



System Application



SMITH & LOVELESS INC.

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California Winery Sets Standard for Wastewater with TITAN MBR™ System



Application Profile:	Winery
S&L Equipment:	TITAN MBR™ WWTP
Installed:	2006

When local regulators established new wastewater limits for industrial users connected to a nearby municipal system, one of Napa County's largest wineries began exploring options for pretreatment. The original option considered was recirculating sand filters. When filter piloting didn't meet the city's prescribed limits of 200 mg/l BOD and 220 mg/l TSS, the winery turned to a local consulting firm for an engineered treatment system solution. The firm reviewed the winery's flow data, site requirements and then contacted Smith & Loveless.

Upon review, Smith & Loveless proposed two TITAN MBR™ systems, the second unit designed to handle crush season flows and strengths. Each of these membrane bioreactors maintains a peak design flow of 7,500 gpd and integrates complete flow equalization, sludge holding, clear well and aeration. The aeration basin comes equipped with TITAN MBR™ flat-plate membranes and fine bubble diffusers for efficient operation and oxygen transfer. (A 3 mm screen ahead of the plant collects residual solids and material from the winemaking process). The system's air supply, comprised of two operating units and one stand-by blower, features an acoustic package to keep noise levels low and variable frequency drives (VFDs) to control oxygen input into the tank during the seasonal changes in waste strength.

Smith & Loveless also provided complete PLC controls for each unit. Each panel features an HMI interface for easy inspection and control. The PLC monitors the flow through the entire system, tank levels (via pressure sensors), transmembrane pressure (TMP), membrane flux, temperature, pH, and dissolved oxygen levels. Monitoring TMP and flux are especially helpful in analyzing membrane performance, including for initiating the cleaning cycle on a quarterly to semi-annual basis.

When membrane cleaning is required, the system's clean-in-place (CIP) system initiates an efficient, hassle-free chemical addition. As the name indicates, the membranes do not require removal from the aeration zone, instead they remain stationary while chemicals are backflushed through the membrane module. Cleaning takes less than one day, and on average, will range between 2-4 hours. During cleaning, the aeration basin does



S&L shipped two TITAN MBR™ units in time to meet crush season.



Project Profile

Avg. Flow:	15,000 GPD / 7,500 GPD per tank
Influent:	10,000 mg/l BOD/1,000 mg/L TSS
Plant Dimensions:	60'(L) x 12'(W) x 11.5'(H)

not require draining and any incoming flow is stored in the aerated flow equalization zone.

TITAN MBR™ effluent now surpasses the municipal guidelines set by the city while its robust membrane design will stand the test of time.

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Smith & Loveless Inc. System Innovators for global pumping, water and wastewater treatment