



Pennsylvania Borough Upgrades Wastewater Treatment Plant and Experiences Lower Lifecycle Costs

THE SITUATION

The Ebensburg Wastewater Treatment Plant, located in the town of Ebensburg, PA, was exceeding their permitted hydraulic capacity established by the Pennsylvania Department of Environmental (PADEP). The fairgrounds area, which suffered from higher than acceptable flows, was a large contributor to the excessive flow condition. To maintain compliance with their Corrective Action Plan, treatment plant operators looked for assistance determining the most cost-effective way to manage their excess plant flows and allow for plant expansion.

THE SOLUTION

The Borough of Ebensburg selected L.R. Kimball as their engineering consultant to provide a number of services ranging from engineering design, construction oversight and project management for the upgrade of the wastewater treatment plant to address their excessive flow challenges and increase capacity from 1.25 MGD design flow with 4.0 MGD peak flow to a 2.0 MGD design flow with a 5.5 MGD peak flow.

L.R. Kimball's previous experience providing targeted results to wastewater treatment plants includes:

- A breadth of services such as topographic mapping/surveying; preliminary planning and engineering; final design including mechanical, electrical, structural and civil engineering; and construction management and oversight.
- Experience helping municipalities navigate the funding arena.
- An in-depth understanding of current wastewater technologies that would help the Borough find more cost-effective and efficient means of plant operation

- Experience providing engineering for previous Ebensburg WWTP upgrades in 1958 and 1990.
- Local accessibility and familiarity.

L.R. Kimball prepared and assisted with grant applications for the \$4.7M upgrade, which resulted in a \$2.4M PENNWORKS grant, \$800K PENNWORKS loan, and \$1.5M in low interest loans from PENNVEST. The firm also helped to implement a number of new cutting-edge technologies that deliver lower lifecycle costs, improved safety and operation efficiency for the Ebensburg Wastewater Treatment Plant. Examples of this include:

- The installation of a UV disinfection system to replace chlorination for disinfection and de-chlorination.
- An automated mechanical bar screen to remove heavy solids prior to treatment.
- A grit washer removal system to eliminate sand and gravels prior to treatment.
- Upgrading of the Sequencing Batch Reactor (SBR) process using smaller blowers, thereby decreasing plant electrical consumption.

Project Overview

CLIENT

Municipal Authority of the Borough of Ebensburg (owner of the potable water and sanitary sewer systems that serve Ebensburg Borough and a portion of Cambria Township, PA)

PROJECT HIGHLIGHTS

- Upgraded SBR process to increase plant capacity
- New UV disinfection system
- New centrifuge lowers transportation and disposal costs
- New solids removal facilities

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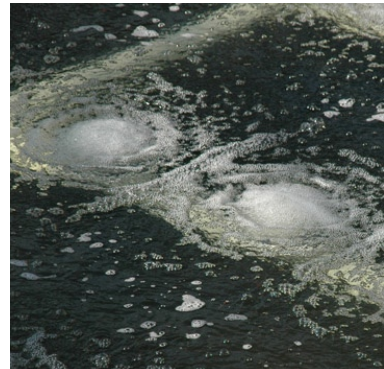
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- Converting the SBR process from coarse bubble to fine bubble aeration, larger decanters, and new mixers and updated control system to increase plant hydraulic capacity.
- The existing belt filter press was replaced by a centrifuge for dewatering. This replacement significantly lowered transportation and disposal costs of solids and is a much cleaner process.
- Conversion of the clarifiers to aerobic digestors.
- The addition of a septage dumping station.

THE RESULTS

Since the project was completed, the excess flow issues at the Ebensburg Wastewater Treatment Plant have been resolved and the plant is experiencing a number of supplementary benefits. There is a reduced need for manual labor resulting in lower plant operating costs. The new mechanical bar screen has reduced non-sewage solids and floatables formerly treated in the plant creating operational and discharge challenges. Their UV system eliminates the need to control and monitor residual chlorine within the limits of PADEP discharge permit.

The upgrades also eliminated the safety hazards and security risks of storing gas chlorination on-site. Additionally, the plant is experiencing greater continuity of operations in the event of a power failure due to the installation of a new generator. As part of the project, antiquated clarifiers were converted into sludge digesters to provide them with additional capacity for sludge handling. Another large benefit is their ability to generate revenue by providing contracted sludge dewatering services for other plants.



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