

C A S E S T U D Y

An Affordable Wastewater Solution for Government Properties

WAPSIE VALLEY HIGH SCHOOL, IOWA

Problem Wapsie Valley High School had surfacing wastewater flowing over the school's parking lot from a 45-year-old drainfield. Highly variable flows and site constraints posed additional problems.

Solution The school installed a compact AdvanTex® AX100 Wastewater Treatment System, which is capable of handling variable flows, and a TCOM™ remote telemetry monitoring system, both manufactured by Orenco Systems, Inc.

New Wastewater System Overcomes Multiple Challenges

In 2004, Wapsie Valley High School desperately needed a wastewater solution. Partially treated, bad-smelling wastewater was surfacing from the school's 45-year old drainfield and flowing over the schools' parking lot. School officials hired MMS Consultants to evaluate options for a new system.

MMS had to design a system that could deal with the school's highly variable wastewater flows. In addition to serving 350 students and staff, the rural school also hosted community activities, including athletics, music programs, drama, and conferences. During the school year, wastewater flows averaged 5,000 gpd, and big events strained the system's capacity to a peak of 13,000 gpd. But during the summer, flows dwindled to almost nothing. Most wastewater treatment technologies perform poorly when flows vary this much. Another challenge for the treatment system was Iowa's winter temperatures, which typically approach 0° F.

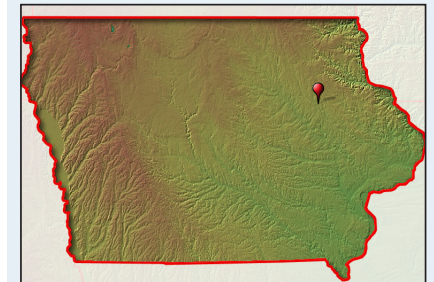
In addition to these challenges, MMS had to cope with construction constraints. Space on campus was limited, and school officials insisted on preserving existing athletic space and other areas throughout the school grounds. Only a small section of land, located within 20 feet of classrooms, was available. Moreover, construction had to be completed within a 10-week window during the 2005 summer break.

After evaluating the situation, MMS Consultants chose an AdvanTex Treatment System, manufactured by Orenco Systems, for its relatively simple, robust, and part-time operation, low energy consumption, and ease of construction. AdvanTex is a packed-bed, textile filter that operates in recirculating mode and is unaffected by variable flows. Moreover, its low energy consumption and minimal maintenance requirements were an affordable solution.

Commercial — Government Market

Project Overview

FAIRBANK, IOWA



Design Parameters

- High school serving 350 students and staff
- Includes a gym, cafeteria, and community center

Effluent Quality*

- < 10 mg/L cBOD₅
- < 10 mg/L TSS
- < 5 mg/L NH₃-N

Installation Date

- October 2005

Primary Treatment

- Two 20,000 gallon septic tanks

Secondary Treatment

- 10,000 gallon recirculation tank
- Four AX100s
- Two duplex 50 gal/min, ¾ Hp pump packages
- TCOM® telemetry control panel

Dispersal

- Existing subsurface drainfield

Operation

- Part-time operator with quarterly maintenance visits.

* Samples collected between 13 January 2006 and 10 May 2006.

WAPSIE VALLEY HIGH SCHOOL, IOWA

It took only four weeks to install and commission an AdvanTex Treatment System with four AX100 pods, which easily fit into the allotted space. MMS provided design, permitting, and construction management for the project.

Once the AdvanTex system was installed, the consistently high quality of the effluent took the strain off the existing drainfield, which was rehabilitated and placed back into service. Today, the system's effluent cBOD₅, TSS, and NH₃-N average less than 10 mg/L, 10 mg/L, and 5 mg/L, respectively.

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For information about Prelos™ Sewer, AdvanTex® Wastewater Treatment, or Orenco Controls™, contact Orenco Systems®, Inc.



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Data used by Orenco to derive the representations and conclusions contained within this Case Study were current as of June 2009.