



Company: Noble Energy  
Lease / Well: Hamilton / 25-14B  
API#: 05-123-15394  
Rig Name: Production / Lightning Wireline  
State / County: Colorado/ Weld County  
Latitude: 40.364, Longitude: -104.614  
GRID North is 0.570 Degrees East of True North  
VS-Azi: 0.000 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB = Ground Level

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: inrun\_ed.ut

Minimum Curvature Method

Report Date/Time: 9/1/2011 / 19:34

Vaughn Energy Services  
Henderson, CO  
303-853-4976  
Robert Davis

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	0.653	127.999	99.998	-0.351	0.449	-0.351	0.570	127.999	0.653
200.000	0.476	182.303	199.994	-1.116	0.881	-1.116	1.422	141.714	0.539
300.000	0.509	169.410	299.990	-1.967	0.946	-1.967	2.183	154.321	0.115
400.000	0.520	176.464	399.986	-2.857	1.056	-2.857	3.046	159.722	0.064
500.000	0.444	149.420	499.983	-3.643	1.281	-3.643	3.862	160.634	0.237
600.000	0.499	115.396	599.979	-4.163	1.871	-4.163	4.564	155.805	0.281
700.000	0.162	17.827	699.978	-4.216	2.307	-4.216	4.806	151.313	0.544
800.000	0.108	187.705	799.978	-4.175	2.337	-4.175	4.785	150.759	0.269
900.000	0.416	92.794	899.977	-4.286	2.687	-4.286	5.059	147.913	0.439
1000.000	0.190	35.702	999.976	-4.169	3.147	-4.169	5.224	142.954	0.351
1100.000	0.081	281.857	1099.975	-4.020	3.175	-4.020	5.123	141.699	0.235
1200.000	0.315	264.824	1199.975	-4.030	2.832	-4.030	4.926	144.901	0.239
1300.000	0.402	189.021	1299.973	-4.402	2.504	-4.402	5.064	150.366	0.446
1400.000	0.437	268.900	1399.971	-4.756	2.067	-4.756	5.186	156.503	0.540
1500.000	0.353	118.399	1499.970	-4.909	1.957	-4.909	5.285	158.267	0.765
1600.000	0.261	58.587	1599.969	-4.937	2.422	-4.937	5.500	153.866	0.316
1700.000	0.133	112.205	1699.969	-4.862	2.724	-4.862	5.574	150.740	0.211
1800.000	0.624	233.155	1799.967	-5.233	2.395	-5.233	5.755	155.404	0.702
1900.000	0.376	198.424	1899.963	-5.871	1.856	-5.871	6.157	162.460	0.381
2000.000	0.670	268.625	1999.960	-6.197	1.167	-6.197	6.306	169.331	0.648
2100.000	0.660	243.574	2099.953	-6.467	0.067	-6.467	6.467	179.407	0.289
2200.000	0.385	259.109	2199.949	-6.787	-0.779	-6.787	6.832	186.549	0.307
2300.000	0.196	282.752	2299.948	-6.813	-1.276	-6.813	6.931	190.606	0.220
2400.000	0.150	281.017	2399.947	-6.750	-1.571	-6.750	6.930	193.098	0.046
2500.000	0.174	248.597	2499.947	-6.780	-1.840	-6.780	7.026	195.183	0.093
2600.000	0.296	174.488	2599.946	-7.093	-1.957	-7.093	7.358	195.422	0.299
2700.000	0.438	162.431	2699.944	-7.714	-1.816	-7.714	7.925	193.249	0.161
2800.000	0.490	100.516	2799.941	-8.157	-1.280	-8.157	8.257	188.919	0.480
2900.000	0.390	159.131	2899.939	-8.553	-0.738	-8.553	8.585	184.932	0.440
3000.000	0.412	149.785	2999.937	-9.181	-0.436	-9.181	9.192	182.719	0.069
3100.000	0.557	136.549	3099.933	-9.844	0.079	-9.844	9.845	179.541	0.182
3200.000	0.473	123.597	3199.929	-10.426	0.757	-10.426	10.453	175.846	0.143
3300.000	0.814	80.580	3299.923	-10.538	1.802	-10.538	10.691	170.297	0.568
3400.000	1.323	86.513	3399.905	-10.352	3.655	-10.352	10.978	160.551	0.521

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	1.430	78.177	3499.877	-10.026	6.029	-10.026	11.699	148.978	0.227
3600.000	1.449	66.215	3599.845	-9.260	8.407	-9.260	12.507	137.764	0.301
3700.000	1.560	62.693	3699.811	-8.126	10.773	-8.126	13.494	127.026	0.144
3800.000	0.858	63.332	3799.788	-7.165	12.652	-7.165	14.540	119.525	0.702
3900.000	1.410	57.981	3899.768	-6.177	14.365	-6.177	15.636	113.267	0.562
4000.000	0.975	61.010	3999.746	-5.112	16.153	-5.112	16.942	107.561	0.440
4100.000	1.573	54.857	4099.721	-3.909	18.019	-3.909	18.439	102.240	0.613
4200.000	1.176	59.977	4199.692	-2.605	20.031	-2.605	20.199	97.411	0.415
4300.000	1.215	26.783	4299.671	-1.145	21.397	-1.145	21.428	93.064	0.684
4400.000	1.378	42.023	4399.646	0.695	22.680	0.695	22.691	88.246	0.380
4500.000	1.011	33.714	4499.624	2.322	23.975	2.322	24.087	84.469	0.406
4600.000	1.121	31.732	4599.607	3.887	24.979	3.887	25.280	81.155	0.116
4700.000	1.282	28.114	4699.585	5.706	26.020	5.706	26.638	77.632	0.178
4800.000	1.049	30.787	4799.564	7.478	27.016	7.478	28.032	74.527	0.239
4900.000	1.360	24.726	4899.542	9.343	27.981	9.343	29.499	71.536	0.336
5000.000	0.488	12.349	4999.528	10.837	28.568	10.837	30.555	69.227	0.889
5100.000	0.418	350.578	5099.525	11.613	28.600	11.613	30.868	67.901	0.185
5200.000	0.366	300.578	5199.523	12.135	28.265	12.135	30.760	66.766	0.334
5300.000	0.148	198.974	5299.522	12.175	27.949	12.175	30.486	66.461	0.421
5400.000	0.418	57.912	5399.521	12.247	28.216	12.247	30.760	66.537	0.541
5500.000	1.293	45.709	5499.509	13.229	29.333	13.229	32.178	65.725	0.888
5600.000	2.048	49.117	5599.466	15.186	31.492	15.186	34.962	64.255	0.762
5700.000	2.346	46.861	5699.393	17.755	34.336	17.755	38.655	62.656	0.310
5800.000	3.223	54.167	5799.274	20.800	38.108	20.800	43.415	61.374	0.944
5900.000	3.833	56.395	5899.084	24.295	43.171	24.295	49.537	60.630	0.625
6000.000	4.152	52.634	5998.841	28.342	48.832	28.342	56.461	59.869	0.413
6100.000	4.883	60.280	6098.531	32.650	55.406	32.650	64.310	59.490	0.945
6200.000	4.444	65.081	6198.200	36.392	62.616	36.392	72.423	59.835	0.587
6300.000	2.983	71.273	6297.988	38.861	68.595	38.861	78.838	60.467	1.513
6400.000	1.633	92.313	6397.906	39.639	72.483	39.639	82.614	61.327	1.572
6500.000	1.179	136.446	6497.878	38.836	74.615	38.836	84.117	62.504	1.137
6600.000	1.368	154.581	6597.854	37.012	75.837	37.012	84.387	63.985	0.443
6700.000	1.548	173.393	6697.822	34.592	76.504	34.592	83.961	65.670	0.509
6800.000	1.522	178.290	6797.786	31.922	76.700	31.922	83.077	67.403	0.134
6900.000	1.096	154.135	6897.761	29.734	77.156	29.734	82.687	68.925	0.688

HORIZONTAL DISPLACEMENT IS 82.687 FEET AT 68.925 DEGREES
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