

**C**ontaminants in water supplies come from natural sources, man-made chemicals and pollution. We know from the hydrological cycle that hardness minerals such as magnesium and calcium are dissolved into water supplies because of the breakdown of these minerals and because water is an excellent solvent.

By Jeff Roseman

Iron, manganese, tannins, arsenic and many other natural minerals can be found in water supplies depending on geological and geographical locations. Man-made chemicals impose another problem as industry, agriculture and pollution destroy this life-sustaining resource on a daily basis. It is important to protect our water supplies as populations continue to grow.

**Water Testing**

Many water treatment dealers only check for hardness, total dissolved solids and iron when conducting free

water tests for customers, but labs confirm the fact that dealers should be testing for more chemicals and advising potential customers of other health concerns. Statements should not be made, however, to scare or intimidate buyers to purchase water treatment systems. Consumers are becoming more educated and are asking for such tests to be conducted because they want to know what is in their water.

Runoff from agriculture, such as nitrates and herbicides, can also cause health problems, and industrial

pollution is causing collateral damage as a side effect of producing products and pharmaceuticals. Many of these tests were not available five to 25 years ago, but we have the technology today to test for small amounts of chemicals at a reasonable cost.

The U.S. Environmental Protection Agency has standards set for maximum contaminant levels (MCLs) and maximum contaminant level goals (MCLGs) of a small percentage of the large number of contaminants that are possibly in our water supplies. Some of these contaminants are health related while many are just aesthetic or nuisance.

There is a big difference from a water source that causes a health problem to when it causes staining or pipe scale. Water dealers need to check for more of their customers' problems and help them make educated purchases rather than simply sell products. It is our duty to provide solutions and keep water supplies safe for consumers.

Water is the No. 1 solvent in the world, and as rain falls from the sky, it picks up carbon dioxide and becomes a weak carbonic acid. Every area of the country is different geologically and air quality is also a variable, which causes diverse water concerns. Rock formations leach iron, calcium and magnesium into the water; runoff from various sources can release a multitude of contaminants such as rocket and diesel fuel.

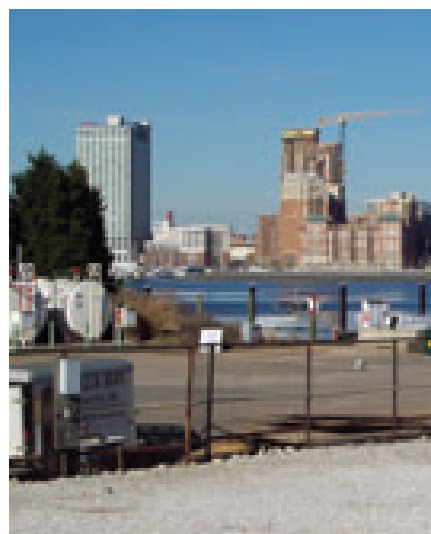
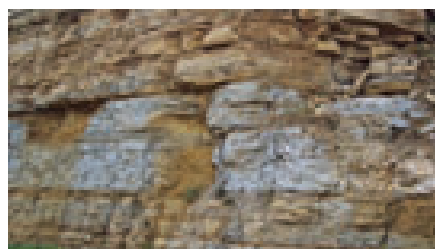
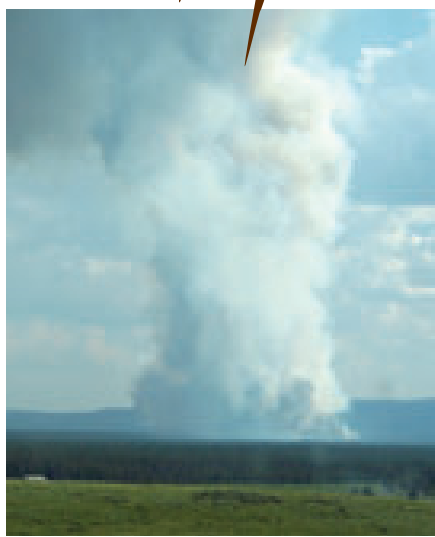
The ambiguity of water treatment products exacerbates the solution to every problem, and cost effectiveness can create a host of avenues for the dealer. Again, a proper lab test cannot be stressed enough to help determine what contaminants are present in the water. One can see that water travels through or over many surfaces and can be used for processes that contribute contaminants.

**The Application**

As a water treatment specialist, take the time to understand the application and quality of the water needed for a particular application. It is evident that an electronics manufacturer would require superior water quality compared to a housing complex that needs utility water for showering, laundry and flushing toilets. Take the time to learn what the customer needs and consult with your equipment supplier.

Be sure to access experience so the job gets done correctly. Residential systems may seem straightforward,

consumers' contaminant concerns



With consumers becoming more aware of the importance of water quality, dealers should offer more water testing

but commercial and industrial systems can become rather complicated. There are many resources that can provide information, such as industry associations, which can be instrumental in helping water treatment specialists locate this information.

### It's All Science

Water treatment is all about providing a solution to a problem and not just providing water treatment equipment. The treatment method must work properly and be monitored to prove results. This is where proper lab tests before and after treatment are performed to show removal of the problem contaminants.

In some cases, probes or monitors can be used to give the user real-time access to information. Some applications require this type of system design and alarms can shut down the flow of water should the quality be breached.

Water treatment is all about chemistry, physics and math. The contaminants are in the water because of these properties and dealers need to get the math, physics and chemistry matched with each application for proper treatment. Too many times the theory is correct but the math and chemistry are not done correctly in order to achieve the proper solution. Flow rates, pressure drops, temperature and other variables often are not considered at the time of installation and the expected water quality therefore is not achieved.

On the residential level, a mistake like this is not as costly; however, this can be disastrous in industrial and commercial applications. Be sure to consult manufacturers, engineers and installation specialists to make sure none of the variables were missed.

Water should be tested thoroughly for every application in order to ensure the proper treatment method is applied. Design a system to deliver the water quality needed for each application. Cookie-cutter designs are not advised because water contaminants vary, even within similar geographical locations.

Commercial and industrial applications may need dual or backup systems because down time from breached water quality can be costly. Treatment technologies need to be applied properly and in many cases, used in conjunction with one another to provide a synergistic treatment solution. *wqp*

**Jeff Roseman, CWS-VI, is owner of Aqua Ion Plus+ Technologies. Roseman is a member of the Editorial Advisory Board for *Water Quality Products*. He can be reached by e-mail at [jeffrey@aquaiionplus.com](mailto:jeffrey@aquaiionplus.com).**

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