APPLICATION BRIEF

# SafeGuard™ H2O Hexavalent Chromium Treatment System Demonstration at Joshua Basin Water District

Since 2018, the SafeGuard™ H2O in-situ reagent generation system developed by AMS has been supporting communities in California facing hexavalent chromium (Cr6) contamination of drinking water supplies and for whom traditional Cr6 treatment technologies are too expensive and complex to operate.

The Joshua Basin Water District (JBWD) supports the water needs of about 8,000 people in Joshua Tree. Bordering the well-known Joshua Tree National Park, Joshua Tree is a census-designated place located in San Bernadino County California.

In the Fall of 2022, the SafeGuard™ H2O system was evaluated by the JBWD to address Cr6 contamination and remove this harmful contaminant from its drinking water.

The JBWD undertook a four-week demonstration (Sept. 20 – Oct. 18, 2022) of the SafeGuard™ H2O technology to reduce Cr6 down to non-detect levels, under 1 part per billion (ppb). The demonstration system was housed in a trailer and placed onsite at JBWD Well #15 (Figure 1).

The fully automated SafeGuard™ H2O technology uses a certified precursor and an in-situ electrolytic generator to create a non-toxic stannous reagent onsite and on demand. The system incorporates proprietary continuous, real-time monitoring of Cr6 levels at the influent and effluent to ensure optimal treatment and compliance with regulatory and operational targets 24/7/365.

For the JBWD, SafeGuard™ H2O proved to be a highly automated process that provided accurate and reliable in-situ reagent generation to reduce Cr6 to below 1 ppb. From the moment the 28-day demonstration started, to when it ended, the SafeGuard™ H2O system operated completely autonomously. During this time, AMS only provided remote monitoring from over 450 miles away in Silicon Valley. These features, coupled with the technology's integrated continuous 24/7 real-time Cr6 monitoring, allowed for treatment process optimization and further confirmation of the suitability of the SafeGuard™ H2O system for wells of all sizes that are remote or unattended.

The capability of the SafeGuard™ H2O technology to consistently remove Cr6 to non-detect levels creates the opportunity for JBWD and other utilities to blend water from other Cr6 contaminated wells and achieve overall system compliance with the maximum contaminant level. SafeGuard™ H2O can mitigate the capital cost of bringing a system into compliance by eliminating the need for treatment at all wells.


**Figure 1. SafeGuard™ H2O Cr6 Removal Demonstration Trailer at Joshua Basin Water District. The demonstration system was comprised of five main components: the stannous reagent generation control module, electrolytic reagent generator, contactor, sand media filter and the MetalGuard™ online Cr6 monitor.**

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