

Case Study: Rombauer Vineyards

Winery's new wastewater treatment solution exceeds expectations



Napa Valley

Challenge

Like with many wineries, not every drop of Rombauer Vineyards' delicious chardonnay and exquisite merlot can be captured in bottles. Through standard rinsing and cleaning processes this leading Napa Valley winery produces high-strength wastewater—effectively diluted wine. The resulting effluent has high levels of biological oxygen demand, a measurement of the organic matter and nutrients in a wastewater stream that can strain traditional municipal treatment plants. In 2009, Rombauer Vineyards installed an aerobic wastewater treatment system to tackle this wastewater stream. By 2017, this system was unable to accommodate the high-volume swings of harvest season at the winery. The capacity limitation forced the winery to hold and haul excess wastewater to the East Bay Municipal Utility District (EBMUD). Trucking and treatment became high monetary, operational, and environmental costs for Rombauer Vineyards.

Solution

In 2018, Rombauer Vineyards uninstalled the existing, ineffective treatment system and replaced it with an EcoVolt® Solution. The new Cambrian treatment system is a two-step treatment process: the first step is bulk BOD removal through one anaerobic EcoVolt Reactor; the second step is final polishing through one aerobic **BlueCycle MBR™**. The system is powered and controlled by a C3 (Command, Control, Communications) Hub, Cambrian's centralized operations station that distributes power through the rest of the system and allows for simplified installation, automated operations, and remote monitoring.

“We pushed it to the limit, and it managed to handle all our flow and loads... even with peak beyond what we thought we'd get the system handled it. It's very impressive.”

Richie Allen, Director of Viticulture and Winemaking



Figure 1. The EcoVolt Solution at Rombauer Vineyards



Removes >99.9% of the BOD in the winery's wastewater



4,150 metric tons of carbon dioxide offset annually



Produces low-impact and low-cost discharge to the local municipality

The solution treats 100% of the winery's wastewater and can easily expand to accommodate any increases in wine production.

Results

The two-step EcoVolt Solution consistently removes >99.9% of the BOD in the winery's wastewater. Even through variable flows and loads of the typical crush season, the anaerobic EcoVolt averages a 94% removal efficiency in the first step, remarkable for anaerobic wastewater treatment (shown in Figure 2). In the second step, the aerobic BlueCycle MBR polishes the final 6% of the BOD in the stream. The full EcoVolt Solution's final, highly-treated effluent is then ready for low-impact and low-cost discharge to the local municipality.

Benefits

For Rombauer, business as usual meant high trucking costs, an energy- and labor-intensive treatment process, and inhibited growth as a result. Cambrian's innovative EcoVolt Solution achieves the winery's key environmental and operational goals with a compelling business case. By taking diesel-burning trucks off the road and eliminating the burden of treatment on public infrastructure, Rombauer substantially reduced its carbon footprint—4,150 metric tons of carbon dioxide offset annually—with uninterrupted sewer discharge compliance and significant savings. Most importantly, Rombauer can continue to be a staple brand in the world of sustainable winemaking.



Figure 2. First-Step Anaerobic EcoVolt Reactor BOD Removal Efficiency (Before Second-Step Aerobic BlueCycle MBR Polishing)

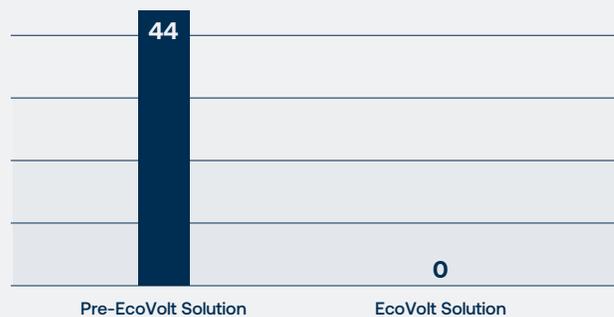


Figure 3. Trucks Per Season Required Before and After EcoVolt Solution