ENVIROGEN TECHNOLOGIES

A Lifecycle Performance Company

Case Study

FOOD & BEVERAGE SOLUTION

West Coast Winery

Improving water supply security & advancing sustainability goals

THE CHALLENGE

Amidst a growing drought crisis, a California winery sought to develop new water sourcing options that were secure, cost-effective and of high quality – particularly during harvesting season and peak water use. Groundwater supplies were available, but had relatively high levels of nitrate. After a thorough review of available technologies and providers, the company selected a solution developed by Envirogen Technologies based on our High Performance Ion Exchange technology.

SOLUTION – ADVANCED ION EXCHANGE

Envirogen modular ion exchange (IX) systems have been in use in potable water applications throughout the United States for over a decade. For this winery, the system was designed based on a model simulation that could predict, with a high degree of accuracy, treatment performance, waste rates and materials consumption. From project acceptance, the system went on-line in 4 months.

Highlights of the system include:

- Capable of treating up to 1,000 gallons per minute (GPM) of groundwater or up to 1.44 million gallons per day (MGD).
- Pre-filtration; ion exchange treatment vessels inside an engineered, mobile container; and a brine regeneration system, with interconnect piping, controlled and monitored by a programmable logic controller (PLC).
- Nitrate levels monitored using an online analyzer that can measure both the influent and effluent nitrate concentrations.
- Regeneration of ion exchange system is accomplished using a sodium chloride (brine) solution. All steps in the regeneration process are designed to minimize waste generation.

THE RESULTS

The Envirogen High Efficiency IX system was first employed during the client's grape harvesting season in 2014. Groundwater was treated at cost of $0.0043/gallon. Nitrate removal ratios of 80% achieved with a 0.316% waste rate.

IX Nitrate Treatment Results

Waste rate	0.316%
Average incoming NO3	80 mg/L
Average outlet NO3	16 mg/L
Percent removal	80%
Treatment costs	$4.30 per 1000 gal
Run time	110.6 hours
Average flow	536 gpm

THE BENEFITS

Envirogen's high efficiency IX system met the need for reclaimed impacted groundwater – at lower than predicted costs. Benefits included:

- Improved security of water supply – especially during peak use periods
- Lower cost water supplies during peak demand periods
- Effective, efficient treatment with low waste rates
- Enhanced sustainability profile with less reliance on surface water sources
- Flexibility to use broader groundwater assets on an 'as needed' basis