

CASE STUDY

Drought Proofing Padre Dam Water District

Project Type: Municipalities, Reuse

Location: Santee, California

HIGHLIGHTS

Construction of a \$1.6 million pilot plant capable of treating 100,000 gallons of secondary wastewater per day.

Implementation of a four-step purification process including Reverse Osmosis and UV/Advanced Oxidation.

Scalable planning to expand the program to treat over 20 million gallons per day (MGD) for the San Diego suburbs.

PURE PROGRESS: PIONEERING DROUGHT-PROOF POTABLE WATER IN SANTEE

As drought conditions intensify across the Western United States, the Padre Dam Water District in Santee, CA, sought to secure a locally controlled and environmentally sound source of drinking water. Integrated Water Services, Inc. (IWS) was selected through a competitive bidding process to construct the Advanced Water Purification Demonstration Project. This \$1.6 million facility serves as a critical pilot plant to test the feasibility of converting secondary treated wastewater into high-quality potable water for the communities of Santee and El Cajon.

CHALLENGES FACED

- **Urgent Need for Water Security:** Worsening drought conditions in the Western United States created a critical need for a locally controlled, reliable, and drought-proof water source. The Padre Dam Water District had to find an environmentally sound way to provide drinking water for Santee, El Cajon, and other San Diego suburbs.
- **Lack of Scalable Infrastructure:** The region lacked the technical infrastructure and proven demonstration facilities required to treat wastewater to the high standards needed for groundwater re-injection. There was no existing "state-of-the-art" model in place to justify a large-scale, 20 MGD county-wide expansion.
- **Stringent Quality Requirements:** To eventually use treated wastewater as a potable source, the process had to meet rigorous standards for groundwater re-injection.



SOLUTIONS IMPLEMENTED

- **Advanced Four-Step Purification:** IWS installed a multi-stage process involving free chlorine disinfection, membrane filtration, reverse osmosis, and ultra violet/ advanced oxidation.
- **Comprehensive Site Preparation:** The construction scope included extensive site grading, concrete pad construction, and the installation of conveyance and discharge lines.
- **Stakeholder Coordination:** IWS managed detailed coordination with electrical instrumentation and control equipment suppliers to ensure precise installation and facility start-up.



OUTCOME AND IMPACT

- **Successful Demonstration:** The plant currently treats 100,000 GPD of wastewater, with effluent tested and returned to the treatment plant during the pilot phase.
- **Path to Potable Water:** The project successfully demonstrated a process that allows for future scaling, where treated water will be re-injected into groundwater as a drinking source.
- **Regional Expansion Foundation:** The success of this pilot has enabled the District to begin planning an expanded 20 MGD county program in collaboration with other water districts and the County of San Diego.

The Advanced Water Purification Demonstration Project marks a significant milestone in California's water management strategy. By successfully integrating cutting-edge purification technology, IWS and Padre Dam Water District have created a blueprint for a sustainable, drought-proof future for the San Diego suburbs.



DOWNLOAD