290.511	0.444
400.000	0.662	256.579	399.971	1.034	-4.387	1.034	4.507	283.263	0.294
500.000	0.659	270.009	499.964	0.900	-5.524	0.900	5.597	279.253	0.155
600.000	0.528	253.611	599.959	0.770	-6.541	0.770	6.586	276.714	0.213
700.000	0.406	284.132	699.956	0.727	-7.327	0.727	7.363	275.664	0.272
800.000	0.378	262.977	799.953	0.773	-7.998	0.773	8.035	275.521	0.147
900.000	0.773	235.344	899.948	0.349	-8.880	0.349	8.887	272.251	0.472
1000.000	0.383	241.320	999.943	-0.195	-9.728	-0.195	9.730	268.852	0.395
1100.000	0.295	244.940	1099.941	-0.464	-10.254	-0.464	10.265	267.408	0.091
1200.000	0.379	141.087	1199.940	-0.830	-10.279	-0.830	10.313	265.382	0.533
1300.000	0.976	85.129	1299.934	-1.015	-9.223	-1.015	9.278	263.718	0.826
1400.000	1.210	70.612	1399.916	-0.592	-7.378	-0.592	7.401	265.410	0.361
1500.000	0.224	86.560	1499.907	-0.230	-6.186	-0.230	6.190	267.870	0.996
1600.000	0.207	115.686	1599.906	-0.297	-5.827	-0.297	5.835	267.085	0.110
1700.000	0.185	16.831	1699.905	-0.221	-5.617	-0.221	5.622	267.747	0.298
1800.000	0.189	228.820	1799.905	-0.175	-5.695	-0.175	5.698	268.236	0.359
1900.000	0.222	206.635	1899.905	-0.457	-5.906	-0.457	5.923	265.576	0.085
2000.000	0.210	266.835	1999.904	-0.640	-6.175	-0.640	6.208	264.082	0.217
2100.000	0.213	51.772	2099.904	-0.535	-6.212	-0.535	6.235	265.077	0.403
2200.000	0.151	251.447	2199.904	-0.462	-6.191	-0.462	6.208	265.733	0.359
2300.000	0.098	30.921	2299.903	-0.431	-6.272	-0.431	6.286	266.073	0.234
2400.000	0.168	232.270	2399.903	-0.447	-6.344	-0.447	6.360	265.969	0.262
2500.000	0.087	4.204	2499.903	-0.461	-6.454	-0.461	6.471	265.914	0.235
2600.000	0.123	112.900	2599.903	-0.427	-6.350	-0.427	6.364	266.152	0.172
2700.000	0.111	320.897	2699.903	-0.393	-6.312	-0.393	6.325	266.433	0.227
2800.000	0.211	261.147	2799.903	-0.346	-6.555	-0.346	6.565	266.975	0.182
2900.000	0.050	271.215	2899.902	-0.374	-6.781	-0.374	6.791	266.844	0.162
3000.000	0.196	264.574	2999.902	-0.389	-6.994	-0.389	7.005	266.816	0.146
3100.000	0.302	131.771	3099.902	-0.581	-6.967	-0.581	6.991	265.236	0.458
3200.000	0.170	318.865	3199.901	-0.645	-6.868	-0.645	6.898	264.638	0.471
3300.000	0.183	189.104	3299.901	-0.690	-6.991	-0.690	7.025	264.359	0.319
3400.000	0.178	72.444	3399.901	-0.801	-6.868	-0.801	6.915	263.348	0.307

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
3500.000	0.212	146.617	3499.900	-0.909	-6.618	-0.909	6.680	262.181	0.237
3600.000	0.164	143.989	3599.900	-1.179	-6.432	-1.179	6.539	259.610	0.049
3700.000	0.167	166.567	3699.899	-1.437	-6.314	-1.437	6.475	257.183	0.065
3800.000	0.158	347.533	3799.899	-1.444	-6.310	-1.444	6.473	257.114	0.324
3900.000	0.162	153.315	3899.899	-1.436	-6.276	-1.436	6.438	257.117	0.317
4000.000	0.193	286.183	3999.899	-1.515	-6.375	-1.515	6.552	256.632	0.326
4100.000	0.164	73.557	4099.899	-1.427	-6.399	-1.427	6.556	257.427	0.343
4200.000	0.141	214.805	4199.899	-1.487	-6.331	-1.487	6.504	256.780	0.288
4300.000	0.153	85.951	4299.899	-1.579	-6.269	-1.579	6.464	255.864	0.265
4400.000	0.120	86.618	4399.898	-1.563	-6.031	-1.563	6.230	255.470	0.032
4500.000	0.144	214.655	4499.898	-1.660	-5.998	-1.660	6.223	254.526	0.238
4600.000	0.121	100.380	4599.898	-1.783	-5.965	-1.783	6.226	253.359	0.223
4700.000	0.122	257.646	4699.898	-1.825	-5.966	-1.825	6.239	252.991	0.239
4800.000	0.183	113.465	4799.898	-1.911	-5.924	-1.911	6.225	252.119	0.291
4900.000	0.160	183.018	4899.897	-2.114	-5.785	-2.114	6.159	249.925	0.196
5000.000	0.100	251.043	4999.897	-2.282	-5.875	-2.282	6.302	248.772	0.154
5100.000	0.132	201.140	5099.897	-2.418	-5.998	-2.418	6.467	248.048	0.102
5200.000	0.171	105.867	5199.897	-2.566	-5.897	-2.566	6.431	246.485	0.225
5300.000	0.158	344.536	5299.897	-2.474	-5.790	-2.474	6.297	246.864	0.286
5400.000	0.171	296.716	5399.896	-2.275	-5.960	-2.275	6.379	249.111	0.134
5500.000	0.188	84.210	5499.896	-2.191	-5.929	-2.191	6.321	249.721	0.345
5600.000	0.211	117.368	5599.895	-2.259	-5.602	-2.259	6.041	248.040	0.116
5700.000	0.193	185.473	5699.895	-2.511	-5.455	-2.511	6.005	245.283	0.227
5800.000	0.136	357.053	5799.895	-2.560	-5.477	-2.560	6.046	244.947	0.328
5900.000	0.238	177.335	5899.895	-2.649	-5.474	-2.649	6.081	244.173	0.374
6000.000	0.235	259.715	5999.894	-2.893	-5.665	-2.893	6.361	242.949	0.311
6100.000	0.212	299.438	6099.893	-2.839	-6.028	-2.839	6.663	244.781	0.153
6200.000	0.198	252.235	6199.893	-2.801	-6.353	-2.801	6.943	246.209	0.164
6300.000	0.246	257.305	6299.892	-2.901	-6.727	-2.901	7.325	246.674	0.051
6400.000	0.193	320.617	6399.891	-2.817	-7.043	-2.817	7.585	248.197	0.235
6500.000	0.264	200.336	6499.891	-2.903	-7.230	-2.903	7.791	248.121	0.398
6600.000	0.248	142.053	6599.890	-3.290	-7.177	-3.290	7.895	245.369	0.250
6700.000	0.136	236.527	6699.890	-3.527	-7.142	-3.527	7.966	243.719	0.292

HORIZONTAL DISPLACEMENT IS  
7.966 FEET AT 243.719 DEGREES