



Shippensburg Biological Nutrient Removal Project

Shippensburg Borough – ahead of the Chesapeake Bay 2000 Agreement compliance.



PROJECT:

Shippensburg wastewater treatment plant biological nutrient removal (BNR)

CHALLENGE:

Provide practical and cost-effective solutions for the borough's treatment plant with an 85 percent reduction of nitrogen and phosphorus by October 1, 2010, to meet the Chesapeake Bay clean-up initiative.

SOLUTION:

ARRO recommended conversion of the existing plant's process to a multiple-stage BNR process with dissolved oxygen control and a five-phase approach for sewage discharge.

Background

The Shippensburg biological nutrient removal (BNR) upgrade project traces its roots to early 2003. The Chesapeake Bay Tributary Strategy clean-up initiative loomed large as the most pressing future issue facing the borough council. As they looked to select a proven wastewater engineering partner, the council called upon ARRO and its unparalleled expertise.

Challenges

Before ARRO commenced the Shippensburg wastewater BNR project, the situation was this:

- Shippensburg was challenged with providing a solution to the Chesapeake Bay 2000 Agreement
- The Pennsylvania Department of Environmental Protection (PA DEP) released an update to its Chesapeake Bay Tributary Strategy in January 2005
- The goal was to remove the bay from the federal list of impaired waters prior to 2011 and Shippensburg had to do its part
- The Borough needed a cost-effective and environmentally sound option for conversion

The Shippensburg Borough Council adopted an aggressive attitude and set about to find a like-minded engineering firm to run with this project.

The Solution

ARRO evaluated various treatment process alternatives based on the needs of the borough. The plan included:

- Converting the existing activated sludge process into a multiple-stage biological nutrient removal process with dissolved oxygen control
- A five-phase approach for sewage discharges based on treatment facility design capacity and nutrient reduction caps

The Results

The project culminated a short 18 months after commencement when the plant received its final National Pollutant Discharge Elimination System (NPDES) permit in January 2008. The Shippensburg plant, designated a phase 1 facility, is targeted for an 85 percent reduction in total nitrogen and total phosphorus by October 1, 2010.

The plant was completed and placed on-line without raising customer rates through the very measurable efforts of the borough and its effective pursuit of available grant money.

In Their Own Words

"THE BOROUGH IS FORTUNATE AND THANKFUL TO ARRO TO HAVE RECEIVED \$3.1 MILLION IN GRANTS FOR THE BNR PROJECT."

— CHUCK MUSIC

SHIPPENSBURG BOROUGH WASTEWATER OPERATIONS MANAGER

"WITHOUT THE SOUND COUNSEL OF ARRO, I'M NOT SURE IT WOULD HAVE BECOME A REALITY."

— EARL PARSHALL

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