

Fall 2014

Southmost Regional Water Authority **Brackish Groundwater Treatment Facility**

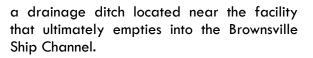
<u>Background</u>	
Location:	Brownsville, Texas
Water Authority:	Southmost Regional Water Authority (partners include the Brownsville Public
	Utilities Board, Brownsville Navigation District, City of Los Fresnos, Valley
	Municipal Utility District #2, and Town of Indian Lake)
Year Operational:	2004
Design Capacity:	7.5 million gallons per day (MGD)
Production Wells:	20 wells installed in the Gulf Coast Aquifer
Total Project Cost :	\$21.6 million (well-field cost is about \$9.1 million)

Treatment Process

Pretreatment includes the addition of chlorine to oxidize the arsenic, filtration using cartridge filters, and anti-scalant to prevent membrane fouling. There are six reverse osmosis trains constructed in a two-stage configuration, 22:11 pressure vessel array. Each pressure vessel has seven elements. The membrane model installed ESPA2, is manufactured by Hydranautics. Each train is designed to produce 1.1 MGD at 75 percent recovery. An interstage booster pump between the first and second stages is used to boost the feed pressure to the second stage. The concentrate flow is discharged to



Reverse Osmosis Trains



Plant Expansion

The facility is currently undergoing upgrades and construction will be completed in January 2015. Two additional reverse osmosis trains will be added to increase design capacity from 10 to 11 MGD. A pretreatment facility consisting of microfiltration will be added to reduce the iron and arsenic levels in the raw water. The aquifer has also been evaluated to optimize the potential yield of the well field.



Cartridge Filter Casing



Concentrate Disposal to Drainage Ditch

The Texas Water Development Board (TWDB) is the state agency charged with collecting and disseminating water-related data, assisting with regional planning, and preparing the state water plan for the development of the state's water resources. TWDB administers cost-effective financial assistance programs for the construction of water supply, wastewater treatment, flood control, and agricultural water conservation projects.