



Company: Noble Energy
 Rig: Producton / V.E.S.
 API # 05-123-33408
 Date: 12/20/2013
 Surveyor: Norman Cowan
 VS: 0.000
 Lat : 40.516
 Long: -104.640

Well: Brown PC E02-32
 Location: Weld County, Colorado
 North Reference: GRID
 Convergence: Grid north is 0.56 Deg East of Tru
 Declination: 8.47 Degrees
 Depth Reference: Ground Level
 Elevation: 4836 Feet
 Total Depth as Drilled: 7376 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	0.978	78.637	0.168	0.837	99.995	0.978	0.168	0.854	78.637
200.000	1.268	74.339	0.635	2.739	199.976	0.301	0.635	2.812	76.947
300.000	1.116	69.942	1.268	4.720	299.954	0.177	1.268	4.887	74.963
400.000	1.137	72.490	1.901	6.581	399.935	0.054	1.901	6.850	73.892
500.000	0.876	79.061	2.344	8.278	499.919	0.286	2.344	8.603	74.189
600.000	0.588	37.690	2.896	9.342	599.912	0.583	2.896	9.781	72.779
700.000	0.502	6.135	3.737	9.703	699.907	0.308	3.737	10.398	68.934
800.000	0.401	1.192	4.523	9.757	799.904	0.108	4.523	10.754	65.131
900.000	0.302	7.213	5.134	9.797	899.902	0.105	5.134	11.061	62.343
1000.000	0.516	56.909	5.642	10.208	999.900	0.395	5.642	11.663	61.070
1100.000	0.530	37.717	6.254	10.868	1099.896	0.175	6.254	12.539	60.083
1200.000	0.542	60.916	6.850	11.565	1199.892	0.216	6.850	13.441	59.361
1300.000	0.550	58.472	7.331	12.387	1299.887	0.025	7.331	14.394	59.383
1400.000	0.684	60.325	7.878	13.315	1399.881	0.135	7.878	15.471	59.391
1500.000	0.818	45.353	8.675	14.342	1499.873	0.236	8.675	16.761	58.833
1600.000	1.038	55.957	9.683	15.600	1599.860	0.278	9.683	18.361	58.172
1700.000	1.181	56.551	10.758	17.210	1699.841	0.144	10.758	20.295	57.991
1800.000	1.213	56.002	11.918	18.947	1799.819	0.034	11.918	22.384	57.830
1900.000	1.030	78.948	12.682	20.707	1899.800	0.481	12.682	24.282	58.515
2000.000	1.126	85.450	12.932	22.568	1999.783	0.155	12.932	26.011	60.186
2100.000	0.991	84.258	13.097	24.408	2099.766	0.136	13.097	27.700	61.783
2200.000	1.079	87.081	13.231	26.209	2199.749	0.101	13.231	29.359	63.214
2300.000	1.014	71.438	13.561	27.988	2299.733	0.292	13.561	31.100	64.149
2400.000	0.742	90.980	13.832	29.475	2399.721	0.401	13.832	32.559	64.861
2500.000	0.493	106.153	13.701	30.535	2499.715	0.296	13.701	33.468	65.835
2600.000	0.929	101.079	13.425	31.744	2599.708	0.440	13.425	34.466	67.075
2700.000	1.104	103.677	13.042	33.476	2699.692	0.181	13.042	35.927	68.715
2800.000	1.323	104.574	12.523	35.530	2799.669	0.220	12.523	37.672	70.584
2900.000	1.340	107.180	11.888	37.764	2899.642	0.063	11.888	39.591	72.527
3000.000	1.400	114.367	11.038	39.994	2999.614	0.182	11.038	41.489	74.571
3100.000	1.256	113.450	10.098	42.112	3099.587	0.146	10.098	43.305	76.515
3200.000	1.313	121.540	9.063	44.093	3199.562	0.190	9.063	45.015	78.385
3300.000	1.257	118.239	7.945	46.036	3299.537	0.093	7.945	46.716	80.208
3400.000	1.799	114.186	6.783	48.434	3399.501	0.553	6.783	48.907	82.028
3500.000	1.179	84.128	6.245	50.890	3499.468	0.977	6.245	51.272	83.004

3600.000	1.007	58.241	6.812	52.660	3599.450	0.518	6.812	53.099	82.629
3700.000	1.303	44.574	8.084	54.205	3699.430	0.403	8.084	54.805	81.517
3800.000	1.465	49.026	9.732	55.968	3799.401	0.194	9.732	56.808	80.135
3900.000	1.494	53.590	11.344	57.982	3899.368	0.121	11.344	59.081	78.930
4000.000	1.807	50.211	13.127	60.243	3999.326	0.328	13.127	61.656	77.707
4100.000	1.777	54.345	15.040	62.714	4099.277	0.133	15.040	64.492	76.514
4200.000	1.466	58.355	16.615	65.063	4199.237	0.330	16.615	67.151	75.675
4300.000	0.969	42.450	17.910	66.723	4299.214	0.597	17.910	69.085	74.975
4400.000	0.897	56.419	18.967	67.946	4399.201	0.238	18.967	70.544	74.403
4500.000	0.679	12.042	19.980	68.722	4499.193	0.629	19.980	71.568	73.789
4600.000	0.666	6.300	21.137	68.909	4599.186	0.069	21.137	72.078	72.947
4700.000	0.722	337.434	22.296	68.732	4699.179	0.350	22.296	72.257	72.027
4800.000	0.882	315.720	23.429	67.952	4799.169	0.341	23.429	71.878	70.977
4900.000	1.713	299.436	24.715	66.113	4899.143	0.900	24.715	70.582	69.503
5000.000	2.549	288.584	26.158	62.704	4999.073	0.925	26.158	67.941	67.356
5100.000	2.720	296.586	27.928	58.474	5098.968	0.405	27.928	64.802	64.470
5200.000	2.821	299.169	30.189	54.204	5198.851	0.160	30.189	62.044	60.884
5300.000	2.752	292.441	32.305	49.837	5298.733	0.334	32.305	59.391	57.048
5400.000	2.377	301.443	34.303	45.849	5398.633	0.549	34.303	57.261	53.198
5500.000	2.058	307.118	36.468	42.649	5498.558	0.387	36.468	56.114	49.467
5600.000	1.912	332.746	39.034	40.453	5598.500	0.892	39.034	56.215	46.023
5700.000	2.117	352.972	42.350	39.463	5698.440	0.736	42.350	57.887	42.979
5800.000	1.712	0.224	45.677	39.243	5798.384	0.471	45.677	60.220	40.667
5900.000	1.404	349.323	48.375	39.022	5898.347	0.426	48.375	62.152	38.891
6000.000	1.137	3.045	50.570	38.848	5998.323	0.403	50.570	63.769	37.531
6100.000	1.121	3.154	52.538	38.954	6098.303	0.016	52.538	65.404	36.555
6200.000	1.195	8.719	54.545	39.166	6198.283	0.134	54.545	67.150	35.680
6300.000	1.239	10.684	56.638	39.524	6298.260	0.061	56.638	69.065	34.909
6400.000	1.049	25.800	58.524	40.123	6398.240	0.355	58.524	70.957	34.434
6500.000	1.247	11.806	60.413	40.744	6498.221	0.342	60.413	72.869	33.997
6600.000	1.020	20.803	62.311	41.283	6598.201	0.287	62.311	74.746	33.526
6700.000	1.146	16.369	64.102	41.881	6698.183	0.151	64.102	76.571	33.158
6800.000	1.290	28.641	66.050	42.702	6798.161	0.297	66.050	78.652	32.883
6900.000	1.130	6.648	68.017	43.356	6898.139	0.487	68.017	80.660	32.515
7000.000	1.044	19.248	69.857	43.771	6998.121	0.254	69.857	82.437	32.070

je North