

Hi-Desert Water District, California

Located in the Town of Yucca Valley, approximately 30 minutes from Palm Springs, the Hi-Desert Water District (District) provides water service to the Town and a portion of the unincorporated area of the County of San Bernardino, with approximately 10,000 service connections and a population of 26,000 people.

Challenge

For years, the District operated in an overdraft condition, pulling more water from its wells than was naturally replenished. The Morongo Pipeline was built to supplement local groundwater supplies with State project water, through a series of recharge basins. Unfortunately, that solution created a water quality problem. The rising groundwater intercepted nitrates from septic systems throughout the area, causing a large part of the aquifer to exceed the safe drinking water levels for nitrate. Two of the District's highest producing wells had to be shut down due to unacceptable level of nitrates, cutting the available water supply by more than 25 percent. The District was facing increasing demand, shrinking supply and a growing water overdraft.

Solution

Envirogen Technologies, Inc. (Envirogen) provided a cost-effective, long-term solution that could be implemented in time to avert a potential water shortage. We designed and built a 2,500-GPM combination nitrate removal and blending facility that is capable of delivering 2.8 million gallons of safe drinking water daily to the communities served by the District.



Envirogen's 2,500-GPM Nitrate Removal & Blending Facility

During the planning and design of the permanent plant, the District received a 50 percent grant from the Environmental Protection Agency (EPA) to aid in the facility construction. Because of the region's scarce water resources and Envirogen's significant reduction in waste generation, the EPA designated Envirogen's ion exchange technology as sole source for this project.

The facility received its operating permit and went online in time to meet peak summer demand. The rapid deployment of the Envirogen system enabled the District to prevent an immediate water shortage, water that thousands of people depend on every day.

The District intends to use the Envirogen facility as base load, providing a long-term, safe and reliable source of water for its customers for years to come.

Results

- Multiple groundwater wells provide raw water at a rate up to 2,500 gpm (gallons per minute). This untreated water has a nitrate level of 58 ppm (parts per million). After treatment and blending, the nitrate level is 20 ppm, a 2/3 reduction and well below the MCL of 45 ppm.

- The waste rate was equally impressive: approximately 0.3% of feed rate, with a net waste rate (based on a blend of 50% treated water and 50% well water) of 0.15%. That's competitive with other current technology, and helps the District conserve precious water resources.
- Envirogen's service contract ties payments to delivery of water that meets the treatment objective defined as part of the Towns' compliance plan over the life of the contract and continuously monitors the system to ensure optimal operation.

"Our community depends on our water resources for economic survival. Envirogen designed and built the nitrate removal plant in record time, and the overall recovery of water is in excess of 99.8%. Also, the fact that the Envirogen system can treat other contaminants is like an insurance policy against changing standards."
Lee Pearl, Manager