

Friesland Campina simplifies wastewater management with a long-term service agreement

Xylem automates, upgrades and expands key processes and improves effluent quality through a design-build-own-operate agreement

Friesland Campina is a global dairy cooperative whose ingredients are used in infant formula and whey protein beverages. At its Delhi, New York, plant, evolving wastewater conditions made treatment increasingly complex and labor-intensive. Xylem integrated and automated the process, improving discharge performance and simplifying operations. Through a long-term service agreement, Xylem now operates the system.

Challenge

Friesland Campina is one of the world's largest dairy cooperatives, selling products in more than 100 countries. Its Delhi, New York, plant makes protein hydrolysates for use in infant formula, whey protein beverages, and prebiotic products.

As production conditions changed, the volume, organic load, and pH of the plant's wastewater became increasingly varied. The existing holding tanks were not designed to absorb these fluctuations, placing greater demand on the treatment system.

To help meet discharge requirements, additional treatment equipment was added over time, making the process more complex. Key treatment steps, including pH adjustment and solids management, relied on manual intervention, while limited aeration capacity and aging infrastructure made consistent performance more challenging. The result was a labor-intensive process that required significant operator attention to maintain compliance with discharge limits.

Xylem's solution

Xylem applied its Total Water Management approach, addressing the wastewater challenge as part of the plant's broader water and production ecosystem. Leveraging its treatment expertise, Xylem designed a solution that repurposed existing infrastructure where possible, improved process stability, and reduced operational complexity.



Customer

Friesland Campina, Delhi, New York

Challenge

Changing wastewater conditions challenged the existing treatment system, increasing process complexity and operator involvement.

Solution

A modernized wastewater system backed by long-term operational expertise.



The first step was to increase equalization capacity with a 275,000-gallon buffer tank, which smooths fluctuations in flow and organic load while enabling controlled treatment of high-strength wastewater. Through a long-term service agreement, Xylem continues to operate and optimize the system, helping protect production while supporting reliable discharge compliance.



Through a design-build-own-operate agreement, Xylem provides full wastewater treatment services for a monthly charge. Friesland Campina gains a single long-term water management partner accountable for treatment performance, so its team can focus on producing dairy ingredients.

An automated process

With wastewater flows and loads stabilized upstream, automated controls continuously adjust acid dosing to maintain optimal pH. Upgraded aeration improves biological treatment performance, supporting more consistent removal of organic material and ammonia.

Xylem also replaced gravity clarification with a full-scale membrane bioreactor (MBR). Its membranes achieve complete retention of suspended solids while maintaining discharge quality as wastewater changes. This allowed the plant to take its two existing clarifiers and dissolved air flotation (DAF) system offline.

To further improve efficiency, Xylem repurposed an existing membrane system to automate waste solids thickening. The modification reduced manual work for sludge disposal and the volume of wet solids sent off-site. Together, the upgrades increased capacity, streamlined operations, and created a more reliable treatment process.

Results

The upgrade delivered reliable discharge compliance, reduced operating costs, and increased treatment capacity, allowing the plant to adapt to changing production demands with less operator involvement.

- **Consistent discharge performance:** Wastewater strength varied by as much as 10x, yet, treated water consistently met discharge limits for organic material, suspended solids, ammonia, and phosphorus. The upgraded MBR systems consistently achieves over **98% COD removal**.
- **85% less sulfuric acid use:** Annual sulfuric acid use reduced from 52,000 to 7,500 gallons annually. Automating pH control and solids handling also reduced manual operator tasks.
- **Lower disposal costs:** By repurposing the existing membrane system, Xylem concentrated waste solids by 3x, reducing the volume of solids hauled off-site.
- **Expanded treatment capacity:** By upgrading to an MBR system, Xylem increased treatment capability by installing prefabricated membrane tanks while reusing existing aeration tanks and infrastructure, avoiding the cost of new aeration basins.

Today, Friesland Campina has a more resilient wastewater operation that supports production with fewer day-to-day demands on plant staff. Through a long-term service agreement, Xylem manages and optimizes the system, helping ensure reliable performance as operating conditions evolve.