



Company: Noble Energy
Rig: Production/Coretech
API # 05-123-24301
Date: 1-3-14
Surveyor: Justin Williams
VS: 0.000
Lat : 40.485
Long: -104.473

Well: Peppler 18-41
Location: Weld County, Colorado
North Reference: GRID
Convergence: GRID North is 0.66 De
Declination: 8.37
Depth Reference: RKB=Ground Level
Elevation: 4661
Total Depth as Drilled: 6958

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	0.632	113.196	-0.217	0.507	99.998	0.632	-0.217	0.551
200.000	0.287	119.260	-0.557	1.232	199.995	0.348	-0.557	1.352
300.000	0.126	135.180	-0.757	1.527	299.994	0.169	-0.757	1.704
400.000	0.180	144.024	-0.962	1.697	399.994	0.059	-0.962	1.951
500.000	0.381	162.794	-1.407	1.888	499.992	0.218	-1.407	2.354
600.000	0.435	169.878	-2.098	2.053	599.990	0.074	-2.098	2.936
700.000	0.619	170.542	-3.005	2.209	699.986	0.184	-3.005	3.730
800.000	0.546	169.013	-4.006	2.388	799.980	0.075	-4.006	4.664
900.000	0.702	155.440	-5.031	2.734	899.974	0.214	-5.031	5.726
1000.000	0.723	166.436	-6.201	3.136	999.967	0.138	-6.201	6.949
1100.000	0.703	180.673	-7.428	3.277	1099.959	0.178	-7.428	8.119
1200.000	0.786	190.865	-8.715	3.140	1199.951	0.156	-8.715	9.264
1300.000	0.835	179.392	-10.117	3.019	1299.941	0.169	-10.117	10.557
1400.000	0.236	186.627	-11.049	3.003	1399.936	0.601	-11.049	11.450
1500.000	0.340	190.300	-11.546	2.926	1499.935	0.106	-11.546	11.911
1600.000	0.869	149.350	-12.490	3.259	1599.929	0.651	-12.490	12.908
1700.000	0.615	198.656	-13.650	3.474	1699.922	0.660	-13.650	14.086
1800.000	0.892	190.121	-14.925	3.166	1799.913	0.298	-14.925	15.257
1900.000	0.328	138.853	-15.906	3.217	1899.907	0.733	-15.906	16.228
2000.000	0.962	161.872	-16.919	3.667	1999.901	0.672	-16.919	17.312
2100.000	1.264	131.937	-18.454	4.748	2099.883	0.645	-18.454	19.055
2200.000	1.299	119.794	-19.754	6.553	2199.858	0.273	-19.754	20.813
2300.000	1.492	118.602	-20.941	8.679	2299.828	0.195	-20.941	22.668
2400.000	1.523	116.270	-22.152	11.014	2399.793	0.069	-22.152	24.739
2500.000	1.617	111.996	-23.269	13.514	2499.756	0.150	-23.269	26.908
2600.000	1.407	118.602	-24.385	15.900	2599.721	0.272	-24.385	29.111
2700.000	1.464	119.314	-25.598	18.092	2699.690	0.060	-25.598	31.346
2800.000	1.061	130.448	-26.824	19.910	2799.665	0.470	-26.824	33.406
2900.000	0.896	131.940	-27.948	21.196	2899.651	0.166	-27.948	35.077
3000.000	0.872	127.760	-28.936	22.380	2999.639	0.069	-28.936	36.581
3100.000	0.876	130.404	-29.898	23.563	3099.627	0.041	-29.898	38.067
3200.000	0.724	119.363	-30.703	24.696	3199.617	0.216	-30.703	39.403
3300.000	1.591	99.550	-31.243	26.616	3299.596	0.942	-31.243	41.044
3400.000	1.897	78.037	-31.131	29.604	3399.551	0.717	-31.131	42.960
3500.000	1.842	73.845	-30.340	32.767	3499.498	0.147	-30.340	44.657

3600.000	1.474	59.838	-29.247	35.423	3599.456	0.545	-29.247	45.937
3700.000	1.642	55.446	-27.788	37.715	3699.419	0.206	-27.788	46.847
3800.000	2.217	63.078	-26.100	40.619	3799.362	0.629	-26.100	48.282
3900.000	1.828	74.835	-24.807	43.884	3899.300	0.567	-24.807	50.410
4000.000	2.065	68.489	-23.729	47.099	3999.243	0.320	-23.729	52.739
4100.000	2.450	49.378	-21.677	50.398	4099.166	0.840	-21.677	54.862
4200.000	2.320	38.614	-18.703	53.283	4199.080	0.466	-18.703	56.471
4300.000	2.143	36.766	-15.624	55.666	4299.004	0.191	-15.624	57.817
4400.000	1.765	41.084	-12.965	57.797	4398.946	0.405	-12.965	59.233
4500.000	1.408	25.682	-10.698	59.341	4498.908	0.553	-10.698	60.298
4600.000	1.551	3.050	-8.239	59.946	4598.875	0.597	-8.239	60.509
4700.000	1.553	356.367	-5.534	59.932	4698.839	0.181	-5.534	60.187
4800.000	1.661	353.321	-2.742	59.677	4798.799	0.137	-2.742	59.740
4900.000	1.737	353.923	0.204	59.348	4898.756	0.078	0.204	59.349
5000.000	1.849	359.835	3.324	59.183	4998.707	0.216	3.324	59.276
5100.000	2.064	349.319	6.706	58.845	5098.649	0.418	6.706	59.226
5200.000	1.714	356.645	9.969	58.423	5198.594	0.425	9.969	59.268
5300.000	1.456	8.863	12.717	58.532	5298.556	0.423	12.717	59.897
5400.000	1.851	359.995	15.587	58.727	5398.515	0.469	15.587	60.760
5500.000	1.461	347.682	18.447	58.455	5498.473	0.526	18.447	61.297
5600.000	1.393	350.235	20.890	57.977	5598.442	0.093	20.890	61.626
5700.000	1.433	333.859	23.211	57.220	5698.412	0.404	23.211	61.748
5800.000	1.612	344.442	25.688	56.292	5798.377	0.332	25.688	61.876
5900.000	0.967	352.399	27.880	55.803	5898.351	0.667	27.880	62.380
6000.000	1.433	339.569	29.888	55.255	5998.329	0.534	29.888	62.820
6100.000	1.555	335.153	32.291	54.248	6098.295	0.168	32.291	63.132
6200.000	1.193	332.129	34.442	53.192	6198.266	0.369	34.442	63.369
6300.000	1.010	328.325	36.112	52.242	6298.248	0.197	36.112	63.509
6400.000	0.863	339.230	37.566	51.512	6398.234	0.231	37.566	63.756
6500.000	0.620	339.613	38.777	51.057	6498.226	0.243	38.777	64.113
6600.000	0.709	333.858	39.839	50.596	6598.219	0.112	39.839	64.398
6700.000	0.948	328.990	41.104	49.897	6698.209	0.249	41.104	64.647

0

degrees East of True North

Cbrg

0.000

113.196

114.316

116.356

119.544

126.694

135.627

143.689

149.200

151.482

153.173

156.195

160.183

163.384

164.796

165.779

165.374

165.721

168.024

168.565

167.772

165.570

161.649

157.488

153.564

149.854

146.894

144.749

143.415

142.822

142.281

141.757

141.188

139.572

136.440

132.798

129.544
126.383
122.723
119.479
116.739
113.273
109.342
105.678
102.644
100.219
97.826
95.276
92.631
89.803
86.786
83.498
80.317
77.742
75.136
72.486
70.185
67.920
65.471
63.453
61.590
59.237
57.077
55.346
53.898
52.784
51.783
50.520