

Company: NOBLE ENERGY

Well: ADLER 44-10

API: 05-123-10985

Rig Name: PRODUCTION/VES

State/County: COLORADO/WELD

Latitude: 40.322, Longitude: -104.531

GRID North is 0.630 Degrees East of True North

VS-Azi: 0.000 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB = GROUND LEVEL

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: run_01-de_01.ut

Minimum Curvature Method

Report Date/Time: 12/24/2012 / 10:52

VAUGHN ENERGY SERVICES

HENDERSON, COLORADO

866-835-8333

NICK KULA

DEPTH REFERENCE=GROUND LEVEL

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	0.787	256.280	99.997	-0.163	-0.667	-0.163	0.687	256.280	0.787
200.000	0.746	257.174	199.988	-0.470	-1.969	-0.470	2.025	256.567	0.043
300.000	0.461	319.036	299.983	-0.311	-2.868	-0.311	2.885	263.803	0.667
400.000	0.103	253.182	399.982	-0.034	-3.217	-0.034	3.218	269.395	0.429
500.000	0.296	260.724	499.981	-0.102	-3.559	-0.102	3.560	268.363	0.194
600.000	0.277	284.412	599.980	-0.083	-4.048	-0.083	4.049	268.824	0.119
700.000	0.186	335.169	699.979	0.124	-4.351	0.124	4.352	271.635	0.215
800.000	0.077	45.887	799.979	0.318	-4.370	0.318	4.382	274.161	0.176
900.000	0.215	340.561	899.979	0.542	-4.385	0.542	4.418	277.042	0.196
1000.000	0.184	255.370	999.978	0.678	-4.602	0.678	4.652	278.379	0.271
1100.000	0.307	189.029	1099.978	0.372	-4.800	0.372	4.814	274.435	0.288
1200.000	0.444	128.624	1199.976	-0.134	-4.539	-0.134	4.541	268.303	0.396
1300.000	0.561	220.663	1299.973	-0.748	-4.556	-0.748	4.617	260.678	0.728
1400.000	0.363	278.437	1399.970	-1.073	-5.189	-1.073	5.298	258.316	0.479
1500.000	0.125	125.672	1499.970	-1.090	-5.413	-1.090	5.522	258.612	0.478
1600.000	0.416	287.333	1599.969	-1.046	-5.671	-1.046	5.766	259.549	0.536
1700.000	0.529	307.376	1699.966	-0.658	-6.384	-0.658	6.418	264.115	0.198
1800.000	0.921	332.931	1799.958	0.338	-7.116	0.338	7.124	272.716	0.499
1900.000	1.153	331.245	1899.941	1.935	-7.965	1.935	8.197	283.653	0.234
2000.000	0.934	316.560	1999.925	3.408	-9.010	3.408	9.633	290.722	0.344
2100.000	0.917	323.344	2099.912	4.642	-10.048	4.642	11.068	294.796	0.111
2200.000	1.300	329.823	2199.893	6.264	-11.095	6.264	12.741	299.447	0.402
2300.000	0.922	336.466	2299.874	7.982	-11.986	7.982	14.401	303.660	0.399
2400.000	0.865	326.046	2399.862	9.345	-12.729	9.345	15.791	306.285	0.172
2500.000	0.490	319.700	2499.855	10.298	-13.428	10.298	16.922	307.485	0.381
2600.000	0.371	315.760	2599.852	10.856	-13.931	10.856	17.661	307.930	0.123
2700.000	0.640	313.792	2699.848	11.475	-14.560	11.475	18.538	308.243	0.270
2800.000	0.486	306.598	2799.843	12.115	-15.304	12.115	19.519	308.366	0.169
2900.000	0.663	319.565	2899.838	12.808	-16.020	12.808	20.511	308.643	0.218

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
3000.000	0.620	330.358	2999.832	13.719	-16.662	13.719	21.583	309.465	0.128
3100.000	0.585	319.168	3099.827	14.575	-17.264	14.575	22.593	310.173	0.122
3200.000	0.776	298.651	3199.820	15.285	-18.191	15.285	23.761	310.039	0.307
3300.000	0.855	311.515	3299.810	16.105	-19.344	16.105	25.171	309.778	0.199
3400.000	1.188	302.139	3399.794	17.151	-20.781	17.151	26.944	309.533	0.372
3500.000	1.249	307.490	3499.771	18.366	-22.524	18.366	29.062	309.193	0.129
3600.000	1.425	307.191	3599.744	19.781	-24.379	19.781	31.395	309.055	0.176
3700.000	1.547	319.167	3699.710	21.553	-26.252	21.553	33.967	309.386	0.333
3800.000	1.124	313.618	3799.683	23.251	-27.845	23.251	36.276	309.863	0.442
3900.000	0.643	319.782	3899.671	24.356	-28.917	24.356	37.807	310.107	0.490
4000.000	0.743	305.105	3999.664	25.157	-29.810	25.157	39.007	310.162	0.203
4100.000	0.569	295.577	4099.657	25.745	-30.788	25.745	40.134	309.902	0.205
4200.000	0.322	230.675	4199.654	25.781	-31.453	25.781	40.669	309.340	0.522
4300.000	0.481	244.382	4299.652	25.422	-32.049	25.422	40.907	308.422	0.184
4400.000	0.283	252.152	4399.650	25.165	-32.662	25.165	41.232	307.613	0.204
4500.000	0.393	173.481	4499.648	24.748	-32.858	24.748	41.135	306.986	0.437
4600.000	0.381	190.651	4599.646	24.080	-32.880	24.080	40.755	306.217	0.116
4700.000	0.283	162.188	4699.644	23.517	-32.866	23.517	40.413	305.585	0.189
4800.000	0.339	198.754	4799.643	23.002	-32.886	23.002	40.132	304.971	0.202
4900.000	0.259	236.489	4899.642	22.598	-33.169	22.598	40.135	304.266	0.207
5000.000	0.152	102.641	4999.642	22.444	-33.227	22.444	40.097	304.038	0.380
5100.000	0.128	113.706	5099.641	22.370	-32.996	22.370	39.864	304.136	0.036
5200.000	0.496	142.217	5199.640	21.983	-32.628	21.983	39.343	303.970	0.389
5300.000	0.482	240.834	5299.637	21.436	-32.730	21.436	39.124	303.222	0.742
5400.000	0.567	157.755	5399.634	20.773	-32.909	20.773	38.917	302.261	0.698
5500.000	0.672	208.886	5499.629	19.801	-33.005	19.801	38.489	300.961	0.543
5600.000	0.062	163.419	5599.627	19.236	-33.273	19.236	38.433	300.033	0.630
5700.000	0.224	67.243	5699.627	19.259	-33.077	19.259	38.275	300.210	0.239
5800.000	0.533	114.433	5799.624	19.143	-32.473	19.143	37.695	300.519	0.414
5900.000	0.641	150.490	5899.619	18.464	-31.775	18.464	36.750	300.160	0.377
6000.000	0.203	215.161	5999.617	17.832	-31.601	17.832	36.285	299.436	0.583
6100.000	0.234	146.438	6099.616	17.518	-31.590	17.518	36.122	299.010	0.248
6200.000	0.497	148.662	6199.614	16.977	-31.252	16.977	35.565	298.513	0.264
6300.000	0.368	75.143	6299.612	16.689	-30.716	16.689	34.957	298.517	0.528
6400.000	0.935	135.618	6399.606	16.188	-29.835	16.188	33.943	298.483	0.819
6500.000	0.441	128.489	6499.599	15.365	-28.962	15.365	32.786	297.946	0.501
6600.000	1.000	148.542	6599.590	14.381	-28.206	14.381	31.660	297.015	0.605
6700.000	0.942	147.768	6699.576	12.941	-27.312	12.941	30.223	295.353	0.059
6740.000	0.697	133.578	6739.572	12.495	-26.960	12.495	29.715	294.866	0.791

HORIZONTAL DISPLACEMENT IS
29.715 FEET AT 294.866 DEGREES