

Project Profile

Foxtown Apartments

Sudlersville, Maryland

Arsenic, Iron & Manganese Removal



Background

AdEdge Technologies Inc. (AdEdge) was selected in 2006 by McCrone Engineers and the awarded contractor, Maryland Construction to design, build, and install a full scale AD26GS+ arsenic, iron, and manganese treatment system for their customer Foxtown Apartments in Sudlersville, Maryland to meet the new EPA arsenic standard. The treatment system was based on the design rated for 50 gallons per minute (gpm) in order to treat the water from both wells. Incoming arsenic concentrations were tested at 24 ug/L, while iron tested at 0.12 mg/L, and manganese at 0.22 mg/L. Water is treated prior to entering two pressurized storage tanks that feed distribution. AdEdge provided the necessary design and construction related submittals working closely with McCrone Engineers to implement the project. As part of their package, AdEdge also provided turnkey installation services through Delaware Water Technologies for the system and provided the overall master system control panel and PLC.

Treatment System

AdEdge furnished the integrated packaged treatment system capable of treating up to 50 gpm design flow. The system consists of two 30" OD x 60" ASME pressure vessels in parallel configuration, with electric control valves, control panel, pressure gauges, and automatic PLC controls (shown at the right) and the AD26GS+ media. The process also utilizes two continuous chemical feed modules consisting of ferric chloride and chlorine to augment the natural iron in the groundwater and chlorine to optimize arsenic removal in the media bed. Hypochlorite is also utilized to oxidize the Arsenic (III) to Arsenic (V), and to aid in iron and manganese removal. The coagulated arsenic and oxidized iron and manganese particulates are removed in the media bed as the water flows through the media bed. These particulates are then backwashed from the filters regularly. In addition, a PLC Control Panel controls the entire operation of the filter system using an Allen Bradley PLC. The master control panel includes a door mounted Panel View 1000 color-touch screen to allow automatic and manual control monitoring of the filtration cycles. The filter PLC also monitors flow and differential pressures while controlling two well pumps, chemical dosing systems, signals from the hydro pneumatic tank level transmitters, and the air compressor. Backwash water supply is provided via the pressurized storage tanks.



Priority Parameters	
pH **	7.80
Total As **	0.24 mg/L As
As(III)	no data mg/L (if known)
Sulfides**	no data mg/L
Hardness **	380.00 mg/L @ CaCO3
Alkalinity **	no data mg/L @ CaCO3
Silica **	18.90 mg/L SiO2 estimated
Phosphate **	0.35 mg/L PO4 estimated
Sulfate **	48.00 mg/L SO4
Iron **	0.12 mg/L Fe
Manganese **	0.22 mg/L Mn

Performance

In early August 2007, the AdEdge AD26GS+ coagulation / filtration system was installed and commissioned into full operation. AdEdge and Maryland Construction conducted the Plant Start up and Reliability testing following shakedown of the system. Maryland Environmental Services (MES) is the site's certified operator who is contracted to perform regular testing and monitoring of the system. Field tests showed that arsenic, iron, and manganese all were removed to Non-detect or below detection levels. The treatment plant has run in automated mode per specifications with 100% success. The system is monitored regularly with no known issues.

For More Information Contact

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