



Company: Noble Energy

Rig: Production / Coretech

API # 05-123-22779

Date: 01/02/14

Surveyor: Brian Brewbaker

VS: 0.000

Lat : 40.488

Long: -104.491

Well: Foss 13-14

Location: Weld County, Colorado

North Reference: GRID

Convergence: Grid north is 0.65 degrees East of

Declination: 8.38

Depth Reference: Ground Level

Elevation: 4656

Total Depth as Drilled: 6937

Lat & Long obtained by handheld GPS at wellhead

MS Gyro Survey Calculations

Depth	Inc	AzG	N/-S	E/-W	TVD	DL	VS	CD	Cbrg
100.000	0.305	58.710	0.138	0.227	100.000	0.305	0.138	0.266	58.710
200.000	0.277	38.840	0.465	0.606	199.998	0.104	0.465	0.764	52.531
300.000	0.251	93.672	0.639	0.977	299.997	0.244	0.639	1.167	56.800
400.000	0.405	96.386	0.586	1.547	399.996	0.155	0.586	1.654	69.258
500.000	0.505	116.316	0.351	2.293	499.993	0.185	0.351	2.320	81.293
600.000	0.747	126.764	-0.234	3.211	599.987	0.267	-0.234	3.219	94.173
700.000	0.728	127.133	-1.008	4.240	699.978	0.020	-1.008	4.358	103.376
800.000	0.734	130.244	-1.806	5.235	799.970	0.040	-1.806	5.538	109.030
900.000	0.721	131.623	-2.638	6.195	899.962	0.022	-2.638	6.733	113.064
1000.000	0.655	131.972	-3.438	7.090	999.955	0.067	-3.438	7.880	115.868
1100.000	0.675	131.866	-4.213	7.954	1099.948	0.021	-4.213	9.001	117.911
1200.000	0.545	133.244	-4.932	8.739	1199.942	0.131	-4.932	10.035	119.441
1300.000	0.529	112.610	-5.436	9.512	1299.938	0.193	-5.436	10.955	119.747
1400.000	0.436	126.941	-5.842	10.242	1399.935	0.151	-5.842	11.791	119.700
1500.000	0.359	102.078	-6.136	10.853	1499.932	0.187	-6.136	12.467	119.485
1600.000	0.394	108.397	-6.310	11.485	1599.930	0.054	-6.310	13.105	118.786
1700.000	0.300	82.541	-6.385	12.071	1699.928	0.180	-6.385	13.656	117.876
1800.000	0.350	80.437	-6.300	12.633	1799.927	0.051	-6.300	14.116	116.506
1900.000	0.446	101.930	-6.330	13.315	1899.924	0.176	-6.330	14.743	115.426
2000.000	0.501	74.640	-6.295	14.118	1999.921	0.230	-6.295	15.457	114.031
2100.000	0.517	79.875	-6.100	14.983	2099.917	0.049	-6.100	16.177	112.150
2200.000	0.542	60.860	-5.790	15.841	2199.913	0.177	-5.790	16.866	110.078
2300.000	0.676	69.897	-5.357	16.808	2299.907	0.165	-5.357	17.641	107.678
2400.000	0.780	60.417	-4.818	17.953	2399.899	0.159	-4.818	18.589	105.023
2500.000	0.885	61.571	-4.114	19.225	2499.889	0.107	-4.114	19.660	102.080
2600.000	0.909	60.012	-3.350	20.591	2599.876	0.034	-3.350	20.862	99.241
2700.000	0.867	48.838	-2.456	21.848	2699.864	0.178	-2.456	21.985	96.413
2800.000	1.025	56.080	-1.459	23.159	2799.851	0.198	-1.459	23.205	93.604
2900.000	1.019	42.097	-0.300	24.498	2899.835	0.249	-0.300	24.500	90.701
3000.000	0.922	29.503	1.061	25.491	2999.821	0.234	1.061	25.513	87.617
3100.000	0.717	18.328	2.356	26.084	3099.811	0.259	2.356	26.190	84.840
3200.000	0.213	21.901	3.123	26.350	3199.807	0.505	3.123	26.535	83.242
3300.000	0.222	39.709	3.444	26.543	3299.806	0.068	3.444	26.766	82.607
3400.000	0.212	69.749	3.657	26.840	3399.806	0.113	3.657	27.088	82.241
3500.000	0.185	98.170	3.698	27.174	3499.805	0.101	3.698	27.424	82.250
3600.000	0.221	134.796	3.539	27.471	3599.804	0.132	3.539	27.698	82.659

3700.000	0.193	87.896	3.409	27.777	3699.804	0.167	3.409	27.985	83.003
3800.000	0.202	91.017	3.412	28.121	3799.803	0.014	3.412	28.328	83.082
3900.000	0.190	132.439	3.297	28.420	3899.803	0.139	3.297	28.610	83.382
4000.000	0.167	130.040	3.092	28.653	3999.802	0.024	3.092	28.820	83.842
4100.000	0.249	129.481	2.860	28.933	4099.802	0.082	2.860	29.074	84.355
4200.000	0.267	168.099	2.493	29.148	4199.801	0.172	2.493	29.255	85.111
4300.000	0.291	164.133	2.021	29.266	4299.799	0.030	2.021	29.336	86.049
4400.000	0.407	138.513	1.511	29.571	4399.798	0.192	1.511	29.609	87.075
4500.000	1.046	66.608	1.607	30.644	4499.791	0.998	1.607	30.687	86.998
4600.000	1.860	54.995	2.901	32.812	4599.758	0.861	2.901	32.940	84.948
4700.000	1.734	58.227	4.629	35.428	4699.709	0.162	4.629	35.729	82.556
4800.000	1.066	68.315	5.769	37.578	4799.678	0.710	5.769	38.019	81.272
4900.000	0.625	92.021	6.093	38.988	4899.667	0.554	6.093	39.461	81.117
5000.000	0.515	102.185	5.979	39.972	4999.662	0.149	5.979	40.416	81.492
5100.000	0.512	118.716	5.670	40.802	5099.659	0.148	5.670	41.194	82.089
5200.000	0.566	116.692	5.233	41.635	5199.654	0.057	5.233	41.963	82.836
5300.000	0.418	134.565	4.756	42.336	5299.650	0.211	4.756	42.603	83.591
5400.000	0.411	136.169	4.241	42.844	5399.648	0.014	4.241	43.054	84.346
5500.000	0.606	158.574	3.491	43.286	5499.644	0.275	3.491	43.426	85.389
5600.000	0.804	181.866	2.297	43.456	5599.637	0.345	2.297	43.517	86.974
5700.000	1.056	207.068	0.775	43.014	5699.624	0.474	0.775	43.021	88.968
5800.000	1.311	168.247	-1.166	42.827	5799.604	0.823	-1.166	42.843	91.559
5900.000	1.458	177.160	-3.557	43.124	5899.575	0.260	-3.557	43.270	94.715
6000.000	1.677	181.241	-6.290	43.155	5999.537	0.245	-6.290	43.611	98.293
6100.000	1.592	170.126	-9.122	43.362	6099.497	0.327	-9.122	44.311	101.880
6200.000	1.837	199.277	-12.004	43.071	6199.454	0.895	-12.004	44.712	105.573
6300.000	1.308	219.025	-14.403	41.823	6299.417	0.750	-14.403	44.233	109.003
6400.000	0.528	210.899	-15.685	40.867	6399.403	0.789	-15.685	43.774	110.997
6500.000	0.030	292.703	-16.071	40.607	6499.402	0.525	-16.071	43.671	111.592
6600.000	0.376	356.430	-15.733	40.562	6599.401	0.364	-15.733	43.507	111.200
6700.000	0.251	20.463	-15.200	40.619	6699.399	0.179	-15.200	43.369	110.516

True North