WATER QUALITY & HEALTH COUNCIL
PERSPECTIVES

For Best Spa and Pool Maintenance: Know Your Source Water

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In a nutshell…

This article looks "up the pipe" at the water used to fill spas and pools, known as "source water." Source water may be previously treated municipal water or private well water. Five categories of chemical constituents that may be present in source water are described along with associated issues they may present in the spa or pool, and corrective options for the pool manager.

How's the quality of your spa or pool water? Beyond considering how it is filtered and chemically treated once under your control, it is essential to look "up the pipe" to the water's origins and prior treatment. A recent article in *Aqua* magazine by the Pool & Hot Tub Alliance's Recreational Water Quality[1] Committee explores five categories of chemical constituents in source water that may impact the quality of your spa or pool water.

Where Does Your Spa or Pool Water Come From?

Spas and swimming pools are filled (and periodically "topped off") with water from either a municipal source or a private well. Municipal water is the water most of us drink, cook with, and bathe in on a daily basis. U.S. municipal drinking water, sourced from both surface and ground waters, is regulated by the U.S. Environmental Protection Agency (EPA) to control contaminants to levels deemed safe for consumers. In rural areas, spas and pools are often filled with private well water, which may or may not be treated by the well owner. EPA does not regulate private well water; so it is up to well owners to monitor and manage the quality of their water.

[1] "Source Water and Its Effects on Pool and Spa Maintenance" (January 2020), *Aqua* magazine, pp. 101-103. On line: available and free, but download requires registration/log-in at https://library.aquamagazine.com/index.php?option=com_extendedreg&view=login&return

The chemical constituents of natural waters reflect the makeup of the rocks and minerals of their source region. Water treatment alters that chemistry, and water delivery through pipelines may further modify it. The table below summarizes common chemical constituents of "up the pipe" water, their potential sources, associated issues, and corrective options.

Constituent	Potential Sources	Associated Issues	Corrective Options
Metals; e.g., iron, copper, manganese, calcium, lead, and zinc	Natural waters Water treatment Pipe corrosion	High sanitizer consumption, staining, and scaling Iron may interfere with UV performance, impacting disinfection	Sequestering agents or metal-removing products Ion exchange treatment
Monochloramine	Municipal water treatment	High levels of combined chlorine	Superchlorination UV treatment Ozone treatment
High levels of total dissolved solids	Natural waters Bathers	Scale formation on pool surfaces	Anti-scaling products Change water source
Phosphates	Corrosion inhibitor for municipal water Some cleaners Bathers	Algae and bacterial growth if sanitizer levels are inadequate High chlorine demand	Phosphate-removing products
Nitrates	Groundwater contaminant from fertilizer or sewage	Algae growth if sanitizer levels are inadequate	Anion exchange treatment or draining and replacement with low-nitrate water is recommended

Know Your Source Water

Monitoring and managing water quality are critical tasks for maintaining healthy pools and spas. Many people know that an adequate chlorine residual and an appropriate pH are needed to control waterborne pathogens, but there is more to spa and pool water chemistry. Get a "head-start" on managing your spa or pool water quality by learning about your source water. Annual municipal water quality reports are available through your public water provider, and private well water can be analyzed by pool chemical supply stores, water treatment equipment installers, and independent laboratories.

When it comes to maintaining spa and pool water quality at a high level, it's worth knowing what you're starting with!

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