CASE STUDY: SUSTAINABILITY IN SONOMA
GEYSERVILLE, CALIFORNIA

SYNOPSIS
A well-known winery in California does not take water for granted. The winery set out to use leading water conservation practices in their wine cellars and in the vineyard. However, efficiently treating the wastewater in high-demand periods became a bigger challenge in their outlook towards sustainable and responsible use of water. Environmental Dynamics International (EDI) helped this winery achieve better treatment and minimize energy consumption by upgrading their system to deliver a superior wastewater treatment solution.

BREAKDOWN
OBJECTIVES:
50% increase in production capacity
50% less power consumption
Higher recycled water quality

PRODUCT:
EDI MiniPanel™ Diffuser, Floating Lateral System

CHALLENGE
The winery faced extremely high waste loading from cleaning and liquid disposal during the crush season. This high demand translated into considerably increased waste flow with high organic loading in their treatment system, which made attaining the critical lagoon performance and efficiency parameters very challenging.

SOLUTION
When approached with the design requirements for the treatment basin, EDI evaluated facility characteristics and product options that offered the greatest value. Given the relatively high organic loading during the crushing process, the current mechanical aerators were inefficient and ineffective at treating the water to the quality that was needed for reuse.
SOLUTION continued
Instead, the Floating Lateral aeration system was applied. This is a unique solution delivering maximum installation and maintenance flexibility. The system can accommodate non-level floors and variable water levels. A key feature is installation and retrieval of the units without dewatering the lagoons. Basins do not need to be taken off-line for future maintenance. The EDI floating lateral aeration system is designed to withstand significant external forces from wind, heat, and varying water level conditions. Heavy-wall, high-density polyethylene pipe and welded construction are standard for all connections. Inline and optional cross restraint cables are used to maintain the position of the components.

In this system, the MiniPanel™ diffusers were used to provide high Oxygen Transfer Efficiency (OTE) to handle those heavy organic loads. Stainless steel main air headers were used for their durability and ease of maintenance. The system provides full oxygenation and mixing in the two treatment lagoons, with valves on air laterals and VFD speed control on the blowers to distribute the air where it is needed most. The total system was developed and sized by EDI to assure maximum reliability and performance. EDI supplied the equipment with installation and start-up by Aeration Works (AW)—the global aeration solutions and customer services arm of EDI. AW will continue to offer maintenance services for the winery over the life of the project.

RESULTS
The customized system solution for the winery led to excellent wastewater treatment quality, with a 40%–50% lower energy consumption compared to alternate treatment systems. This also made it possible to double the winery’s handling capacity during the peak crushing season.