



Company: Noble Energy
Rig: Production/VES
API # 05-123-29499

Date: 8/29/2013
Surveyor: Nick Kula

VS: 0.000
Lat : 40.459
Long: -104.411

Well: Wells Ranch AA 26-12 HZB
Location: Weld County, Colorado
North Reference: GRID
Convergence: GRID North is 0.700 Degrees East
Declination: 8.38

Depth Reference: Ground Level
Elevation: 4836'

Total Depth as Drilled: 9660'

Lat & Long obtained by handheld GPS at wellhead

HA Gyro Survey Calculations

Depth	Inc	AzG	N/-S	E/-W	TVD	DL	VS	CD	Cbrg
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30.000	0.133	334.535	0.031	-0.015	30.000	0.443	0.031	0.035	334.535
60.000	0.120	280.983	0.069	-0.061	60.000	0.382	0.069	0.092	318.500
90.000	0.172	184.302	0.030	-0.095	90.000	0.739	0.030	0.100	287.359
120.000	0.402	220.334	-0.096	-0.167	119.999	0.939	-0.096	0.192	240.182
150.000	0.486	252.695	-0.214	-0.356	149.999	0.867	-0.214	0.415	239.050
180.000	0.582	279.024	-0.228	-0.628	179.997	0.869	-0.228	0.668	250.088
210.000	0.477	283.037	-0.176	-0.901	209.996	0.373	-0.176	0.918	258.971
240.000	0.523	289.710	-0.101	-1.151	239.995	0.247	-0.101	1.155	264.975
270.000	0.553	303.664	0.025	-1.400	269.994	0.446	0.025	1.400	271.029
300.000	0.634	306.256	0.204	-1.655	299.992	0.287	0.204	1.667	277.013
330.000	0.498	323.805	0.407	-1.865	329.991	0.731	0.407	1.909	282.305
360.000	0.222	322.078	0.558	-1.978	359.990	0.919	0.558	2.055	285.751
390.000	0.156	328.321	0.639	-2.035	389.990	0.229	0.639	2.133	287.421
420.000	0.189	330.842	0.717	-2.081	419.990	0.113	0.717	2.201	289.007
450.000	0.163	320.395	0.793	-2.132	449.989	0.138	0.793	2.275	290.400
480.000	0.157	334.966	0.863	-2.177	479.989	0.137	0.863	2.342	291.627
510.000	0.186	322.992	0.939	-2.224	509.989	0.153	0.939	2.414	292.897
540.000	0.127	313.950	1.001	-2.277	539.989	0.212	1.001	2.487	293.733
570.000	0.338	310.031	1.081	-2.369	569.989	0.705	1.081	2.604	294.532
600.000	0.436	295.485	1.187	-2.539	599.988	0.461	1.187	2.803	295.055
630.000	0.335	320.067	1.303	-2.699	629.988	0.640	1.303	2.997	295.779
660.000	0.490	316.133	1.463	-2.844	659.987	0.528	1.463	3.198	297.225
690.000	0.444	316.384	1.640	-3.013	689.986	0.155	1.640	3.431	298.557
720.000	0.216	288.538	1.742	-3.147	719.985	0.909	1.742	3.597	298.967
750.000	0.233	275.311	1.766	-3.261	749.985	0.182	1.766	3.708	298.431
780.000	0.073	289.093	1.777	-3.340	779.985	0.544	1.777	3.784	298.021
810.000	0.277	293.416	1.813	-3.425	809.985	0.682	1.813	3.875	297.891
840.000	0.244	26.363	1.899	-3.463	839.985	1.262	1.899	3.949	298.735
870.000	0.129	36.346	1.983	-3.415	869.984	0.395	1.983	3.949	300.148
900.000	0.227	44.562	2.053	-3.353	899.984	0.334	2.053	3.931	301.476
930.000	0.171	44.930	2.127	-3.280	929.984	0.185	2.127	3.909	302.962
960.000	0.051	69.215	2.163	-3.235	959.984	0.420	2.163	3.892	303.767
990.000	0.233	51.844	2.206	-3.175	989.984	0.615	2.206	3.866	304.788
1020.000	0.226	46.691	2.284	-3.084	1019.984	0.073	2.284	3.837	306.522
1050.000	0.022	42.943	2.329	-3.037	1049.984	0.679	2.329	3.827	307.480

1080.000	0.053	52.498	2.341	-3.022	1079.984	0.104	2.341	3.823	307.768
1110.000	0.212	47.246	2.388	-2.970	1109.983	0.533	2.388	3.811	308.795
1140.000	0.288	48.120	2.476	-2.873	1139.983	0.254	2.476	3.793	310.752
1170.000	0.205	61.377	2.552	-2.770	1169.983	0.335	2.552	3.766	312.657
1200.000	0.018	66.805	2.579	-2.718	1199.983	0.626	2.579	3.747	313.499
1230.000	0.116	203.220	2.553	-2.726	1229.983	0.430	2.553	3.735	313.128
1260.000	0.156	218.390	2.494	-2.763	1259.983	0.178	2.494	3.722	312.063
1290.000	0.113	221.749	2.440	-2.808	1289.983	0.145	2.440	3.720	310.981
1320.000	0.152	226.929	2.390	-2.857	1319.983	0.137	2.390	3.725	309.917
1350.000	0.144	220.210	2.334	-2.911	1349.982	0.064	2.334	3.731	308.729
1380.000	0.146	224.402	2.278	-2.962	1379.982	0.036	2.278	3.736	307.568
1410.000	0.160	235.517	2.227	-3.023	1409.982	0.110	2.227	3.755	306.382
1440.000	0.144	231.509	2.180	-3.087	1439.982	0.064	2.180	3.779	305.229
1470.000	0.155	229.493	2.130	-3.147	1469.982	0.041	2.130	3.800	304.088
1500.000	0.118	231.898	2.084	-3.203	1499.982	0.124	2.084	3.821	303.058
1530.000	0.187	238.965	2.040	-3.269	1529.982	0.237	2.040	3.853	301.966
1560.000	0.245	239.564	1.982	-3.366	1559.982	0.193	1.982	3.907	300.492
1590.000	0.161	231.023	1.923	-3.454	1589.981	0.298	1.923	3.954	299.108
1620.000	0.079	235.941	1.885	-3.504	1619.981	0.273	1.885	3.979	298.279
1650.000	0.174	238.463	1.850	-3.560	1649.981	0.317	1.850	4.012	297.454
1680.000	0.117	239.799	1.811	-3.626	1679.981	0.191	1.811	4.053	296.535
1710.000	0.142	241.098	1.777	-3.685	1709.981	0.083	1.777	4.091	295.748
1740.000	0.257	222.294	1.709	-3.763	1739.981	0.437	1.709	4.133	294.433
1770.000	0.315	229.597	1.606	-3.871	1769.981	0.227	1.606	4.191	292.537
1800.000	0.184	211.379	1.512	-3.959	1799.980	0.505	1.512	4.237	290.900
1830.000	0.060	218.092	1.458	-3.993	1829.980	0.413	1.458	4.251	290.058
1860.000	0.126	192.268	1.413	-4.010	1859.980	0.253	1.413	4.252	289.417
1890.000	0.096	206.603	1.359	-4.028	1889.980	0.135	1.359	4.251	288.641
1920.000	0.356	230.062	1.277	-4.111	1919.980	0.902	1.277	4.305	287.251
1950.000	0.229	238.711	1.186	-4.234	1949.979	0.448	1.186	4.397	285.645
1980.000	0.114	229.612	1.135	-4.308	1979.979	0.393	1.135	4.455	284.765
2010.000	0.253	220.753	1.066	-4.373	2009.979	0.471	1.066	4.501	283.697
2040.000	0.266	234.481	0.975	-4.473	2039.979	0.211	0.975	4.578	282.301
2070.000	0.280	239.653	0.898	-4.593	2069.979	0.096	0.898	4.680	281.061
2100.000	0.147	207.032	0.826	-4.674	2099.978	0.584	0.826	4.746	280.027
2130.000	0.305	205.937	0.720	-4.726	2129.978	0.525	0.720	4.781	278.665
2160.000	0.565	166.252	0.505	-4.726	2159.977	1.279	0.505	4.753	276.096
2190.000	0.840	173.378	0.143	-4.666	2189.975	0.959	0.143	4.668	271.751
2220.000	0.813	160.818	-0.277	-4.570	2219.972	0.609	-0.277	4.579	266.532
2250.000	0.779	156.979	-0.666	-4.421	2249.969	0.211	-0.666	4.470	261.435
2280.000	0.759	140.403	-1.007	-4.214	2279.966	0.742	-1.007	4.333	256.566
2310.000	0.902	133.834	-1.323	-3.917	2309.963	0.573	-1.323	4.135	251.337
2340.000	0.642	136.039	-1.608	-3.630	2339.960	0.870	-1.608	3.970	246.114
2370.000	0.913	134.513	-1.896	-3.343	2369.958	0.906	-1.896	3.843	240.436
2400.000	1.074	136.020	-2.266	-2.977	2399.953	0.543	-2.266	3.742	232.722
2430.000	1.177	139.404	-2.703	-2.581	2429.947	0.409	-2.703	3.737	223.686
2460.000	1.026	147.687	-3.164	-2.237	2459.942	0.732	-3.164	3.875	215.268

2490.000	1.190	144.236	-3.643	-1.912	2489.936	0.589	-3.643	4.114	207.688
2520.000	1.066	129.944	-4.075	-1.516	2519.930	1.020	-4.075	4.348	200.403
2550.000	1.022	132.426	-4.435	-1.104	2549.925	0.210	-4.435	4.570	193.981
2580.000	1.200	133.742	-4.833	-0.680	2579.920	0.597	-4.833	4.880	188.007
2610.000	1.220	131.926	-5.263	-0.215	2609.913	0.145	-5.263	5.268	182.343
2640.000	1.416	136.203	-5.744	0.279	2639.905	0.732	-5.744	5.751	177.221
2670.000	1.316	131.798	-6.241	0.792	2669.897	0.484	-6.241	6.291	172.766
2700.000	1.127	130.471	-6.663	1.274	2699.890	0.637	-6.663	6.783	169.178
2730.000	1.099	132.739	-7.049	1.710	2729.884	0.174	-7.049	7.254	166.369
2760.000	1.221	131.255	-7.456	2.161	2759.878	0.419	-7.456	7.762	163.834
2790.000	1.040	135.359	-7.860	2.593	2789.872	0.663	-7.860	8.277	161.743
2820.000	1.098	132.122	-8.246	2.997	2819.867	0.279	-8.246	8.774	160.026
2850.000	1.069	129.981	-8.619	3.425	2849.862	0.166	-8.619	9.274	158.329
2880.000	1.110	132.882	-8.996	3.852	2879.856	0.229	-8.996	9.786	156.821
2910.000	1.033	129.960	-9.368	4.272	2909.851	0.313	-9.368	10.296	155.485
2940.000	1.108	127.639	-9.719	4.709	2939.846	0.288	-9.719	10.799	154.147
2970.000	1.135	131.739	-10.093	5.160	2969.840	0.282	-10.093	11.336	152.921
3000.000	1.212	131.607	-10.502	5.619	2999.834	0.259	-10.502	11.911	151.850
3030.000	1.173	130.704	-10.913	6.089	3029.827	0.146	-10.913	12.497	150.838
3060.000	1.100	128.097	-11.291	6.549	3059.821	0.298	-11.291	13.052	149.886
3090.000	1.121	125.246	-11.638	7.015	3089.816	0.197	-11.638	13.588	148.919
3120.000	1.215	116.509	-11.949	7.539	3119.809	0.671	-11.949	14.129	147.750
3150.000	1.145	117.502	-12.229	8.090	3149.803	0.245	-12.229	14.663	146.515
3180.000	1.141	116.733	-12.502	8.622	3179.797	0.053	-12.502	15.187	145.407
3210.000	1.270	109.904	-12.750	9.201	3209.790	0.643	-12.750	15.723	144.182
3240.000	1.103	102.522	-12.925	9.796	3239.784	0.753	-12.925	16.218	142.842
3270.000	1.549	102.203	-13.074	10.474	3269.776	1.486	-13.074	16.752	141.300
3300.000	1.188	103.489	-13.232	11.173	3299.767	1.207	-13.232	17.318	139.823
3330.000	1.530	89.551	-13.301	11.876	3329.759	1.576	-13.301	17.831	138.241
3360.000	1.556	82.155	-13.243	12.679	3359.748	0.669	-13.243	18.334	136.245
3390.000	1.211	79.080	-13.127	13.394	3389.739	1.175	-13.127	18.754	134.423
3420.000	1.005	69.533	-12.975	13.952	3419.734	0.919	-12.975	19.053	132.922
3450.000	0.878	64.573	-12.784	14.406	3449.730	0.505	-12.784	19.261	131.587
3480.000	0.684	69.718	-12.623	14.781	3479.727	0.686	-12.623	19.438	130.498
3510.000	0.538	91.222	-12.564	15.090	3509.725	0.898	-12.564	19.636	129.782
3540.000	0.133	116.310	-12.583	15.262	3539.725	1.404	-12.583	19.780	129.504
3570.000	0.272	126.906	-12.641	15.350	3569.724	0.478	-12.641	19.885	129.472
3600.000	0.420	129.248	-12.753	15.492	3599.724	0.494	-12.753	20.066	129.462
3630.000	0.252	130.199	-12.866	15.628	3629.723	0.559	-12.866	20.242	129.463
3660.000	0.338	135.092	-12.971	15.741	3659.723	0.299	-12.971	20.396	129.490
3690.000	0.550	139.395	-13.143	15.897	3689.722	0.713	-13.143	20.626	129.582
3720.000	0.505	143.871	-13.359	16.069	3719.721	0.202	-13.359	20.897	129.739
3750.000	0.601	134.992	-13.577	16.258	3749.719	0.428	-13.577	21.182	129.865
3780.000	0.681	143.825	-13.832	16.474	3779.717	0.422	-13.832	21.511	130.017
3810.000	0.751	124.527	-14.088	16.742	3809.715	0.833	-14.088	21.880	130.080
3840.000	0.918	119.812	-14.319	17.112	3839.712	0.599	-14.319	22.313	129.921
3870.000	1.119	103.744	-14.508	17.605	3869.707	1.159	-14.508	22.813	129.490

3900.000	1.132	101.800	-14.638	18.180	3899.701	0.134	-14.638	23.340	128.840
3930.000	1.122	100.565	-14.752	18.759	3929.696	0.087	-14.752	23.864	128.182
3960.000	1.090	97.966	-14.846	19.330	3959.690	0.199	-14.846	24.373	127.525
3990.000	1.031	99.902	-14.932	19.878	3989.685	0.230	-14.932	24.862	126.912
4020.000	0.694	78.523	-14.942	20.322	4019.682	1.535	-14.942	25.224	126.325
4050.000	1.027	82.953	-14.873	20.767	4049.678	1.130	-14.873	25.543	125.609
4080.000	1.049	77.521	-14.780	21.302	4079.673	0.337	-14.780	25.927	124.755
4110.000	0.985	67.354	-14.622	21.808	4109.668	0.638	-14.622	26.256	123.841
4140.000	1.094	54.175	-14.355	22.278	4139.664	0.874	-14.355	26.503	122.795
4170.000	1.086	56.286	-14.029	22.747	4169.658	0.137	-14.029	26.726	121.664
4200.000	1.190	44.115	-13.648	23.200	4199.652	0.875	-13.648	26.917	120.467
4230.000	1.465	31.408	-13.097	23.617	4229.644	1.338	-13.097	27.005	119.011
4260.000	1.451	32.840	-12.451	24.023	4259.635	0.130	-12.451	27.058	117.397
4290.000	1.423	28.770	-11.805	24.408	4289.625	0.353	-11.805	27.113	115.811
4320.000	1.455	25.436	-11.134	24.751	4319.616	0.299	-11.134	27.140	114.221
4350.000	1.428	23.925	-10.449	25.066	4349.606	0.156	-10.449	27.157	112.629
4380.000	1.277	19.015	-9.791	25.327	4379.598	0.633	-9.791	27.153	111.136
4410.000	1.432	14.783	-9.113	25.531	4409.589	0.615	-9.113	27.109	109.643
4440.000	1.495	12.144	-8.367	25.709	4439.580	0.308	-8.367	27.037	108.028
4470.000	1.513	11.773	-7.597	25.872	4469.569	0.067	-7.597	26.965	106.364
4500.000	1.178	5.806	-6.903	25.984	4499.561	1.208	-6.903	26.886	104.877
4530.000	1.606	5.192	-6.177	26.054	4529.552	1.428	-6.177	26.776	103.339
4560.000	1.598	2.409	-5.341	26.109	4559.540	0.261	-5.341	26.650	101.561
4590.000	1.699	3.295	-4.479	26.152	4589.528	0.346	-4.479	26.533	99.718
4620.000	2.047	2.369	-3.499	26.200	4619.512	1.165	-3.499	26.433	97.608
4650.000	2.422	358.535	-2.330	26.206	4649.489	1.346	-2.330	26.309	95.082
4680.000	2.534	353.804	-1.037	26.118	4679.461	0.776	-1.037	26.139	92.274
4710.000	2.761	350.562	0.335	25.928	4709.429	0.907	0.335	25.930	89.260
4740.000	2.954	350.013	1.809	25.676	4739.392	0.648	1.809	25.739	85.970
4770.000	3.024	347.993	3.344	25.377	4769.351	0.423	3.344	25.596	82.493
4800.000	3.109	345.308	4.905	25.006	4799.308	0.555	4.905	25.483	78.902
4830.000	3.171	347.317	6.502	24.617	4829.263	0.422	6.502	25.462	75.206
4860.000	3.046	344.321	8.078	24.220	4859.219	0.684	8.078	25.532	71.554
4890.000	3.094	345.276	9.629	23.799	4889.176	0.235	9.629	25.673	67.972
4920.000	2.912	347.078	11.155	23.423	4919.135	0.685	11.155	25.943	64.535
4950.000	3.138	346.345	12.695	23.058	4949.093	0.764	12.695	26.322	61.164
4980.000	2.980	345.635	14.248	22.671	4979.050	0.540	14.248	26.777	57.851
5010.000	2.565	343.637	15.648	22.288	5009.015	1.420	15.648	27.233	54.929
5040.000	2.869	345.268	17.018	21.908	5038.981	1.045	17.018	27.742	52.160
5070.000	2.693	344.220	18.423	21.526	5068.946	0.611	18.423	28.333	49.442
5100.000	2.654	344.251	19.769	21.146	5098.913	0.128	19.769	28.948	46.926
5130.000	2.329	342.375	21.019	20.772	5128.885	1.119	21.019	29.551	44.662
5160.000	2.206	334.314	22.120	20.338	5158.861	1.138	22.120	30.049	42.596
5190.000	1.934	332.507	23.089	19.854	5188.842	0.934	23.089	30.452	40.691
5220.000	1.813	326.885	23.936	19.361	5218.826	0.733	23.936	30.786	38.968
5250.000	1.492	327.518	24.663	18.892	5248.813	1.072	24.663	31.067	37.452
5280.000	1.444	310.305	25.237	18.394	5278.803	1.473	25.237	31.229	36.087

5310.000	1.421	296.716	25.648	17.774	5308.794	1.132	25.648	31.205	34.721
5340.000	1.455	285.290	25.916	17.074	5338.785	0.961	25.916	31.035	33.378
5370.000	1.255	276.923	26.056	16.380	5368.776	0.937	26.056	30.777	32.156
5400.000	1.322	280.191	26.157	15.713	5398.769	0.332	26.157	30.514	30.995
5430.000	1.033	281.450	26.272	15.108	5428.762	0.968	26.272	30.306	29.902
5460.000	1.135	281.427	26.384	14.552	5458.757	0.340	26.384	30.131	28.878
5490.000	1.114	287.769	26.532	13.983	5488.751	0.420	26.532	29.991	27.790
5520.000	0.667	287.798	26.674	13.539	5518.748	1.490	26.674	29.914	26.910
5550.000	1.001	289.059	26.813	13.125	5548.744	1.114	26.813	29.853	26.081
5580.000	1.094	290.621	27.000	12.609	5578.739	0.326	27.000	29.799	25.033
5610.000	0.841	284.903	27.157	12.128	5608.735	0.902	27.157	29.742	24.065
5640.000	0.887	283.082	27.266	11.689	5638.732	0.177	27.266	29.667	23.205
5670.000	0.893	275.931	27.343	11.231	5668.728	0.370	27.343	29.560	22.330
5700.000	0.960	278.032	27.402	10.750	5698.724	0.250	27.402	29.435	21.420
5730.000	0.671	265.158	27.423	10.326	5728.721	1.133	27.423	29.302	20.634
5760.000	0.631	248.296	27.347	9.997	5758.719	0.650	27.347	29.117	20.081
5790.000	0.818	243.331	27.190	9.653	5788.717	0.657	27.190	28.852	19.546
5820.000	0.722	239.544	26.998	9.299	5818.714	0.360	26.998	28.554	19.005
5850.000	0.577	211.750	26.774	9.056	5848.712	1.142	26.774	28.264	18.688
5880.000	2.127	123.280	26.340	9.442	5878.705	7.296	26.340	27.981	19.722
5910.000	2.838	118.375	25.681	10.561	5908.676	2.470	25.681	27.768	22.354
5940.000	3.707	120.524	24.836	12.050	5938.627	2.926	24.836	27.605	25.882
5970.000	5.063	125.635	23.572	13.961	5968.539	4.700	23.572	27.396	30.637
6000.000	7.059	133.881	21.523	16.366	5998.370	7.243	21.523	27.038	37.250
6030.000	9.536	132.788	18.556	19.519	6028.054	8.273	18.556	26.932	46.449
6060.000	11.372	131.495	14.908	23.559	6057.555	6.168	14.908	27.879	57.674
6090.000	13.186	132.601	10.632	28.293	6086.867	6.097	10.632	30.225	69.405
6120.000	14.980	132.720	5.685	33.661	6115.964	5.980	5.685	34.137	80.414
6150.000	17.069	134.163	-0.013	39.668	6144.797	7.088	-0.013	39.668	90.019
6180.000	18.953	135.186	-6.538	46.261	6173.326	6.369	-6.538	46.721	98.044
6210.000	20.326	135.807	-13.730	53.327	6201.580	4.629	-13.730	55.066	104.438
6240.000	22.131	136.556	-21.569	60.846	6229.543	6.085	-21.569	64.556	109.519
6270.000	24.791	136.101	-30.206	69.094	6257.060	8.887	-30.206	75.408	113.613
6300.000	27.051	137.288	-39.752	78.084	6284.041	7.728	-39.752	87.620	116.980

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