

CASE
STUDY

SCALING WASTEWATER RELIABILITY: STANDARDIZING COMPLIANCE AND RISK REDUCTION ACROSS MULTIPLE FACILITIES

Replicating wastewater management strategies across multiple facilities successfully reduced operational risk, chemical usage, and operator burden while ensuring regulatory compliance.

OVERVIEW

Our client, one of North America's leading beverage and refreshment manufacturers, operates facilities around the country that produce a variety of soft drink and beverage products.

Several of their production locations were facing similar wastewater management challenges that were stemming from highly acidic beverage production waste streams.

The facilities relied on existing underground equalization systems to manage their wastewater. However, these systems provided limited operational flexibility and required significant caustic chemical addition to maintain compliant pH levels.

Additionally, facilities were left vulnerable during operational disruptions such as product spills, equipment failures, power outages, or operator-related issues. When those events occurred, facilities faced the possibility of permit exceedances, notices of violation (NOVs), and reputational risk.

Seeking a more resilient and scalable approach that would improve compliance reliability and reduce operational burden, they reached out to The Probst Group. Following the success of the initial implementation, the company continued to pursue similar projects at additional locations, reinforcing confidence in the solution's effectiveness and long-term value.



PROJECT GOALS

- Reduce caustic chemical consumption associated with pH adjustment
- Minimize the risk of non-compliant discharge events and regulatory violations
- Increase operational reliability during equipment failures, power interruptions, and production upsets
- Create a more standardized wastewater management approach that could be replicated across multiple facilities
- Support corporate environmental stewardship initiatives

APPROACH & RESULTS

Avoiding unexpected violations was especially important for these projects. The client's environmental teams wanted infrastructure that would provide greater process control, redundancy, and protection against unforeseen events, rather than relying on operators to constantly react to problems.

The Probst Group developed a wastewater equalization and pH management strategy centered on **large-volume above-ground equalization systems**, designed to provide significant hydraulic retention time and operational flexibility. This allowed the same core design philosophy to be implemented across multiple sites and has delivered impressive results including:

- Nearly complete elimination of all chemical usage
- Improved protection against regulatory violations and compliance events
- Increased operational resilience

Key elements of the solution included:

LARGE EQUALIZATION CAPACITY

Unlike smaller pH adjustment systems that may provide only minutes of emergency storage, Probst designed the solution with large equalization capacity - capable of providing approximately **12 to 24 hours of wastewater storage during upset conditions**. This allows operators valuable time to diagnose and address issues before compliance is threatened.

REDUCED CHEMICAL DEPENDENCY

The large equalization volume helps dampen pH swings commonly associated with beverage production, reducing the amount of caustic required to maintain acceptable discharge conditions. This approach decreases both operating costs and process volatility.

BUILT-IN REDUNDANCY AND RISK MANAGEMENT

The systems were designed with multiple layers of protection, including automated controls, backup capabilities, diversion options, and, in some locations, backup power systems. These features help facilities continue operating through unexpected events while protecting downstream municipal treatment systems and reducing compliance risk.

PRODUCT DIVERSION CAPABILITY

The facilities incorporate monitoring and diversion strategies that allow operators to isolate product spills, bad batches, or unusually strong waste streams before they impact compliance. Existing infrastructure was repurposed in some locations to provide diversion and storage capacity that can later be metered back into the treatment process.

ADVANCED AUTOMATED SCREENING

A significant differentiator of the design was the use of automated, stainless-steel self-cleaning screening systems. These systems continuously remove packaging material and debris while minimizing the manual cleaning typically required with conventional basket strainers. The result is improved reliability, lower maintenance requirements, and reduced operator workload.

OPERATOR-FOCUSED DESIGN

Rather than relying on increased alarms and constant operator intervention, the solution was intentionally designed to simplify operations. By creating more process stability and storage capacity, facilities can maintain compliance with less day-to-day attention, reducing dependence on specialized operator knowledge and improving resiliency when staffing changes occur.



262.264.5665
www.probstgroup.com
info@probstgroup.com
1120A James Drive • Hartland, WI 53029