



Company: Noble Energy
Rig: Production/ VES
API # 05-123-24078
Date: 12/29/2013
Surveyor: Sean Bratt
VS: 0.000
Lat : 40.215
Long: -104.654

Well: Frank 22-25
Location: Weld County, Colorado
North Reference: GRID
Convergence: Grid north is 0.55 Degr
Declination: 8.47 Degrees
Depth Reference: Ground Level
Elevation: 4809 Feet
Total Depth as Drilled: 7390 Feet

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
100.000	0.428	157.921	-0.346	0.140	99.999	0.428	-0.346	0.373
200.000	0.177	137.400	-0.805	0.385	199.998	0.269	-0.805	0.893
300.000	0.177	241.871	-0.992	0.353	299.997	0.280	-0.992	1.053
400.000	0.133	241.121	-1.121	0.115	399.997	0.045	-1.121	1.127
500.000	0.330	246.011	-1.294	-0.250	499.996	0.198	-1.294	1.318
600.000	0.307	272.875	-1.398	-0.780	599.995	0.150	-1.398	1.601
700.000	0.234	303.553	-1.271	-1.218	699.994	0.159	-1.271	1.761
800.000	0.285	309.888	-0.999	-1.579	799.993	0.058	-0.999	1.868
900.000	0.250	330.970	-0.649	-1.875	899.991	0.103	-0.649	1.984
1000.000	0.150	7.733	-0.328	-1.964	999.991	0.158	-0.328	1.991
1100.000	0.162	82.619	-0.180	-1.806	1099.991	0.190	-0.180	1.815
1200.000	0.203	357.070	0.015	-1.674	1199.990	0.250	0.015	1.675
1300.000	0.229	7.206	0.391	-1.658	1299.990	0.046	0.391	1.704
1400.000	0.242	35.811	0.761	-1.510	1399.989	0.117	0.761	1.691
1500.000	0.310	27.443	1.173	-1.261	1499.988	0.079	1.173	1.722
1600.000	0.270	16.419	1.639	-1.070	1599.986	0.069	1.639	1.957
1700.000	0.258	47.259	2.017	-0.838	1699.985	0.141	2.017	2.185
1800.000	0.228	96.278	2.149	-0.475	1799.984	0.204	2.149	2.200
1900.000	0.374	87.338	2.142	0.049	1899.983	0.153	2.142	2.143
2000.000	0.229	172.366	1.959	0.401	1999.982	0.421	1.959	2.000
2100.000	0.376	227.085	1.538	0.187	2099.981	0.307	1.538	1.549
2200.000	0.646	200.787	0.787	-0.254	2199.977	0.351	0.787	0.827
2300.000	0.634	193.776	-0.277	-0.585	2299.971	0.079	-0.277	0.648
2400.000	0.660	180.760	-1.390	-0.725	2399.964	0.149	-1.390	1.568
2500.000	0.809	174.715	-2.669	-0.667	2499.956	0.167	-2.669	2.751
2600.000	1.192	174.457	-4.407	-0.502	2599.941	0.383	-4.407	4.435
2700.000	1.201	169.700	-6.473	-0.214	2699.919	0.100	-6.473	6.476
2800.000	1.386	162.760	-8.658	0.332	2799.893	0.242	-8.658	8.665
2900.000	1.427	177.533	-11.057	0.744	2899.864	0.364	-11.057	11.082
3000.000	1.136	160.198	-13.233	1.133	2999.839	0.481	-13.233	13.282
3100.000	0.510	142.072	-14.517	1.743	3099.828	0.670	-14.517	14.622
3200.000	0.410	103.656	-14.953	2.364	3199.825	0.317	-14.953	15.139
3300.000	0.362	95.540	-15.068	3.026	3299.823	0.072	-15.068	15.369
3400.000	0.438	75.426	-15.002	3.711	3399.821	0.159	-15.002	15.455
3500.000	0.395	59.834	-14.733	4.379	3499.818	0.121	-14.733	15.370

3600.000	0.351	50.960	-14.367	4.915	3599.816	0.073	-14.367	15.184
3700.000	0.237	19.931	-13.979	5.223	3699.815	0.191	-13.979	14.923
3800.000	0.319	14.843	-13.516	5.365	3799.813	0.085	-13.516	14.542
3900.000	0.323	352.421	-12.967	5.399	3899.812	0.125	-12.967	14.047
4000.000	0.365	346.482	-12.379	5.288	3999.810	0.055	-12.379	13.461
4100.000	0.339	35.536	-11.828	5.385	4099.808	0.293	-11.828	12.997
4200.000	0.382	4.281	-11.255	5.582	4199.807	0.199	-11.255	12.563
4300.000	0.541	354.688	-10.452	5.563	4299.803	0.176	-10.452	11.840
4400.000	0.863	345.400	-9.253	5.330	4399.796	0.340	-9.253	10.678
4500.000	1.399	332.788	-7.439	4.582	4499.776	0.588	-7.439	8.736
4600.000	1.717	340.654	-4.939	3.527	4599.739	0.382	-4.939	6.069
4700.000	1.643	328.603	-2.302	2.284	4699.696	0.360	-2.302	3.243
4800.000	1.493	332.186	0.073	0.930	4799.659	0.179	0.073	0.933
4900.000	1.060	326.524	1.997	-0.189	4899.634	0.450	1.997	2.006
5000.000	0.733	330.042	3.323	-1.018	4999.621	0.331	3.323	3.476
5100.000	0.699	297.954	4.164	-1.877	5099.614	0.397	4.164	4.567
5200.000	0.449	314.617	4.725	-2.695	5199.609	0.298	4.725	5.440
5300.000	0.412	307.538	5.220	-3.259	5299.606	0.065	5.220	6.154
5400.000	0.382	328.051	5.722	-3.721	5399.604	0.145	5.722	6.825
5500.000	0.369	305.364	6.191	-4.160	5499.602	0.148	6.191	7.459
5600.000	0.375	325.220	6.647	-4.610	5599.600	0.129	6.647	8.089
5700.000	0.312	325.000	7.139	-4.953	5699.598	0.063	7.139	8.689
5800.000	0.431	335.920	7.705	-5.263	5799.596	0.137	7.705	9.331
5900.000	0.295	306.305	8.201	-5.623	5899.594	0.227	8.201	9.944
6000.000	0.336	284.838	8.428	-6.114	5999.592	0.124	8.428	10.412
6100.000	0.377	267.076	8.486	-6.726	6099.590	0.117	8.486	10.828
6200.000	0.507	282.565	8.566	-7.486	6199.587	0.176	8.566	11.376
6300.000	0.610	289.341	8.838	-8.421	6299.583	0.122	8.838	12.208
6400.000	0.926	269.512	9.008	-9.731	6399.574	0.408	9.008	13.260
6500.000	1.048	273.588	9.058	-11.451	6499.559	0.141	9.058	14.601
6600.000	1.380	271.417	9.145	-13.567	6599.536	0.335	9.145	16.362
6700.000	1.422	260.212	8.964	-15.994	6699.507	0.277	8.964	18.334
6800.000	1.459	267.734	8.703	-18.489	6799.475	0.193	8.703	20.434
6850.000	1.518	278.068	8.771	-19.781	6849.458	0.549	8.771	21.638

0

rees East of True North

Cbrg

0.000

157.921

154.444

160.408

174.139

190.923

209.176

223.771

237.667

250.911

260.513

264.299

270.521

283.271

296.753

312.909

326.855

337.442

347.538

1.302

11.564

6.935

342.145

244.644

207.529

194.038

186.497

181.894

177.806

176.152

175.106

173.155

171.016

168.644

166.107

163.446

161.113
159.512
158.349
157.395
156.870
155.521
153.619
151.974
150.057
148.369
144.468
135.224
85.480
354.608
342.965
335.737
330.303
328.019
326.963
326.101
325.257
325.247
325.667
325.561
324.043
321.603
318.848
316.387
312.791
308.345
303.982
299.270
295.207
293.912