



Company: Noble Energy
Rig: Production/VES
API # 05-123-33289
Date: 12/13/2013
Surveyor: Jason Kinchelow

Well: Johnson PC EE 33-09D
Location: Weld County, Colorado
North Reference: GRID
Convergence: Grid north is 0.54 degrees East of

VS: 0.000

Declination: 8.49
Depth Reference: RKB = Ground Level

Lat : 40.524

Elevation: 4781'

Long: -104.665

Total Depth as Drilled: 7798'

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	0.872	288.082	0.236	-0.723	99.996	0.872	0.236	0.761	288.082
200.000	0.956	291.917	0.784	-2.221	199.983	0.104	0.784	2.355	289.439
300.000	0.990	286.494	1.340	-3.823	299.969	0.098	1.340	4.051	289.321
400.000	1.517	343.926	2.858	-5.018	399.948	1.290	2.858	5.775	299.660
500.000	4.144	11.262	7.674	-4.679	499.821	2.882	7.674	8.988	328.627
600.000	5.495	20.267	15.709	-2.315	599.467	1.544	15.709	15.879	351.617
700.000	6.576	29.591	25.180	2.171	698.913	1.456	25.180	25.273	4.928
800.000	6.995	29.955	35.435	8.039	798.213	0.421	35.435	36.335	12.783
900.000	7.880	30.420	46.622	14.551	897.370	0.888	46.622	48.840	17.333
1000.000	9.418	33.414	59.364	22.528	996.231	1.602	59.364	63.495	20.781
1100.000	11.536	33.749	74.509	32.590	1094.558	2.119	74.509	81.325	23.624
1200.000	13.870	29.296	93.280	44.012	1192.106	2.529	93.280	103.141	25.259
1300.000	15.878	31.173	115.439	56.959	1288.751	2.064	115.439	128.727	26.262
1400.000	18.016	29.372	140.623	71.626	1384.403	2.202	140.623	157.813	26.992
1500.000	19.617	28.435	168.862	87.205	1479.056	1.629	168.862	190.050	27.313
1600.000	21.551	28.962	199.695	104.093	1572.668	1.943	199.695	225.197	27.531
1700.000	23.368	29.216	233.076	122.668	1665.079	1.820	233.076	263.385	27.758
1800.000	24.887	30.290	268.557	142.962	1756.341	1.582	268.557	304.238	28.028
1900.000	25.106	31.294	304.854	164.595	1846.974	0.478	304.854	346.450	28.365
2000.000	26.184	31.811	341.732	187.245	1937.122	1.100	341.732	389.669	28.720
2100.000	26.038	31.362	379.223	210.297	2026.917	0.246	379.223	433.630	29.010
2200.000	26.295	30.867	416.977	233.085	2116.668	0.337	416.977	477.701	29.205
2300.000	26.715	29.534	455.548	255.529	2206.158	0.728	455.548	522.321	29.289
2400.000	28.789	31.417	495.659	279.164	2294.652	2.251	495.659	568.868	29.389
2500.000	29.613	29.293	537.757	303.804	2381.945	1.324	537.757	617.641	29.464
2600.000	28.992	28.625	580.578	327.503	2469.150	0.701	580.578	666.580	29.427
2700.000	29.050	29.085	623.068	350.915	2556.594	0.231	623.068	715.091	29.388
2800.000	29.828	29.115	666.013	374.819	2643.681	0.778	666.013	764.240	29.370
2900.000	29.808	30.519	709.153	399.542	2730.443	0.699	709.153	813.961	29.397
3000.000	29.801	31.840	751.675	425.273	2817.216	0.657	751.675	863.639	29.500
3100.000	29.837	31.302	794.040	451.307	2903.977	0.270	794.040	913.333	29.613
3200.000	29.714	32.437	836.213	477.525	2990.776	0.577	836.213	962.955	29.729
3300.000	28.508	31.106	877.565	503.148	3078.143	1.369	877.565	1011.572	29.828
3400.000	28.242	32.167	918.026	528.073	3166.129	0.570	918.026	1059.072	29.909
3500.000	28.226	33.259	957.828	553.639	3254.232	0.517	957.828	1106.323	30.029

3600.000	25.872	33.876	995.722	578.773	3343.288	2.371	995.722	1151.712	30.168
3700.000	23.337	30.011	1030.995	600.846	3434.207	3.001	1030.995	1193.301	30.233
3800.000	23.818	31.593	1065.346	621.331	3525.859	0.794	1065.346	1233.294	30.252
3900.000	23.468	31.920	1099.446	642.437	3617.466	0.374	1099.446	1273.384	30.299
4000.000	23.499	32.340	1133.191	663.630	3709.183	0.170	1133.191	1313.212	30.354
4100.000	24.828	31.899	1167.861	685.390	3800.419	1.341	1167.861	1354.127	30.408
4200.000	26.324	31.254	1204.642	707.988	3890.618	1.521	1204.642	1397.287	30.443
4300.000	28.329	30.068	1244.135	731.382	3979.455	2.078	1244.135	1443.188	30.450
4400.000	28.688	29.623	1285.534	755.134	4067.330	0.417	1285.534	1490.914	30.430
4500.000	27.659	29.173	1326.666	778.313	4155.480	1.051	1326.666	1538.120	30.399
4600.000	26.761	29.919	1366.446	800.857	4244.414	0.961	1366.446	1583.839	30.374
4700.000	26.847	30.714	1405.372	823.619	4333.669	0.369	1405.372	1628.932	30.372
4800.000	27.132	34.120	1443.665	847.944	4422.783	1.572	1443.665	1674.270	30.428
4900.000	28.066	36.980	1481.337	874.887	4511.408	1.620	1481.337	1720.403	30.566
5000.000	28.993	36.008	1519.735	903.286	4599.264	1.037	1519.735	1767.915	30.726
5100.000	27.858	36.579	1558.104	931.459	4687.206	1.167	1558.104	1815.297	30.872
5200.000	24.895	35.692	1593.969	957.668	4776.786	2.989	1593.969	1859.534	30.998
5300.000	23.246	33.345	1627.552	980.798	4868.089	1.906	1627.552	1900.234	31.074
5400.000	22.044	32.773	1659.817	1001.804	4960.378	1.222	1659.817	1938.712	31.114
5500.000	20.301	36.052	1689.625	1022.174	5053.628	2.107	1689.625	1974.759	31.173
5600.000	18.383	38.992	1715.909	1042.308	5147.982	2.150	1715.909	2007.672	31.276
5700.000	15.062	38.011	1738.408	1060.236	5243.739	3.332	1738.408	2036.213	31.379
5800.000	11.769	36.265	1756.874	1074.274	5340.997	3.318	1756.874	2059.289	31.444
5900.000	9.215	31.806	1771.904	1084.528	5439.319	2.678	1771.904	2077.461	31.470
6000.000	7.832	26.788	1784.791	1091.820	5538.214	1.569	1784.791	2092.259	31.456
6100.000	7.804	33.917	1796.508	1098.679	5637.286	0.970	1796.508	2105.834	31.448
6200.000	6.732	37.028	1806.822	1105.997	5736.482	1.142	1806.822	2118.451	31.472
6300.000	4.722	32.417	1814.976	1111.734	5835.978	2.061	1814.976	2128.401	31.489
6400.000	3.092	24.891	1820.898	1115.076	5935.743	1.705	1820.898	2135.196	31.482
6500.000	2.305	356.422	1825.351	1116.085	6035.636	1.531	1825.351	2139.522	31.443
6600.000	1.586	335.223	1828.615	1115.380	6135.579	1.005	1828.615	2141.939	31.381
6700.000	1.633	320.385	1830.969	1113.891	6235.540	0.418	1830.969	2143.176	31.315
6800.000	1.153	316.135	1832.792	1112.286	6335.510	0.491	1832.792	2143.900	31.253
6900.000	0.988	314.767	1834.124	1110.976	6435.492	0.166	1834.124	2144.360	31.204
7000.000	0.831	295.185	1835.041	1109.708	6535.480	0.346	1835.041	2144.487	31.163
7100.000	0.801	316.743	1835.858	1108.572	6635.470	0.307	1835.858	2144.600	31.125
7200.000	1.175	320.098	1837.154	1107.435	6735.455	0.379	1837.154	2145.122	31.082
7300.000	0.584	323.446	1838.350	1106.474	6835.443	0.593	1838.350	2145.650	31.043
7400.000	0.689	14.711	1839.341	1106.323	6935.437	0.559	1839.341	2146.422	31.026
7450.000	0.752	353.939	1839.958	1106.364	6985.433	0.534	1839.958	2146.972	31.018

True North