

Project Profile

Lakeview Estates Community Durand, MI AD26 Arsenic, Iron & Manganese System



Background

In August, 2007 AdEdge Technologies, Inc. was selected among other vendors by Tri-County Drilling to supply an arsenic, iron, and manganese treatment system for the Lakeview Estates MHP in Durand, Michigan. The system consists of multiple wells that combine together to serve potable water to 239 connections in the community. Several options were considered based on the need to remove arsenic from 20 ppb to below the new MCL of 10 ppb. An AdEdge AD26 oxidation / filtration system was selected as the best overall approach to simultaneously remove the iron, manganese and arsenic. The packaged AD26 system utilizes an NSF 61 Certified manganese dioxide media (AD26) that is excellent for co-contaminant removal. The technology was selected based on overall cost, the small footprint, and simplicity of operation. Following award, all appropriate permitting documents were prepared and submitted to MDEQ for approval with the permit being granted in November, 2007. Concurrently, Tri-County Drilling constructed the new building and facilities to house the treatment system along with other upgrades. The raw water quality of the combined wells is shown to the right.



Treatment System

The AdEdge AD26 arsenic treatment train consists of a completely integrated packaged treatment system with three vessels in parallel to treat up to 200 gallons per minute (gpm). A design filtration rate of 8-9 gpm/sq foot is nearly 3 times higher than conventional greensand filtration offering high efficiency removal with smaller vessels and lower cost. The AD26 automated system equipped with a PLC, automated butterfly valves, and control panel is integrated with chlorine addition and monitoring for process control and disinfection purposes. The system is pre-engineered, pre-piped, and skid mounted for ease of installation and operation. A continuous free chlorine monitor on the system allows the operator to maintain desired disinfection residual in the distribution system. The AD26 technology has been deployed successfully by AdEdge on many high arsenic, iron, and manganese wells to date and as also on 3 full scale EPA arsenic demonstration projects.

pH **	7.72	
Total As **	0.020	mg/L As
As(III)	no data	mg/L (if known)
Sulfides**	no data	mg/L
Hardness **	380	mg/L @ CaCO3
Alkalinity **	no data	mg/L @ CaCO3
Silica **	18.3	mg/L SiO2 estimated
Phosphate **	0.35	mg/L PO4 estimated
Sulfate **	48.0	mg/L SO4
Iron **	0.54	mg/L Fe
Manganese **	no data	mg/L Mn

Performance

Installation was completed and the system was officially started up in January, 2008. Since operations began, the system has consistently met all the EPA MCLs for arsenic, iron, and manganese. Arsenic in the treated water has been recorded consistently below detection (<2 ppb). Monitoring and periodic sampling of the system is performed by the site's certified operator in accordance with the MDEQ permit.

For More Information Contact

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