ATEC
A Cadiz Solution

Arsenic Removal from Groundwaters

Drinking Water Treatment Whitepaper

Background & Overview

Arsenic ranks among the most widespread and persistent contaminants in U.S. groundwater. It occurs naturally in geologic formations across the Southwest, Upper Midwest, Northeast, and parts of the Pacific Northwest. Weathering of arsenic-bearing minerals and sediments releases arsenic into aquifers. In many basins—especially those with historic volcanic activity or thick alluvial deposits—arsenic levels fluctuate seasonally or shift sharply during droughts, wellfield changes, or blending.

Regulators continue to tighten oversight. Although the EPA has held the federal MCL at 10 µg/L since 2006, states now enforce it more aggressively, deploy better monitoring tools, and demand more frequent reporting. Many communities discover that their legacy adsorption or filtration systems underperform when raw-water chemistry varies or media exhausts faster than expected. Utilities therefore seek solutions that reliably remove arsenic, remain predictable, and operate simply across diverse groundwater conditions.

Health Effects of Arsenic in Drinking Water

The International Agency for Research on Cancer (IARC) classifies arsenic as a Group 1 carcinogen. Long-term exposure increases risks of skin, bladder, and lung cancers. Even at levels near the MCL, chronic ingestion elevates cardiovascular disease, neurological disorders, and developmental problems. Risks accumulate over decades; sustained low-level exposure can equal the harm caused by occasional high spikes.

Toxicity depends heavily on speciation. Arsenite [As(III)] is far more mobile in groundwater and more bioavailable than arsenate [As(V)]. Traditional adsorption and ion-exchange processes remove As(III) poorly unless operators first oxidize it completely. Emerging research also shows that smoking, poor nutrition, and certain medical conditions amplify arsenic's effects.

Communities that rely on one or a few wells cannot tolerate treatment upsets. As public awareness grows and states expand monitoring, utilities must deliver consistent, year-round performance—not just occasional compliance.

Occurrence of Arsenic in Groundwater

Elevated arsenic appears across North America, driven by regional geology, redox conditions, and aquifer mineralogy. The highest concentrations occur in the arid West (California Central Valley, Great Basin, Southwest, Rocky Mountains), but significant hotspots also exist in the Upper Midwest, New England, Mid-Atlantic, and parts of the Southeast.

Reducing conditions favor As(III) and increase both mobility and toxicity. Seasonal changes, aquifer drawdown, declining water tables, and altered pumping patterns shift redox state and arsenic levels unpredictably. Blending wells or reactivating old sources adds further variability.

Arsenic rarely travels alone. Iron, manganese, silica, phosphate, and hardness commonly co-occur and directly affect treatment. In parts of the West, arsenic accompanies hexavalent chromium or PFAS. Utilities therefore need flexible, field-proven systems that handle complex, dynamic chemistries.

Regulatory Landscape and Emerging Health Evidence

The U.S. federal arsenic Maximum Contaminant Level (MCL) of 10 µg/L in drinking water was established by the U.S. Environmental Protection Agency (EPA) in 2001, during the final months of the Clinton Administration, and took effect in 2006. At the time, the regulation reflected the best available health effects data, although several toxicological studies were still ongoing.

Since then, EPA has continued to evaluate arsenic health risks through its Integrated Risk Information System (IRIS). In January 2025, EPA finalized a comprehensive update to the Arsenic IRIS health assessment, incorporating more than two decades of additional epidemiological and toxicological research. This updated assessment identifies adverse health effects at substantially lower exposure levels than previously recognized, including increased cancer risk and non-cancer outcomes affecting cardiovascular, neurological, and developmental systems.

The revised health effects data support lower reference doses for several non-cancer endpoints and indicate higher cancer risk estimates than earlier assessments. While no regulatory changes have been enacted to date, these findings strengthen the scientific basis for a potential future reduction of the federal arsenic MCL.

Across the United States, enforcement of the existing 10 µg/L standard has already intensified. States increasingly require more frequent monitoring, expanded reporting, and corrective action for repeated exceedances, particularly for small and groundwater-dependent systems. Arsenic compliance is also being evaluated alongside other groundwater contaminants such as iron, manganese, chromium, nitrate, uranium, and PFAS as part of broader source-water management programs.

For utilities, this evolving regulatory environment underscores the importance of treatment strategies that deliver consistent, year-round arsenic control under variable water chemistry and are capable of meeting more stringent requirements should future standards be adopted.

Operational and Infrastructure Impacts

Unlike iron and manganese, arsenic does not form visible deposits, stain fixtures, or foul pipes and pumps. It stays dissolved as As(III) or As(V) and causes no physical infrastructure damage.

However, arsenic strongly binds to iron and manganese oxides. In distribution systems with existing scale, hydraulic changes or chlorination can release sequestered arsenic and cause sudden MCL violations. Stable upstream treatment and controlled distribution management are therefore essential.

Operationally, success hinges on chemistry, not mechanics. Utilities must maintain consistent oxidation, provide sufficient iron (natural or added), and filter solids reliably despite fluctuations in pH, silica, phosphate, and redox state.

ATEC's OCF arsenic treatment system delivering reliable compliance for the Torres Martinez community in the Eastern Coachella Valley.

Emerging Trends Shaping Arsenic Treatment

Regulators and industry groups now promote integrated water-quality planning. They treat oxidation, iron co-precipitation, filtration, and distribution stability as one cohesive strategy rather than separate unit processes.

Guidance increasingly requires utilities to evaluate the full raw-water matrix—pH, DO, iron, manganese, silica, phosphate, temperature, and blending—before selecting technology. Single-purpose adsorptive media and resins often fail when conditions deviate from design assumptions.

Multi-contaminant capability is another priority. Systems that remove iron, manganese, and arsenic simultaneously—and can later add modules for nitrate, chromium, or PFAS—align with long-term regulatory trends.

These shifts favor robust, chemistry-driven processes over narrow, media-dependent ones.

Current Treatment Technologies – Real-World Performance

Since the 2002 Arsenic Rule, utilities have gained two decades of full-scale experience. The EPA lists several Best Available Technologies (BATs), yet field data reveal sharp differences in reliability under variable groundwater conditions.

Treatment Technology	Key Strengths	Real-World Limitations
Conventional Coagulation / Filtration	Excellent As(V) removal with ferric or alum; robust and widely validated.	Requires complete pre-oxidation of As(III); high sludge production; sensitive to pH, silica, and phosphate.
Oxidation / Filtration (Ox/Filtration)	Highly reliable; leverages natural or added iron for co-precipitation; compatible with MnO_2 media.	Produces solids requiring disposal; requires careful oxidant dosing and iron control; performance influenced by pH and competing ions.
Activated Alumina (AA)	Long adsorption runs possible under ideal water chemistry; moderate pH sensitivity.	Extremely variable run lengths (1,000–50,000+ BV); requires acid/caustic regeneration; generates liquid residuals; inhibited by silica, fluoride, and NOM.
Ion Exchange (IX)	Effective for As(V) in low-sulfate waters; well understood and easy to size.	Chromatographic peaking; strong competition from sulfate and nitrate; regenerant brine disposal required; ineffective for As(III) without oxidation.
Lime Softening	Provides arsenic reduction when hardness treatment is already required; co-precipitates As with $CaCO_3$, $Mg(OH)_2$, or Fe solids.	High chemical demand and large sludge volumes; operationally intensive; rarely justified as a dedicated arsenic treatment.
Electrodialysis Reversal (EDR)	Multi-contaminant removal (As(V), nitrate, TDS); relatively high recovery compared to RO.	Capital-intensive; requires As(III) oxidation; concentrate disposal challenges; better suited to large systems.
Reverse Osmosis / Nanofiltration	Broad contaminant control including As(III) and As(V); effective for multi-contaminant groundwater.	High capital/energy cost; low recovery; high reject volume; extensive pretreatment; often excessive for arsenic-only treatment needs.
Disposable Metal-Based Adsorbents (GFH, Iron-Oxide Media)	Simple operation; no regeneration chemicals; often non-hazardous residuals; strong As(V) affinity.	Highly variable run length; reduced capacity in high-silica, high-phosphate, or high-pH waters; requires accurate column testing for sizing.

Conventional Coagulation / Filtration

Conventional coagulation/filtration remains one of the most technically robust approaches for arsenic removal, particularly when alum or ferric coagulants can be used to promote arsenic adsorption onto metal hydroxide flocs. Because this process is a designated BAT for As(V), complete oxidation of As(III) upstream is essential. Removal efficiency depends heavily on coagulant dose, pH, and the presence of competing ions such as silica and phosphate, which can inhibit floc formation or reduce adsorption capacity. Although this approach offers reliable performance across a range of groundwater conditions, it typically requires higher operator attention and produces substantial sludge volumes that must be managed appropriately.

Oxidation/Filtration

Oxidation/filtration is particularly well suited for groundwater containing natural iron or requiring ferric addition, and is widely regarded as one of the most dependable arsenic treatment strategies. In this process, oxidants such as chlorine, ozone, or manganese dioxide rapidly convert As(III) to As(V), allowing arsenic to adsorb onto freshly formed iron hydroxides. Once formed, these iron–arsenic complexes can be efficiently removed through granular media filtration, including manganese dioxide–based media. Oxidation/filtration often delivers more stable performance than adsorptive media in waters with higher silica or phosphate, though it produces more residual solids and requires careful control of oxidation, pH, and iron dosing.

Activated Alumina

Activated alumina (AA) removes As(V) through adsorption onto aluminum oxide surfaces and can achieve long run lengths under favorable water chemistry. However, field data show very wide variability in performance, with exhaustion occurring in as few as 1,000 bed volumes or extending beyond 50,000 depending on the concentration of competing ions such as silica, fluoride, sulfate, selenite, and natural organic matter. The process typically requires pH adjustment and routine acid/caustic regeneration, which generates liquid residuals that require careful handling. While AA remains an established BAT, its sensitivity to water quality and the operational complexity of regeneration limit its practicality for many groundwater systems.

Ion Exchange

Ion exchange (IX) is an effective method for removing As(V), but its performance is strongly influenced by the presence of competing anions—especially sulfate, nitrate, bicarbonate, and chloride—which can displace arsenate from the resin and reduce run lengths. This competition can also cause chromatographic peaking, where arsenic unexpectedly breaks through ahead of schedule. Regeneration produces brine residuals requiring proper disposal, and pre-chlorination must be avoided for resins susceptible to nitrosamine formation. IX can deliver reliable removal in suitable water quality conditions, but it demands careful monitoring, consistent pretreatment, and ongoing operational oversight.

Lime Softening

Lime softening can reduce arsenic concentrations by co-precipitation with magnesium hydroxide, calcium carbonate, manganese hydroxide, and especially ferric hydroxide formed during softening. When iron salts are added, removal efficiency improves significantly. However, the process is operationally intensive, requires substantial chemical handling, and generates large quantities of solids for disposal. As a result, lime softening is most appropriate in treatment plants where hardness reduction is already required, rather than as a dedicated arsenic removal method for groundwater systems.

Electrodialysis Reversal (EDR)

Electrodialysis reversal (EDR) is a membrane-based separation process capable of reducing As(V) while also removing nitrate, dissolved solids, and other inorganic ions. EDR typically operates at higher recoveries than pressure-driven membranes and benefits from the polarity-reversal step, which helps limit scaling. However, its performance can be constrained by competing anions such as sulfate and silica, and it requires pre-oxidation for As(III). Operational considerations include concentrate disposal, membrane maintenance, and managing fouling from hardness and iron. EDR is generally used in larger, multi-contaminant applications rather than small groundwater systems focused solely on arsenic compliance.

Pressurized Membrane Processes

Pressurized membrane technologies—including reverse osmosis (RO), nanofiltration (NF), ultrafiltration (UF), and microfiltration (MF)—provide varying degrees of arsenic removal. RO is the only membrane process consistently capable of removing both As(V) and As(III), and it offers broad inorganic and organic contaminant control. NF and UF can remove As(V) under favorable conditions but are highly sensitive to water chemistry and offer limited As(III) reduction. MF alone cannot remove dissolved arsenic and must be paired with coagulation to capture particulate or co-precipitated forms. While membranes are technically robust, their capital cost, energy requirements, pretreatment needs, and concentrated reject streams often make them better suited for multi-contaminant challenges rather than arsenic-only groundwater applications.

Metal-Based Adsorbents

Metal-based adsorbents—particularly granular ferric hydroxide and other iron oxide media—are widely used due to their high affinity for As(V) and operator-friendly, single-pass design. These media can achieve long run lengths when water chemistry is favorable, but their performance is highly dependent on silica, phosphate, vanadium, pH, and natural organic matter. Media replacement intervals can vary dramatically and are often shorter than predicted by theoretical capacity alone. While adsorbents simplify residuals handling compared to regenerable media, they still require thorough water quality characterization and, ideally, rapid small-scale column testing to accurately estimate replacement frequency.

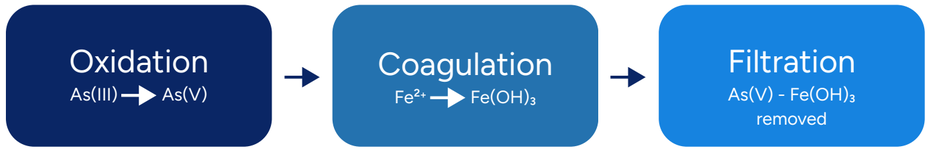
Chemistry over Technology

Collectively, the industry's experience since the promulgation of the Arsenic Rule reveals a consistent theme: arsenic treatment success depends less on the choice of technology and more on understanding and managing the underlying water chemistry. Waters with high silica, phosphate, or competing anions; elevated pH; or significant As(III) fractions tend to challenge most technologies unless oxidation, co-precipitation, and filtration are carefully integrated. These lessons, supported by extensive pilot testing and operational data over the past 20 years, reinforce the industry shift toward treatment strategies that maintain chemical stability, promote reliable arsenic-iron bonding, and minimize variability in removal performance.

Snoqualmie Pass Utility District treatment system for arsenic removal

Oxidation–Coagulation–Filtration (OCF) Approach for Arsenic Removal

For groundwater systems with elevated arsenic—particularly those containing natural iron or requiring ferric addition—the oxidation–coagulation–filtration (OCF) process remains one of the most reliable and widely validated treatment methods available. OCF leverages well-understood arsenic chemistry and robust filtration principles to achieve consistent removal under variable source-water conditions. The approach is especially well suited for small and mid-sized systems because it does not rely on disposable adsorption media, specialized membranes, or complex regeneration steps. Instead, OCF integrates three coordinated treatment stages that work together to convert arsenic to its removable form, promote strong adsorption onto iron hydroxides, and capture the resulting solids through granular media filtration. ATEC has refined and deployed this process across hundreds of groundwater installations, integrating OCF into modular treatment systems designed for long-term stability, operator simplicity, and low lifecycle cost.



Step 1 — Oxidation

Arsenic in groundwater frequently occurs as arsenite [As(III)], a neutral species that does not readily adsorb onto metal hydroxides. Effective treatment therefore begins with converting As(III) to arsenate [As(V)], the anionic form that binds strongly to ferric hydroxides. This oxidation step is essential for nearly all treatment technologies designated by EPA as Best Available Technologies (BATs). Common oxidants—such as dissolved oxygen, chlorine, potassium permanganate, or ozone—rapidly convert As(III) to As(V) across a broad pH range. In many groundwater systems, As(III) oxidation occurs alongside the oxidation of ferrous iron, setting the stage for co-precipitation and adsorption in the next phase.

Step 2 — Coagulation

Once As(III) is oxidized to As(V), the process relies on the formation of ferric hydroxide flocs to remove arsenic through adsorption and co-precipitation. Ferrous iron (Fe^{2+}), either naturally present in the groundwater or introduced as a coagulant (typically ferric chloride), is oxidized to ferric hydroxide according to:

$$\mathbf{4Fe^{2+} + O_2 + 6H_2O \rightarrow 4Fe(OH)_3(s) + 8H^+}$$

These amorphous ferric hydroxide solids have high surface area and an exceptionally strong affinity for As(V). When properly dosed and controlled, the resulting floc provides a consistent and stable adsorption surface, significantly enhancing arsenic removal even in the presence of competing ions. This step is central to the reliability of OCF, particularly in waters influenced by silica, phosphate, or other constituents that challenge purely adsorptive technologies.

Step 3 — Adsorption & Filtration

In the final stage, As(V) binds to ferric hydroxide through surface complexation and co-precipitation:

$$\mathbf{As(V)(aq) + Fe(OH)_3(s) \rightarrow As–Fe(OH)_3(s)}$$

The iron–arsenic floc is then removed during granular media filtration using sand, anthracite, manganese dioxide media, or dual-media beds. ATEC's pressure vessel platform—with internally manifolded vessels and high-efficiency backwash capability—ensures that captured solids are removed effectively, preventing hydraulic loading, reducing headloss, and maintaining stable long-term performance. Because OCF relies on physical removal of particulate floc rather than media exhaustion, it avoids the frequent replacement cycles associated with adsorptive technologies, providing a predictable and cost-effective pathway to compliance.

ATEC frequently incorporates high-MnO_2 pyrolusite media into its OCF filtration systems, particularly for groundwater sources containing iron, manganese, or mixed contaminants. Pyrolusite is a naturally occurring manganese dioxide mineral with strong catalytic properties that promote rapid oxidation of dissolved iron and manganese while providing additional adsorption capacity for arsenic, antimony, and other trace metals. When used as a standalone bed or blended with sand, pyrolusite offers excellent hydraulic performance, high durability, and a long media life when paired with vigorous, internally supplied backwashing. Its catalytic activity enhances the removal of both iron and arsenic during the filtration step, making it a proven and robust media option for ATEC's OCF-based arsenic treatment systems.

A History in Excellence for Groundwater Treatment

ATEC Water Systems has been engineering and manufacturing advanced filtration systems since 1982. The company's origins in Central California's agricultural sector—where irrigation water demanded robust, cost-effective filtration under demanding outdoor conditions—led to the development of **durable, fully integrated, pressurized filtration systems optimized for simplicity, longevity, and low lifecycle cost**. These foundational engineering principles continue to guide ATEC's groundwater treatment solutions today, including its proven approach for arsenic removal in municipal and industrial applications.

From the outset, ATEC focused on creating filtration systems capable of performing reliably under highly variable water quality conditions. The company's standard platform utilizes multiple pressure vessels manifolded together at the top and bottom to form a unified, skid-mounted system. This internal manifold design enables the use of filtered water as the backwash supply—eliminating the need for external pumps or auxiliary water sources. For arsenic treatment systems that incorporate ferric co-precipitation or manganese dioxide filtration, **the ability to deliver vigorous, internally sourced backwash** provides a significant operational advantage, ensuring stable hydraulic performance and maintaining long-term media effectiveness.

Every ATEC system is factory-assembled on a common skid, with all valving, manifolds, controls, and instrumentation integrated prior to shipment. This **pre-engineered, turnkey architecture** minimizes on-site construction and accelerates commissioning, enabling utilities to bring new arsenic treatment facilities online quickly and efficiently. Industrial-grade actuated valves and fully automated control systems manage filtration, oxidation sequences (when applied), backwash, and rinse cycles with precision. Automation packages are designed for rugged field environments and can be expanded to include PLC, SCADA, or advanced remote monitoring integrations for data trending and compliance reporting.

Over more than four decades, ATEC has refined this platform to address the complex chemistry associated with arsenic removal. The company's systems are engineered to incorporate proven oxidation–coagulation–filtration strategies—effectively converting As(III) to As(V), promoting stable iron–arsenic complexes, and removing co-precipitated solids through high-performance filtration media. **ATEC has deployed hundreds of groundwater treatment systems** throughout California, the western United States, the Midwest, and Canada, including installations designed specifically for arsenic compliance and multi-contaminant treatment scenarios involving iron, manganese, silica, nitrate, and other groundwater constituents.

ATEC's ongoing innovation in system design, automation, and modular scalability empowers utilities to manage fluctuating source water conditions, complex arsenic speciation, and long-term operational costs with confidence. Whether treating a single community well or delivering multi-MGD solutions for larger municipalities, ATEC provides proven, adaptable, and operator-friendly systems built on decades of filtration expertise and real-world arsenic treatment performance.

This 15 mgd (60 MLD) water treatment plant in Ridgefield WA has been in operation since 2019.

Our Capabilities for Arsenic Removal

ATEC Water Systems designs and manufactures cost-effective, reliable, and scalable treatment systems for the removal of arsenic from groundwater. Building on more than four decades of experience in filtration, process engineering, and groundwater treatment, ATEC has delivered and commissioned hundreds of turnkey systems across the United States and Canada. Each system is engineered to meet the site's specific water chemistry, arsenic speciation, and flow requirements—ensuring performance, longevity, and operational simplicity under real-world conditions.

Our Expertise Includes:

- **Proven, field-tested arsenic removal systems** using oxidation–coagulation–filtration (OCF) technology, incorporating natural or added iron, optimized oxidant dosing, and high-performance filtration media.
- E**xtensive experience across diverse groundwater chemistries**, including sites with variable As(III)/As(V) ratios, high silica, phosphate, manganese, or other competitive ions.
- **Pilot testing and bench-scale evaluation** to determine appropriate oxidation strategies, iron-to-arsenic ratios, media configuration, and system sizing for long-term stability and regulatory compliance.
- **Guidance on residuals handling and solids management**, including backwash optimization and waste characterization to ensure compliance with state and federal requirements.
- **Integrated treatment system design for co-occurring contaminants**, such as iron, manganese, chromium, nitrate, uranium, hardness, and PFAS—supporting robust, multi-contaminant treatment solutions for municipal and industrial groundwater systems.

Arsenic Removal Project Experience

Utility	Project	MGD	MLD	Pilot	Equipment
BrucePac, OR	BrucePac Well Field	1.08	0.29	■	■
Camano Island Water Association, WA	Well 1 & 3	0.15	0.04	■	■
City of Electric City, WA	Palmer Well Field	1.44	0.38	■	■
City of Fresno, CA	Well 370	1.73	0.46	■	■
City of Langley (Canyon Water), WA	System Well	0.04	0.01	■	■
City of Live Oak, CA	Well 7	1.44	0.38	■	■
City of Paisley, OR	Wells 1, 2 & 3	0.36	0.10	■	■
Cobb Area County Water District, CA	Hill 9 & 10	0.06	0.02	■	■
Fall City Water District, WA	Spring Hill	0.06	0.02		■
Golden State Water Company, CA	Del Monte Well	0.65	0.17		■
Holmes Harbor Estates, WA	Wells 1 & 2	0.09	0.02	■	■
Olympic Water and Sewer District, WA	Wells 14 & 16	0.89	0.24	■	■
Pend Oreille PUD, WA	River View Well	0.07	0.02	■	■
Rio Vista Water District, CA	Well 10	2.16	0.57	■	■
Rose Lake Water Association, ID	Well 4	0.22	0.06	■	■
Stillaguamish Tribe, WA	NR Well	0.02	0.01	■	■
Valley Water District, WA	Chinook Estates	0.14	0.04	■	■
Washington Water Service, WA	Biscay Villa	0.02	0.01	■	■

Pilot Testing

ATEC provides comprehensive pilot and bench-scale testing services to validate arsenic treatment performance under real-world groundwater conditions. Our mobile pilot systems can be deployed directly to a customer's site, or ATEC can collaborate with engineering consultants to design and execute customized pilot programs that evaluate oxidation–coagulation–filtration (OCF) performance, iron dosing requirements, filtration media selection, and overall system stability. These pilot units are equipped to test key variables such as As(III) oxidation efficiency, iron-to-arsenic ratios, pH impacts, and the influence of competing ions like silica and phosphate—providing the critical data needed for accurate system sizing and full-scale design.

ATEC also works closely with utilities and regulatory agencies to develop pilot methodologies that satisfy state and federal approval requirements. By capturing representative operating data—including arsenic breakthrough trends, solids loading, backwash performance, and media behavior—ATEC ensures that pilot studies support both engineering confidence and regulatory acceptance.

For more complex groundwater profiles or multi-contaminant objectives, ATEC offers bench-scale testing to evaluate alternative oxidation strategies, coagulant types, iron dosing levels, or media configurations prior to full-scale deployment. This targeted evaluation saves time and cost while ensuring that the final treatment design is optimized for the site's unique chemistry and long-term compliance goals.

Design

ATEC's arsenic treatment systems are modular, skid-mounted, and engineered for flexibility across a broad range of groundwater applications—from small single-well installations beginning around 20 GPM to multi-well municipal systems exceeding several million gallons per day. Every system is designed to optimize reliability, operational simplicity, and lifecycle cost, with particular focus on stabilizing arsenic speciation, maintaining iron-to-arsenic ratios, and ensuring robust filtration performance under variable water chemistry.

All treatment units are factory-assembled with integrated valving, manifolds, instrumentation, and automated controls, significantly reducing construction time and simplifying onsite installation. This pre-engineered approach allows utilities to deploy oxidation–coagulation–filtration (OCF) systems quickly while ensuring consistent quality across all manufactured components. During startup, ATEC's field engineers work directly with system operators to verify proper oxidation, coagulant dosing, backwash performance, and filter operation, providing hands-on training to support safe and effective long-term operation. Most installations require only routine inspections and periodic maintenance, minimizing operator burden while sustaining reliable treatment outcomes.

ATEC's engineering and field service teams support every phase of project delivery—from initial feasibility and pilot testing through detailed design, fabrication, commissioning, and ongoing technical support. ATEC also maintains a nationwide network of manufacturer's representatives to provide responsive aftermarket service, replacement media or components, and long-term operational guidance. This integrated delivery model ensures that each system is tailored to the site's unique arsenic chemistry and designed to meet regulatory requirements with confidence.

Proven Solutions for Arsenic Removal

At ATEC Water Systems, we understand the technical, regulatory, and operational challenges associated with arsenic in groundwater. For more than four decades, ATEC has supported utilities across North America with treatment systems engineered to deliver consistent, long-term control of arsenic under a wide range of source-water conditions. Our oxidation, coagulation, and filtration (OCF) platform is built on proven chemistry, field-tested media configurations, and durable system design, providing a dependable path to compliance even in complex or variable groundwater.

Whether you are responding to a new arsenic exceedance, planning a pilot study, evaluating treatment alternatives, or upgrading an aging facility, ATEC offers the expertise and support needed to achieve reliable results. Our team works closely with utilities, consultants, and regulators to develop custom-engineered solutions that meet today's standards and prepare communities for future challenges. With ATEC, utilities can count on practical, cost-effective treatment systems designed for performance, simplicity, and long-lasting value.

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