

Project Profile

Clinton Christian School EPA Demonstration Project - Arsenic Removal Goshen, Indiana



Background

AdEdge Technologies Inc. (AdEdge) was selected in 2007 by the U.S. EPA and the host site in the Round 2a Arsenic Demonstration Program to implement a turnkey arsenic treatment for the Clinton Christian School in Goshen, IN. The Clinton Christian School water system is served by one well with a design flow of 25 gpm. The well provides potable water for the school with a population of 130 students / staff members. The treatment system receives water on the well side of the storage tanks with an elevated iron level of 0.81 mg/L, high manganese of 0.10 mg/l and an arsenic level of 29 ppb, above the EPA MCL of 10 ppb. From the well, water is treated by an AdEdge two stage oxidation/filtration and adsorption treatment system which is configured in parallel. AdEdge was contracted by U.S. EPA to provide and manage all aspects of the project including permitting with IDEM, design, and fabrication, installation, and startup activities. The system was AdEdge's 11th full scale EPA demonstration project.



Modular AD26 Oxidation/Filtration and E33 Adsorption System

Treatment System

AdEdge proposed and installed a Hybrid Style treatment system designed to reduce iron, manganese and arsenic concurrently to below primary and secondary MCLs. The system utilizes an AD26 Oxidation/Filtration pretreatment technology followed by granular ferric oxide adsorption deploying Bayoxide E33 GFO media. The design also includes a backwash management system capable of removing residual chlorine from the periodic backwash water to comply with the site's NPDES discharge permit. The packaged modular system features a triplex 13-inch diameter composite filtration package plumbed in a parallel flow prior to the dual 24-in composite module containing AdEdge's E33 adsorption media. The system is placed after a pre-chlorination module for oxidation of iron, manganese as well as arsenic (III) species. The modular treatment system is equipped with automatic controls, backwashing features, switches, gauges, flow meters, and sample ports for a complete functioning unit. The System also features a local gauges and sample ports on the inlet/outlet of each vessel for a complete functioning packaged system.



Backwash Management for NPDES Permit

Performance

Since full time operation began in February, 2008, the system has effectively reduced iron, manganese, and arsenic well below primary and secondary MCLs. Over 85% of contaminant reduction is being accomplished with the AD26 pretreatment technology. Approximately 2,500 gallons per day is being processed through the system on average. The site's operator performs the routine sample collection and reporting associated with the U.S. EPA's Demonstration Program requirements with quarterly reporting of the data by EPA's contractor Battelle. A 6-month EPA summary report will be produced and made publically available in the near future.

Priority Parameters		
pH **	7.40	
Total As **	0.029	mg/L As
As(III)	0.015	mg/L (if known)
Sulfides**	no data	mg/L
Hardness **	255	mg/L @ CaCO3
Alkalinity **	291.0	mg/L @ CaCO3
Silica **	18	mg/L SiO2
Phosphate **	<0.03	mg/L P
Sulfate **	2.0	mg/L SO4
Iron **	0.81	mg/L Fe
Manganese **	0.10	mg/L Mn

Raw Water Quality

For More Information Contact

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