



Company: Noble Energy
Rig: Production/ Coretech
API # 05-123-22437
Date: 5/27/2014
Surveyor: Sean Bratt
VS: 0.000
Lat : 40.126
Long: -104.549

Well: McIntosh 42-21
Location: Weld County, Colorado
North Reference: GRID
Convergence: Grid north is 0.62 degrees East of
Declination: 8.33 Degrees
Depth Reference: Ground Level
Elevation: 4948 Feet
T.D as Drilled: 7883 Feet

Lat & Long obtained by handheld GPS at wellhead
MS Gyro Survey Calculations

Depth	Inc	AzG	N/-S	E/-W	TVD	DL	VS	CD	Cbgr
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100.000	0.857	92.775	-0.036	0.747	99.996	0.857	-0.036	0.748	92.775
200.000	0.381	104.214	-0.154	1.817	199.990	0.489	-0.154	1.824	94.849
300.000	0.379	80.244	-0.180	2.466	299.988	0.158	-0.180	2.473	94.171
400.000	0.461	27.780	0.233	2.980	399.986	0.379	0.233	2.989	85.537
500.000	0.425	38.784	0.878	3.400	499.983	0.092	0.878	3.512	75.517
600.000	0.202	84.873	1.183	3.808	599.981	0.320	1.183	3.988	72.737
700.000	0.553	333.473	1.631	3.768	699.980	0.654	1.631	4.106	66.595
800.000	0.484	27.814	2.437	3.750	799.976	0.478	2.437	4.472	56.984
900.000	0.440	318.111	3.096	3.691	899.974	0.529	3.096	4.817	50.010
1000.000	0.340	340.508	3.661	3.336	999.971	0.180	3.661	4.953	42.337
1100.000	0.416	358.237	4.304	3.226	1099.969	0.139	4.304	5.379	36.847
1200.000	0.571	27.092	5.111	3.441	1199.966	0.288	5.111	6.162	33.952
1300.000	0.475	4.125	5.968	3.698	1299.962	0.229	5.968	7.021	31.784
1400.000	0.489	9.052	6.803	3.795	1399.958	0.044	6.803	7.790	29.156
1500.000	0.483	11.764	7.636	3.948	1499.954	0.024	7.636	8.597	27.339
1600.000	0.495	2.541	8.480	4.053	1599.951	0.079	8.480	9.399	25.545
1700.000	0.389	12.200	9.243	4.144	1699.948	0.129	9.243	10.129	24.148
1800.000	0.325	8.319	9.855	4.257	1799.946	0.068	9.855	10.735	23.360
1900.000	0.400	353.496	10.483	4.258	1899.944	0.119	10.483	11.315	22.107
2000.000	0.415	12.101	11.184	4.295	1999.941	0.133	11.184	11.981	21.006
2100.000	0.316	358.276	11.814	4.362	2099.939	0.132	11.814	12.594	20.266
2200.000	0.108	13.397	12.181	4.376	2199.939	0.213	12.181	12.943	19.760
2300.000	0.324	354.771	12.554	4.372	2299.938	0.224	12.554	13.294	19.200
2400.000	0.386	338.470	13.149	4.222	2399.936	0.118	13.149	13.811	17.802
2500.000	0.817	320.490	14.013	3.645	2499.930	0.465	14.013	14.479	14.580
2600.000	0.863	338.746	15.266	2.918	2599.920	0.270	15.266	15.542	10.822
2700.000	0.441	320.696	16.266	2.401	2699.913	0.464	16.266	16.442	8.397
2800.000	0.572	293.180	16.760	1.699	2799.909	0.272	16.760	16.846	5.787
2900.000	0.718	300.767	17.277	0.701	2899.903	0.169	17.277	17.291	2.325
3000.000	0.994	270.483	17.605	-0.705	2999.892	0.521	17.605	17.619	357.708
3100.000	0.919	272.054	17.641	-2.374	3099.878	0.080	17.641	17.800	352.337
3200.000	0.913	267.220	17.631	-3.971	3199.866	0.077	17.631	18.073	347.307
3300.000	0.922	268.470	17.571	-5.571	3299.853	0.022	17.571	18.433	342.408
3400.000	0.942	265.332	17.482	-7.194	3399.839	0.055	17.482	18.905	337.632
3500.000	1.044	276.614	17.521	-8.919	3499.825	0.220	17.521	19.660	333.022

3600.000	1.041	272.078	17.658	-10.732	3599.808	0.083	17.658	20.664	328.711
3700.000	0.890	280.957	17.839	-12.402	3699.794	0.212	17.839	21.726	325.192
3800.000	0.447	5.994	18.375	-13.124	3799.789	0.961	18.375	22.580	324.464
3900.000	0.871	28.408	19.431	-12.722	3899.782	0.488	19.431	23.225	326.787
4000.000	0.939	33.528	20.782	-11.907	3999.769	0.106	20.782	23.952	330.189
4100.000	0.978	30.433	22.202	-11.022	4099.755	0.065	22.202	24.787	333.597
4200.000	1.018	44.303	23.574	-9.969	4199.740	0.244	23.574	25.595	337.077
4300.000	1.296	41.591	25.056	-8.597	4299.720	0.283	25.056	26.490	341.061
4400.000	1.198	22.431	26.869	-7.447	4399.697	0.426	26.869	27.882	344.508
4500.000	1.047	48.751	28.438	-6.362	4499.678	0.532	28.438	29.141	347.391
4600.000	1.179	45.663	29.759	-4.939	4599.659	0.145	29.759	30.166	350.578
4700.000	1.560	29.663	31.662	-3.529	4699.631	0.536	31.662	31.858	353.641
4800.000	1.854	10.986	34.433	-2.546	4799.587	0.625	34.433	34.527	355.771
4900.000	2.105	12.881	37.812	-1.829	4899.527	0.259	37.812	37.856	357.231
5000.000	2.303	14.539	41.547	-0.915	4999.453	0.208	41.547	41.557	358.738
5100.000	2.787	22.072	45.745	0.503	5099.355	0.588	45.745	45.747	0.630
5200.000	2.991	24.053	50.380	2.480	5199.228	0.226	50.380	50.441	2.818
5300.000	2.415	22.665	54.706	4.355	5299.116	0.579	54.706	54.879	4.552
5400.000	1.668	19.725	58.020	5.658	5399.052	0.755	58.020	58.295	5.570
5500.000	1.059	17.289	60.272	6.424	5499.023	0.611	60.272	60.613	6.084
5600.000	0.311	355.597	61.425	6.677	5599.015	0.779	61.425	61.786	6.204
5700.000	0.207	247.463	61.625	6.489	5699.015	0.424	61.625	61.966	6.011
5800.000	0.285	205.726	61.332	6.214	5799.014	0.190	61.332	61.646	5.786
5900.000	0.229	231.016	60.982	5.951	5899.013	0.125	60.982	61.272	5.573
6000.000	0.440	238.933	60.658	5.466	5999.011	0.216	60.658	60.904	5.149
6100.000	0.420	197.368	60.110	5.028	6099.008	0.306	60.110	60.320	4.781
6200.000	0.882	240.498	59.381	4.248	6199.002	0.643	59.381	59.533	4.092
6300.000	1.578	270.200	59.007	2.201	6298.980	0.922	59.007	59.048	2.136
6400.000	1.630	273.710	59.104	-0.596	6398.940	0.111	59.104	59.107	359.423
6500.000	1.096	273.495	59.254	-2.970	6498.912	0.534	59.254	59.328	357.131
6600.000	0.773	246.800	59.046	-4.545	6598.899	0.534	59.046	59.221	355.598
6700.000	0.826	267.284	58.746	-5.885	6698.889	0.289	58.746	59.041	354.279
6800.000	0.425	326.346	59.021	-6.811	6798.884	0.709	59.021	59.413	353.417
6900.000	0.307	97.117	59.297	-6.751	6898.883	0.667	59.297	59.680	353.504
7000.000	0.778	108.173	59.052	-5.841	6998.878	0.480	59.052	59.340	354.351
7100.000	0.561	51.429	59.146	-4.813	7098.872	0.664	59.146	59.341	355.348
7200.000	0.642	78.930	59.559	-3.880	7198.867	0.297	59.559	59.685	356.273
7300.000	0.906	81.654	59.781	-2.547	7298.858	0.266	59.781	59.836	357.560
7400.000	1.082	71.339	60.198	-0.871	7398.843	0.250	60.198	60.205	359.171
7450.000	1.220	76.023	60.478	0.093	7448.833	0.334	60.478	60.478	0.088

True North