



Company: Noble Energy
Well: Wells Ranch AA 26-4
API #: 05-123-25382
Rig Name: Production/Lightning
State/County: Colorado/Weld
Latitude: 40.463, Longitude: -104.411
GRID North is 0.700 Degrees East of True North
VS-Azi: 0.000 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : Ground Level

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: wranchaa26-4-01_ed.ut

Minimum Curvature Method

Report Date/Time: 1/9/2012 / 14:38

Vaughn Energy Services
Henderson, Colorado
866-835-8333
James Proulx

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	0.420	84.360	99.999	0.036	0.365	0.036	0.366	84.360	0.420
200.000	0.459	81.787	199.996	0.129	1.125	0.129	1.133	83.451	0.043
300.000	0.236	283.331	299.995	0.234	1.321	0.234	1.342	79.962	0.684
400.000	0.361	319.376	399.994	0.521	0.915	0.521	1.053	60.377	0.220
500.000	0.463	345.671	499.992	1.151	0.610	1.151	1.303	27.934	0.212
600.000	0.453	6.381	599.988	1.936	0.554	1.936	2.013	15.982	0.165
700.000	0.539	36.578	699.985	2.707	0.879	2.707	2.846	17.987	0.272
800.000	0.560	32.185	799.980	3.498	1.419	3.498	3.775	22.086	0.047
900.000	0.530	15.220	899.976	4.358	1.801	4.358	4.716	22.455	0.163
1000.000	0.369	10.642	999.973	5.121	1.982	5.121	5.491	21.159	0.165
1100.000	0.547	24.621	1099.969	5.871	2.240	5.871	6.284	20.886	0.209
1200.000	0.431	23.733	1199.966	6.650	2.591	6.650	7.136	21.286	0.116
1300.000	0.307	23.278	1299.964	7.240	2.848	7.240	7.780	21.473	0.125
1400.000	0.352	16.122	1399.962	7.781	3.039	7.781	8.354	21.334	0.061
1500.000	0.215	7.706	1499.961	8.263	3.150	8.263	8.843	20.866	0.143
1600.000	0.165	346.653	1599.960	8.589	3.142	8.589	9.145	20.092	0.085
1700.000	0.095	13.594	1699.960	8.809	3.128	8.809	9.348	19.549	0.091
1800.000	0.146	271.725	1799.960	8.893	3.020	8.893	9.392	18.759	0.189
1900.000	0.212	348.268	1899.959	9.078	2.856	9.078	9.517	17.463	0.228
2000.000	0.333	3.798	1999.958	9.550	2.837	9.550	9.962	16.548	0.141
2100.000	0.532	351.592	2099.955	10.299	2.789	10.299	10.670	15.151	0.218
2200.000	0.716	323.955	2199.950	11.264	2.353	11.264	11.507	11.800	0.347
2300.000	0.866	310.508	2299.940	12.260	1.411	12.260	12.341	6.566	0.238
2400.000	0.460	293.155	2399.933	12.909	0.468	12.909	12.917	2.075	0.448
2500.000	0.458	275.823	2499.930	13.107	-0.299	13.107	13.110	358.692	0.138
2600.000	0.418	255.874	2599.927	13.059	-1.051	13.059	13.101	355.400	0.157
2700.000	0.210	258.313	2699.926	12.932	-1.584	12.932	13.029	353.018	0.208
2800.000	0.408	306.821	2799.924	13.108	-2.048	13.108	13.267	351.119	0.311
2900.000	0.505	267.363	2899.922	13.301	-2.773	13.301	13.587	348.223	0.321
3000.000	0.352	231.960	2999.919	13.092	-3.455	13.092	13.540	345.216	0.299
3100.000	0.452	53.063	3099.918	13.140	-3.381	13.140	13.568	345.569	0.804
3200.000	0.387	86.458	3199.915	13.398	-2.729	13.398	13.673	348.486	0.249
3300.000	0.322	82.969	3299.914	13.453	-2.114	13.453	13.618	351.070	0.068
3400.000	0.301	68.352	3399.912	13.585	-1.591	13.585	13.677	353.320	0.082

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	0.450	52.999	3499.910	13.918	-1.033	13.918	13.956	355.756	0.178
3600.000	0.636	48.597	3599.905	14.521	-0.303	14.521	14.525	358.805	0.190
3700.000	0.354	46.664	3699.902	15.101	0.338	15.101	15.105	1.284	0.282
3800.000	0.503	331.711	3799.899	15.700	0.355	15.700	15.704	1.296	0.535
3900.000	0.668	313.439	3899.894	16.487	-0.276	16.487	16.490	359.040	0.247
4000.000	0.770	285.068	3999.887	17.063	-1.348	17.063	17.116	355.482	0.366
4100.000	1.078	283.079	4099.874	17.450	-2.913	17.450	17.692	350.523	0.310
4200.000	1.606	290.995	4199.846	18.165	-5.137	18.165	18.878	344.209	0.558
4300.000	1.741	287.529	4299.803	19.125	-7.894	19.125	20.690	337.571	0.169
4400.000	1.768	281.146	4399.756	19.881	-10.856	19.881	22.652	331.362	0.197
4500.000	1.556	276.852	4499.714	20.341	-13.718	20.341	24.534	326.005	0.246
4600.000	1.781	281.583	4599.672	20.815	-16.588	20.815	26.616	321.448	0.264
4700.000	1.695	297.230	4699.627	21.803	-19.425	21.803	29.201	318.302	0.481
4800.000	1.482	282.551	4799.588	22.761	-22.001	22.761	31.656	315.972	0.457
4900.000	1.610	273.413	4899.552	23.125	-24.666	23.125	33.811	313.154	0.278
5000.000	1.774	280.150	4999.509	23.482	-27.592	23.482	36.231	310.399	0.257
5100.000	1.130	271.962	5099.476	23.788	-30.101	23.788	38.366	308.319	0.675
5200.000	0.908	291.897	5199.461	24.117	-31.821	24.117	39.928	307.159	0.415
5300.000	0.830	260.227	5299.450	24.290	-33.269	24.290	41.193	306.133	0.480
5400.000	0.958	274.531	5399.438	24.233	-34.816	24.233	42.419	304.839	0.257
5500.000	1.259	260.363	5499.419	24.115	-36.733	24.115	43.942	303.285	0.405
5600.000	1.532	255.621	5599.389	23.599	-39.112	23.599	45.680	301.106	0.296
5700.000	1.640	258.664	5699.351	22.986	-41.810	22.986	47.712	298.801	0.137
5800.000	2.043	244.873	5799.299	21.948	-44.827	21.948	49.912	296.086	0.596
5900.000	2.400	248.985	5899.224	20.440	-48.396	20.440	52.535	292.897	0.391
6000.000	2.755	246.040	5999.123	18.713	-52.547	18.713	55.779	289.602	0.379
6100.000	2.691	242.591	6099.010	16.656	-56.827	16.656	59.218	286.336	0.176
6200.000	2.705	246.386	6198.899	14.630	-61.074	14.630	62.802	283.471	0.179
6300.000	3.029	232.787	6298.775	12.087	-65.340	12.087	66.449	280.480	0.751
6400.000	3.307	241.691	6398.623	9.121	-69.984	9.121	70.576	277.425	0.564
6500.000	3.986	230.476	6498.421	5.541	-75.205	5.541	75.409	274.214	0.982
6600.000	4.880	226.069	6598.121	0.377	-80.949	0.377	80.950	270.267	0.956
6700.000	5.483	230.232	6697.712	-5.630	-87.686	-5.630	87.866	266.326	0.710
6800.000	4.824	237.319	6797.309	-10.957	-94.897	-10.957	95.527	263.414	0.916
HORIZONTAL DISPLACEMENT IS 95.527 FEET AT 263.414 DEGREES									