



Company: Noble Energy
Rig: Production/VES
API # 05-123-22175

Date: 1-10-14
Surveyor: Justin Williams

VS: 0.000
Lat : 40.263
Long: -104.468

Well: Guttersen State CC32-
Location: Weld County, Colorado
North Reference: GRID
Convergence: GRID North is 0.67 De
Declination: 8.35

Depth Reference: RKB = Ground Level
Elevation: 4816

Total Depth as Drilled: 7014

Lat & Long obtained by handheld GPS at wellhead

HA 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	0.182	277.980	0.022	-0.157	100.000	0.182	0.022	0.159
200.000	0.103	245.552	0.007	-0.397	200.000	0.110	0.007	0.397
300.000	0.224	49.174	0.097	-0.332	299.999	0.324	0.097	0.345
400.000	0.271	50.122	0.376	-0.002	399.998	0.048	0.376	0.376
500.000	0.240	35.749	0.698	0.302	499.997	0.071	0.698	0.761
600.000	0.129	36.601	0.959	0.492	599.997	0.112	0.959	1.077
700.000	0.221	16.548	1.233	0.613	699.996	0.109	1.233	1.378
800.000	0.175	12.036	1.568	0.700	799.996	0.048	1.568	1.717
900.000	0.348	7.666	2.018	0.772	899.995	0.173	2.018	2.161
1000.000	0.436	2.569	2.699	0.830	999.992	0.095	2.699	2.824
1100.000	0.314	16.810	3.341	0.926	1099.990	0.153	3.341	3.467
1200.000	0.518	12.845	4.044	1.106	1199.988	0.206	4.044	4.193
1300.000	0.448	1.133	4.876	1.214	1299.984	0.121	4.876	5.025
1400.000	0.514	8.710	5.710	1.290	1399.981	0.091	5.710	5.854
1500.000	0.613	4.805	6.686	1.402	1499.976	0.106	6.686	6.832
1600.000	0.585	350.735	7.723	1.365	1599.970	0.149	7.723	7.843
1700.000	0.570	333.244	8.670	1.059	1699.965	0.176	8.670	8.735
1800.000	0.460	305.504	9.348	0.508	1799.961	0.269	9.348	9.361
1900.000	0.390	293.237	9.715	-0.131	1899.959	0.115	9.715	9.716
2000.000	0.410	196.450	9.506	-0.545	1999.957	0.598	9.506	9.522
2100.000	0.557	191.319	8.686	-0.742	2099.954	0.154	8.686	8.717
2200.000	1.074	181.579	7.272	-0.863	2199.943	0.533	7.272	7.323
2300.000	1.102	179.249	5.373	-0.876	2299.925	0.052	5.373	5.444
2400.000	0.801	205.398	3.780	-1.163	2399.912	0.521	3.780	3.955
2500.000	0.766	207.151	2.554	-1.768	2499.902	0.043	2.554	3.106
2600.000	0.787	201.597	1.321	-2.326	2599.893	0.078	1.321	2.675
2700.000	0.582	194.169	0.190	-2.703	2699.886	0.223	0.190	2.710
2800.000	0.460	171.955	-0.699	-2.771	2799.882	0.234	-0.699	2.858
2900.000	0.461	149.557	-1.443	-2.511	2899.879	0.179	-1.443	2.896
3000.000	0.683	184.710	-2.384	-2.356	2999.874	0.405	-2.384	3.352
3100.000	1.431	207.639	-4.084	-2.984	3099.857	0.845	-4.084	5.058
3200.000	1.845	213.387	-6.534	-4.449	3199.816	0.444	-6.534	7.905
3300.000	1.904	234.750	-8.837	-6.692	3299.763	0.697	-8.837	11.085
3400.000	2.061	241.839	-10.644	-9.634	3399.704	0.291	-10.644	14.357
3500.000	2.610	229.337	-12.977	-12.946	3499.621	0.746	-12.977	18.330

3600.000	2.756	219.350	-16.320	-16.198	3599.512	0.489	-16.320	22.993
3700.000	2.600	221.427	-19.880	-19.223	3699.402	0.184	-19.880	27.654
3800.000	2.776	224.108	-23.320	-22.410	3799.292	0.216	-23.320	32.342
3900.000	2.636	228.295	-26.588	-25.812	3899.181	0.242	-26.588	37.057
4000.000	2.485	234.215	-29.385	-29.287	3999.081	0.304	-29.385	41.488
4100.000	2.401	234.786	-31.861	-32.757	4098.990	0.087	-31.861	45.696
4200.000	2.607	239.321	-34.229	-36.424	4198.895	0.285	-34.229	49.983
4300.000	2.616	233.696	-36.740	-40.218	4298.791	0.256	-36.740	54.473
4400.000	2.748	240.248	-39.280	-44.138	4398.682	0.334	-39.280	59.086
4500.000	2.862	236.095	-41.863	-48.292	4498.562	0.233	-41.863	63.911
4600.000	2.938	237.392	-44.637	-52.523	4598.434	0.100	-44.637	68.928
4700.000	2.746	235.241	-47.384	-56.650	4698.311	0.219	-47.384	73.854
4800.000	2.754	236.815	-50.064	-60.628	4798.196	0.076	-50.064	78.627
4900.000	2.983	235.747	-52.844	-64.790	4898.071	0.235	-52.844	83.607
5000.000	2.943	234.629	-55.794	-69.034	4997.937	0.070	-55.794	88.762
5100.000	2.532	234.360	-58.567	-72.922	5097.823	0.411	-58.567	93.530
5200.000	1.646	226.637	-60.841	-75.762	5197.755	0.928	-60.841	97.167
5300.000	0.677	213.898	-62.317	-77.135	5297.734	0.997	-62.317	99.163
5400.000	0.074	58.521	-62.774	-77.410	5397.732	0.745	-62.774	99.664
5500.000	0.248	64.932	-62.649	-77.159	5497.731	0.174	-62.649	99.390
5600.000	0.515	45.799	-62.244	-76.641	5597.729	0.293	-62.244	98.733
5700.000	0.897	36.073	-61.298	-75.858	5697.721	0.398	-61.298	97.529
5800.000	1.043	37.914	-59.948	-74.838	5797.707	0.149	-59.948	95.888
5900.000	0.881	41.561	-58.655	-73.769	5897.693	0.173	-58.655	94.246
6000.000	0.688	20.199	-57.516	-73.052	5997.684	0.347	-57.516	92.976
6100.000	0.960	28.285	-56.215	-72.447	6097.673	0.295	-56.215	91.699
6200.000	1.019	29.271	-54.701	-71.616	6197.658	0.061	-54.701	90.117
6300.000	1.296	40.172	-53.061	-70.451	6297.638	0.353	-53.061	88.198
6400.000	1.002	45.794	-51.588	-69.095	6397.618	0.315	-51.588	86.229
6500.000	0.808	64.536	-50.675	-67.832	6497.605	0.351	-50.675	84.670
6600.000	1.042	123.315	-50.871	-66.435	6597.594	0.930	-50.871	83.675
6700.000	1.933	138.736	-52.638	-64.563	6697.560	0.968	-52.638	83.302
6750.000	2.726	140.139	-54.184	-63.245	6747.518	1.591	-54.184	83.282

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0

degrees East of True North

Cbrg
0.000
277.980
270.980
286.301
359.665
23.391
27.144
26.438
24.063
20.945
17.094
15.494
15.294
13.983
12.728
11.846
10.024
6.964
3.114
359.228
356.719
355.119
353.231
350.737
342.892
325.305
299.595
274.024
255.834
240.108
224.662
216.156
214.252
217.134
222.146
224.932

224.785
224.038
223.860
224.151
224.904
225.794
226.779
227.588
228.333
229.079
229.640
230.090
230.452
230.799
231.054
231.230
231.234
231.065
230.960
230.925
230.918
231.060
231.304
231.511
231.786
232.191
232.627
233.014
233.254
233.238
232.558
230.810
229.412