

Project Profile



Resort Village of Kannata Valley Silton, Saskatchewan, Canada 150 GPM AD26 Arsenic, Iron Removal System

Background

In November 2009 AdEdge Technologies, Inc. was selected among other vendors in a Tender by the Resort Village of Kannata Valley (RVKV) to supply an arsenic, iron, manganese and turbidity treatment system for their community in Silton, Saskatchewan. Prior to selection, AdEdge worked with its local representative, the Water Clinic on piloting the system that was chosen. The water system currently uses one 132 gpm artesian well that serves potable water to 260 connections. Several options were considered based on the need to remove the 1.7 – 2.14 mg/L iron and arsenic from 31 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 both contaminants while having a small footprint. Work was closely coordinated with the RVKV and its consultant to design and permit the treatment system. Following award, all appropriate permitting documents were prepared and submitted to the Province for approval with the permit granted in January 2010. The AdEdge scope of work included system design, supply and start-up assistance. 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.



Parameters			Parameters		
pH	7.6 - 7.9	units	Total Organic Carbon	no data	mg/L TOC
Total As	0.031	mg/L As	Sulfate	865.70	mg/L as SO4
As(III)	no data	mg/L	Nitrates	0.90	mg/L as NO3
Sulfides	865.70	mg/L	Chlorides	185.00	mg/L Cl
Hardness	446.00	mg/L @ CaCO3	Uranium	0.30	ug/L U
Alkalinity	516.0	mg/L @ CaCO3	Gross Alpha	no data	pCi/L
Silica	no data	mg/L SiO2	TDS:	2,353.00	mg/L
Phosphate	no data	mg/L PO4	Fluoride	0.30	mg/L F
Bicarbonate	627.00	mg/L HCO3	Turbidity	10.00	NTU
Iron	1.70	mg/L Fe	Suspended Solids	no data	mg/L TSS
Manganese	0.09	mg/L Mn	Temperature	no data	degrees F

Treatment System

The AdEdge AD26 arsenic treatment train consists of one skid mounted triplex packaged treatment systems with three vessels in parallel to treat up to 150 gallons per minute (gpm). A design filtration rate of 3.98 gpm/sq was chosen to allow for filtration of the high level of contaminants including turbidity in a range of 6.34 – 12.0 NTU. 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 also includes air wash and complete backwash recycle, providing a treatment system with zero discharge. 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 also on 5 full scale EPA arsenic demonstration projects.

Performance

Installation was completed and the system was officially started up in August 2010. 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) and Turbidity to 0.014 NTU. Monitoring and periodic sampling of the system is performed by the site's certified operator in accordance with the operating permit.

For More Information Contact

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