



Company: Noble Energy
Rig: Production / V.E.S.
API # 05-123-30858
Date: 6/24/2013
Surveyor: Norman Cowan
VS: 0.000
Lat : 40.318
Long: -104.472

Well: Sater CC 18-01
Location: Weld County, Colorado
North Reference: GRID
Convergence: Grid North is .66 Degrees East of T
Declination: 8.43 Degrees
Depth Reference: Ground Level
Elevation: 4659 Feet
Total Depth as Drilled: 6867 Feet

Lat & Long obtained by handheld GPS at wellhead

HA 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	0.467	305.084	0.234	-0.334	99.999	0.467	0.234	0.408	305.084
200.000	0.828	282.206	0.622	-1.374	199.992	0.437	0.622	1.508	294.345
300.000	0.548	313.033	1.101	-2.429	299.986	0.455	1.101	2.667	294.370
400.000	0.621	275.603	1.480	-3.318	399.981	0.381	1.480	3.633	294.033
500.000	0.985	280.895	1.695	-4.702	499.971	0.371	1.695	4.998	289.825
600.000	1.486	243.080	1.271	-6.702	599.949	0.930	1.271	6.821	280.736
700.000	1.346	225.876	-0.134	-8.701	699.919	0.445	-0.134	8.702	269.119
800.000	1.131	229.598	-1.591	-10.295	799.895	0.229	-1.591	10.418	261.213
900.000	1.098	228.876	-2.862	-11.769	899.876	0.036	-2.862	12.112	256.334
1000.000	1.493	230.453	-4.321	-13.496	999.850	0.397	-4.321	14.171	252.245
1100.000	1.565	238.004	-5.874	-15.658	1099.815	0.214	-5.874	16.724	249.436
1200.000	1.400	237.612	-7.252	-17.848	1199.781	0.165	-7.252	19.265	247.886
1300.000	1.633	235.606	-8.712	-20.055	1299.746	0.238	-8.712	21.866	246.521
1400.000	1.664	238.216	-10.281	-22.465	1399.705	0.082	-10.281	24.706	245.409
1500.000	1.569	250.525	-11.503	-24.990	1499.665	0.359	-11.503	27.511	245.284
1600.000	1.045	228.968	-12.558	-26.969	1599.640	0.710	-12.558	29.749	245.032
1700.000	1.252	219.735	-13.996	-28.355	1699.620	0.277	-13.996	31.621	243.729
1800.000	1.381	194.058	-16.005	-29.346	1799.594	0.598	-16.005	33.427	241.392
1900.000	2.012	182.402	-18.929	-29.713	1899.550	0.716	-18.929	35.230	237.501
2000.000	2.398	176.155	-22.770	-29.646	1999.476	0.454	-22.770	37.381	232.473
2100.000	1.983	181.066	-26.587	-29.538	2099.403	0.455	-26.587	39.741	228.009
2200.000	1.265	179.263	-29.422	-29.556	2199.362	0.719	-29.422	41.703	225.130
2300.000	1.139	196.746	-31.478	-29.828	2299.340	0.386	-31.478	43.365	223.458
2400.000	1.201	197.085	-33.432	-30.422	2399.319	0.062	-33.432	45.202	222.302
2500.000	0.986	205.729	-35.208	-31.104	2499.301	0.271	-35.208	46.979	221.458
2600.000	0.974	213.640	-36.691	-31.948	2599.287	0.136	-36.691	48.651	221.047
2700.000	1.048	211.066	-38.182	-32.891	2699.271	0.087	-38.182	50.395	220.742
2800.000	0.751	221.937	-39.453	-33.801	2799.259	0.341	-39.453	51.952	220.588
2900.000	0.764	243.118	-40.242	-34.833	2899.250	0.279	-40.242	53.224	220.880
3000.000	0.843	235.105	-40.964	-36.031	2999.240	0.137	-40.964	54.556	221.334
3100.000	0.963	247.036	-41.713	-37.409	3099.228	0.223	-41.713	56.030	221.886
3200.000	0.805	246.684	-42.318	-38.827	3199.216	0.159	-42.318	57.432	222.536
3300.000	0.365	297.181	-42.451	-39.755	3299.211	0.638	-42.451	58.160	223.122
3400.000	0.477	256.779	-42.401	-40.443	3399.209	0.309	-42.401	58.596	223.646

3500.000	0.325	299.236	-42.358	-41.096	3499.206	0.323	-42.358	59.017	224.134
3600.000	0.312	278.785	-42.178	-41.612	3599.205	0.114	-42.178	59.250	224.613
3700.000	0.751	280.780	-42.014	-42.526	3699.200	0.439	-42.014	59.779	225.347
3800.000	0.370	303.105	-41.715	-43.440	3799.195	0.432	-41.715	60.226	226.161
3900.000	0.290	248.636	-41.631	-43.946	3899.194	0.310	-41.631	60.534	226.550
4000.000	0.696	256.080	-41.869	-44.772	3999.190	0.410	-41.869	61.298	226.919
4100.000	0.414	262.997	-42.059	-45.719	4099.185	0.290	-42.059	62.123	227.388
4200.000	0.784	267.494	-42.133	-46.761	4199.180	0.373	-42.133	62.943	227.980
4300.000	0.479	262.154	-42.220	-47.858	4299.173	0.311	-42.220	63.820	228.582
4400.000	0.603	202.691	-42.762	-48.475	4399.170	0.547	-42.762	64.641	228.583
4500.000	1.347	161.670	-44.363	-48.308	4499.156	0.976	-44.363	65.588	227.438
4600.000	1.150	150.395	-46.351	-47.443	4599.132	0.314	-46.351	66.327	225.667
4700.000	1.248	153.500	-48.198	-46.461	4699.110	0.118	-48.198	66.946	223.948
4800.000	0.800	167.775	-49.856	-45.827	4799.094	0.512	-49.856	67.718	222.589
4900.000	0.779	173.256	-51.213	-45.599	4899.084	0.078	-51.213	68.571	221.682
5000.000	0.879	185.902	-52.651	-45.599	4999.074	0.208	-52.651	69.651	220.895
5100.000	0.742	194.797	-54.040	-45.843	5099.064	0.186	-54.040	70.865	220.309
5200.000	0.628	190.161	-55.205	-46.105	5199.057	0.126	-55.205	71.925	219.867
5300.000	0.775	143.418	-56.287	-45.798	5299.050	0.573	-56.287	72.565	219.134
5400.000	0.641	115.910	-57.075	-44.893	5399.043	0.361	-57.075	72.614	218.187
5500.000	0.952	103.937	-57.519	-43.584	5499.033	0.351	-57.519	72.166	217.152
5600.000	0.675	76.645	-57.583	-42.205	5599.023	0.469	-57.583	71.393	216.239
5700.000	0.640	117.138	-57.702	-41.135	5699.017	0.456	-57.702	70.863	215.484
5800.000	0.315	148.139	-58.190	-40.492	5799.014	0.405	-58.190	70.892	214.833
5900.000	0.140	132.231	-58.505	-40.257	5899.013	0.184	-58.505	71.017	214.532
6000.000	0.469	13.405	-58.189	-40.071	5999.012	0.551	-58.189	70.652	214.553
6100.000	0.190	298.023	-57.713	-40.123	6099.010	0.459	-57.713	70.290	214.807
6200.000	0.289	20.357	-57.399	-40.181	6199.010	0.324	-57.399	70.066	214.993
6300.000	0.081	294.681	-57.134	-40.158	6299.009	0.294	-57.134	69.835	215.103
6400.000	0.119	115.025	-57.148	-40.129	6399.009	0.200	-57.148	69.830	215.076
6500.000	0.204	91.669	-57.197	-39.857	6499.009	0.106	-57.197	69.714	214.871
6600.000	0.229	60.001	-57.102	-39.507	6599.008	0.120	-57.102	69.436	214.678

True North