

Donna Brackish Desalination Facility

North Alamo Water Supply Corporation



Location
Donna, Texas

Capacity
9,463 m³/d
(7,600 m³/d RO)

2.5 MGD
(2.0 MGD RO)

Value
\$7.5 Million

Constructed
2012

Treatment System
Two-stage reverse osmosis

Associated Facilities
Co-located conventional surface WTP and storage

Feed Water Quality
3,500 mg/L TDS

NorrisLeal Role
Project Manager, design and construction (EPC) permitting

Historical Perspective

The North Alamo Water Supply Corporation (NAWSC) is the largest water supply corporation in the state, encompassing 973 square miles, serving more than 33,000 meter connections and an estimated 140,000 people. NAWSC has historically treated surface water diverted from the Rio Grande at six different facilities located throughout its three county service area.

Norris and Leal assisted NAWSC with an ambitious program to construct a network of brackish groundwater reverse osmosis (BWRO) plants to serve rural populations in northern Willacy, Hidalgo, and Cameron counties. In 2012, the 2.5 MGD Donna WTP became the fifth BWRO facility under operation by the NAWSC. This project continues NAWSC efforts to develop cost-effective alternatives to surface water from the Rio Grande. Having gained confidence in our capabilities to design and manage the construction of its four other BWRO facilities, NAWSC signed the first design-build contract for a public water supply project with Norris and Leal. This contractual arrangement allows a single contract with one company to provide design and construction services, with the goal of streamlining the delivery schedule and minimizing costs. With construction of the treatment facility completed five months ahead of schedule and within budget, this project demonstrates the efficiency achievable using innovative project delivery methods.

Norris and Leal managed all design and construction services for the project, as well as related tasks, such as pilot study management, groundwater evaluations, and subcontractor management. To complete the project, Norris and Leal recognized the need to offer specialized RO process design and construction services, and was able to fabricate the treatment components in-house. Furthermore, construction of the project was completed without the need for change orders, thus demonstrating another benefit of design-build. This project also presented an opportunity for NAWSC, Norris and Leal, and the Texas Water Development Board to install fiberglass casings as part of a study to demonstrate its use in drinking water wells. This demonstration will provide the information necessary for TCEQ to approve the use of fiberglass well casings in future water supply projects. With the completion of this project, Norris and Leal will have developed a total of 10.75 MGD BWRO capacity for NAWSC.

Owassa BWRO and Doolittle WTP

North Alamo Water Supply Corporation



Location
Edinburg, Texas

Capacity
26,500 m³/d
(22,700 m³/d RO)

6.0 MGD
(7.0MGD RO)

Value
\$17.5 Million

Constructed
2008, 2009

Feed Water Quality
2,400 mg/l (Owassa) &
3,700 mg/l (Doolittle) TDS

NorrisLeal Role Project manager,
design, construction management,
permitting

Historical Perspective

In 2007, NAWSC contracted Norris and Leal to concurrently develop two brackish groundwater reverse osmosis facilities. These two projects allowed NAWSC to continue to develop additional wa-ter supplies for its customers while reducing reliance on withdrawals from the Rio Grande.

The Owassa and Doolittle plants are co-located with existing surface water treatment plants in Edinburg, Texas and were completed in 2008 and 2009, respectively. Both plants individually produce 3.0 MGD of desalinated brackish water, which is blended to produce an output of 3.5 MGD for each plant. The total value of surface water rights saved (7,840 acre feet) by both projects is approximately 18 million. These plants have been designed so that capacity can be doubled as the region grows.

