

# IX Water Blü

Treatment of Dangerous Contaminants  
in Community Drinking Water

99%

removal of arsenic and other  
metalloids in drinking water



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# Treatment of Dangerous Contaminants in Community Drinking Water

*IX Water Blü is the most effective and efficient system to remove arsenic and other metalloids from drinking water.*

Whether it's a modern city in Michigan, a village in Bangladesh, or a town struggling with decaying infrastructure left from the Soviet times, communities anywhere and everywhere can suffer from contamination of their most precious resource – drinking water.

Today, more than 1 billion people do not have access to an improved water source and have to use unprotected wells or springs, canals, lakes or rivers for their water needs. Even the 90% of the global population (6.57 billion people) that does have access to a piped water supply to an improved water source is not consistently safe from dangerous contamination.<sup>1</sup>

Contamination of drinking water supplies can be caused by human error, lack of proper treatment, everyday modern activity, or most frequently because of contaminants in the natural environment.

## IX Water Blü Is the Solution for Communities

Common contaminants are fairly easy to eliminate using well-known processes. What is required is an easy to operate, low-cost, effective solution to eliminate arsenic and other metalloids to less than 5 parts per billion (ppb). IX Water Blü is that solution. IX Water Blü is based on the advanced and proven technology behind IX Water OG that treats dangerous contaminants in oil and gas produced water.

<sup>1</sup> [http://apps.who.int/iris/bitstream/10665/177752/1/9789241509145\\_eng.pdf?ua=1](http://apps.who.int/iris/bitstream/10665/177752/1/9789241509145_eng.pdf?ua=1)

## Arsenic in Drinking Water



Arsenic is a toxic element that is both naturally-occurring in the Earth's crust and artificially produced in agricultural and industrial processes. Most arsenic compounds have no color, taste, or smell, making them dangerously difficult to recognize. Arsenic contaminates groundwater and surface water all over the world. Exposure to arsenic has caused illness and deaths in communities from the United States to Bangladesh — where one in five deaths can be attributed to arsenic poisoning. The UN has designated arsenic in drinking water a world health crisis.



The main source of arsenic in drinking water is arsenic-rich rocks through which the water has been filtered.



When contaminated groundwater is used to irrigate fields, arsenic accumulates in soil and crops, particularly rice.



Arsenic can enter surface water through runoff from certain agricultural and industrial activities.



In communities where residents cook with and drink from the same contaminated well, arsenic intake multiplies.

## Treatment That Grows with Your Needs

The modular design of IX Water Blü allows for stand-alone operation or integration with existing treatment systems. Each transportable module treats 30 or 60 gallons per minute (43,200 to 86,400 gallons per day or 164 to 327 cubic meters per day) in a centralized community system. Increased treatment volume is achieved by adding additional modules.

## Cost

The total cost for treatment using IX Water Blü (CapEx and OpEx) is about 8.5 cents per 1,000 gallons (3.79 cubic meters). Cost depends on the amount of water treated daily and the specific quantity of contaminants needing removal.

## What We Sell

IX Power Clean Water sells the IX Water Blü system: machine, setup and validation, training, technical support, and maintenance. Periodic media replacement canisters are provided as part of an on-going maintenance agreement (4 to 6 times a year depending on water quality).

IX Water Blü is simple enough for a single, casual operator to manage all functions. The Company can also help customers find qualified personnel, but we do not charge an additional treatment fee nor additional licensing costs to use IX Water Blü.

## Regulatory

Regulations regarding drinking and household waters vary in each jurisdiction. IX Power Clean Water is expert at navigating relevant regulations and can assist customers in meeting these regulations.

## Philosophy

IX Power Clean Water has an open design philosophy with three distinct elements:

1. Minimize OpEx. The Company recognizes communities, ranches, farms, and dairies struggle to provide the necessary infrastructure required for its constituents. IX Water Blü is specifically designed to minimize use of power and consumables.
2. No Additives. IX Water is designed to pull out contaminants (subtractive) in real-time, with consumables minimized to just media replacement. Used media can be returned to the Company or landfilled.
3. IX Water Blü is designed to treat drinking and household waters to U.S. EPA standards. While individual communities, various regulations, and the ultimate users of the treated water will vary, the design of IX Water Blü ensures that virtually any input and output can be achieved in a consistent and economical manner.

The photo (right) illustrates the horrible damage that can be done by exposure to water contaminated with arsenic concentrations of more than 10 ppb. This kind of skin cancer is common in locations where people use untreated water for simple bathing. Much worse illness can result from drinking such water.

One out of five deaths in Bangladesh are attributed to drinking water contaminated with arsenic.



## **IX Water Blü Is Specially Designed to Remove Arsenic and Other Metalloids from Drinking Water and Is the Best Value for Money on the Market**

### **1. Effective**

Removes over 99% of contaminants (e.g., arsenate, hexavalent chromium, selenate).

### **2. Ease of Use**

Fits into existing water treatment system for removing particles and biologics. No on-site recharge using IxMZ replaceable media and reusable cartridges. The media can also be disposed of as non-hazardous waste.

### **3. Efficient**

IX Water Blü has no reject water, unlike reverse osmosis systems, which rejects as much as 90% of the water processed and must be discharged to a sewer system, increasing cost.

### **4. Durable**

IxMZ media is highly durable. Other adsorption media is fragile and requires expensive steam for regeneration. Ion exchange media requires messy on-site backwashing.

### **5. Modular**

You only pay for the system size required; minimal replacement and media costs.

### **6. Subtractive**

IX Water Blü doesn't require costly additives, and unlike biological degradation and flocculation, IX Water Blü treats water in real-time.

### **7. 24/7/365 support**

We take pride in providing what you need, when you need it. This extends to our world-class maintenance and support contracts that operate when you need it, not just during office working hours.

### **8. We make treatment of contaminated drinking water a reality**

For the first time, effective treatment of dangerous contaminants from community drinking and household waters is affordable, effective, and efficient.



## Impact of Arsenic Exposure

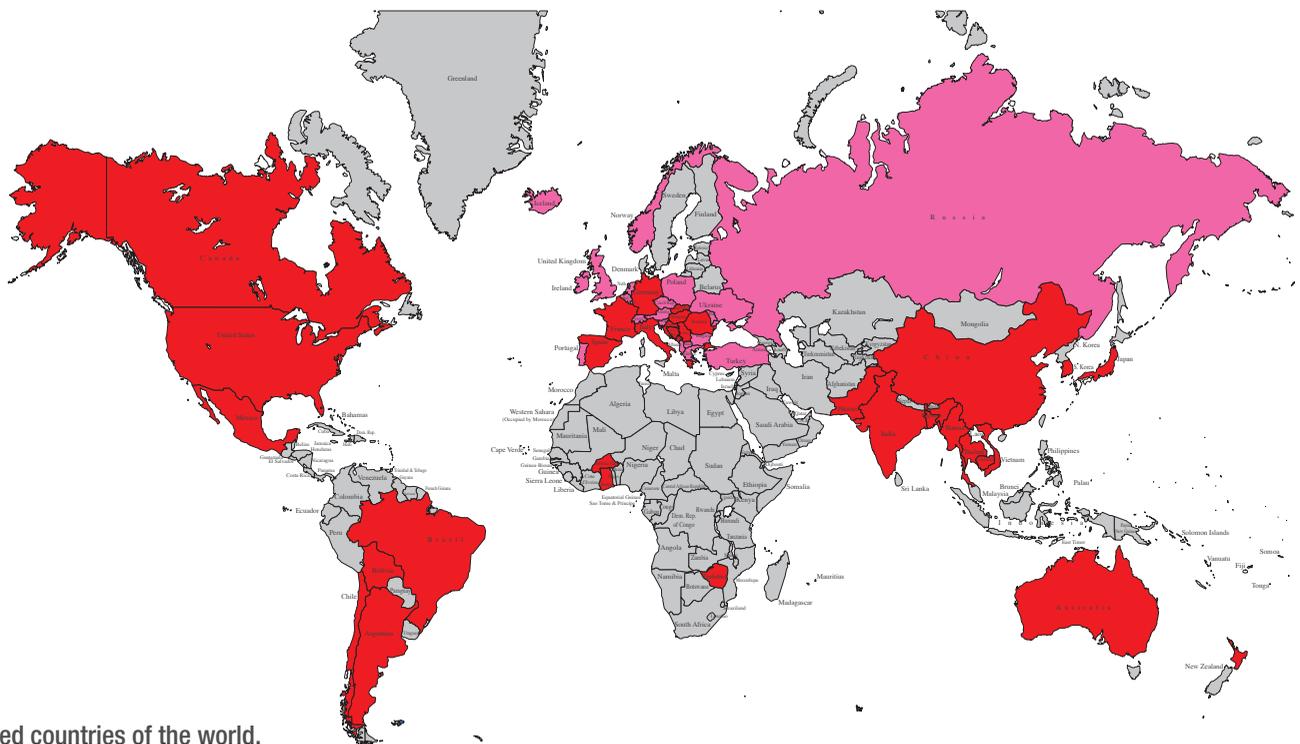
Most Affected Body Parts	Acute Symptoms	Long Term Effects
Lungs, skin, liver, kidneys	Vomiting, headaches, confusion, bloody urine, cramping, hair loss, convulsions	Cancer, skin thickening & pigmentation; damage to nervous system, blood vessels, brain, death

Household and drinking waters can become contaminated from sewage systems runoff after a heavy storm; runoff from contaminant-laden sites like roads, pesticide and fertilizer-rich farms and lawns, and mining sites; wastes from animal feedlots; and industrial pollution that leaches into groundwater or is released into surface water.<sup>1</sup> Most arsenic in well water is naturally occurring.

While it is true that areas lacking sufficient infrastructure contribute largely, few understand these water issues are everywhere. For instance, nearly 20 million people are at risk of arsenic exposure in Europe and in China, and another 13 million U.S.A. residents drink arsenic contaminated water everyday.<sup>2</sup> Lead is even more prevalent, with over 120 million Europeans and millions of U.S.A. and Chinese citizens at risk of exposure to levels exceeding regulations.<sup>3</sup> The problem of contaminated water is ever present, and IX Water Blü is part of the solution.

Arsenic naturally occurs in groundwater all over the world. Long-term exposure leads to skin and other cancers, cognitive development problems, diabetes, stroke, and a host of other illnesses.

Before now, arsenic treatment systems for farms, ranches, and small communities would cost hundreds of thousands of dollars. IX Water Blü is a simple machine that adds on to your existing water treatment system and is 100% effective at eliminating arsenic and other metalloids – for less than 1.5 cents per 1,000 gallons. Leasing, rentals, and subsidies are available for those who qualify.<sup>4</sup>



Arsenic-affected countries of the world.

1 National Resources Defense Council, <http://www.nrdc.org/water/drinking/uscities.asp>, accessed 4 February 2016

2 [http://www.unicef.org/eapro/Arsenic\\_primer\\_28\\_07\\_2008\\_final.pdf](http://www.unicef.org/eapro/Arsenic_primer_28_07_2008_final.pdf)

3 J Water Health. 2009 Dec;7(4):569-80. doi: 10.2166/wh.2009.110. "Is there still a problem with lead in drinking water in the European Union?" Hayes CR1, Skubala ND.

4 Administered through IX Power Foundation, Inc., an American IRS-designated 501(c)(3) charitable organization.

## IX Water Blü for Community Water Treatment

The challenge with the removal of arsenic, lead, and other contaminants from drinking water is twofold: cost and ease of use. IX Water Blü solves both of these issues by providing an inexpensive, robust, and easy to use cartridge-based system.

IX Water Blü media is housed in a centralized treatment facility for entire communities. IX Water Blü consists of a series of standardized scalable modules containing IxMZ media that provide treatment specific to customer need without the costs and uncertainty of investing in a full-size water treatment plant. IX Water Blü can also be used to enhance the performance of reverse osmosis systems by preventing a biofilm build up on the RO membrane down the line. IX Water Blü modules are linked together with standard fittings. Spent cartridges can be returned to the manufacturer for recycling and fresh cartridges are delivered to the site as required.

IX Water Blü was developed in partnership with the Global Water Council in Milwaukee, Wisconsin to eliminate arsenic, lead, chromium, and other toxins in community water systems.



## IX Water Blü Specifications

Size	48" x 40" x 42" 122 cm x 101 cm x 106 cm
Weight	300 lbs / 136 kg
Capacity	30 or 60 gpm 114 or 227 lpm
Cost	1.5 cents per 1,000 gallons
Effectiveness	99% effective at removing arsenic and other metalloids
Maintenance	Media replacement 4 to 6 times per year
Power	No separate power required; uses force from existing treatment pump(s)

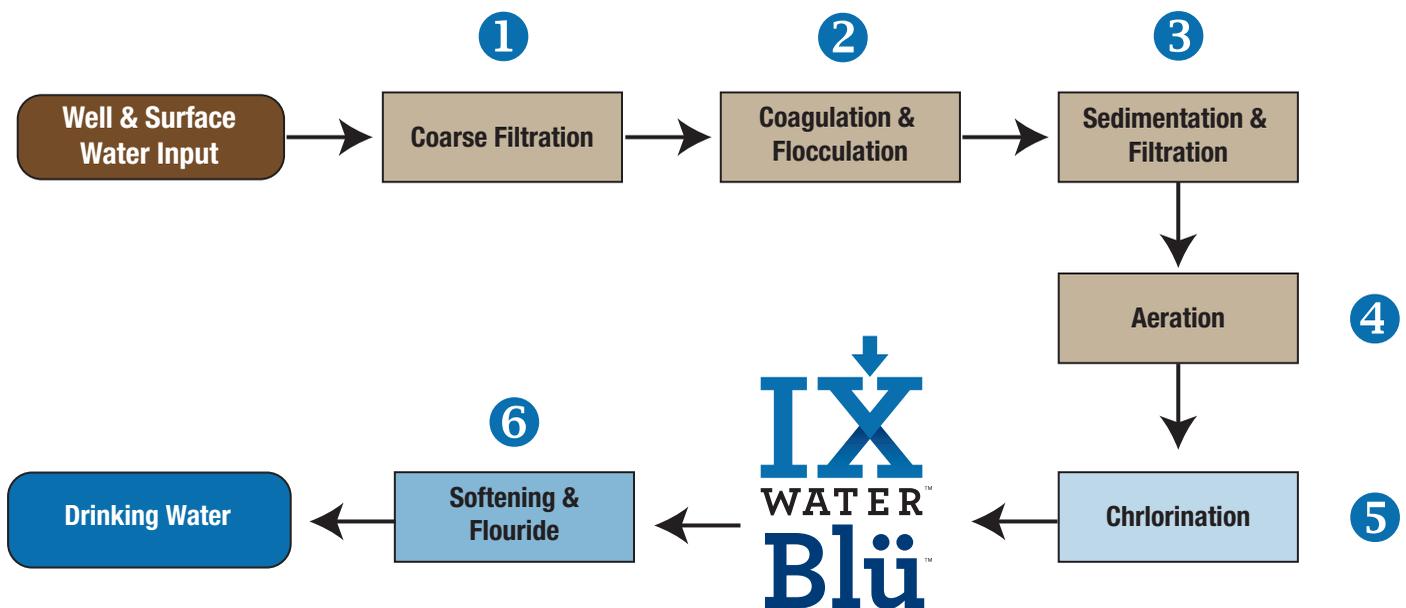


An IX Water Blü module.

## Community Water Treatment Train

A community drinking water treatment train will generally contain the following steps. IX Water Blü is simply added to the existing treatment plant to remove arsenic (between steps 5 & 6).

- 1 Course filtration, to remove leaves, trash, and larger particles.
- 2 Coagulation and flocculation. Alum, polymers, and sometimes lime and carbon dioxide are added. This causes small particles to stick to one another, forming larger particles.
- 3 Sedimentation and filtration. The now-larger particles become heavy enough to settle to the bottom of a basin from which sediment is removed.
- 4 Aeration is the process of increasing the oxygen saturation of the water. This reduces carbon dioxide, oxidizes iron and manganese, and reduces ammonia and hydrogen sulfide.
- 5 Chlorination. To protect against any bacteria, viruses, and other microbes that might remain, disinfectant is added. Water flows through a series of baffled walls, which allows chlorine to react with the water for at least 30 minutes.
- 6 Water softening and/or fluoride, depending on community requirements.





Assembly of a IX Water Blü module, showing a replaceable media cartridge.

## About IX Power Clean Water

IX Power Clean Water was founded on next generation treatment technologies invented at Los Alamos National Laboratory, the University of Texas, and New Mexico Institute of Mining and Technology. We manufacture the award-winning IX Water OG to make oil & gas produced water reusable and to reclaim what is now a lost resource. Our goal is to provide the best water treatment for the lowest cost and hassle.

If your water contains more than 10 ppb arsenic, please call us for help or go to our website for more information.

### IX Power Clean Water, Inc.

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