

Drinking Water Treatment

Water supplies are designed, constructed, and operated to optimize long-term yield, meet short-term peak demands, and provide the highest quality of water to the public. Given its use, water for domestic supply is heavily regulated to protect human health.

In some cases, water supplies need to be treated to remove excess amounts of naturally occurring compounds such as iron and manganese or to soften the water by reducing total dissolved solids (TDS). In addition, many water supplies are disinfected using ultraviolet (UV) light or chlorine-based compounds.

Water supplies can also be impacted by releases of man-made chemicals. In some cases, the impact is sufficient to warrant the treatment of the supply to ensure it is safe to use.

Common drinking water contaminants include chlorinated solvents, fuel oxygenates, solvent stabilizers, rocket propellants, soil fumigants, and heavy metals. Many other unregulated chemicals, such as pharmaceuticals and personal care products (PPCPs), may be present at low concentrations. However, these contaminants are often unregulated as there is limited information on their toxicological effects – either singularly or mixed with other contaminants.

Common treatment technologies used to remove man-made chemicals from drinking water include granular activated carbon (GAC), synthetic resins, air stripping, advanced oxidation processes (AOP), and ultra-filtration or reverse osmosis (RO). Some of these technologies have been in use for decades (e.g. GAC), while others have only recently been applied (e.g. AOP). Whatever drinking water treatment technology is selected, the design and permitting process is rigorous, given that the treated water will be used for public supply.

Aquilologic staff has experience preparing engineering designs, permit applications, contractor tender documents, and installation and performance reports for drinking water treatment systems. We have also worked alongside contractors during equipment installation and construction activities.