



**Company:** Noble Energy  
**Rig:** Production/Coretech  
**API #** 05-123-27005  
**Date:** 04/03/2014  
**Surveyor:** Justin Williams  
**VS:** 0.000  
**Lat :** 40.495  
**Long:** -104.406

**Well:** Wells Ranch USX AA 1:  
**Location:** Weld County, Colorado  
**North Reference:** GRID  
**Convergence:** GRID North is -0.71 D  
**Declination:** 8.3  
**Depth Reference:** RKB = Ground Level  
**Elevation:** 4799  
**Total Depth as Drilled:** 6961

**Lat & Long obtained by handheld GPS at wellhead**

MS Gyro Survey Calculations

Depth	Inc	AzG	N/-S	E/-W	TVD	DL	VS	CD
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100.000	0.958	79.486	0.153	0.822	99.995	0.958	0.153	0.836
200.000	1.371	77.326	0.567	2.811	199.974	0.415	0.567	2.867
300.000	1.209	88.052	0.866	5.032	299.949	0.290	0.866	5.106
400.000	0.936	94.199	0.842	6.901	399.932	0.296	0.842	6.952
500.000	0.424	40.990	1.062	7.958	499.925	0.762	1.062	8.029
600.000	0.501	48.374	1.632	8.528	599.922	0.097	1.632	8.683
700.000	0.441	56.971	2.132	9.178	699.918	0.093	2.132	9.422
800.000	0.674	98.423	2.256	10.082	799.914	0.451	2.256	10.331
900.000	0.595	78.127	2.276	11.172	899.908	0.237	2.276	11.402
1000.000	0.383	150.661	2.092	11.844	999.905	0.603	2.092	12.027
1100.000	0.544	138.026	1.448	12.325	1099.902	0.190	1.448	12.410
1200.000	0.260	110.006	1.018	12.856	1199.899	0.337	1.018	12.896
1300.000	0.504	134.820	0.630	13.382	1299.897	0.290	0.630	13.396
1400.000	0.347	108.413	0.224	13.981	1399.894	0.248	0.224	13.983
1500.000	0.580	86.594	0.158	14.773	1499.891	0.288	0.158	14.774
1600.000	0.267	77.221	0.240	15.506	1599.888	0.319	0.240	15.508
1700.000	0.344	90.370	0.289	16.033	1699.887	0.103	0.289	16.036
1800.000	0.175	92.875	0.280	16.486	1799.886	0.169	0.280	16.488
1900.000	0.296	93.888	0.255	16.896	1899.885	0.122	0.255	16.898
2000.000	0.524	126.780	-0.037	17.521	1999.882	0.319	-0.037	17.521
2100.000	0.551	117.340	-0.531	18.314	2099.878	0.092	-0.531	18.322
2200.000	0.800	147.527	-1.341	19.116	2199.871	0.426	-1.341	19.163
2300.000	1.041	127.471	-2.483	20.212	2299.859	0.399	-2.483	20.364
2400.000	0.759	144.600	-3.575	21.317	2399.846	0.387	-3.575	21.614
2500.000	1.321	124.775	-4.773	22.647	2499.830	0.660	-4.773	23.144
2600.000	1.234	144.162	-6.303	24.224	2599.805	0.439	-6.303	25.031
2700.000	0.985	153.943	-7.948	25.232	2699.787	0.311	-7.948	26.455
2800.000	1.034	141.305	-9.425	26.174	2799.771	0.227	-9.425	27.819
2900.000	1.132	165.251	-11.084	26.990	2899.754	0.460	-11.084	29.177
3000.000	1.178	150.403	-12.934	27.749	2999.734	0.302	-12.934	30.615
3100.000	0.991	157.985	-14.629	28.581	3099.716	0.236	-14.629	32.107
3200.000	0.949	147.442	-16.128	29.350	3199.702	0.183	-16.128	33.490
3300.000	0.692	74.606	-16.666	30.378	3299.694	0.996	-16.666	34.649
3400.000	1.606	53.258	-15.667	32.083	3399.673	0.994	-15.667	35.704

3500.000	2.480	40.575	-13.186	34.613	3499.609	0.979	-13.186	37.039
3600.000	2.236	34.478	-9.935	37.124	3599.524	0.349	-9.935	38.430
3700.000	2.750	31.556	-6.282	39.484	3699.429	0.529	-6.282	39.981
3800.000	3.093	25.537	-1.804	41.902	3799.300	0.460	-1.804	41.941
3900.000	3.238	27.694	3.131	44.378	3899.147	0.188	3.131	44.488
4000.000	2.507	20.712	7.677	46.464	3999.021	0.810	7.677	47.094
4100.000	1.703	4.716	11.203	47.359	4098.953	0.988	11.203	48.667
4200.000	1.518	337.270	13.906	46.970	4198.915	0.785	13.906	48.985
4300.000	2.859	286.871	15.852	44.071	4298.848	2.223	15.852	46.835
4400.000	3.252	278.300	16.985	38.878	4398.706	0.601	16.985	42.426
4500.000	3.995	275.710	17.741	32.606	4498.506	0.761	17.741	37.120
4600.000	3.670	282.262	18.767	26.012	4598.283	0.545	18.767	32.076
4700.000	2.843	276.513	19.728	20.421	4698.121	0.889	19.728	28.394
4800.000	3.167	260.673	19.562	15.232	4797.985	0.888	19.562	24.793
4900.000	3.482	272.532	19.249	9.472	4897.817	0.755	19.249	21.453
5000.000	3.864	282.422	20.107	3.148	4997.613	0.738	20.107	20.352
5100.000	3.100	291.280	21.813	-2.662	5097.428	0.932	21.813	21.975
5200.000	1.466	344.055	24.025	-5.533	5197.355	2.501	24.025	24.654
5300.000	1.297	25.414	26.277	-5.399	5297.328	0.988	26.277	26.826
5400.000	1.474	29.635	28.417	-4.278	5397.299	0.205	28.417	28.737
5500.000	1.461	39.539	30.518	-2.830	5497.266	0.254	30.518	30.649
5600.000	1.806	27.674	32.897	-1.287	5597.226	0.482	32.897	32.922
5700.000	2.036	38.923	35.674	0.561	5697.170	0.441	35.674	35.679
5800.000	1.719	45.015	38.117	2.738	5797.116	0.374	38.117	38.215
5900.000	1.967	64.852	39.907	5.352	5897.065	0.680	39.907	40.264
6000.000	1.973	65.008	41.363	8.466	5997.006	0.009	41.363	42.221
6100.000	2.261	71.503	42.717	11.897	6096.938	0.374	42.717	44.342
6200.000	2.170	74.055	43.862	15.588	6196.863	0.134	43.862	46.550
6300.000	2.794	85.380	44.579	19.838	6296.769	0.791	44.579	48.793
6400.000	3.559	96.759	44.410	25.350	6396.616	0.987	44.410	51.135
6500.000	4.517	100.166	43.349	32.308	6496.367	0.987	43.349	54.064
6600.000	3.668	104.898	41.832	39.275	6596.111	0.912	41.832	57.380
6700.000	2.715	109.823	40.206	44.595	6695.955	0.991	40.206	60.044

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egrees East of True North

**Cbrg**

0.000

79.486

78.585

80.237

83.045

82.402

79.168

76.922

77.389

78.484

79.983

83.299

85.475

87.306

89.083

89.387

89.114

88.966

89.027

89.136

90.120

91.662

94.013

97.004

99.522

101.900

104.584

107.484

109.802

112.327

114.990

117.106

118.789

118.750

116.028

110.854  
104.982  
99.041  
92.465  
85.964  
80.618  
76.691  
73.508  
70.217  
66.400  
61.449  
54.190  
45.988  
37.906  
26.201  
8.897  
353.042  
347.030  
348.389  
351.440  
354.702  
357.760  
0.901  
4.109  
7.639  
11.568  
15.564  
19.564  
23.989  
29.718  
36.697  
43.194  
47.963