Chemical characteristics of the water wells before gas drilling are documented so comparisons can be made if issues arise after a new gas well is drilled. The parameters measured are characteristics of normal waters and can vary substantially. Table 1 was developed using data from 64 samples collected in Geauga and Cuyahoga Counties (Ohio).

Table 1:

Parameter with units	Minimum	Average	Maximum
Alkalinity as $CaCO_3$, mg/L	35	240	391
pH, SU	6.4	7.6	8.1
Conductivity, µS/cm	16	599	1660
Total Dissolved Solids, mg/L	126	358	1076
Chloride, mg/L	2	42	453
Sulfate, mg/L	1	41	589
Calcium as Ca, mg/L Calcium as $CaCO_3$, mg/L	0.06 0.15	48 120	244 610
Magnesium as Mg, mg/L Magnesium as $CaCO_3$, mg/L	1 4	15 63	44 181
Total Hardness as $CaCO_3$, mg/L	4	183	791
Sodium, mg/L	3	71	210
Potassium, mg/L	1	7	214
Barium, Soluble, µg/L	100	277	1620
Iron, Soluble, µg/L	16	217	1710

Table 2 summarizes three water samples: Hard water (high calcium and magnesium) with high chloride; Moderately hard water with low chloride and sulfate; Soft water with very high sulfate. All three samples have low soluble iron concentrations.

Table 2:

Parameter with units	Hard	Mod. Hard	Soft
Alkalinity, mg/L	182	195	320
pH, SU	7.2	7.9	7.9
Conductivity, µS	1660	367	589
Total Dissolved Solids, mg/L	1076	208	320
Chloride, mg/L	402	2	7
Sulfate, mg/L	108	9	589
Calcium as Ca, mg/L Calcium as $CaCO_3$, mg/L	244 610	54 135	5 12
Magnesium as Mg, mg/L Magnesium as $CaCO_3$, mg/L	44 181	15 62	1 4
Total Hardness as $CaCO_3$, mg/L	791	197	16
Sodium, mg/L	73	15	123
Potassium, mg/L	3	2	3
Barium, Soluble, µg/L	170	340	<100
Iron, Soluble, µg/L	30	30	40

Compare your water analysis with these and see where your well is in the continuum.