

CFWI Reclaimed Water Sub-Team Work Plan

Project Name: 160-Acre Site Indirect Potable Reuse (Toho Water Authority)

Project RWSP Number: 60

1. Project Description

The South Florida Water Management District (SFWMD) projects the Upper Floridan Aquifer may not be able to support increasing groundwater withdrawals in the future. This project is one of several being evaluated to meet anticipated future demands.

Toho Water Authority (TWA) operates several Rapid Infiltration Basins (RIBs) in northwestern Osceola County, including the 160-acre site. The 160-acre site is located on the Lake Wales Ridge, which is characterized by permeable sand, lack of a confining layer, and a deep water table. The permeable sand provides for a large amount of "mounding" or water storage. As a result, the RIBs function well in this area for recharging the Upper Floridan Aquifer.

The 160-acre RIBs currently have a permitted capacity of 5.38 MGD (annual average). This capacity is based on a maximum loading rate of 11.2 gallons/day/square foot, as mandated by FDEP. TWA received a variance to increase the permitted capacity to its current amount in April 2014.

Based on groundwater model simulations, TWA estimates that it can install water supply wells near the RIBs - taking advantage of the aquifer recharge from the reclaimed water. The model simulations indicated that 5.0 MGD may be available for withdrawal at a RIB application rate of 11.2 gallons/day/square foot, which is the current permitted loading capacity of the RIBs.

This concept of using recharge to indirectly provide water supply could be accomplished in three different ways:

1. Use proposed wells in the area of the 160-acre site to withdraw recharge water and transmit that water to TWA's Southwest Water Treatment Plant for potable use (Indirect Potable Use), or
2. Use proposed wells in the area of the 160-acre site to for irrigation of the neighboring Stoneybrook South and Championsgate areas.

For the purposes of this evaluation it is assumed that the Indirect Potable Reuse (#1) option is implemented. This assumes that five wells will be installed to recover the water. Each well will have a capacity of 1 million gallons per day (MGD), for a total capacity of 5 MGD. Raw water will be sent to the Southwest Water Treatment Plant via a 24" raw water main.

2. Cost-Benefit Analysis of Yield

Total Capital Cost: \$7,649,602

Yield: 4.5 million gallons per day (annual average basis)

3. Cost Estimate

Non-Construction: \$1,274,934

Construction: \$6,374,668

O&M: \$94,780 per year

4. Water Resource Constraints

The water resource constraints include:

- The availability of reclaimed water to send to the RIBs and recharge the aquifer.
- The constraint of the withdrawal wells to pump without adversely impacting levels in the aquifer or existing permitted users, or wetlands.

- A minimum of 5.0 million gallons per day (MGD) will be needed to recharge the aquifer to get a 4.5 MGD withdrawal rate from the wells.

5. Potential Partners and Governance Options

The potable water supply provided by this project will be treated at a TWA facility. However, TWA's potable water service area is interconnected with Polk County and Orange County. Because this water source could potentially be used by another utility, there is an option for both counties to be partners in this project.

6. Pumping, Storage and Transmission Configurations

The reclaimed water will be sent to the RIBs at the 160-acre site for recharge of the aquifer, and the wells that will be used to capture the recharge water before sending water to the water treatment plant.

7. Project Feasibility and Estimated Property Requirements

This project was deemed by TWA to be less costly than other Alternative Water Supply (AWS) projects such as the Cypress Lake Water Treatment Plant (WTP) project. However, additional treatment modifications to the Southwest WTP or other facilities may be necessary for this project, depending on the option selected.

This project is deemed to be feasible given that the loading rate variance was obtained and the indirect potable reuse component can be permitted by FDEP.

The property requirements are minimal. The RIBs are already in place. The property/easements may be difficult to obtain. The cost and level of difficulty is unknown at this time.

8. Funding Sources

Potential funding sources for this project include the Toho Water Authority, any benefiting neighboring utilities, the South Florida Water Management District

and/or State of Florida as a cost-share partner, and other sources that might be identified through the CFWI solution phase.

9. Regional Water Supply Project Limitations/Constraints from Rule

Inconsistency

Potential issues related to the precedence of permitting an indirect potable reuse project.

10. Other Considerations (Public Concerns, Non-Technical Obstacles)

This would be a ground-breaking project in the State in terms of intentional indirect potable reuse; therefore, regulatory and public acceptance would be considerations.

11. Estimated Implementation Schedule

It is assumed that this project will not be necessary until growth and development in the area resumes. Additionally, the project timing will be adjusted based on the results of the CFWI groundwater availability analysis. TWA's FYE 2015-19 Capital Improvement Plan state that the beginning project construction will be budgeted for FYE 2019 and beyond, or as adjusted based on the CFWI results.