



Company: Noble Energy
Rig: Production/Coretech
API # 05-123-26645
Date: 1-3-14
Surveyor: Justin Williams
VS: 0.000
Lat : 40.481
Long: -104.496

Well: Johnson A 13-15
Location: Weld County, Colorado
North Reference: GRID
Convergence: GRID North is 0.65 De
Declination: 8.38
Depth Reference: RKB = Ground Level
Elevation: 4651
Total Depth as Drilled: 6940

Lat & Long obtained by handheld GPS at wellhead

MS GYRO SURVEY CALCULATIONS

Depth	Inc	AzG	N/-S	E/-W	TVD	DL	VS	CD
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100.000	0.326	117.725	-0.132	0.252	99.999	0.326	-0.132	0.285
200.000	0.392	143.461	-0.539	0.707	199.998	0.172	-0.539	0.890
300.000	0.248	228.583	-0.957	0.749	299.996	0.445	-0.957	1.215
400.000	0.148	220.457	-1.199	0.503	399.996	0.104	-1.199	1.300
500.000	0.206	197.662	-1.469	0.364	499.995	0.091	-1.469	1.513
600.000	0.193	191.673	-1.805	0.276	599.995	0.025	-1.805	1.826
700.000	0.148	215.275	-2.075	0.167	699.994	0.082	-2.075	2.081
800.000	0.282	267.662	-2.190	-0.153	799.994	0.225	-2.190	2.195
900.000	0.420	253.128	-2.306	-0.750	899.992	0.163	-2.306	2.425
1000.000	0.236	249.437	-2.485	-1.294	999.990	0.185	-2.485	2.801
1100.000	0.404	278.859	-2.503	-1.835	1099.989	0.230	-2.503	3.103
1200.000	0.259	282.044	-2.401	-2.405	1199.987	0.146	-2.401	3.398
1300.000	0.623	286.389	-2.201	-3.147	1299.984	0.365	-2.201	3.840
1400.000	0.504	276.239	-2.000	-4.105	1399.979	0.155	-2.000	4.566
1500.000	0.607	279.941	-1.861	-5.063	1499.974	0.109	-1.861	5.395
1600.000	0.294	322.495	-1.566	-5.741	1599.971	0.438	-1.566	5.951
1700.000	0.312	173.648	-1.632	-5.868	1699.971	0.584	-1.632	6.090
1800.000	0.276	190.247	-2.140	-5.880	1799.969	0.092	-2.140	6.258
1900.000	0.468	148.084	-2.724	-5.707	1899.967	0.322	-2.724	6.324
2000.000	0.729	158.866	-3.664	-5.262	1999.962	0.283	-3.664	6.412
2100.000	1.152	171.898	-5.252	-4.891	2099.948	0.471	-5.252	7.177
2200.000	1.076	162.838	-7.144	-4.472	2199.929	0.191	-7.144	8.429
2300.000	1.014	142.605	-8.745	-3.658	2299.913	0.372	-8.745	9.479
2400.000	0.942	154.457	-10.190	-2.766	2399.899	0.214	-10.190	10.558
2500.000	0.698	132.465	-11.342	-1.962	2499.889	0.394	-11.342	11.511
2600.000	0.506	137.888	-12.081	-1.217	2599.883	0.200	-12.081	12.142
2700.000	0.548	104.742	-12.530	-0.458	2699.879	0.303	-12.530	12.539
2800.000	0.376	112.328	-12.776	0.308	2799.876	0.182	-12.776	12.780
2900.000	0.531	105.706	-13.026	1.057	2899.873	0.164	-13.026	13.069
3000.000	0.344	108.151	-13.245	1.788	2999.870	0.188	-13.245	13.365
3100.000	0.271	108.306	-13.413	2.298	3099.868	0.072	-13.413	13.609
3200.000	0.355	128.186	-13.679	2.766	3199.867	0.136	-13.679	13.956
3300.000	1.273	150.925	-14.841	3.549	3299.856	0.955	-14.841	15.260
3400.000	1.482	190.878	-17.082	3.845	3399.829	0.961	-17.082	17.510
3500.000	1.502	228.032	-19.229	2.626	3499.797	0.951	-19.229	19.408

3600.000	1.470	235.395	-20.834	0.596	3599.764	0.194	-20.834	20.843
3700.000	1.786	253.674	-22.000	-1.955	3699.724	0.604	-22.000	22.087
3800.000	1.825	238.977	-23.259	-4.815	3799.675	0.463	-23.259	23.752
3900.000	1.580	249.557	-24.561	-7.471	3899.631	0.398	-24.561	25.672
4000.000	1.514	245.507	-25.590	-9.964	3999.595	0.127	-25.590	27.462
4100.000	1.416	248.416	-26.592	-12.315	4099.562	0.123	-26.592	29.306
4200.000	1.340	241.964	-27.597	-14.497	4199.533	0.172	-27.597	31.172
4300.000	1.104	247.552	-28.514	-16.420	4299.510	0.264	-28.514	32.904
4400.000	1.018	262.717	-28.995	-18.191	4399.493	0.293	-28.995	34.229
4500.000	0.874	277.893	-29.003	-19.828	4499.480	0.287	-29.003	35.133
4600.000	0.933	256.127	-29.093	-21.375	4599.468	0.346	-29.093	36.101
4700.000	1.209	206.588	-30.232	-22.638	4699.452	0.932	-30.232	37.768
4800.000	2.466	191.662	-33.283	-23.545	4799.399	1.334	-33.283	40.769
4900.000	3.299	187.750	-38.241	-24.368	4899.272	0.856	-38.241	45.345
5000.000	3.888	179.975	-44.483	-24.754	4999.075	0.763	-44.483	50.907
5100.000	2.964	181.332	-50.458	-24.813	5098.896	0.927	-50.458	56.229
5200.000	1.996	183.581	-54.781	-24.982	5198.801	0.973	-54.781	60.208
5300.000	1.380	190.386	-57.703	-25.308	5298.757	0.647	-57.703	63.009
5400.000	0.587	165.148	-59.383	-25.393	5398.742	0.885	-59.383	64.584
5500.000	0.140	340.461	-59.762	-25.303	5498.740	0.726	-59.762	64.898
5600.000	0.343	10.098	-59.353	-25.292	5598.740	0.231	-59.353	64.517
5700.000	0.344	36.205	-58.817	-25.062	5698.738	0.155	-58.817	63.933
5800.000	0.524	18.545	-58.141	-24.739	5798.735	0.222	-58.141	63.186
5900.000	0.425	32.744	-57.396	-24.393	5898.732	0.153	-57.396	62.365
6000.000	0.433	52.972	-56.857	-23.891	5998.729	0.151	-56.857	61.673
6100.000	0.536	37.076	-56.256	-23.307	6098.725	0.168	-56.256	60.893
6200.000	0.595	28.426	-55.426	-22.778	6198.720	0.104	-55.426	59.924
6300.000	0.577	71.547	-54.810	-22.053	6298.716	0.431	-54.810	59.080
6400.000	0.427	68.299	-54.513	-21.229	6398.712	0.152	-54.513	58.501
6500.000	0.447	84.100	-54.335	-20.495	6498.709	0.122	-54.335	58.072
6600.000	0.169	32.892	-54.171	-20.027	6598.707	0.365	-54.171	57.754
6700.000	0.296	58.115	-53.910	-19.728	6698.707	0.160	-53.910	57.406

0

degrees East of True North

Cbrg

0.000
117.725
127.331
141.970
157.247
166.070
171.318
175.393
184.009
198.022
207.504
216.246
225.038
235.032
244.027
249.823
254.748
254.455
250.003
244.488
235.154
222.964
212.047
202.698
195.187
189.816
185.752
182.094
178.621
175.361
172.312
170.279
168.568
166.550
167.314
172.223

178.361
185.078
191.696
196.919
201.275
204.850
207.713
209.935
212.104
214.359
216.304
216.825
215.276
212.506
209.096
206.186
204.514
203.681
203.153
202.947
203.080
203.079
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203.026
202.792
202.505
202.341
201.918
201.278
200.666
200.289
200.099