

Finished Water

A PHOTOGRAPHIC PROFILE

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The El Paso Full Recovery Desalination Plant recovers approximately 99 percent of local brackish water and protects the area's aquifer by avoiding wastewater injection.



ZERO-DISCHARGE TREATMENT PLANT CONVERTS BRACKISH WASTEWATER TO EXTEND TEXAS DRINKING WATER SUPPLY

Lying at 3,740 ft in the Chihuahuan Desert, the El Paso, Texas, region has always faced water scarcity. To increase the area's potable water supply, capture chemicals as a byproduct of desalination for beneficial reuse, and preserve the long-term sustainability of the Hueco Bolson aquifer on which the region relies, water wholesaler Enviro Water Minerals teamed with a water engineering consultant to design a zero-discharge wastewater treatment plant adjacent to El Paso Water's 27.5-mgd Kay Bailey Hutchison (KBH) Desalination Plant.

The El Paso Full Recovery Desalination Plant features a treatment process that uses nanofiltration, ion exchange, and electro dialysis to recover all chemicals from high total dissolved solids waters and nearly all the water. The facility is powered by a co-located natural gas

power plant, reducing service charges and energy usage.

The plant solves three big problems typically associated with desalination plants: cost, energy usage, and brine creation. The facility can boost potable water supply, recover valuable chemicals, and protect the Hueco Bolson aquifer by removing the KBH plant's former reliance on underground wastewater injection. The El Paso Full Recovery Desalination Plant has won recognition internationally as a model for future sustainable water systems and received Distinction (runner-up) honors for the 2018 Global Water Awards Water/Wastewater Project of the Year.

PROJECT SPECIFICS

Project Name: El Paso Full Recovery Desalination Plant

Owner: Enviro Water Minerals

Contractor/Designer: NorrisLeal

Completion Date: April 2017 (currently finalizing commissioning)

Water Source: Concentrate reject stream from the Kay Bailey Hutchison Desalination Plant and brackish groundwater from the Hueco Bolson alluvial aquifer

Technology: Reverse osmosis, nanofiltration, electro dialysis, several types of ion exchange, clarifiers

Service: The plant provides 2.6 mgd clean water plus high-purity chemicals (caustic soda, hydrochloric acid, gypsum, and magnesium hydroxide). Chemical sales subsidize desalination costs.

Physical Size: 6 acres

Staff Size: 12

Awards: Texas Water Development Board 2017 Innovative Water Supply Award for Technology