



Company: Noble Energy
Rig: Production/ V.E.S
API # 05-123-26811
Date: 3/21/2013
Surveyor: Jay Hinman
VS: 0.000
Lat : 40.47013
Long: -104.43984

Well: Wells Ranch AA 21-10
Location: Weld County, Colorado
North Reference: GRID
Convergence: Grid North is -0.69 of 1
Declination: 8.46
Depth Reference: Ground Level
Elevation: 4706'
Total Depth as Drilled: 6921'

Lat & Long obtained by handheld GPS at wellhead

HA Gyro Survey Calculations

Depth	Inc	AzG	N/-S	E/-W	TVD	DL	VS	CD
0	0	0	0	0	0	****	0	0
100	0.224	1.578	0.195	0.005	100	0.224	0.195	0.195
200	0.311	5.484	0.66	0.037	199.999	0.088	0.66	0.661
300	0.069	34.147	0.98	0.096	299.998	0.252	0.98	0.985
400	0.066	297.811	1.056	0.079	399.998	0.1	1.056	1.059
500	0.025	81.369	1.086	0.05	499.998	0.087	1.086	1.087
600	0.061	172.821	1.037	0.077	599.998	0.066	1.037	1.04
700	0.241	178.438	0.774	0.09	699.998	0.18	0.774	0.779
800	0.204	144.32	0.42	0.199	799.997	0.135	0.42	0.465
900	0.27	222.963	0.103	0.143	899.996	0.305	0.103	0.176
1000	0.143	248.339	-0.116	-0.134	999.996	0.154	-0.116	0.177
1100	0.192	184.662	-0.329	-0.264	1099.995	0.181	-0.329	0.422
1200	0.152	97.563	-0.513	-0.146	1199.995	0.238	-0.513	0.533
1300	0.117	92.536	-0.535	0.087	1299.995	0.037	-0.535	0.542
1400	0.244	91.881	-0.546	0.401	1399.994	0.127	-0.546	0.678
1500	0.308	0.74	-0.285	0.617	1499.993	0.396	-0.285	0.68
1600	0.297	331.591	0.211	0.498	1599.992	0.152	0.211	0.54
1700	0.069	39.424	0.485	0.413	1699.991	0.278	0.485	0.637
1800	0.312	149.117	0.299	0.591	1799.991	0.341	0.299	0.662
1900	0.475	116.682	-0.121	1.101	1899.989	0.27	-0.121	1.107
2000	1.013	148.389	-1.06	1.934	1999.98	0.658	-1.06	2.205
2100	0.876	146.126	-2.447	2.823	2099.967	0.142	-2.447	3.736
2200	1.114	163.845	-4.015	3.519	2199.952	0.386	-4.015	5.339
2300	1.255	171.669	-6.032	3.948	2299.93	0.214	-6.032	7.209
2400	1.421	169.805	-8.335	4.326	2399.903	0.172	-8.335	9.391
2500	1.121	186.531	-10.528	4.435	2499.879	0.474	-10.528	11.423
2600	1.225	192.67	-12.543	4.089	2599.858	0.163	-12.543	13.192
2700	0.954	198.978	-14.373	3.584	2699.84	0.297	-14.373	14.813
2800	0.837	231.449	-15.615	2.742	2799.828	0.513	-15.615	15.854
2900	0.79	224.288	-16.564	1.689	2899.818	0.112	-16.564	16.65
3000	0.912	254.891	-17.265	0.439	2999.808	0.464	-17.265	17.27
3100	0.882	239.345	-17.865	-0.991	3099.795	0.244	-17.865	17.892
3200	0.815	219.549	-18.805	-2.106	3199.785	0.299	-18.805	18.923
3300	0.723	192.873	-19.969	-2.699	3299.776	0.366	-19.969	20.151
3400	0.396	175.548	-20.929	-2.813	3399.771	0.364	-20.929	21.117
3500	1.111	159.681	-22.183	-2.45	3499.762	0.738	-22.183	22.318

3600	1.125	134.652	-23.783	-1.414	3599.743	0.485	-23.783	23.825
3700	0.848	76.572	-24.301	0.003	3699.731	0.988	-24.301	24.301
3800	1.246	98.305	-24.286	1.799	3799.714	0.556	-24.286	24.353
3900	1.701	98.606	-24.665	4.342	3899.681	0.455	-24.665	25.045
4000	2.188	85.563	-24.74	7.713	3999.624	0.655	-24.74	25.914
4100	2.44	70.996	-23.899	11.629	4099.543	0.638	-23.899	26.578
4200	3.183	65	-22.032	16.159	4199.422	0.798	-22.032	27.322
4300	3.624	58.837	-19.223	21.38	4299.246	0.573	-19.223	28.751
4400	4.128	65.307	-16.084	27.355	4399.017	0.666	-16.084	31.733
4500	3.71	57.301	-12.832	33.347	4498.784	0.687	-12.832	35.731
4600	3.234	57.637	-9.574	38.453	4598.6	0.476	-9.574	39.627
4700	3	64.239	-6.927	43.192	4698.452	0.428	-6.927	43.744
4800	2.548	62.839	-4.775	47.526	4798.335	0.456	-4.775	47.765
4900	2.26	52.689	-2.566	51.072	4898.247	0.513	-2.566	51.136
5000	2.268	57.871	-0.318	54.316	4998.169	0.205	-0.318	54.317
5100	1.84	56.894	1.611	57.336	5098.105	0.43	1.611	57.359
5200	1.082	46.903	3.133	59.371	5198.072	0.797	3.133	59.453
5300	1.394	40.764	4.699	60.854	5298.048	0.339	4.699	61.036
5400	0.846	44.508	6.147	62.166	5398.029	0.553	6.147	62.47
5500	1.255	50.178	7.375	63.525	5498.012	0.421	7.375	63.951
5600	0.846	38.865	8.651	64.829	5597.995	0.456	8.651	65.404
5700	0.878	21.1	9.941	65.568	5697.984	0.268	9.941	66.317
5800	0.743	15.549	11.28	66.018	5797.974	0.156	11.28	66.974
5900	1.265	35.255	12.806	66.829	5897.958	0.619	12.806	68.044
6000	1.408	18.653	14.871	67.859	5997.931	0.411	14.871	69.469
6100	1.608	6.925	17.428	68.421	6097.897	0.367	17.428	70.605
6200	1.924	24.564	20.348	69.288	6197.85	0.625	20.348	72.214
6300	2.046	9.583	23.634	70.282	6297.791	0.531	23.634	74.15
6400	2.487	30.037	27.273	71.666	6397.714	0.914	27.273	76.68
6500	1.867	48.146	30.238	73.965	6497.642	0.919	30.238	79.907
6600	0.505	60.509	31.542	75.562	6597.619	1.378	31.542	81.881
6700	0.684	34.435	32.251	76.284	6697.613	0.32	32.251	82.821
6750	0.903	34.751	32.821	76.677	6747.609	0.438	32.821	83.406

0

True North

Cbrg

0

1.578

3.177

5.609

4.288

2.616

4.269

6.611

25.401

54.257

229.154

218.751

195.924

170.786

143.709

114.776

67

40.375

63.191

96.274

118.719

130.916

138.762

146.791

152.569

157.157

161.944

166

170.042

174.178

178.542

183.175

186.39

187.699

187.656

186.301

183.404
179.992
175.764
170.016
162.685
154.053
143.743
131.959
120.454
111.047
103.982
99.112
95.738
92.876
90.336
88.391
86.979
85.584
84.353
83.378
82.399
81.379
80.304
79.152
77.639
75.709
73.634
71.414
69.165
67.764
67.343
67.082
66.827