



**Company:** Noble Energy  
**Rig:** Production/ VES  
**API #** 05-123-14702  
**Date:** 3/20/2014  
**Surveyor:** Sean Bratt  
**VS:** 0.000  
**Lat :** 40.463  
**Long:** -104.495

**Well:** Larson A 25-02  
**Location:** Weld County, Colorado  
**North Reference:** GRID  
**Convergence:** Grid north is 0.65 Degrees East of  
**Declination:** 8.36 Degrees  
**Depth Reference:** Ground Level  
**Elevation:** 4640 Feet  
**T.D as Drilled:** 6950 Feet

**Lat & Long obtained by handheld GPS at wellhead**  
**Gyro Survey Calculations**

Depth	Inc	AzG	N/-S	E/-W	TVD	DL	VS	CD	Cbgr
0.000	0.000	0.000	0.000	0.000	0.000	****	0.000	0.000	0.000
100.000	0.562	177.069	-0.490	0.025	99.998	0.562	-0.490	0.490	177.069
200.000	0.055	9.629	-0.932	0.058	199.997	0.616	-0.932	0.934	176.427
300.000	0.253	76.210	-0.832	0.281	299.997	0.236	-0.832	0.878	161.359
400.000	0.481	213.407	-1.129	0.264	399.996	0.688	-1.129	1.160	166.840
500.000	0.194	281.713	-1.445	-0.132	499.994	0.447	-1.445	1.451	185.236
600.000	0.257	276.917	-1.384	-0.521	599.993	0.066	-1.384	1.478	200.618
700.000	0.259	318.483	-1.188	-0.893	699.992	0.183	-1.188	1.486	216.932
800.000	0.104	169.673	-1.108	-1.026	799.992	0.351	-1.108	1.510	222.815
900.000	0.556	223.813	-1.547	-1.346	899.990	0.503	-1.547	2.051	221.030
1000.000	0.619	328.809	-1.435	-1.962	999.987	0.933	-1.435	2.431	233.815
1100.000	0.479	293.008	-0.810	-2.626	1099.983	0.363	-0.810	2.748	252.862
1200.000	0.782	289.594	-0.418	-3.653	1199.977	0.306	-0.418	3.677	263.478
1300.000	0.375	206.355	-0.482	-4.442	1299.973	0.827	-0.482	4.468	263.802
1400.000	0.750	291.603	-0.535	-5.196	1399.969	0.810	-0.535	5.223	264.121
1500.000	0.244	204.005	-0.489	-5.891	1499.966	0.779	-0.489	5.911	265.256
1600.000	0.391	238.867	-0.860	-6.270	1599.964	0.236	-0.860	6.329	262.188
1700.000	0.468	216.604	-1.365	-6.806	1699.962	0.182	-1.365	6.941	258.661
1800.000	0.196	304.962	-1.595	-7.189	1799.960	0.502	-1.595	7.364	257.491
1900.000	0.371	112.426	-1.621	-7.030	1899.960	0.563	-1.621	7.214	257.019
2000.000	0.235	79.246	-1.706	-6.530	1999.958	0.217	-1.706	6.749	255.360
2100.000	0.344	137.358	-1.889	-6.125	2099.957	0.297	-1.889	6.410	252.865
2200.000	0.317	108.836	-2.199	-5.660	2199.956	0.165	-2.199	6.072	248.769
2300.000	0.704	124.931	-2.640	-4.894	2299.952	0.409	-2.640	5.561	241.658
2400.000	0.814	101.687	-3.135	-3.695	2399.943	0.324	-3.135	4.846	229.685
2500.000	0.648	81.936	-3.200	-2.440	2499.935	0.299	-3.200	4.024	217.323
2600.000	0.603	111.301	-3.312	-1.390	2599.929	0.320	-3.312	3.592	202.764
2700.000	0.867	90.290	-3.507	-0.143	2699.921	0.373	-3.507	3.510	182.333
2800.000	0.701	102.129	-3.639	1.212	2799.912	0.231	-3.639	3.836	161.578
2900.000	0.594	106.112	-3.912	2.309	2899.905	0.116	-3.912	4.542	149.451
3000.000	0.677	107.693	-4.235	3.369	2999.899	0.084	-4.235	5.412	141.495
3100.000	0.329	51.285	-4.235	4.156	3099.896	0.565	-4.235	5.934	135.542
3200.000	0.620	120.198	-4.328	4.847	3199.893	0.588	-4.328	6.498	131.760
3300.000	0.104	358.759	-4.510	5.313	3299.891	0.680	-4.510	6.969	130.324
3400.000	0.932	80.131	-4.280	6.113	3399.886	0.922	-4.280	7.462	124.999
3500.000	1.409	54.226	-3.422	7.912	3499.866	0.701	-3.422	8.620	113.387

3600.000	0.958	55.625	-2.231	9.599	3599.844	0.453	-2.231	9.855	103.084
3700.000	0.905	71.946	-1.514	11.040	3699.831	0.269	-1.514	11.143	97.810
3800.000	0.228	334.637	-1.090	11.706	3799.827	0.961	-1.090	11.757	95.318
3900.000	1.147	358.203	0.091	11.589	3899.819	0.942	0.091	11.590	89.552
4000.000	1.322	354.601	2.239	11.449	3999.796	0.192	2.239	11.666	78.934
4100.000	0.441	355.290	3.771	11.309	4099.783	0.881	3.771	11.921	71.557
4200.000	0.795	351.381	4.841	11.174	4199.777	0.356	4.841	12.177	66.577
4300.000	1.220	320.670	6.349	10.395	4299.762	0.673	6.349	12.181	58.584
4400.000	1.586	291.636	7.683	8.434	4399.733	0.788	7.683	11.409	47.667
4500.000	1.562	314.100	9.142	6.168	4499.696	0.614	9.142	11.028	34.009
4600.000	0.925	305.911	10.564	4.536	4599.672	0.660	10.564	11.496	23.238
4700.000	0.917	303.633	11.481	3.216	4699.659	0.037	11.481	11.922	15.647
4800.000	1.619	322.567	13.046	1.690	4799.635	0.808	13.046	13.155	7.381
4900.000	1.841	346.225	15.728	0.449	4899.590	0.742	15.728	15.735	1.634
5000.000	1.879	357.288	18.926	-0.011	4999.538	0.360	18.926	18.926	359.966
5100.000	2.253	20.696	22.402	0.606	5099.474	0.915	22.402	22.410	1.549
5200.000	1.407	23.343	25.368	1.787	5199.423	0.850	25.368	25.431	4.030
5300.000	1.835	7.258	28.083	2.476	5299.383	0.621	28.083	28.192	5.038
5400.000	1.339	31.443	30.668	3.287	5399.345	0.823	30.668	30.844	6.118
5500.000	1.534	25.313	32.875	4.469	5499.314	0.249	32.875	33.178	7.742
5600.000	0.822	0.821	34.802	5.052	5599.293	0.857	34.802	35.167	8.259
5700.000	0.799	58.139	35.888	5.655	5699.284	0.778	35.888	36.330	8.954
5800.000	0.734	67.467	36.501	6.838	5799.275	0.141	36.501	37.136	10.611
5900.000	1.623	81.399	36.958	8.830	5899.253	0.928	36.958	37.998	13.437
6000.000	1.432	84.584	37.288	11.474	5999.218	0.209	37.288	39.013	17.104
6100.000	1.489	89.113	37.426	14.017	6099.185	0.128	37.426	39.965	20.532
6200.000	1.216	104.580	37.179	16.343	6199.158	0.453	37.179	40.612	23.730
6300.000	1.112	79.938	37.081	18.326	6299.138	0.507	37.081	41.363	26.300
6400.000	1.060	107.517	36.972	20.164	6399.120	0.520	36.972	42.114	28.608
6500.000	0.947	97.105	36.592	21.866	6499.105	0.214	36.592	42.627	30.862
6600.000	0.853	114.965	36.175	23.361	6599.093	0.294	36.175	43.063	32.853
6700.000	1.031	167.359	34.983	24.233	6699.081	0.847	34.983	42.556	34.710

True North