



Company: Noble Energy

Rig: Production / Coretech

API # 05-123-21982

Date: 5/21/2014

Surveyor: Norman Cowan

VS: 0.000

Lat : 40.354

Long: -104.456

Well: Hergenreder BB 32-10 DI

Location: Weld County, Colorado

North Reference: GRID

Convergence: Grid north is 0.67 Deg East of Tru

Declination: 8.3 Degrees

Depth Reference: Ground Level

Elevation: 4567 Feet

Total Depth as Drilled: 7466 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	0.722	22.793	0.581	0.244	99.997	0.722	0.581	0.630	22.793
200.000	0.623	1.340	1.705	0.501	199.991	0.268	1.705	1.777	16.369
300.000	0.574	355.443	2.748	0.474	299.985	0.079	2.748	2.788	9.781
400.000	0.554	28.634	3.671	0.666	399.981	0.323	3.671	3.731	10.275
500.000	0.774	20.477	4.729	1.134	499.974	0.239	4.729	4.863	13.482
600.000	0.610	19.464	5.864	1.547	599.966	0.165	5.864	6.064	14.783
700.000	0.542	43.888	6.706	2.052	699.962	0.252	6.706	7.013	17.017
800.000	0.436	34.125	7.361	2.593	799.958	0.134	7.361	7.805	19.408
900.000	0.427	28.088	8.005	2.982	899.955	0.046	8.005	8.543	20.433
1000.000	0.457	39.907	8.640	3.414	999.952	0.096	8.640	9.290	21.559
1100.000	0.206	339.114	9.114	3.605	1099.951	0.399	9.114	9.801	21.583
1200.000	0.276	6.791	9.522	3.570	1199.950	0.134	9.522	10.169	20.550
1300.000	0.316	359.900	10.037	3.598	1299.948	0.053	10.037	10.662	19.720
1400.000	0.325	340.839	10.580	3.504	1399.947	0.106	10.580	11.145	18.325
1500.000	0.128	330.286	10.945	3.356	1499.946	0.200	10.945	11.448	17.046
1600.000	0.652	331.529	11.542	3.029	1599.943	0.525	11.542	11.933	14.705
1700.000	0.987	358.355	12.904	2.733	1699.933	0.501	12.904	13.190	11.958
1800.000	0.781	348.911	14.434	2.577	1799.922	0.252	14.434	14.662	10.123
1900.000	0.939	34.053	15.781	2.905	1899.911	0.676	15.781	16.047	10.430
2000.000	1.182	72.338	16.773	4.347	1999.895	0.732	16.773	17.327	14.528
2100.000	1.263	87.296	17.138	6.430	2099.873	0.328	17.138	18.305	20.566
2200.000	1.162	94.927	17.103	8.541	2199.850	0.190	17.103	19.117	26.536
2300.000	1.125	95.306	16.925	10.528	2299.831	0.038	16.925	19.933	31.883
2400.000	1.127	95.798	16.735	12.484	2399.811	0.010	16.735	20.879	36.723
2500.000	0.870	95.229	16.567	14.219	2499.796	0.258	16.567	21.832	40.639
2600.000	0.822	93.297	16.456	15.690	2599.785	0.055	16.456	22.738	43.636
2700.000	0.796	86.337	16.459	17.100	2699.775	0.102	16.459	23.734	46.093
2800.000	0.477	53.677	16.750	18.128	2799.769	0.471	16.750	24.682	47.262
2900.000	0.466	32.025	17.341	18.679	2899.766	0.177	17.341	25.487	47.127
3000.000	0.460	150.805	17.335	19.090	2999.764	0.796	17.335	25.786	47.758
3100.000	1.001	161.357	16.157	19.565	3099.756	0.555	16.157	25.374	50.450
3200.000	1.306	169.441	14.209	20.053	3199.735	0.345	14.209	24.577	54.680
3300.000	1.206	167.577	12.061	20.488	3299.711	0.108	12.061	23.775	59.515
3400.000	1.463	165.458	9.798	21.035	3399.684	0.262	9.798	23.205	65.025
3500.000	1.511	172.461	7.255	21.529	3499.651	0.188	7.255	22.718	71.377

3600.000	1.458	167.151	4.707	21.985	3599.617	0.147	4.707	22.483	77.915
3700.000	1.287	182.048	2.344	22.227	3699.589	0.394	2.344	22.351	83.980
3800.000	1.333	187.848	0.070	22.028	3799.563	0.140	0.070	22.029	89.819
3900.000	1.119	182.787	-2.058	21.822	3899.540	0.240	-2.058	21.919	95.388
4000.000	1.063	197.657	-3.918	21.493	3999.522	0.288	-3.918	21.847	100.330
4100.000	0.954	191.259	-5.618	21.049	4099.506	0.157	-5.618	21.786	104.943
4200.000	0.726	203.961	-7.013	20.629	4199.495	0.293	-7.013	21.789	108.776
4300.000	0.513	202.694	-8.005	20.199	4299.490	0.214	-8.005	21.728	111.619
4400.000	0.171	241.688	-8.489	19.895	4399.488	0.395	-8.489	21.631	113.107
4500.000	0.084	77.053	-8.543	19.835	4499.488	0.253	-8.543	21.597	113.303
4600.000	0.327	114.851	-8.647	20.165	4599.487	0.266	-8.647	21.941	113.210
4700.000	0.527	109.422	-8.920	20.858	4699.484	0.204	-8.920	22.686	113.154
4800.000	0.605	109.039	-9.245	21.791	4799.479	0.078	-9.245	23.671	112.990
4900.000	0.601	112.889	-9.622	22.774	4899.474	0.041	-9.622	24.723	112.903
5000.000	0.695	104.691	-9.980	23.844	4999.467	0.132	-9.980	25.848	112.711
5100.000	0.808	104.214	-10.307	25.115	5099.459	0.113	-10.307	27.147	112.313
5200.000	0.561	92.002	-10.497	26.288	5199.452	0.285	-10.497	28.306	111.767
5300.000	0.811	74.881	-10.329	27.460	5299.444	0.320	-10.329	29.339	110.614
5400.000	0.953	76.585	-9.952	28.952	5399.433	0.144	-9.952	30.615	108.970
5500.000	1.370	92.521	-9.812	30.955	5499.412	0.524	-9.812	32.472	107.587
5600.000	1.469	117.359	-10.454	33.287	5599.382	0.618	-10.454	34.890	107.434
5700.000	2.343	129.879	-12.353	35.994	5699.326	0.963	-12.353	38.055	108.942
5800.000	1.738	131.177	-14.662	38.704	5799.263	0.607	-14.662	41.389	110.748
5900.000	0.845	147.794	-16.285	40.239	5899.236	0.959	-16.285	43.409	112.033
6000.000	0.794	162.936	-17.571	40.835	5999.226	0.222	-17.571	44.455	113.282
6100.000	0.569	158.614	-18.695	41.220	6099.219	0.231	-18.695	45.261	114.397
6200.000	0.826	160.529	-19.837	41.641	6199.212	0.258	-19.837	46.124	115.472
6300.000	0.869	160.883	-21.233	42.129	6299.201	0.043	-21.233	47.177	116.747
6400.000	0.741	147.421	-22.494	42.726	6399.191	0.227	-22.494	48.285	117.765

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