

Project Profile



EPA Arsenic Treatment Demonstration Rimrock, Arizona

Background

In mid 2003, AdEdge was selected to implement 3 full scale Arsenic Treatment Demonstration Projects with EPA using its granular ferric oxide technology. At the Rimrock location, implementation began in September, 2003 including engineering submittals and permitting by the Arizona Department of Environmental Quality (ADEQ). Upon completing site preparations and construction in early March, AdEdge Technologies installed the new 100 gpm Adsorption Package Unit (APU) arsenic treatment system at the Montezuma Haven well site. This system was AdEdge's second installation for a public drinking water system in the State utilizing the granular ferric oxide technology. Historically, arsenic levels reported in the source wells serving the community ranged from 50-55 parts per billion (ppb), over 5 times the new EPA standard of 10 ppb. A complete water profile was obtained on the source water to assess the water chemistry and predict performance. The Table lists some of the more important water quality parameters.



APU-100 System – Rimrock, Arizona
Arsenic Treatment Demonstration

System Description

AdEdge and its local subcontractor installed an APU-100 designed for up to 100 gpm max flow in an outdoor location near the well head. The system utilizes its Bayoxide E/AD33 granular ferric oxide adsorption media. The small footprint system features a twin vessel configuration with automatic controls, PLC, series flow configuration and a 100% backwash recycle system with zero discharge or loss of water. No pretreatment is necessary. For disinfection purposes, sodium hypochlorite is injected prior to entering the distribution system. The AdEdge adsorption system requires no chemicals, regeneration, and does not generate liquid or hazardous waste. Media, when spent, will be discarded as a non-hazardous solid waste. Minimal operation, maintenance, or operator attention is required for this simple automated system. Instrumentation is provided on a control panel to measure critical operating parameters. Total gallon throughput and flow rate for each vessel is measured continuously with a dedicated flow totalizing meter.

Total As **	0.052	mg/L As
As(III)	< 0.05	mg/L
Alkalinity	374	mg/L @ CaCO3
Hardness **	330	mg/L @ CaCO3
Silica **	26.0	mg/L SiO2
Phosphate **	< 0.10	mg/L P04
Sulfate **	11.6	mg/L SO4
Iron **	0.17	mg/L Fe
Manganese **	< 0.05	mg/L Mn

Performance

The system was placed into operation in June, 2004. Sustainable yield from the source well(s) is approximately 40 gpm. The well runs 12 hours per day with the system treating approximately 25,000 gallons per day. Samples were obtained of the influent and effluent from designated sample ports following startup of the system. Initial effluent concentrations indicate high efficiency arsenic removal to < 2 ppb. Samples will be obtained regularly and reported by EPA's third party contractor Battelle. The period of demonstration is one year.

For More Information Contact

AdEdge Technologies, Inc.
5152 Belle Wood Ct Ste A
Buford, Georgia 30518
678-835-0052 * 678-835-0057 Fax
greg@adedge technologies.com
www.adedge technologies.com

Arizona Water Company
Mr. Bill Garfield
President of Operations
Phoenix, Arizona
602-240-6860
bgarfield@azwater.com