



Company: Noble Energy

Rig: Production / Coretech

API # 05-123-24045

Date: 10/16/2013

Surveyor: Norman Cowan

VS: 0.000

Lat : 40.480

Long: -104.500

Well: Lapp 13-34

Location: Weld County, Colorado

North Reference: GRID

Convergence: Grid North is 0.65 Deg East of True

Declination: 8.41 Degrees

Depth Reference: Ground Level

Elevation: 4648 Feet

Total Depth as Drilled: 6975 Feet

Lat & Long obtained by handheld GPS at wellhead

MS Gyro Survey Calculations

Depth	Inc	AzG	N/-S	E/-W	TVD	DL	VS	CD	Cbrg
0.000	0.000	0.000	0.000	0.000	0.000	****	0.000	0.000	0.000
100.000	0.197	146.385	-0.143	0.095	100.000	0.197	-0.143	0.172	146.385
200.000	0.365	183.547	-0.604	0.170	199.999	0.240	-0.604	0.628	164.251
300.000	0.405	174.841	-1.274	0.182	299.996	0.071	-1.274	1.287	171.853
400.000	0.116	125.102	-1.684	0.297	399.995	0.342	-1.684	1.710	170.001
500.000	0.325	269.277	-1.746	0.096	499.995	0.425	-1.746	1.748	176.856
600.000	0.371	209.697	-2.031	-0.348	599.993	0.348	-2.031	2.060	189.735
700.000	0.968	256.233	-2.513	-1.329	699.987	0.761	-2.513	2.843	207.870
800.000	0.707	261.747	-2.803	-2.760	799.976	0.272	-2.803	3.934	224.558
900.000	1.204	264.631	-2.990	-4.417	899.962	0.499	-2.990	5.333	235.905
1000.000	0.912	254.911	-3.295	-6.231	999.945	0.341	-3.295	7.049	242.128
1100.000	1.253	251.931	-3.842	-8.039	1099.927	0.346	-3.842	8.910	244.459
1200.000	1.265	244.915	-4.649	-10.078	1199.903	0.155	-4.649	11.099	245.238
1300.000	1.422	240.767	-5.723	-12.161	1299.875	0.185	-5.723	13.440	244.799
1400.000	1.325	247.704	-6.768	-14.314	1399.846	0.193	-6.768	15.833	244.695
1500.000	1.251	246.097	-7.649	-16.382	1499.821	0.082	-7.649	18.080	244.972
1600.000	1.469	234.422	-8.837	-18.422	1599.793	0.351	-8.837	20.432	244.374
1700.000	1.374	245.139	-10.086	-20.553	1699.762	0.282	-10.086	22.894	243.860
1800.000	1.436	238.391	-11.247	-22.708	1799.732	0.176	-11.247	25.341	243.651
1900.000	1.304	226.373	-12.689	-24.599	1899.704	0.315	-12.689	27.679	242.713
2000.000	0.954	200.698	-14.253	-25.717	1999.685	0.607	-14.253	29.402	241.004
2100.000	0.870	206.007	-15.713	-26.344	2099.672	0.119	-15.713	30.674	239.185
2200.000	0.739	194.256	-17.021	-26.835	2199.663	0.210	-17.021	31.778	237.614
2300.000	0.982	208.856	-18.397	-27.408	2299.651	0.325	-18.397	33.009	236.130
2400.000	0.961	225.471	-19.735	-28.419	2399.637	0.282	-19.735	34.600	235.222
2500.000	0.586	205.467	-20.785	-29.237	2499.628	0.457	-20.785	35.872	234.590
2600.000	0.253	171.158	-21.465	-29.423	2599.625	0.403	-21.465	36.420	233.888
2700.000	0.524	183.805	-22.139	-29.419	2699.623	0.283	-22.139	36.819	233.038
2800.000	0.335	162.659	-22.874	-29.363	2799.620	0.244	-22.874	37.221	232.080
2900.000	0.344	204.724	-23.426	-29.401	2899.619	0.244	-23.426	37.593	231.453
3000.000	0.285	186.483	-23.946	-29.555	2999.617	0.116	-23.946	38.038	230.984
3100.000	0.153	36.515	-24.086	-29.503	3099.617	0.425	-24.086	38.086	230.772
3200.000	0.131	333.429	-23.876	-29.475	3199.617	0.150	-23.876	37.932	230.991
3300.000	0.422	28.386	-23.450	-29.351	3299.615	0.363	-23.450	37.568	231.377
3400.000	0.786	27.375	-22.516	-28.860	3399.610	0.364	-22.516	36.605	232.039
3500.000	1.018	40.139	-21.228	-27.972	3499.597	0.306	-21.228	35.115	232.805

3600.000	0.906	39.270	-19.937	-26.899	3599.583	0.114	-19.937	33.482	233.455
3700.000	0.844	19.359	-18.630	-26.155	3699.572	0.308	-18.630	32.112	234.537
3800.000	0.665	8.870	-17.362	-25.821	3799.563	0.226	-17.362	31.116	236.083
3900.000	0.501	11.321	-16.361	-25.646	3899.558	0.166	-16.361	30.420	237.464
4000.000	0.301	37.015	-15.722	-25.402	3999.555	0.264	-15.722	29.874	238.245
4100.000	0.473	222.127	-15.819	-25.521	4099.555	0.774	-15.819	30.026	238.208
4200.000	0.822	224.706	-16.635	-26.303	4199.548	0.350	-16.635	31.121	237.689
4300.000	1.230	210.639	-18.069	-27.355	4299.532	0.476	-18.069	32.783	236.554
4400.000	1.233	214.081	-19.883	-28.504	4399.509	0.074	-19.883	34.754	235.102
4500.000	1.213	219.670	-21.589	-29.782	4499.486	0.121	-21.589	36.784	234.063
4600.000	0.783	209.040	-23.001	-30.790	4599.471	0.466	-23.001	38.432	233.239
4700.000	0.698	126.062	-23.957	-30.629	4699.465	0.984	-23.957	38.885	231.969
4800.000	0.705	142.897	-24.807	-29.765	4799.457	0.206	-24.807	38.747	230.191
4900.000	0.898	156.184	-26.014	-29.077	4899.448	0.266	-26.014	39.016	228.182
5000.000	1.087	152.401	-27.571	-28.321	4999.433	0.200	-27.571	39.526	225.769
5100.000	0.869	176.873	-29.169	-27.841	5099.418	0.466	-29.169	40.323	223.665
5200.000	1.068	178.424	-30.858	-27.774	5199.404	0.201	-30.858	41.516	221.989
5300.000	1.304	185.728	-32.922	-27.862	5299.383	0.279	-32.922	43.129	220.241
5400.000	1.093	182.781	-35.007	-28.021	5399.361	0.219	-35.007	44.841	218.675
5500.000	1.245	177.812	-37.046	-28.026	5499.340	0.182	-37.046	46.453	217.109
5600.000	1.247	188.972	-39.206	-28.154	5599.316	0.242	-39.206	48.268	215.683
5700.000	1.283	191.856	-41.376	-28.554	5699.292	0.073	-41.376	50.272	214.610
5800.000	1.415	186.878	-43.697	-28.932	5799.264	0.176	-43.697	52.407	213.509
5900.000	1.316	187.048	-46.062	-29.221	5899.236	0.099	-46.062	54.548	212.390
6000.000	0.942	185.676	-48.019	-29.443	5999.216	0.375	-48.019	56.327	211.514
6100.000	0.428	172.812	-49.208	-29.477	6099.209	0.534	-49.208	57.361	210.923
6200.000	0.176	202.060	-49.721	-29.488	6199.208	0.287	-49.721	57.808	210.671
6300.000	0.352	135.918	-50.084	-29.333	6299.207	0.324	-50.084	58.042	210.356
6400.000	0.228	147.620	-50.473	-29.012	6399.205	0.137	-50.473	58.217	209.891
6500.000	0.208	175.134	-50.822	-28.891	6499.205	0.105	-50.822	58.460	209.617
6600.000	0.471	76.931	-50.910	-28.474	6599.203	0.542	-50.910	58.332	209.219
6700.000	0.376	132.200	-51.037	-27.831	6699.201	0.402	-51.037	58.132	208.604

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