

Project Profile



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

Background

In November 2009 AdEdge was selected by the Resort Village of Kannata Valley (R.V.K.V.) to supply an arsenic, iron, manganese and turbidity treatment system for their community in Silton, Saskatchewan. A 132 gpm artesian well 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 R.V.K.V. site to design and permit the treatment system. Appropriate permitting documents were prepared and submitted to the Province for approval with the permit being granted in January 2010. The AdEdge scope of work included system design, supply and start-up assistance. The AdEdge system was selected based on overall cost, the small footprint, and simplicity of operation. The raw water quality of the well is shown to the right.



Treatment System

The AdEdge AD26 system treatment train consists of one skid mounted triplex packaged treatment unit 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 system uses AdEdge manganese dioxide media (AD26) that is excellent for co-contaminant removal. The AD26 automated system is equipped with the AdEdge INGenius™ PLC, automated butterfly valves, and control panel, and is integrated with chlorine addition and monitoring for process control and disinfection purposes. The system also includes air wash and a complete AdEdge H2Zero™ recycle/backwash, zero discharge system. 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 including 5 full scale EPA arsenic demonstration projects. Installation was completed and the system was officially started up in August 2010.

Parameters		Parameters	
pH	7.8 - 7.9	units	
Total As	0.031	mg/L As	
As(III)	no data	mg/L	
Sulfides	865.70	mg/L	
Hardness	446.00	mg/L @ CaCO3	
Alkalinity	516.0	mg/L @ CaCO3	
Silica	no data	mg/L SiO2	
Phosphate	no data	mg/L PO4	
Bicarbonate	627.00	mg/L HCO3	
Iron	1.70	mg/L Fe	
Manganese	0.09	mg/L Mn	
Total Organic Carbon	no data	mg/L TOC	
Sulfate	865.70	mg/L as SO4	
Nitrates	0.90	mg/L as NO3	
Chlorides	185.00	mg/L Cl	
Uranium	0.30	ug/L U	
Gross Alpha	no data	pCi/L	
TDS:	2,353.00	mg/L	
Fluoride	0.30	mg/L F	
Turbidity	10.00	NTU	
Suspended Solids	no data	mg/L TSS	
Temperature	no data	degrees F	

Performance

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 MDEQ permit.

For More Information Contact

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