INTEGRATED WATER SERVICES

Clean Water. Clear Choice.

CASE STUDY

IWS Completes Successful Wastewater Design-Build Project for School District

Location: Monte Vista, Colorado

HIGHLIGHTS

Achieved <10 mg/L total nitrogen, demonstrating advanced denitrification for stringent subsurface discharge.

Received CDPHE approval for alternate technology establishing up-flow filter as a viable solution for domestic wastewater works.

Delivered a comprehensive wastewater treatment system for K-12 education.

INNOVATIVE SOLUTION MEETS STRICT STANDARDS

Sargent Schools is based in south-central Colorado (approximately 50 miles north of the New Mexico border) and services K-12 students from rural Rio Grande County. The Neenan Company was contracted to design-build school improvements including the addition of a new building to serve the high school. The Neenan Company selected IWS to join the project team to design, permit, and construct the wastewater treatment system for the school district.

CHALLENGES FACED

- **Discharge Location Constraint:** The site's location lacked proximity to potential surface water disposal locations, requiring a highly effective subsurface disposal solution.
- **Strict Nitrogen Requirement:** The system needed to meet the demanding Colorado Department of Public Health and Environment (CDPHE) subsurface discharge requirement of less than 10 mg/L total nitrogen, a level necessary to protect groundwater quality.
- **Unprecedented Permitting:** CDPHE had not previously permitted any Advantex treatment system for subsurface dispersal that could prove its capability of meeting such a low nitrogen requirement.

SOLUTIONS IMPLEMENTED

- **Innovative Technology Introduction:** IWS directly introduced CDPHE regulators to the innovative denitrification up-flow filter technology developed by IWS, pairing it with the standard Advantex AX-100 pods.
- **Pilot Program Integration:** The IWS denitrification up-flow filter was installed and operated as a pilot program under the Water Quality Division of the CDPHE's new technologies program, allowing regulators to directly observe its performance.

OUTCOME AND IMPACT

- **Treatment Success:** The new treatment system successfully met the required 10 mg/L total nitrogen limit, ensuring compliance with strict groundwater discharge requirements..
- **State-Wide Technology Approval:** Based on the successful performance, the IWS-developed up-flow filter technology was formally approved as an alternate technology for use in domestic wastewater works throughout Colorado by the CDPHE.
- **Project Delivery:** The entire project, including the complex treatment train, was completed successfully on a design-build basis, showcasing IWS's technical performance and professionalism.

The final comprehensive treatment system includes a 15,000-gallon septic tank, a 10,000-gallon anoxic tank, a 15,000-gallon recirculation tank, six AX-100 Advantex pods, two 8,000-gallon denitrification up-flow filter tanks (IWS technology), a 6,000-gallon dosing tank, and a 40,000 sq. ft. drain field.

The project demonstrates IWS's ability to deliver a high-quality, efficient, and environmentally sound wastewater treatment system for its clients no matter the challenges.

"This is the second project we have worked on with IWS and the first where they have delivered a completed on-site wastewater treatment system on a design-build basis. We are very pleased with their performance and professionalism, and are looking forward to working with them in the future."

Greg Kushner
Project Manager, Neenan Company

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