Benefits of UV-C for Private Well Water Disinfection

It's Your Responsibility

By Charles Boehme
UV Application Specialist

Table of Contents

ATLANTIC ULTRAVIOLET CORPORATION® 375 Marcus Boulevard, Hauppauge, NY, 11788, USA
Manufacturers / Engineers / Sales / Service – Germicidal Ultraviolet Equipment & Lamps
Call: 631.273.0500, Mon-Fri, 7am-6pm EST • **Fax**: 631.273.0771
Email: Sales@AtlanticUV.com • **Learn**: Ultraviolet.com • **Shop**: BuyUltraviolet.com

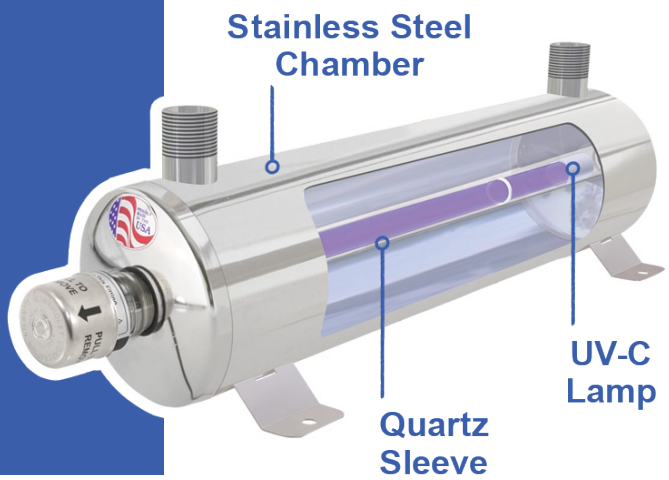
Well Water Disinfection is Your Responsibility

Groundwater is not stagnant — it's always moving. Your well water quality can change rapidly without you knowing. More than 15 million U.S. households use private water wells and are responsible for overseeing the quality of their drinking water in order to prevent disease. The CDC, in its article titled "Overview of Water-Related Diseases and Contaminants in Private Wells," discusses the need for homeowners to address private well water contamination.

EPA regulations protecting public drinking water sources do not apply to your private well. Well water contamination can affect even the best-maintained and newest wells. Regular testing, proper maintenance, and appropriate filtration and disinfection are necessary. Adding ultraviolet technology for disinfection can reduce health risks associated with well water contamination and improve the quality of your water.

An Economical & Rapid Disinfection Method

Ultraviolet technology has been recognized for decades as an economical and rapid method of disinfection. Germicidal ultraviolet lamps, also known as UV-C lamps, emit ultraviolet rays at 254 nanometers. This level is lethal to bacteria that may be present in your water such as E. coli, virus, mold, and cysts like Cryptosporidium.



SANITRON®, **MINIPURE®**, **MIGHTY★PURE®**, and **Bio-Logic®** UV Water Disinfection Systems are quality-engineered, manufactured by Atlantic Ultraviolet Corporation®, and easy to install and use. They provide continuous disinfection of your water with minimal maintenance — occasional quartz sleeve cleaning and bulb replacement about once a year or every 10,000 hours. A stainless steel chamber houses the UV-C lamp, so there is no risk of exposure. Successful disinfection depends on the unobstructed path of ultraviolet wavelengths through the water, and on the proper dose of UV light needed in order to virtually eradicate the particular organisms. To compare all models, view and download our UV Water Purifier Comparison Chart.

Well Water Quality Concerns

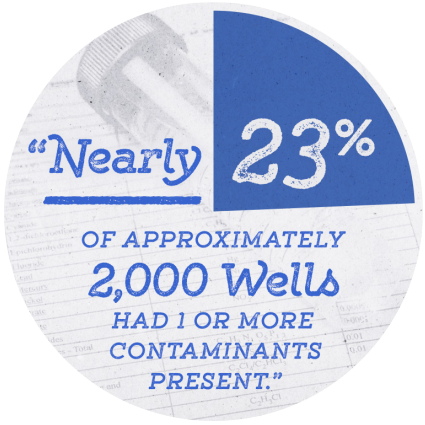
There are two areas of drinking water concern — those dealing with safety for consumption, and those dealing with aesthetic issues such as taste, color, and odor. Contamination that can pose health risks is often invisible to the naked eye. Aesthetic issues are rarely indicative of impurities that create health concerns.

"Several sources of pollution are easy to spot by sight, taste, or smell … however many serious problems can only be found by testing your water."

— EPA, "Drinking Water From Household Wells"

Well Water Contamination Risks

"In 2009, the U.S. Geological Survey (USGS) studied the water quality of over 2,000 private wells to measure the existence and extent of contamination. The study found that about 23 percent of them did have at least one contaminant at a level of potential health concern."



Bacteria, virus, or fungi contaminating the aquifer can feed into your well. Contamination can cause foul odors and tastes, physical discomfort — and in the worst cases, it can have deadly consequences. The following water-related diseases and contaminants found in private wells are either susceptible to ultraviolet (UV-C) rays or removed by our carbon and sediment filters.*

Water-Related Diseases Susceptible to UV / Contaminants Removed by Our Carbon & Sediment Filters

Giardia	Hepatitis A	Rotavirus
E. coli	Shigella	Salmonella
Cryptosporidium	Lead*	Nitrates*

*Lead and Nitrates are treated only by **Bio-Logic®** ***Pure Water Pack***™ models with cartridge filter 25-4520, as part of a point-of-use treatment.

Common Drinking Water Quality Issues

Septic Tank Effluent
The EPA and Cornell University determined that bacterial contamination from septic tank effluent is the most common drinking water quality issue. Other non-bodily waste toxins, such as cleaners and medications, seep into the groundwater.

Barnyard Waste
Another serious well water contamination issue is caused by animal waste that seeps into the groundwater and aquifer by a nearby livestock farm, and eventually into the well.

Stormwater Runoff
This occurrence is also cause for concern. Aquifer contamination is typically caused by improper use of fertilizers and pesticides, construction equipment, lead and copper piping, mining, stormwater drains, sewage plants, and inadequate disposal of hazardous wastes.

3 Routines to Address Private Well Water Contamination

Testing: Have your water tested by a certified laboratory at least once a year, and more often if there's a reason for concern. This procedure will indicate if your water tests positive for coliform bacteria, nitrates, and dissolved solids, while monitoring water pH levels.

Maintenance: Periodic inspection by a well water specialist is recommended to rule out any physical issues near or with your well, such as corroded fittings, casings, and pipes, abandoned water wells nearby, and reduced water pressure.

Treatment: Whenever possible, you want to remove the contamination source. However, removal of many natural and unnatural causes is not always feasible. Continuous disinfection treatment with the **SANITRON**®, **MINIPURE**®, **MIGHTY★PURE**®, or **Bio-Logic**® directly before use ensures your water is safe from harmful bacteria, virus, and fungi.

A Multi-Layered Process for Safe & Pleasing Well Water

Particle Filtration

Ion Exchange

Reverse Osmosis

Chemical Treatment

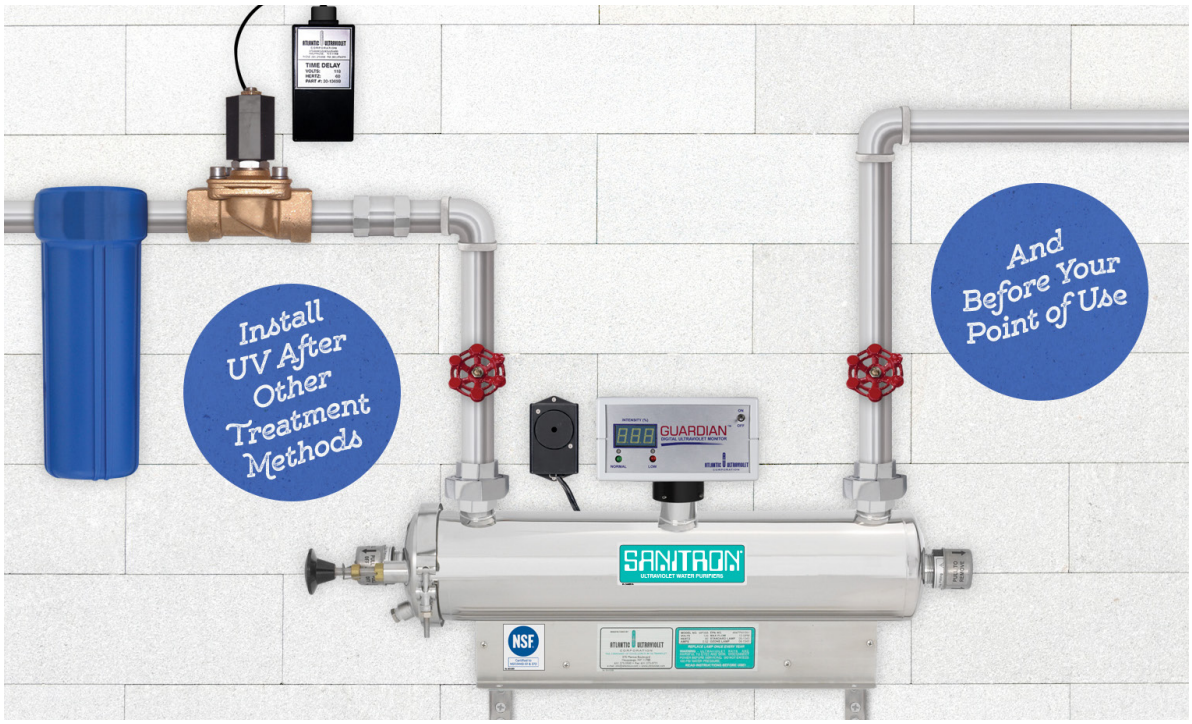
UV-C

With a variety of contaminants possible in your water, most well water disinfection procedures will require a series of treatments in order to improve groundwater quality. This layered process may include:

- Particulate filtration to remove debris and turbidity
- Ion exchange to soften water and treat arsenic and nitrates
- Reverse osmosis to remove a variety of contaminants
- Chemical treatment to fix hardness, PH balance, and sulfide issues
- UV-C for continuous disinfection, virtually eliminating all bacteria, virus, and mold

Point-of-Entry or Point-of-Use

For better water aesthetics and safety, install a **SANITRON**®, **MINIPURE**®, **MIGHTY★PURE**®, or **Bio-Logic**® UV water purifier at your home's point of entry (POE) or point of use (POU). When you turn on the tap, your UV system will have virtually eliminated all bacteria, virus, and fungi. Our standard and optional safety features will alert you if a malfunction occurs. Since your water has undergone this ultraviolet disinfection step, you'll gain peace of mind knowing it's safe to consume.



Selecting the Best UV-C Water Purifier for Your Needs

The UV purification method is safe and economical, with hundreds of gallons purified for each penny of operation cost. ***STER-L-RAY***® UV-C Lamps, installed in all Atlantic Ultraviolet water purifiers, require little energy to operate and produce the lethal dosage required to rid water of virtually all microorganisms.

When selecting a UV-C water purifier to treat well water contamination, consider your disinfection rate goals, proper evaluation of your water volume, and whether you want continuous or intermittent purification. Small purifiers can operate between 1 and 40 gallons per minute. Larger ones can provide 416 gallons per minute or more. Four UV water purifier product lines manufactured by Atlantic Ultraviolet Corporation® are listed below. To compare all models, view and download our UV Water Purifier Comparison Chart.

Our UV-C Water Purifier Product Lines

Bio-Logic®
ULTRAVIOLET WATER PURIFIERS

The **Bio-Logic**® line is economical, compact and versatile. These models feature dual, rotatable chamber heads to match an existing water connection, streamlining installation and saving time and money. They are available either as stand-alone water purifiers or with a dual-filter system. **Bio-Logic**® purifiers are designed for point of use installations (under sink) and can also be used to treat water in aquariums, boats, campers, etc.

MINIPURE®
ULTRAVIOLET WATER PURIFIERS

These models have a compact footprint, making them ideal for point-of-use applications (under sink installation, water vending machines) as well as with small reverse osmosis systems, boats, recreational vehicles and other similar applications. Models come equipped with an audible alarm integrated into the ballast that alerts you of malfunction.

MIGHTY★PURE®
ULTRAVIOLET WATER PURIFIERS

These water purifiers, manufactured in Type 316 stainless steel, offer superior quality and numerous standard features. Several optional accessories are also available, including a **GUARDIAN**™ Ultraviolet Monitor. **MIGHTY★PURE**® Models MP36C and MP49C are available with Certification for **NSF®/ANSI** Standard 55: Ultraviolet Microbiological Water Treatment Systems.

SANITRON®
ULTRAVIOLET WATER PURIFIERS

These models provide maximum gallon-per-hour flexibility. Multiple units can be added or removed at any point as your needs change. Models S37C, S50C, and S2400C comply with **NSF®/ANSI** 61 and 372. All **SANITRON**® models have many standard features such as an integrated drain fitting and a patented dual-action wiper for easy quartz sleeve cleaning, making them the easiest of the 4 product lines to maintain.

A Well-Established Water Disinfection Method

Ultraviolet disinfection has been recognized for decades as a powerful, safe, rapid, and chemical-free well water disinfection method. Some of the well water microorganism contaminants that ***STER-L-RAY***® UV-C Lamps deactivate include Cryptosporidium and Giardia cysts, E. coli, Hepatitis A, Rotavirus, Salmonella, and Shigella. The keys for successful UV-C disinfection are a quality constructed system, correct installation, consistent maintenance, and having a properly-sized system for the water volume.

The Keys for Successful UV-C Disinfection	
Quality-Constructed System	Correct Installation
Consistent Maintenance	Properly-Sized System

Quality-Engineered Systems

SANITRON® and **MIGHTY★PURE**® UV water disinfection systems from Atlantic Ultraviolet Corporation® are quality-engineered and made in the USA. **MINIPURE**® and **Bio-Logic**® product lines are assembled in the USA. All product lines utilize stainless steel for maximum durability, along with standard features and optional accessories to alert of system malfunctions.

SANITRON® MADE IN THE USA

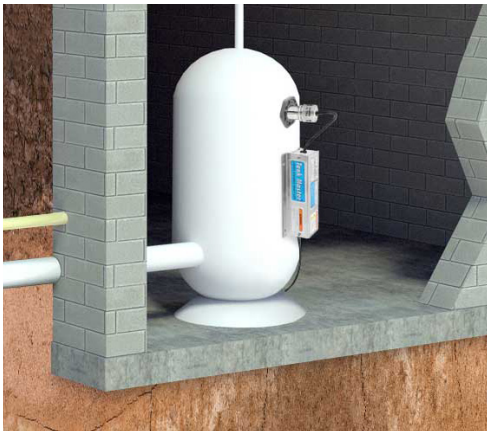
MIGHTY★PURE® MADE IN THE USA

MINIPURE® ASSEMBLED IN USA

Bio-Logic® ASSEMBLED IN USA

Tank Master™ Ultraviolet Liquid Storage Sanitizer

In addition to the benefits of UV installed POE and POU inside your home, ultraviolet disinfection can be used to reduce risks found inside your non-pressurized well water storage tank. Atlantic Ultraviolet's **Tank Master**™ Ultraviolet Liquid Storage Sanitizer, which installs inside this tank, helps to eliminate slime that can continuously grow on the tank's walls and in the head space above the water. During the summer months, slime can become heavy and a nuisance to keep clean. Even though the water undergoes full treatment before use, using the **Tank Master**™ helps to keep the slime problem under control.



About Atlantic Ultraviolet

Since 1963 Atlantic Ultraviolet Corporation® has engineered and manufactured ultraviolet water purification equipment, ultraviolet air sanitizing systems, UV surface disinfection systems, and germicidal UV lamps for residential, commercial and industrial applications.

STER-L-RAY® Germicidal Ultraviolet Lamps utilized in Atlantic Ultraviolet's products produce short wave radiation that is lethal to bacteria, virus and other microorganisms. The method is unique and rapid and does not utilize heat or chemicals. Ultraviolet technology is a well established method for its effectiveness, and because the process is free of by-products.

Atlantic Ultraviolet has two goals: Continuing to develop strong business-to-business and business-to-consumer relationships, and continuing its leadership in applied ultraviolet technology with the development of new product lines.

Review Ultraviolet.com to "Learn" about the company & products. Visit BuyUltraviolet.com to "Shop" products and models of UV water, air/surface purification systems, and germicidal UV lamps. Be sure to visit the NSF® Certified Systems and Clearance sections.

A UV Application Specialist is always ready to take your call at 631-273-0500, Mon-Fri, 7am-6pm EST.

MADE IN THE USA

SINCE 1963

ATLANTIC ULTRAVIOLET CORPORATION®

The Standard of Excellence in Ultraviolet

375 Marcus Boulevard
Hauppauge, NY 11788, USA
Call: 631.273.0500, Mon-Fri, 7am-6pm EST
Fax: 631.273.0771
Email: Sales@AtlanticUV.com
Learn: Ultraviolet.com
Shop: BuyUltraviolet.com

Manufacturers / Engineers / Sales / Service – Germicidal Ultraviolet Equipment & Lamps

Document No. 98-1732 • October 2018 • ©2018 by Atlantic Ultraviolet Corporation®