

AD26 Oxidation/Filtration helps Michigan Mobile Home Community

Skid-mounted iron and manganese removal system

PROJECT

In February 2008, AdEdge Water Technologies was selected as the sole vendor by Sun Communities, a nation-wide owner and operator of mobile home communities, to supply an iron and manganese treatment system for the Meadow Lake MHC in White Lake, Michigan. The Meadow Lake MHC treatment system is the third packaged treatment system Sun Communities purchased from AdEdge. The site consists of two wells that serve potable water to 430 connections and a population of 1,063 in the community. Several options were considered based on the need to remove iron from 0.90 ppm to meet EPA standards.

An AdEdge AD26 oxidation/filtration system was selected as the best overall approach to simultaneously remove the iron and manganese from the community water supply. The packaged AD26 system utilizes a 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 of the contract, all appropriate permitting documents were prepared and submitted to MDEQ for approval with the permit being granted in April 2008.

STATS

Customer: Meadow Lake MHC

Location: White Lake, Michigan

Challenge: Reduce iron and manganese from two wells

Flow Rate: 750 gpm

Products:

- AD26 oxidation/filtration media
- AdEdge Packaged Unit (APU)

Results: Since startup in late 2008, iron and manganese levels have been lowered to non-detectable levels.

For more information on these solutions, visit adedgetech.com.



AdEdge Water Technologies, LLC provided two triplex systems for the Meadow Lake mobile home community.

CASE STUDY

SOLUTION

The AdEdge AD26 iron and manganese treatment train consists of a completely integrated packaged treatment system with six 48-inch vessels (two triplexes) in parallel to treat up to 750 gallons per minute (gpm). A design filtration rate of 9 gpm/square foot is nearly 3 times higher than conventional greensand filtration offering high efficiency removal with smaller vessels and lower cost. The AD26 automated system is equipped with a programmable logic controller (PLC), automated butterfly valves, and control panel that 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 iron and manganese wells to date and also on three full-scale USEPA demonstration projects.



Each 48-inch diameter vessel contains 37 cubic feet of AdEdge's AD26 oxidation/filtration media.

Backwashing on the treatment system is performed every two or three days depending on incoming levels of iron and manganese, total flow throughout the system, and differential pressure. Backwashing occurs to remove the suspended solids that are accumulated in the vessels and to prevent hydraulic channeling. The PLC automatically determines when the treatment system needs a backwashing event.

RESULTS

Installation was completed and the system was officially started up in late 2008. Since operations began, the system has consistently removed the iron and manganese levels to well below the EPA MCLs. Iron and manganese in the treated water has been recorded consistently below detection. Monitoring and periodic sampling of the system is performed by the site's certified operator in accordance with the MDEQ permit.

Priority Parameters		
pH **	7.60	estimate only
Total As **	na	mg/L As
As(III)	na	mg/L (if known)
Sulfides **	no data	mg/L
Hardness **	349	mg/L @ CaCO ₃
Alkalinity **	no data	mg/L @ CaCO ₃
Silica **	no data	mg/L SiO ₂
Phosphate **	no data	mg/L P ₀₄
Sulfate **	no data	mg/L SO ₄
Iron **	0.90	mg/L Fe
Manganese **	0.05	mg/L Mn

The raw water quality of the Meadow Lake MHC wells prior to being treated by the AD26 iron and manganese removal system.



The facility where the iron and manganese removal system is housed. The treatment system is rated for up to 750 gpm and cleans the water for over 1,000 residents daily.



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