



Company: Noble Energy

Rig: Production / CoreTech

API # 05-123-15896

Date: 9/26/2013

Surveyor: CJ Hines

VS: 0.000

Lat : 40.34620

Long: -104.61931

Well: Weidenkeller 01-22

Location: Weld County, Colorado

North Reference: GRID

Convergence: GRID North is 0.57 De

Declination: 8.47

Depth Reference: Ground Level

Elevation: 4721

Total Depth as Drilled: 7213

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	0.412	114.780	-0.151	0.326	99.999	0.412	-0.151	0.359
200.000	0.268	89.453	-0.299	0.887	199.997	0.204	-0.299	0.936
300.000	0.516	23.136	0.117	1.298	299.995	0.476	0.117	1.303
400.000	1.297	54.383	1.190	2.394	399.983	0.896	1.190	2.674
500.000	2.267	56.356	2.945	4.961	499.933	0.972	2.945	5.769
600.000	2.596	58.405	5.227	8.536	599.843	0.340	5.227	10.009
700.000	2.456	63.795	7.359	12.387	699.746	0.276	7.359	14.408
800.000	2.583	64.799	9.265	16.348	799.649	0.135	9.265	18.791
900.000	2.580	58.324	11.406	20.303	899.548	0.292	11.406	23.288
1000.000	2.391	58.257	13.686	23.992	999.454	0.189	13.686	27.621
1100.000	2.248	52.164	15.986	27.315	1099.372	0.285	15.986	31.649
1200.000	2.125	60.316	18.107	30.474	1199.299	0.334	18.107	35.447
1300.000	2.223	55.463	20.124	33.682	1299.228	0.209	20.124	39.236
1400.000	1.988	52.111	22.289	36.648	1399.160	0.265	22.289	42.894
1500.000	1.296	58.903	23.938	38.985	1499.118	0.718	23.938	45.748
1600.000	0.725	37.320	25.025	40.337	1599.103	0.676	25.025	47.469
1700.000	0.333	25.709	25.790	40.847	1699.098	0.405	25.790	48.307
1800.000	0.206	300.160	26.143	40.817	1799.098	0.378	26.143	48.472
1900.000	0.450	226.373	25.962	40.377	1899.096	0.440	25.962	48.004
2000.000	0.371	242.916	25.543	39.804	1999.094	0.142	25.543	47.295
2100.000	0.757	234.958	25.017	38.975	2099.089	0.392	25.017	46.313
2200.000	0.941	236.626	24.186	37.749	2199.078	0.186	24.186	44.832
2300.000	1.156	254.538	23.465	36.091	2299.061	0.389	23.465	43.048
2400.000	1.467	270.129	23.199	33.839	2399.035	0.471	23.199	41.027
2500.000	1.621	264.463	23.065	31.151	2498.999	0.216	23.065	38.761
2600.000	1.678	270.043	22.930	28.280	2598.957	0.170	22.930	36.408
2700.000	1.291	263.619	22.806	25.696	2698.924	0.420	22.806	34.357
2800.000	1.103	258.376	22.487	23.634	2798.902	0.218	22.487	32.622
2900.000	1.190	268.424	22.264	21.653	2898.882	0.219	22.264	31.057
3000.000	1.151	267.257	22.188	19.612	2998.861	0.045	22.188	29.613
3100.000	1.190	266.296	22.072	17.572	3098.840	0.044	22.072	28.213
3200.000	0.492	304.300	22.247	16.181	3198.830	0.858	22.247	27.509
3300.000	0.917	331.223	23.190	15.441	3298.822	0.528	23.190	27.861
3400.000	1.729	351.735	25.385	14.839	3398.795	0.927	25.385	29.404

3500.000	1.990	324.824	28.297	13.622	3498.744	0.902	28.297	31.405
3600.000	2.725	310.052	31.246	10.802	3598.660	0.947	31.246	33.060
3700.000	3.248	299.138	34.155	6.508	3698.524	0.771	34.155	34.769
3800.000	3.454	293.263	36.724	1.266	3798.354	0.400	36.724	36.746
3900.000	3.167	287.940	38.765	-4.130	3898.187	0.420	38.765	38.984
4000.000	2.252	281.996	40.024	-8.679	3998.074	0.956	40.024	40.954
4100.000	1.763	267.249	40.358	-12.137	4098.013	0.707	40.358	42.144
4200.000	1.692	251.343	39.812	-15.073	4197.968	0.483	39.812	42.570
4300.000	1.760	233.648	38.429	-17.708	4297.924	0.535	38.429	42.313
4400.000	1.681	233.415	36.645	-20.122	4397.879	0.080	36.645	41.807
4500.000	1.693	225.835	34.742	-22.360	4497.835	0.223	34.742	41.316
4600.000	1.736	221.833	32.584	-24.430	4597.791	0.127	32.584	40.725
4700.000	1.772	224.019	30.344	-26.514	4697.744	0.076	30.344	40.296
4800.000	2.331	204.847	27.387	-28.443	4797.681	0.878	27.387	39.485
4900.000	2.388	205.912	23.667	-30.208	4897.596	0.072	23.667	38.375
5000.000	2.051	206.927	20.197	-31.929	4997.521	0.340	20.197	37.781
5100.000	2.008	207.535	17.048	-33.550	5097.458	0.048	17.048	37.633
5200.000	1.873	215.556	14.165	-35.310	5197.401	0.303	14.165	38.045
5300.000	1.385	220.533	11.916	-37.046	5297.360	0.508	11.916	38.915
5400.000	1.079	230.723	10.402	-38.560	5397.337	0.375	10.402	39.939
5500.000	1.184	261.113	9.646	-40.310	5497.318	0.602	9.646	41.448
5600.000	0.404	211.018	9.184	-41.513	5597.309	0.976	9.184	42.516
5700.000	1.315	185.313	7.739	-41.801	5697.297	0.967	7.739	42.511
5800.000	1.057	141.363	5.876	-41.331	5797.277	0.919	5.876	41.747
5900.000	0.828	122.084	4.772	-40.143	5897.264	0.388	4.772	40.426
6000.000	0.442	90.598	4.384	-39.145	5997.258	0.507	4.384	39.390
6100.000	0.739	82.857	4.461	-38.119	6097.252	0.307	4.461	38.379
6200.000	0.837	32.245	5.158	-37.089	6197.244	0.679	5.158	37.446
6300.000	1.070	49.207	6.386	-35.993	6297.230	0.363	6.386	36.555
6400.000	0.779	16.152	7.648	-35.097	6397.218	0.595	7.648	35.921
6500.000	0.746	18.990	8.917	-34.696	6497.209	0.050	8.917	35.824
6600.000	0.808	331.847	10.154	-34.817	6597.201	0.624	10.154	36.268
6700.000	0.724	28.567	11.331	-34.848	6697.193	0.732	11.331	36.644
6800.000	0.612	53.090	12.206	-34.119	6797.187	0.304	12.206	36.236
6900.000	0.689	60.657	12.822	-33.167	6897.180	0.115	12.822	35.559
7000.000	0.541	69.601	13.281	-32.201	6997.174	0.176	13.281	34.832

0

degrees East of True North

Cbrg

0.000
114.780
108.631
84.838
63.571
59.306
58.520
59.285
60.459
60.672
60.299
59.662
59.283
59.143
58.693
58.449
58.184
57.732
57.361
57.260
57.311
57.305
57.352
56.970
55.566
53.483
50.964
48.410
46.424
44.203
41.474
38.524
36.030
33.658
30.310

25.706
19.071
10.788
1.974
353.919
347.765
343.262
339.264
335.260
331.228
327.235
323.140
318.853
313.916
308.077
302.316
296.937
291.858
287.831
285.096
283.457
282.475
280.490
278.092
276.779
276.391
276.674
277.918
280.060
282.293
284.413
286.259
288.012
289.685
291.136
292.414