



**Company:** Noble Energy  
**Rig:** Production/VES  
**API #** 05-123-22173  
**Date:** 1-10-14  
**Surveyor:** Justin Williams  
**VS:** 0.000  
**Lat :** 40.263  
**Long:** -104.464

**Well:** Gutttersen 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:** 4814  
**Total Depth as Drilled:** 6964

**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	0.949	79.292	0.154	0.813	99.995	0.949	0.154	0.828
200.000	0.711	85.734	0.354	2.246	199.985	0.254	0.354	2.273
300.000	0.368	99.074	0.349	3.182	299.980	0.363	0.349	3.201
400.000	0.120	114.399	0.255	3.595	399.979	0.254	0.255	3.604
500.000	0.197	138.769	0.083	3.804	499.979	0.101	0.083	3.804
600.000	0.346	151.102	-0.311	4.063	599.978	0.158	-0.311	4.075
700.000	0.421	186.494	-0.940	4.167	699.976	0.244	-0.940	4.272
800.000	0.410	201.020	-1.639	3.997	799.973	0.106	-1.639	4.320
900.000	0.357	196.749	-2.271	3.779	899.971	0.060	-2.271	4.409
1000.000	0.513	209.468	-2.959	3.469	999.968	0.183	-2.959	4.560
1100.000	0.454	215.992	-3.669	3.016	1099.964	0.081	-3.669	4.750
1200.000	0.558	231.869	-4.290	2.401	1199.961	0.174	-4.290	4.916
1300.000	0.585	231.539	-4.909	1.617	1299.956	0.028	-4.909	5.168
1400.000	0.596	223.483	-5.604	0.860	1399.950	0.084	-5.604	5.669
1500.000	0.677	222.669	-6.416	0.101	1499.944	0.082	-6.416	6.417
1600.000	0.676	230.499	-7.226	-0.755	1599.937	0.092	-7.226	7.265
1700.000	0.517	230.957	-7.886	-1.561	1699.932	0.159	-7.886	8.039
1800.000	0.508	242.220	-8.377	-2.304	1799.928	0.101	-8.377	8.688
1900.000	0.653	258.971	-8.692	-3.256	1899.923	0.221	-8.692	9.282
2000.000	1.055	265.193	-8.879	-4.732	1999.911	0.412	-8.879	10.061
2100.000	1.136	264.448	-9.052	-6.636	2099.893	0.083	-9.052	11.224
2200.000	1.182	272.385	-9.105	-8.653	2199.873	0.167	-9.105	12.561
2300.000	1.279	273.018	-9.003	-10.798	2299.850	0.098	-9.003	14.059
2400.000	1.400	285.630	-8.615	-13.089	2399.822	0.318	-8.615	15.670
2500.000	1.492	283.648	-7.979	-15.531	2499.791	0.105	-7.979	17.460
2600.000	1.605	292.066	-7.146	-18.094	2599.754	0.254	-7.146	19.453
2700.000	1.698	274.033	-6.515	-20.869	2699.713	0.525	-6.515	21.862
2800.000	1.647	291.615	-5.882	-23.683	2799.671	0.514	-5.882	24.402
2900.000	1.656	291.331	-4.827	-26.365	2899.630	0.012	-4.827	26.803
3000.000	1.694	282.128	-3.990	-29.156	2999.587	0.271	-3.990	29.427
3100.000	1.882	286.234	-3.221	-32.177	3099.539	0.227	-3.221	32.338
3200.000	1.824	283.321	-2.395	-35.302	3199.486	0.110	-2.395	35.383
3300.000	1.945	280.529	-1.719	-38.519	3299.432	0.152	-1.719	38.558
3400.000	1.945	282.412	-1.044	-41.845	3399.375	0.064	-1.044	41.858
3500.000	2.249	282.170	-0.265	-45.421	3499.308	0.304	-0.265	45.422

3600.000	2.533	267.562	0.055	-49.548	3599.221	0.670	0.055	49.548
3700.000	2.429	268.179	-0.107	-53.873	3699.128	0.108	-0.107	53.874
3800.000	2.508	256.795	-0.674	-58.121	3799.035	0.496	-0.674	58.125
3900.000	2.395	260.708	-1.511	-62.314	3898.944	0.202	-1.511	62.332
4000.000	2.605	250.394	-2.611	-66.516	3998.849	0.495	-2.611	66.568
4100.000	2.743	247.155	-4.302	-70.862	4098.740	0.204	-4.302	70.992
4200.000	2.916	237.807	-6.586	-75.219	4198.619	0.492	-6.586	75.507
4300.000	2.522	224.406	-9.513	-78.911	4298.507	0.746	-9.513	79.483
4400.000	2.598	227.877	-12.605	-82.131	4398.408	0.173	-12.605	83.093
4500.000	2.259	212.842	-15.781	-84.881	4498.319	0.718	-15.781	86.335
4600.000	2.801	194.368	-19.804	-86.556	4598.222	0.973	-19.804	88.793
4700.000	2.939	182.566	-24.732	-87.277	4698.098	0.605	-24.732	90.714
4800.000	2.845	182.953	-29.771	-87.520	4797.970	0.096	-29.771	92.445
4900.000	2.987	182.155	-34.853	-87.746	4897.841	0.148	-34.853	94.414
5000.000	2.981	182.740	-40.054	-87.968	4997.705	0.031	-40.054	96.658
5100.000	2.736	178.092	-45.037	-88.013	5097.581	0.337	-45.037	98.867
5200.000	2.423	173.018	-49.521	-87.677	5197.480	0.387	-49.521	100.695
5300.000	2.250	169.306	-53.547	-87.055	5297.397	0.230	-53.547	102.206
5400.000	1.772	160.582	-56.934	-86.177	5397.335	0.566	-56.934	103.286
5500.000	1.823	142.624	-59.656	-84.698	5497.287	0.563	-59.656	103.598
5600.000	1.746	141.429	-62.111	-82.783	5597.238	0.086	-62.111	103.493
5700.000	1.709	144.779	-64.520	-80.973	5697.193	0.107	-64.520	103.535
5800.000	1.351	138.183	-66.616	-79.327	5797.157	0.399	-66.616	103.588
5900.000	1.607	126.410	-68.327	-77.413	5897.124	0.397	-68.327	103.254
6000.000	1.321	130.505	-69.908	-75.407	5997.091	0.305	-69.908	102.827
6100.000	1.576	129.091	-71.524	-73.464	6097.059	0.257	-71.524	102.531
6200.000	1.483	130.548	-73.232	-71.414	6197.023	0.101	-73.232	102.288
6300.000	1.330	130.918	-74.833	-69.554	6296.993	0.153	-74.833	102.165
6400.000	1.518	138.933	-76.592	-67.806	6396.962	0.274	-76.592	102.294
6500.000	1.217	143.080	-78.440	-66.298	6496.934	0.317	-78.440	102.705
6600.000	0.650	149.477	-79.778	-65.372	6596.920	0.575	-79.778	103.141
6700.000	0.863	139.346	-80.838	-64.593	6696.911	0.250	-80.838	103.475
6750.000	0.600	149.914	-81.350	-64.217	6746.907	0.589	-81.350	103.642

14

0

degrees East of True North

Cbrg
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0.000
79.292
81.047
83.735
85.936
88.757
94.378
102.713
112.292
121.000
130.463
140.578
150.771
161.762
171.279
179.099
185.966
191.198
195.381
200.534
208.057
216.247
223.545
230.181
236.647
242.808
248.450
252.662
256.053
259.626
262.206
264.284
266.118
267.445
268.571
269.666

270.063  
269.887  
269.336  
268.611  
267.752  
266.526  
264.996  
263.126  
261.275  
259.468  
257.113  
254.179  
251.214  
248.337  
245.519  
242.901  
240.542  
238.405  
236.549  
234.841  
233.120  
231.452  
229.978  
228.567  
227.167  
225.766  
224.280  
222.906  
221.518  
220.205  
219.332  
218.626  
218.287