



Company: Noble Energy
Rig: Production / V.E.S.
API # 05-123-29481
Date: 5/30/2013
Surveyor: Norman Cowan
VS: 0.000
Lat : 40.519
Long: -104.446

Well: NCLP PC AA 4-19
Location: Weld County, Colorado
North Reference: GRID
Convergence: Grid north is -0.68 Deg of True No
Declination: 8.44 Degrees
Depth Reference: Ground Level
Elevation: 4710 Feet
Total Depth as Drilled: 7062 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	0.350	1.065	0.306	0.006	99.999	0.350	0.306	0.306	1.065
200.000	0.093	303.237	0.656	-0.056	199.999	0.311	0.656	0.658	355.094
300.000	0.225	131.553	0.570	0.023	299.998	0.317	0.570	0.570	2.312
400.000	0.570	111.288	0.259	0.634	399.996	0.367	0.259	0.684	67.765
500.000	0.551	95.280	0.034	1.576	499.991	0.157	0.034	1.577	88.761
600.000	0.268	84.796	0.011	2.288	599.989	0.292	0.011	2.288	89.725
700.000	0.309	112.777	-0.072	2.770	699.987	0.145	-0.072	2.771	91.495
800.000	0.266	135.997	-0.344	3.180	799.986	0.123	-0.344	3.199	96.173
900.000	0.546	109.158	-0.668	3.792	899.984	0.331	-0.668	3.850	99.985
1000.000	0.414	60.111	-0.644	4.555	999.980	0.416	-0.644	4.600	98.047
1100.000	0.425	96.295	-0.505	5.237	1099.978	0.261	-0.505	5.261	95.505
1200.000	0.305	124.513	-0.696	5.825	1199.976	0.213	-0.696	5.867	96.815
1300.000	0.555	97.451	-0.910	6.525	1299.973	0.316	-0.910	6.588	97.938
1400.000	0.383	63.274	-0.822	7.304	1399.970	0.321	-0.822	7.350	96.424
1500.000	0.538	75.816	-0.557	8.058	1499.967	0.184	-0.557	8.077	93.954
1600.000	0.419	63.975	-0.282	8.842	1599.963	0.155	-0.282	8.846	91.824
1700.000	0.047	204.854	-0.158	9.153	1699.962	0.456	-0.158	9.154	90.990
1800.000	0.703	292.224	0.037	8.568	1799.960	0.702	0.037	8.568	89.752
1900.000	0.561	212.330	-0.145	7.738	1899.955	0.819	-0.145	7.739	91.070
2000.000	0.621	210.238	-1.027	7.203	1999.950	0.064	-1.027	7.276	98.111
2100.000	0.579	157.049	-1.961	7.127	2099.945	0.539	-1.961	7.392	105.381
2200.000	0.774	113.366	-2.694	7.944	2199.939	0.535	-2.694	8.389	108.733
2300.000	0.693	132.140	-3.368	9.013	2299.931	0.252	-3.368	9.621	110.489
2400.000	0.712	62.412	-3.486	10.012	2399.925	0.803	-3.486	10.601	109.198
2500.000	0.544	22.709	-2.760	10.745	2499.919	0.455	-2.760	11.094	104.407
2600.000	0.524	17.927	-1.887	11.069	2599.915	0.049	-1.887	11.229	99.676
2700.000	0.333	10.009	-1.167	11.261	2699.912	0.200	-1.167	11.321	95.916
2800.000	0.228	59.668	-0.781	11.483	2799.911	0.254	-0.781	11.509	93.889
2900.000	0.041	79.778	-0.674	11.689	2899.911	0.190	-0.674	11.709	93.299
3000.000	0.307	11.029	-0.405	11.776	2999.910	0.294	-0.405	11.783	91.968
3100.000	0.125	292.052	-0.101	11.726	3099.910	0.308	-0.101	11.727	90.493
3200.000	0.198	323.969	0.080	11.524	3199.909	0.114	0.080	11.524	89.602
3300.000	0.548	202.007	-0.223	11.243	3299.908	0.674	-0.223	11.245	91.136
3400.000	0.506	217.178	-1.018	10.797	3399.904	0.145	-1.018	10.845	95.386
3500.000	0.315	241.579	-1.501	10.288	3499.901	0.255	-1.501	10.397	98.299

3600.000	0.383	252.878	-1.730	9.727	3599.899	0.096	-1.730	9.880	100.084
3700.000	0.465	243.084	-2.012	9.046	3699.897	0.109	-2.012	9.267	102.537
3800.000	0.378	229.776	-2.408	8.433	3799.894	0.131	-2.408	8.770	105.937
3900.000	0.373	254.359	-2.709	7.868	3899.892	0.160	-2.709	8.321	108.999
4000.000	0.530	237.866	-3.043	7.162	3999.889	0.202	-3.043	7.782	113.018
4100.000	0.438	231.998	-3.524	6.469	4099.885	0.105	-3.524	7.367	118.579
4200.000	0.579	286.376	-3.617	5.683	4199.882	0.482	-3.617	6.736	122.473
4300.000	0.544	269.619	-3.477	4.724	4299.877	0.167	-3.477	5.866	126.358
4400.000	0.358	268.715	-3.488	3.937	4399.874	0.186	-3.488	5.260	131.533
4500.000	0.377	275.805	-3.461	3.298	4499.872	0.049	-3.461	4.781	136.387
4600.000	0.444	295.206	-3.263	2.620	4599.869	0.153	-3.263	4.185	141.241
4700.000	0.291	291.282	-3.006	2.033	4699.867	0.155	-3.006	3.629	145.929
4800.000	0.287	230.156	-3.075	1.604	4799.866	0.294	-3.075	3.468	152.448
4900.000	0.380	214.893	-3.508	1.222	4899.864	0.128	-3.508	3.714	160.798
5000.000	0.264	263.025	-3.808	0.803	4999.863	0.283	-3.808	3.892	168.087
5100.000	0.361	210.527	-4.107	0.415	5099.862	0.290	-4.107	4.128	174.230
5200.000	0.358	190.026	-4.687	0.201	5199.860	0.128	-4.687	4.691	177.550
5300.000	0.803	191.596	-5.681	0.005	5299.854	0.445	-5.681	5.681	179.948
5400.000	0.584	236.044	-6.653	-0.558	5399.848	0.563	-6.653	6.676	184.797
5500.000	0.734	264.802	-6.995	-1.619	5499.841	0.358	-6.995	7.180	193.032
5600.000	1.047	238.361	-7.532	-3.035	5599.830	0.508	-7.532	8.121	201.945
5700.000	1.165	246.720	-8.413	-4.746	5699.811	0.200	-8.413	9.659	209.428
5800.000	1.172	232.561	-9.436	-6.492	5799.790	0.288	-9.436	11.454	214.525
5900.000	1.169	232.245	-10.683	-8.110	5899.770	0.007	-10.683	13.412	217.205
6000.000	1.399	246.164	-11.800	-10.033	5999.745	0.386	-11.800	15.489	220.371
6100.000	1.238	253.144	-12.607	-12.182	6099.718	0.227	-12.607	17.531	224.020
6200.000	1.031	284.719	-12.691	-14.086	6199.699	0.648	-12.691	18.960	227.982
6300.000	1.143	252.998	-12.754	-15.910	6299.682	0.604	-12.754	20.391	231.283
6400.000	1.250	262.800	-13.183	-17.947	6399.661	0.231	-13.183	22.268	233.701
6500.000	1.182	244.995	-13.756	-19.964	6499.638	0.382	-13.756	24.244	235.433
6600.000	1.594	238.871	-14.911	-22.090	6599.609	0.437	-14.911	26.651	235.980
6700.000	2.427	231.488	-16.948	-24.936	6699.547	0.871	-16.948	30.150	235.798
6800.000	3.409	227.991	-20.256	-28.802	6799.416	0.998	-20.256	35.212	234.882

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