



Company: Noble Energy
Well: Walker 4-24
API#: 05-123-16830
Rig Name: Production / Lightning
Location: Weld County, Colorado
Latitude: 40.344, Longitude: -104.671
GRID North is 0.540 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: merged2.ut

Minimum Curvature Method

Report Date/Time: 11/8/2011 / 14:00

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	0.575	54.576	99.998	0.291	0.409	0.291	0.501	54.576	0.575
200.000	0.375	18.656	199.995	0.891	0.922	0.891	1.282	45.969	0.349
300.000	0.677	32.420	299.991	1.700	1.343	1.700	2.167	38.315	0.326
400.000	0.565	43.523	399.985	2.556	2.000	2.556	3.245	38.033	0.164
500.000	0.654	34.528	499.979	3.384	2.662	3.384	4.305	38.196	0.130
600.000	0.824	55.744	599.971	4.259	3.580	4.259	5.564	40.055	0.320
700.000	0.577	18.241	699.964	5.142	4.333	5.142	6.724	40.119	0.508
800.000	0.821	55.372	799.957	6.027	5.080	6.027	7.882	40.126	0.502
900.000	0.709	26.852	899.948	6.986	5.949	6.986	9.176	40.415	0.392
1000.000	0.988	32.525	999.937	8.265	6.692	8.265	10.634	38.996	0.291
1100.000	0.626	36.364	1099.927	9.431	7.479	9.431	12.037	38.414	0.366
1200.000	1.081	31.615	1199.916	10.675	8.297	10.675	13.520	37.858	0.461
1300.000	0.772	30.421	1299.903	12.059	9.133	12.059	15.128	37.139	0.310
1400.000	0.916	31.361	1399.892	13.323	9.890	13.323	16.593	36.589	0.145
1500.000	0.835	48.192	1499.880	14.491	10.850	14.491	18.103	36.822	0.269
1600.000	1.045	54.739	1599.867	15.504	12.137	15.504	19.689	38.057	0.236
1700.000	0.976	71.529	1699.852	16.300	13.690	16.300	21.286	40.026	0.303
1800.000	1.048	80.950	1799.836	16.714	15.401	16.714	22.727	42.659	0.181
1900.000	1.146	91.925	1899.818	16.824	17.303	16.824	24.134	45.805	0.231
2000.000	0.948	101.530	1999.801	16.625	19.113	16.625	25.332	48.982	0.264
2100.000	0.815	99.745	2099.789	16.339	20.624	16.339	26.312	51.613	0.135
2200.000	0.576	134.405	2199.782	15.867	21.685	15.867	26.870	53.806	0.473
2300.000	0.478	219.301	2299.779	15.192	21.779	15.192	26.555	55.102	0.715
2400.000	0.207	313.259	2399.778	14.993	21.384	14.993	26.116	54.964	0.534
2500.000	0.133	270.869	2499.778	15.118	21.136	15.118	25.987	54.424	0.141
2600.000	0.328	229.696	2599.777	14.935	20.802	14.935	25.608	54.322	0.244
2700.000	0.330	135.486	2699.776	14.545	20.785	14.545	25.369	55.017	0.482
2800.000	0.716	115.276	2799.771	14.073	21.553	14.073	25.740	56.858	0.422
2900.000	1.008	147.980	2899.761	13.060	22.584	13.060	26.089	59.961	0.560
3000.000	1.005	114.153	2999.746	11.955	23.851	11.955	26.680	63.379	0.586
3100.000	1.033	134.989	3099.730	10.959	25.289	10.959	27.562	66.572	0.370
3200.000	0.590	133.851	3199.720	9.965	26.298	9.965	28.123	69.248	0.444
3300.000	0.392	205.229	3299.717	9.298	26.524	9.298	28.106	70.681	0.595
3400.000	0.371	236.799	3399.715	8.811	26.106	8.811	27.553	71.350	0.209

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	0.426	175.467	3499.713	8.263	25.865	8.263	27.152	72.282	0.409
3600.000	0.151	240.817	3599.712	7.829	25.779	7.829	26.942	73.107	0.388
3700.000	0.149	237.462	3699.712	7.695	25.555	7.695	26.688	73.242	0.009
3800.000	0.412	210.123	3799.710	7.314	25.265	7.314	26.303	73.854	0.288
3900.000	0.126	230.130	3899.709	6.933	25.000	6.933	25.944	74.501	0.296
4000.000	0.066	193.912	3999.709	6.806	24.902	6.806	25.815	74.713	0.083
4100.000	0.146	35.854	4099.709	6.854	24.963	6.854	25.887	74.646	0.209
4200.000	0.416	90.954	4199.708	6.952	25.400	6.952	26.334	74.693	0.353
4300.000	0.566	92.747	4299.704	6.922	26.256	6.922	27.153	75.230	0.151
4400.000	0.741	90.388	4399.698	6.894	27.396	6.894	28.250	75.875	0.177
4500.000	0.913	84.983	4499.687	6.959	28.836	6.959	29.664	76.431	0.188
4600.000	0.906	79.976	4599.675	7.167	30.408	7.167	31.241	76.738	0.080
4700.000	0.813	58.890	4699.664	7.671	31.794	7.671	32.706	76.435	0.327
4800.000	1.360	35.221	4799.646	9.007	33.086	9.007	34.290	74.771	0.697
4900.000	1.372	20.729	4899.618	11.097	34.194	11.097	35.950	72.020	0.345
5000.000	1.798	356.552	4999.580	13.783	34.524	13.783	37.173	68.236	0.784
5100.000	2.058	330.558	5099.525	16.912	33.547	16.912	37.569	63.245	0.903
5200.000	1.498	306.898	5199.478	19.261	31.619	19.261	37.023	58.652	0.911
5300.000	0.691	289.596	5299.459	20.248	30.005	20.248	36.198	55.987	0.863
5400.000	0.424	304.252	5399.454	20.659	29.131	20.659	35.712	54.657	0.301
5500.000	0.935	310.551	5499.447	21.398	28.205	21.398	35.403	52.814	0.515
5600.000	0.910	312.221	5599.434	22.462	26.997	22.462	35.119	50.239	0.036
5700.000	1.180	293.293	5699.418	23.403	25.462	23.403	34.584	47.413	0.435
5800.000	1.432	312.235	5799.392	24.650	23.591	24.650	34.120	43.743	0.496
5900.000	1.597	327.886	5899.358	26.670	21.925	26.670	34.526	39.424	0.444
6000.000	1.756	304.584	5999.316	28.720	19.923	28.720	34.954	34.749	0.695
6100.000	1.615	302.740	6099.273	30.352	17.476	30.352	35.024	29.933	0.152
6200.000	1.882	297.586	6199.226	31.874	14.836	31.874	35.158	24.959	0.310
6300.000	2.227	301.850	6299.162	33.660	11.730	33.660	35.646	19.212	0.377
6400.000	1.577	320.529	6399.107	35.748	9.205	35.748	36.914	14.439	0.890
6500.000	0.945	351.114	6499.083	37.624	8.203	37.624	38.508	12.299	0.902
6600.000	0.464	23.990	6599.076	38.809	8.240	38.809	39.674	11.987	0.610
6700.000	0.648	80.299	6699.072	39.274	8.962	39.274	40.283	12.855	0.549
6800.000	1.034	102.388	6799.061	39.175	10.401	39.175	40.533	14.869	0.497
6900.000	0.188	122.744	6899.055	38.893	11.420	38.893	40.535	16.364	0.860

<div> HORIZONTAL DISPLACEMENT IS 40.535 FEET AT 16.364 DEGREES </div>
--