

Project Profile



New River Elementary – Arsenic Treatment Phoenix, Arizona

Background

In early 2004, AdEdge was pre-qualified and invited to participate in arsenic pilot study of commercial adsorption-based treatment technologies with Damon S. Williams & Associates (DSWA). As an outcome of the successful piloting and preliminary work with the engineer, AdEdge was chosen by Centennial Contractors to perform full scale arsenic treatment using its granular ferric oxide adsorption technology at the New River Elementary School site in New River, Arizona, 15 miles north of Phoenix. AdEdge worked with the contractor, DSWA, and Maricopa County to furnish and commission a 30 gpm treatment system to reduce arsenic in the main well serving the school. Raw water arsenic concentrations range historically from 35-50 ppb, up to 5 times above the new arsenic maximum contaminant level for arsenic. This system was AdEdge's third installation for a public drinking water system in the State utilizing the granular ferric oxide technology and first for the Deer Valley Unified School District. Prior to piloting, a complete water profile was obtained by DSWA on the source water to assess the water chemistry and predict performance. The Table lists some of the more important water quality parameters for the site.

System Description

The AdEdge system was installed in an outdoor location near the well head. The Adsorption Package Unit or APU-30 designed for up to 30 gpm max flow is a skid mounted, integrated system that utilizes the Bayoxide E/AD33 granular ferric oxide adsorption media as the means for reducing arsenic. The small footprint system features a twin vessel configuration with automatic controls, series flow configuration and a backwash holding tank for periodic backwash water. For disinfection purposes, sodium hypochlorite is injected at two points prior to entering the distribution system. The AdEdge adsorption system itself requires no chemicals, regeneration, and does not generate liquid or hazardous waste. Media, when spent, is discarded as a non-hazardous solid waste. It is designed for minimal operator attention and maintenance. Visual instrumentation is provided on a stainless steel control panel to measure critical operating parameters. Total gallons and flow rate for each vessel is measured continuously.

Performance

The system was placed into operation in July, 2004. Average flow from the well is 25 gpm, treating an estimated 15,000 gallons per day. Several samples have been taken to date of both the influent and effluent from designated sample ports following startup of the system. Effluent samples indicate over 98% removal of arsenic from 40 ppb to below 2 ppb. AdEdge has a two-year agreement with Centennial to provide follow-on services as required.

For More Information Contact

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APU-30 System – New River, AZ
Arsenic Treatment Project

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|--------------|-------------|--------------|
| Total As ** | 0.035-0.050 | mg/L As |
| As(III) | < 0.005 | mg/L |
| Alkalinity | no data | mg/L @ CaCO3 |
| Hardness ** | 322 | mg/L @ CaCO3 |
| Silica ** | 45.0 | mg/L SiO2 |
| Phosphate ** | no data | mg/L P04 |
| Sulfate ** | 35.0 | mg/L SO4 |
| Iron ** | 0.20 | mg/L Fe |
| Manganese ** | < 0.05 | mg/L Mn |

