

## **POTABLE REUSE AS A NEW SOURCE OF SUPPLY FOR THE GCWA**

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Like much of Texas over the past five years, the Brazos River basin has experienced exceptional drought conditions that are worse than any of the previous droughts of record. River flows have dropped significantly, requiring that water supplies be curtailed to many of the users along the river. The Gulf Coast Water Authority (GCWA) is one user who has been heavily impacted. The Brazos River is their only water source, which they use to supply industrial, agricultural, and municipal users throughout Brazoria, Fort Bend, and Galveston Counties in Texas. As a result of the drought, they have been forced to purchase additional stored water, enact drought contingency plans, and reduce irrigation water supplies to rice farmers by 85 percent.

In response to the drought conditions, GCWA is on a quest to secure additional sources of raw water. Options that have been investigated include desalination (brackish or seawater), purchasing additional treated water from Houston, partnering on interbasin transfer projects to bring in new sources of raw water, or reusing treated wastewater from one of the nearby municipal wastewater treatment plants. The reuse option, which entails potable reuse since downstream customers include a municipal water treatment plant (WTP), is the preferred approach since it can be placed on-line quicker and will cost less than other alternatives. As such, they have embarked on a project to implement potable reuse.

This presentation will discuss the approach to securing potable reuse as a new source of supply for the GCWA. The project is a unique one since treated wastewater would be discharged directly into canals owned by the GCWA at locations upstream of the intake to the municipal WTP. The canals are not considered waters of the state, so the existing regulatory framework does not directly apply. Further, the existing water supply is heavily influenced by permitted wastewater discharges. This project is focused on developing an approach that meets regulatory requirements while providing the necessary barriers and monitoring regime to ensure the new supply is safe and reliable for the GCWA's customers.

The following will be presented:

1. Background on the GCWA and drought situation.
2. Review of the goals, objectives, and tasks for this project.
3. A discussion of the regulatory framework that is being used to develop an approach for potable reuse as applied in this unique situation.
4. A review of the water quality evaluations and monitoring results used for

- characterizing the water supply.
5. Discussion of the environmental buffer effects achieved in the canals before the blended reuse and Brazos River water reaches the WTP intake.
  6. Findings and recommendations for ensuring the project meets safety and reliability requirements including the use of additional treatment barriers in the system.
  7. Summary of next steps to implement potable reuse as a new source of supply.