



Company: Noble Energy
Lease / Well: Gehring / 8-10X
API#: 05-123-27307

Rig Name: Production / Lightning Wireline

State / County: Colorado / Weld County

Latitude: 40.326, Longitude: -104.573

GRID North is 0.600 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: 8/25/2011 / 11:47

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	0.281	145.190	100.000	-0.201	0.140	-0.201	0.245	145.190	0.281
200.000	0.272	181.602	199.999	-0.640	0.273	-0.640	0.696	156.891	0.173
300.000	0.359	294.728	299.998	-0.746	-0.018	-0.746	0.747	181.396	0.529
400.000	0.120	129.033	399.997	-0.681	-0.222	-0.681	0.716	198.019	0.476
500.000	0.119	341.134	499.997	-0.649	-0.174	-0.649	0.672	194.997	0.229
600.000	0.382	207.576	599.996	-0.846	-0.362	-0.846	0.920	203.134	0.472
700.000	0.465	223.067	699.994	-1.438	-0.793	-1.438	1.642	208.868	0.141
800.000	0.617	227.208	799.989	-2.100	-1.465	-2.100	2.560	214.895	0.157
900.000	0.606	232.846	899.984	-2.785	-2.281	-2.785	3.600	219.320	0.061
1000.000	0.919	225.973	999.975	-3.661	-3.279	-3.661	4.915	221.845	0.325
1100.000	0.540	245.729	1099.966	-4.412	-4.285	-4.412	6.150	224.160	0.449
1200.000	0.877	262.808	1199.959	-4.702	-5.473	-4.702	7.215	229.337	0.394
1300.000	0.520	222.857	1299.952	-5.130	-6.541	-5.130	8.312	231.893	0.583
1400.000	1.003	221.739	1399.943	-6.115	-7.432	-6.115	9.625	230.550	0.484
1500.000	0.490	206.528	1499.934	-7.151	-8.206	-7.151	10.884	228.928	0.546
1600.000	0.938	202.341	1599.926	-8.290	-8.707	-8.290	12.023	226.406	0.451
1700.000	1.004	207.472	1699.912	-9.825	-9.423	-9.825	13.613	223.804	0.110
1800.000	0.736	158.492	1799.901	-11.200	-9.592	-11.200	14.746	220.578	0.762
1900.000	0.775	167.329	1899.893	-12.457	-9.208	-12.457	15.491	216.471	0.123
2000.000	1.069	121.192	1999.881	-13.600	-8.262	-13.600	15.913	211.277	0.772
2100.000	1.400	121.328	2099.857	-14.719	-6.420	-14.719	16.058	203.567	0.331
2200.000	1.341	93.720	2199.830	-15.430	-4.209	-15.430	15.993	195.259	0.656
2300.000	1.647	84.187	2299.796	-15.360	-1.612	-15.360	15.444	185.990	0.394
2400.000	1.351	108.009	2399.763	-15.579	0.940	-15.579	15.607	176.548	0.683
2500.000	1.038	121.219	2499.741	-16.413	2.836	-16.413	16.656	170.198	0.415
2600.000	0.421	99.917	2599.732	-16.946	3.972	-16.946	17.405	166.808	0.664
2700.000	0.588	172.457	2699.729	-17.518	4.401	-17.518	18.062	165.897	0.612
2800.000	0.725	173.383	2799.723	-18.655	4.541	-18.655	19.200	166.318	0.138
2900.000	0.690	229.084	2899.716	-19.678	4.159	-19.678	20.113	168.065	0.662
3000.000	0.189	182.121	2999.713	-20.237	3.698	-20.237	20.572	169.643	0.578
3100.000	0.608	197.703	3099.711	-20.907	3.531	-20.907	21.203	170.414	0.429
3200.000	0.356	321.317	3199.709	-21.170	3.175	-21.170	21.407	171.470	0.858
3300.000	0.405	307.575	3299.707	-20.712	2.701	-20.712	20.887	172.570	0.103
3400.000	0.391	167.127	3399.706	-20.829	2.497	-20.829	20.978	173.164	0.749

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	0.578	193.918	3499.702	-21.651	2.452	-21.651	21.789	173.539	0.289
3600.000	0.788	148.379	3599.696	-22.726	2.691	-22.726	22.884	173.247	0.563
3700.000	0.430	168.568	3699.690	-23.679	3.126	-23.679	23.884	172.480	0.412
3800.000	0.903	161.280	3799.683	-24.793	3.453	-24.793	25.032	172.071	0.480
3900.000	0.335	192.782	3899.677	-25.824	3.641	-25.824	26.080	171.974	0.642
4000.000	0.356	132.732	3999.675	-26.320	3.805	-26.320	26.593	171.775	0.346
4100.000	0.494	183.642	4099.673	-26.961	4.005	-26.961	27.257	171.550	0.386
4200.000	0.417	201.463	4199.670	-27.730	3.845	-27.730	27.995	172.107	0.161
4300.000	0.419	311.602	4299.668	-27.826	3.438	-27.826	28.037	172.957	0.685
4400.000	0.554	346.659	4399.665	-27.112	3.053	-27.112	27.283	173.576	0.320
4500.000	0.734	317.841	4499.659	-26.166	2.511	-26.166	26.287	174.518	0.365
4600.000	0.629	337.926	4599.652	-25.183	1.875	-25.183	25.253	175.742	0.259
4700.000	0.846	21.946	4699.644	-23.990	1.945	-23.990	24.069	175.365	0.588
4800.000	1.635	25.621	4799.620	-22.019	2.838	-22.019	22.201	172.657	0.793
4900.000	2.212	20.046	4899.563	-18.920	4.116	-18.920	19.362	167.726	0.605
5000.000	2.115	25.826	4999.492	-15.446	5.581	-15.446	16.424	160.133	0.238
5100.000	1.718	20.471	5099.436	-12.381	6.909	-12.381	14.178	150.836	0.435
5200.000	0.913	20.232	5199.409	-10.229	7.709	-10.229	12.809	142.998	0.805
5300.000	0.223	99.657	5299.404	-9.515	8.176	-9.515	12.545	139.327	0.899
5400.000	1.026	83.303	5399.398	-9.443	9.257	-9.443	13.223	135.571	0.814
5500.000	1.385	87.894	5499.375	-9.294	11.353	-9.294	14.672	129.305	0.372
5600.000	1.383	80.956	5599.346	-9.060	13.753	-9.060	16.469	123.375	0.168
5700.000	0.962	87.138	5699.325	-8.828	15.784	-8.828	18.085	119.219	0.439
5800.000	0.678	82.284	5799.315	-8.707	17.209	-8.707	19.286	116.837	0.293
5900.000	0.409	69.517	5899.310	-8.503	18.129	-8.503	20.024	115.126	0.293
6000.000	0.748	126.464	5999.306	-8.765	18.988	-8.765	20.914	114.779	0.627
6100.000	0.521	159.294	6099.300	-9.578	19.674	-9.578	21.882	115.959	0.419
6200.000	0.240	187.749	6199.298	-10.211	19.806	-10.211	22.283	117.273	0.330
6300.000	0.486	158.385	6299.296	-10.813	19.934	-10.813	22.678	118.476	0.301
6400.000	0.579	113.953	6399.292	-11.412	20.552	-11.412	23.508	119.042	0.412
6500.000	0.483	95.864	6499.287	-11.660	21.433	-11.660	24.400	118.547	0.192
6600.000	0.579	112.812	6599.283	-11.899	22.319	-11.899	25.293	118.064	0.183
6700.000	1.190	140.724	6699.271	-12.899	23.442	-12.899	26.756	118.822	0.730
6800.000	0.705	116.608	6799.258	-13.978	24.649	-13.978	28.336	119.557	0.618
6900.000	0.717	111.788	6899.250	-14.486	25.780	-14.486	29.571	119.332	0.061

<div> HORIZONTAL DISPLACEMENT IS 29.571 FEET AT 119.332 DEGREES </div>
