

CASE STUDY: How Aquacycl Exceeded Wastewater KPIs for PepsiCo

Aquacycl reduces PepsiCo's wastewater treatment costs by 23% and addresses climate and water goals with onsite wastewater treatment

At a glance

A PepsiCo bottling facility in Fresno, CA required a wastewater treatment technology that could address operational challenges while simultaneously bringing water efficiency and climate benefits.

KEY RESULTS

Aquacycl's single 40-ft containerized unit removes 1,600 lbs BOD/day and 140 lbs TSS/day, saving the facility at minimum ~25% and up to 49% on wastewater bills by reducing surcharges.



1,000+ t-CO₂e

Mitigated emissions



309,685 kWh

Energy saved in the first year



474,000 lb BOD

Removed in the first year



23%

Minimum monthly savings

CHALLENGES



The PepsiCo facility's bottling operation faced high surcharges due to crusher operations recovering expired products, resulting in varying wastewater costs based on concentration levels. A small-volume waste stream that contained more than 60% of the total organic concentration sent to the drain was more than doubling their sewer surcharges

SOLUTIONS



Committed to becoming net water positive by 2030 and achieving net-zero emissions across their value chain by 2040, the facility turned to Aquacycl's BETT® system for sustainable, onsite wastewater treatment. During the demonstration period, the BETT® system surpassed all KPI's: removal of 800 pounds (lb) Biological Oxygen Demand (BOD) per day when incoming BOD was greater than 60,000 mg/L or 85% BOD removal when BOD was lower than 60,000 mg/L.

PepsiCo was able to recognize both sustainability and operational benefits from this system. With predictable and lower monthly pricing, lower GHG emissions, and an opportunity for water reuse, the system presented an all-in-one solution for their challenges.

BENEFITS



Improved Sustainability

Emissions reduced across Scopes 1, 2 and 3 as well as improved water quality and water reuse opportunity to reach climate and water goals.



Predictable Monthly Pricing

The facility has maintained predictable monthly pricing with no CapEx investment for the system and compliance guarantee.



Hands-Off Treatment as a Service

Aquacycl provides 24/7 remote monitoring, control, and maintenance for all systems, offloading the operational burden and lowering risk.



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THE CHALLENGE

PepsiCo has embarked on a 2030 business transformation that puts the environment and human capital at the center of the business choices that are made. They are committed to becoming net water positive by 2030 and achieving netzero emissions across the entire value chain by 2040. As part of this, they were looked for cost-effective and sustainable alternatives to improve the existing wastewater management at one of their bottling facilities. They needed a technology that could address operational challenges while simultaneously bringing water efficiency and climate benefits. The primary operation at this facility is bottling, and they also have crusher operations which recover expired products to recycle bottles and cans. The incoming crusher wastewater includes a diverse and variable array of different beverage products including sodas, energy drinks, teas, and ready-to-drink coffee.

THE SOLUTION

PepsiCo was interested in Aquacycl's BioElectrochemical Treatment Technology (BETT®), a modular, onsite wastewater treatment as a service which guarantees permit compliance while mitigating up to 90% of greenhouse gas (GHG) emissions. Aquacycl and PepsiCo installed a demonstration project to validate the business case for using BETT to treat wastewater. The system was equipped to treat half the volume during the demonstration stage and was validated over a 7-month period showing reliability and cost savings across a variable range of operational conditions. During the demonstration period, PepsiCo and Aquacycl agreed on the following KPIs: removal of 800 pounds (lb) Biological Oxygen Demand (BOD) per day when incoming BOD was greater than 60,000 mg/L or 85% BOD removal when BOD was lower than 60,000 mg/L.

THE RESULTS

The system demonstrated removal rates that exceeded KPIs, with BOD removal of more than 1,350 lb/day and Total Suspended Solids (TSS) removal of up to 140 lb/day. The system performed well under variable organic loads and wastewater compositions, with inflow BOD as high as 149,500 mg/L, which was over twice the expected concentration. PepsiCo was able to recognize both sustainability and operational benefits of the system. By improving the quality of discharge, they continued to demonstrate their role as leaders in corporate water stewardship and demonstrate progress on their water and climate-related commitments. By treating onsite and relieving the receiving utility of the burden of treatment, the system mitigated 100 tons of greenhouse gas emissions per month.



"I think this is going to blow up. I'm excited about this one."

Ben Duncan

Fresno's PepsiCo
Manufacturing Leader on
Aquacycl's BETT
technology