



Company: Noble Energy
Rig: Production / CoreTech
API # 05-123-33300
Date: 4/28/2014
Surveyor: CJ Hines
VS: 0.000
Lat : 40.234
Long: -104.658

Well: REI 38-9
Location: Weld County, Colorado
North Reference: GRID
Convergence: Grid north is 0.54 East of True Noi
Declination: 8.4
Depth Reference: Ground Level
Elevation: 4816
Total Depth as Drilled: 7830

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	0.000
100.000	0.380	276.502	0.038	-0.329	99.999	0.380	0.038	0.331	276.502
200.000	0.592	292.726	0.274	-1.135	199.996	0.250	0.274	1.167	283.598
300.000	2.269	230.855	-0.776	-3.146	299.965	2.058	-0.776	3.241	256.144
400.000	2.996	229.997	-3.706	-6.684	399.858	0.728	-3.706	7.642	240.993
500.000	3.035	226.432	-7.211	-10.604	499.720	0.192	-7.211	12.823	235.785
600.000	3.280	225.499	-11.041	-14.563	599.568	0.250	-11.041	18.275	232.833
700.000	3.295	226.665	-15.018	-18.693	699.404	0.068	-15.018	23.978	231.222
800.000	3.027	233.029	-18.577	-22.893	799.252	0.441	-18.577	29.482	230.941
900.000	3.849	242.929	-21.693	-27.991	899.072	1.011	-21.693	35.413	232.224
1000.000	6.027	245.239	-25.420	-35.748	998.695	2.187	-25.420	43.864	234.584
1100.000	7.460	243.842	-30.481	-46.342	1098.000	1.442	-30.481	55.467	236.666
1200.000	9.758	244.211	-37.030	-59.801	1196.867	2.299	-37.030	70.337	238.233
1300.000	11.237	240.315	-45.543	-75.897	1295.192	1.640	-45.543	88.513	239.034
1400.000	11.982	239.301	-55.668	-93.288	1393.145	0.772	-55.668	108.635	239.174
1500.000	13.478	239.594	-66.866	-112.265	1490.685	1.497	-66.866	130.669	239.222
1600.000	14.730	240.847	-78.958	-133.419	1587.668	1.289	-78.958	155.033	239.383
1700.000	15.326	241.741	-91.408	-156.163	1684.248	0.639	-91.408	180.948	239.658
1800.000	15.986	240.170	-104.515	-179.749	1780.538	0.785	-104.515	207.926	239.824
1900.000	16.619	239.811	-118.556	-204.057	1876.516	0.641	-118.556	235.997	239.844
2000.000	16.595	235.951	-133.743	-228.250	1972.348	1.104	-133.743	264.548	239.632
2100.000	16.412	233.863	-150.070	-251.492	2068.229	0.620	-150.070	292.863	239.175
2200.000	16.430	225.636	-168.291	-273.014	2164.163	2.324	-168.291	320.716	238.350
2300.000	17.072	233.894	-186.832	-294.987	2259.933	2.463	-186.832	349.176	237.652
2400.000	17.043	232.964	-204.308	-318.544	2355.535	0.274	-204.308	378.434	237.325
2500.000	16.766	232.175	-221.980	-341.634	2451.214	0.359	-221.980	407.418	236.986
2600.000	16.431	233.481	-239.242	-364.394	2547.047	0.501	-239.242	435.912	236.713
2700.000	16.828	235.472	-255.863	-387.686	2642.865	0.694	-255.863	464.506	236.576
2800.000	16.730	235.270	-272.268	-411.440	2738.608	0.114	-272.268	493.368	236.506
2900.000	16.597	235.931	-288.468	-435.100	2834.408	0.232	-288.468	522.040	236.456
3000.000	16.556	235.825	-304.472	-458.718	2930.252	0.051	-304.472	550.569	236.426
3100.000	15.375	233.424	-320.376	-481.153	3026.394	1.353	-320.376	578.056	236.342
3200.000	13.978	234.308	-335.322	-501.609	3123.129	1.415	-335.322	603.368	236.238
3300.000	12.464	225.679	-349.910	-519.141	3220.485	2.483	-349.910	626.055	236.019
3400.000	10.555	236.310	-362.533	-534.485	3318.481	2.846	-362.533	645.837	235.852
3500.000	9.875	235.500	-372.471	-549.173	3416.895	0.695	-372.471	663.570	235.853

3600.000	8.874	234.607	-381.795	-562.528	3515.559	1.011	-381.795	679.857	235.835
3700.000	7.756	234.768	-390.156	-574.328	3614.506	1.119	-390.156	694.316	235.811
3800.000	4.265	229.375	-396.471	-582.664	3713.942	3.533	-396.471	704.760	235.767
3900.000	3.433	225.636	-400.986	-587.627	3813.715	0.868	-400.986	711.404	235.691
4000.000	2.489	227.115	-404.557	-591.359	3913.581	0.948	-404.557	716.499	235.623
4100.000	1.691	227.406	-407.033	-594.035	4013.513	0.798	-407.033	720.107	235.581
4200.000	1.217	215.938	-408.891	-595.745	4113.481	0.554	-408.891	722.567	235.536
4300.000	1.070	209.907	-410.560	-596.833	4213.461	0.189	-410.560	724.410	235.476
4400.000	1.036	234.118	-411.899	-598.031	4313.445	0.443	-411.899	726.156	235.443
4500.000	0.664	234.265	-412.767	-599.234	4413.434	0.372	-412.767	727.639	235.440
4600.000	0.852	206.702	-413.770	-600.039	4513.425	0.404	-413.770	728.870	235.411
4700.000	1.119	232.274	-415.031	-601.145	4613.411	0.508	-415.031	730.497	235.379
4800.000	0.617	255.340	-415.765	-602.438	4713.399	0.602	-415.765	731.978	235.389
4900.000	1.250	303.032	-415.307	-603.874	4813.387	0.951	-415.307	732.901	235.482
5000.000	1.114	306.307	-414.137	-605.572	4913.365	0.152	-414.137	733.639	235.633
5100.000	0.899	313.864	-413.018	-606.921	5013.350	0.252	-413.018	734.123	235.764
5200.000	0.840	314.292	-411.962	-608.011	5113.338	0.060	-411.962	734.432	235.880
5300.000	0.749	303.819	-411.087	-609.078	5213.329	0.171	-411.087	734.825	235.983
5400.000	0.609	263.656	-410.782	-610.149	5313.322	0.484	-410.782	735.543	236.050
5500.000	1.083	270.294	-410.836	-611.622	5413.311	0.483	-410.836	736.795	236.110
5600.000	0.992	270.222	-410.827	-613.433	5513.295	0.090	-410.827	738.295	236.189
5700.000	0.449	275.549	-410.786	-614.689	5613.287	0.547	-410.786	739.316	236.246
5800.000	0.165	250.942	-410.795	-615.216	5713.285	0.307	-410.795	739.759	236.268
5900.000	0.276	281.345	-410.795	-615.588	5813.284	0.157	-410.795	740.068	236.284
6000.000	0.240	273.051	-410.736	-616.033	5913.283	0.052	-410.736	740.406	236.307
6100.000	0.643	51.418	-410.375	-615.804	6013.281	0.838	-410.375	740.015	236.320
6200.000	0.541	26.561	-409.603	-615.154	6113.276	0.274	-409.603	739.046	236.342
6300.000	0.304	47.402	-409.001	-614.747	6213.274	0.278	-409.001	738.374	236.364
6400.000	0.530	55.694	-408.561	-614.170	6313.271	0.233	-408.561	737.649	236.367
6500.000	0.376	75.251	-408.216	-613.471	6413.268	0.216	-408.216	736.876	236.359
6600.000	0.266	82.343	-408.102	-612.923	6513.266	0.116	-408.102	736.357	236.343
6700.000	0.170	44.130	-407.964	-612.589	6613.265	0.169	-407.964	736.003	236.338
6800.000	0.486	55.644	-407.618	-612.135	6713.264	0.321	-407.618	735.433	236.341
6900.000	0.879	27.480	-406.698	-611.431	6813.257	0.506	-406.698	734.337	236.370
7000.000	1.121	34.468	-405.211	-610.524	6913.241	0.270	-405.211	732.759	236.427
7100.000	1.145	26.214	-403.509	-609.529	7013.222	0.165	-403.509	730.989	236.495
7200.000	0.727	16.746	-402.004	-608.905	7113.208	0.444	-402.004	729.639	236.567
7300.000	0.808	12.732	-400.709	-608.566	7213.199	0.097	-400.709	728.643	236.637
7400.000	0.479	1.624	-399.603	-608.399	7313.193	0.350	-399.603	727.896	236.703
7500.000	0.550	9.590	-398.712	-608.307	7413.189	0.100	-398.712	727.330	236.757

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