

## Cost-effective SafeGuard™ H2O Arsenic Removal Technology Paves the Way for More Stringent Federal Arsenic Standards



In 2001, the U.S. Environmental Protection Agency (EPA) lowered the federal arsenic (As) standard from 50 parts per billion (ppb) to 10 ppb, where it remains today apart for New Hampshire and New Jersey that have implemented a more stringent maximum contaminant level (MCL) of 5 ppb at the state level.

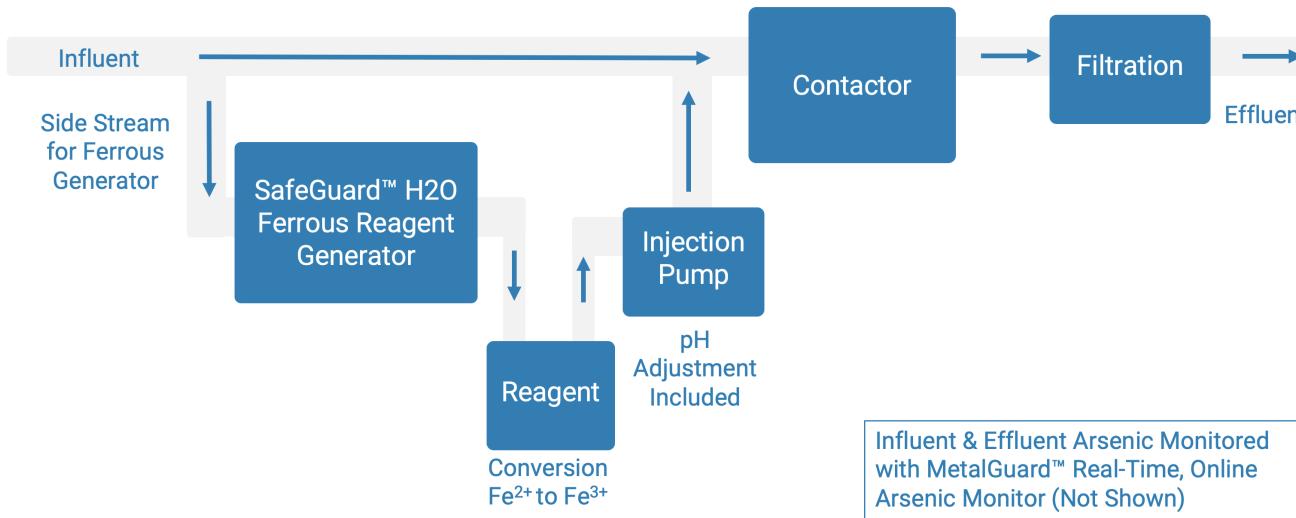
EPA's decision to hold the MCL level at 10 ppb for more than 20 years stems from the fact that the best available treatment technologies (BATs) typically have had very high investment and operating costs, making it prohibitive for many water utilities to cost-effectively treat down to levels lower than 10 ppb.

Currently, the EPA is reviewing its MCL recommendations for As since technological advancements such as the SafeGuard™ H2O now make it possible to economically treat to levels of 5 ppb and lower.

### **SafeGuard™ H2O Arsenic Treatment System**

The SafeGuard™ H2O arsenic treatment system generates a ferric reagent in-situ through a simple, effective and sustainable process (Figure 1). The system uses a certified iron precursor and an in-situ electrolytic generator to create a ferrous reagent on-site and on-demand. The reagent is produced on an as-needed basis through a tightly controlled electrolytic process. This fresh and highly reactive sorbent efficiently removes both As(III) and As(V).

**Real-time monitoring.** SafeGuard™ H2O features automatic dosing and incorporates proprietary continuous, real-time monitoring of As levels at the influent and effluent to ensure optimal treatment and compliance with regulatory and operational targets 24/7/365. Because the system can be fully controlled, monitored and optimized remotely, the presence of personnel on site for supervision is minimized, further reducing operating costs.



**Figure 1. SafeGuard™ H2O Arsenic Removal Process Generates a Ferric Reagent In-situ**

The technology's online monitoring capability allows for high treatment process automation as well as quick shutdown and restart; therefore, the risk of damage to system hardware during stagnation periods is minimal. This is a feature unique to the SafeGuard™ H2O and not available with other commercially available As removal systems.

Through continuous treatment monitoring and optimization of the reagent dose, water constituents such as silica, phosphates and many other substances that may pose significant interferences for As remediation have minor to no effect on As removal with the SafeGuard™ H2O system.

The SafeGuard™ H2O system also has a backwash water reuse feature, which significantly decreases water loss compared to other technologies.

**Scalable solution.** The SafeGuard™ H2O system has a modular and flexible design that can be scaled to any size. Depending on treatment size needs and site requirements, the technology can be designed to operate unattended for up to several weeks.

### Why SafeGuard™ H2O

While the EPA is reviewing its MCL recommendations for As, utilities are preparing for the possibility of a more stringent federal standard by evaluating the efficacy of As removal treatment systems that can meet levels as low as 3 ppb.

SafeGuard™ H2O is proven to eliminate As and drastically reduce the cost of removing this toxic contaminant from drinking water supplies. The technology will have a tremendous positive impact on human health by virtually eliminating arsenic from the water to which many people are exposed and features some of the following add-on benefits for water utilities:

- Fully automated in-situ ferrous/ferric reagent generation system that includes real-time online arsenic monitoring
- Certified iron precursor ensures the quality of the reagent
- Compact modular design easily integrates into existing infrastructure
- Low power consumption, supports carbon reduction goals
- Eliminates transportation of bulk chemicals
- Eliminates supply chain risks (political, environmental, industrial)
- Process eliminates health and safety risks and special handling requirements of bulk chemicals