



UP THE CREEK

September 1, 2011

A pretty common topic raised by just about all customers of a water system at some time or other is pressure – the lack of it, or too much of it. On this system, we've got both, and about everything in between (except “just right,” of course).

The impression of too little pressure can be due to a genuine pressure problem, or to a to a more subjective interpretation of what's happening. Sometimes, when we go to investigate a low-pressure complaint, a pressure gauge will indicate that the pressure is actually just fine. What do we do then? Well, in many cases, it's throw away the pressure gauge and break a new one out of the box – the quality of those things has undergone a decline in recent years. But if the new gauge tells the same story, then it's a fair bet that the problem is actually lack of *volume* rather than pressure. The resultant aggravation to the customer is the same. It cuts no ice with most people to be lectured on definitions and nuances when the basic problem is that it takes ten minutes to draw a glass of water.

The nuance we're talking about is *static* versus *dynamic* pressure. Static pressure is measured in a pipe when there is no water flow, it's pushing against a dead end. Dynamic pressure is what's measured in the pipe when the water is flowing from the end of it. If dynamic pressure is zero, then the flow from the pipe is feeble or none. It's caused by a restriction, a clog somewhere. A likely place to clog up is the screen that is included in the body of most pressure regulators. You do have a pressure regulator in your home plumbing, even if you aren't aware of it. It's good to learn where it is located, because sooner or later it will need service.*

And why should you even have a pressure regulator? Doesn't the water company have regulators on the main line? Yes, but their purpose is not really to supply all customers with the same, perfect, never-varying pressure. They have the more basic job of preventing our system from blowing up. Our system, you may have noticed, does not occupy a flat level space. If it did, your zip code would probably start out with 67 like they do in Kansas.

Our pipelines occupy elevations from 7,600 feet to 5,560 feet. If there were no main-line pressure regulators, the static pressure at the 5,560-foot end of the pipe would be 883 pounds per square inch (psi). Most pipelines and fittings are rated for a working pressure of 200 psi. Our pressure regulators are typically arranged so that pressure is allowed to build up to about 150 psi and is then reduced to 50-60 psi. There are exceptions, and some sections of our pipeline run constantly at much higher pressure, because the water must be pushed up onto the next mesa, and it's cheaper to do that with high pressure than with pumps.

So, what's too little, and what's too much? Ideally, most people expect their in-home pressure to be around 55 psi. All fixtures and appliances should work fine at that pressure, even if the home was plumbed with TWP (teenie-weenie pipes). With better than TWP plumbing, pressures down to 40 psi are perfectly acceptable, because the dynamic pressure is higher in a larger pipe than in a TWP.** Too much pressure, on the other hand is indicated by faucets that won't stop dripping even though they are in good shape, and, ultimately, a leaking pressure relief valve on your hot water heater. They typically open up to relieve pressures over 120 psi. Another sign of high pressure is broken glass in your sink because you can't hold the drinking cup under the blast from your faucet. Some people prefer it that way, believing it's good for cleaning the engine block of the tractor. That's another “subjective interpretation.”

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*Yes, admittedly, there are some homes without a pressure regulator – they don't need it because our main line is not running at higher than normal household pressure.

**Notice our forbearance in not launching into a rant about the evils of low-flow fixtures.