

Project Profile



Westview Elementary and High Schools Topeka, Indiana Arsenic Treatment Systems



Background

In early 2006, AdEdge Technologies Inc. (AdEdge) teamed up with Hawkins Water Tech to design and implement two full-scale arsenic treatment projects for Westview Elementary School and Westview High School located in Topeka, Indiana. Arsenic concentrations in the school wells range between 21 and 23 ppb, which exceeded the new Federal EPA standard of 10 ppb. Design plans were prepared by LJB Engineers with support from Hawkins and AdEdge and submitted to the Indiana Department of Environmental Management (IDEM) for approval. Both systems were sized for similar demand flow rates of 50 gallons per minute (gpm). Preceding the arsenic systems are cationic exchange water conditioners to soften the water and remove elevated levels of iron and manganese. The design plans were approved and permits issued by IDEM in late spring 2006 and the systems subsequently installed.



Treatment

Each of the AdEdge arsenic treatment systems consist of a twin vessel modular arsenic adsorption system that utilizes Bayoxide E33 granular ferric oxide media (GFO). Groundwater is first pumped from the water supply well to the hydropneumatic tank for demand distribution. From the 2,400 gallon hydropneumatic tank, the water travels through the existing water softener where iron and manganese are minimized prior to entering the adsorption module. One of the school systems employs a centrifugal separator to remove sand and grit from the well. The two 30-inch adsorption vessels are configured in parallel and rated for a combined 50 gpm of flow. Bayoxide E33 is a proven iron-based media that has been in commercial use since 1999. AdEdge has used GFO media successfully in over 90 small community system applications and in over 2,000 residential applications.

Performance

The systems were installed with automatic control valves, backwashing features, pressure gauges, and sample ports for a complete arsenic treatment module. Total gallon throughput and flow rate for each unit is measured continuously with dedicated flow totalizing meters. The AdEdge adsorption systems do not require any chemicals or regeneration, and the process does not generate liquid or solid hazardous waste. The systems were installed in early August 2006 and have been operating with flows ranging between 3,000 and 4,000 gallons per day. Initial samples indicate that the treatment systems are removing arsenic concentrations to below detection limits.

pH **	7.50	mg/L @ CaCO3
Total As **	0.021	mg/L As
Sulfides**	<0.05	mg/L
Hardness **	7	grains
Alkalinity **	290.0	mg/L @ CaCO3
Silica **	20.0	mg/L SiO2
Phosphate **	0.1	mg/L P04
Sulfate **	5.7	mg/L SO4
Iron **	1.50	mg/L Fe
Manganese **	<0.002	mg/L Mn

For More Information Contact

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