

Atlantic Beef Products unlocks growth with wastewater treatment upgrade

MBR technology increased treatment capacity, supported a new processing stream, and improved discharge performance.

Atlantic Beef Products needed more wastewater treatment capacity to support plant growth and the addition of tripe processing. Working with Environmental Industrial Services Inc. (EISI), Xylem modernized the facility's treatment system by implementing membrane bioreactor (MBR) technology and automating key processes while maximizing existing infrastructure. The upgrade increased treatment capacity, improved effluent quality, and created a more reliable foundation for future expansion.

Challenge

Atlantic Beef Products processes cattle for producers across Atlantic Canada. As production grew, so did the volume and strength of the plant's wastewater. Beef processing generates high-strength wastewater containing organics, suspended solids, fats, oils and grease, as well as high TKN from blood and animal protein. Wastewater loads can also change sharply with production and cleaning cycles. Those changing loads put increasing pressure on the existing treatment system and made reliable operation more difficult.

The facility's existing sequencing batch reactor (SBR) and sludge management processes were not designed to support the higher treatment demands associated with continued production growth and the planned addition of tripe processing. Limited sludge storage capacity, labor-intensive thickening processes, and operational constraints within the treatment system reduced flexibility and required increased operator involvement. Together, these factors limited the wastewater plant's ability to accommodate future expansion and new processing streams.

Xylem's solution

To support continued production growth, Xylem collaborated with Environmental Industrial Services Inc. (EISI) to evaluate the entire wastewater treatment process and develop a long-term upgrade strategy. The solution centered on converting the existing sequencing batch reactor (SBR) to a membrane bioreactor (MBR) system. MBR technology was an ideal choice for the upgrade, providing consistent nitrification to meet ammonia and nitrogen discharge limits. Existing infrastructure was repurposed to minimize construction costs. The upgrade increased treatment capacity, improved reliability, simplified operations, and created the flexibility needed to support future expansion and tripe processing.



Customer

Atlantic Beef Products in Albany, Prince Edward Island, Canada

Challenge

Production growth outpaced the capacity of existing treatment systems

Solution

Upgraded existing treatment system with MBR technology and automation



Xylem and EISI implemented a wastewater treatment upgrade that combined membrane filtration, sludge handling, aeration, and process controls to increase capacity, improve effluent quality, and streamline operations. By repurposing existing tanks and infrastructure, the project minimized new construction while creating a scalable platform for future growth.

A smarter upgrade

In addition to converting the existing SBR to an MBR system, Xylem installed a membrane-based sludge thickening system to automate solids management and improve process efficiency. An existing equalization tank was repurposed for sludge storage, increasing storage capacity by more than 50%.

Additional upgrades included enhanced aeration equipment and control systems to support stable biological treatment performance. Screening was also added to accommodate wastewater from the facility's new tripe processing operation. Together, these improvements created a more robust treatment system capable of handling higher and more variable wastewater loads while maximizing the value of existing infrastructure.

Results

The upgraded system provided Atlantic Beef with a more reliable and scalable wastewater treatment solution capable of supporting production growth, accommodating new processing streams, and consistently achieving high effluent quality.

>50% increase in sludge storage capacity

- **Enabled production growth:** The upgraded treatment plant can handle higher wastewater loads and treat wastewater from tripe processing, opening an additional production stream and removing a constraint on production.
- **Reliable compliance:** Since commissioning, high-quality final effluent discharged to the Northumberland Strait has consistently met stringent direct-discharge limits. Biochemical oxygen demand (BOD) has remained below detectable levels and suspended solids below 1 mg/L, even as wastewater loads varied.
- **Maximizing existing infrastructure:** Repurposing existing tanks expanded treatment capability while limiting new construction.
- **Improved operational efficiency:** Automated sludge thickening, enhanced process controls, and MBR technology streamlined wastewater treatment operations while supporting reliable long-term performance.

By expanding treatment capacity and enhancing process performance, Xylem helped Atlantic Beef Products and EISI remove wastewater treatment as a constraint to growth. The upgraded system supports current production demands, enables tripe processing, and provides a scalable foundation for future expansion while maximizing the value of existing infrastructure.

