

SFWMD Pilot Alternative Water Supply Project Option Survey for Cypress Lake Wellfield: AWS WTP Project

Prepared by Tohopekalgia Water Authority, November 4, 2016

The Tohopekalgia Water Authority (TWA) proposes the ***Cypress Lake Wellfield: AWS WTP Project*** for consideration by the South Florida Water Management District (SFWMD) as a potential Pilot Alternative Water Supply (AWS) project under Section 373.037, Florida Statutes. This planned AWS project meets the statutory considerations for a Pilot Program project:

1. This project is located within the Central Florida Water Initiative (CFWI) Area, which is statutorily defined as a restricted allocation area.
2. This project will provide both water supply and environmental benefits by pioneering the use of brackish reverse osmosis in the CFWI Area, setting a regional precedent to avoid use of added fresh groundwater withdrawals, and develop sustainable concentrate disposal alternatives.
3. This project is identified as an AWS project in the CFWI Regional Water Supply Plan, as adopted in 2015.

Project Description

The purpose of this project is to create a sustainable, large-scale alternative water supply by constructing a reverse osmosis (RO) water treatment plant (WTP) and associated appurtenances that will ultimately treat 37.5 million gallons per day (MGD) of brackish groundwater to produce up to 34 MGD of potable water. The project is identified in the Regional Water Supply Plan (RWSP) as the “Cypress Lake Wellfield: AWS WTP” and is a multi-jurisdictional project of regional benefit. The Water Cooperative of Central Florida (TWA, Orange County, Polk County, and City of St. Cloud) and Reedy Creek Improvement District (RCID) initiated the project to meet future limitations on fresh groundwater withdrawals by utilizing brackish groundwater as a sustainable, large-scale AWS. Phase I of the Cypress Lake Wellfield: AWS WTP project will design, construct, and commission raw water supply facilities, concentrate disposal facilities and monitoring wells, and an RO Water Treatment Facility capable of delivery approximately 15 to 17 MGD of potable water.

In October, 2011, the SFWMD issued to the Water Cooperative and RCID a Water Use Permit for the withdrawal of 37.5 MGD of brackish groundwater. Subsequently, the Water Cooperative and RCID has completed the Preliminary Design of the facility, which confirmed the feasibility of the project, and is preparing to proceed with the Final Design. The treatment facility will utilize reverse osmosis to treat the brackish groundwater; RO requires the ability to safely dispose of brine concentrate, a by-product of the reverse osmosis treatment process. The Water Cooperative has also prepared and submitted a permit application to the Florida Department of Environmental Protection for a Class V Group 4 concentrate disposal well.

Implementation of Phase I of the Cypress Lake AWS WTP will mark an important milestone in the development of large-scale alternative water supplies for the CFWI Area. While reverse osmosis has been widely utilized throughout South Florida and in coastal zones for the treatment of brackish water, the Cypress Lake AWS will represent the first brackish water reverse osmosis treatment project in the CFWI

area, providing the SFWMD with a template for the wider adoption of brackish groundwater as a viable, practical alternative water supply in the CFWI area.

Total Project Cost

The total estimated Phase I project capital cost - including design, permitting, and construction capital cost - is currently projected at approximately \$131,503,000 (in FY 2017 dollars). An estimated breakdown of the project costs by various infrastructure components are provided below.

Raw Water Supply Facilities	\$24,374,000
Treatment Facilities:	\$92,129,000
<u>Concentrate Disposal & Monitoring Wells:</u>	<u>\$15,000,000</u>
Total Project Cost:	\$131,503,000

Funding Sought

The applicant requests funding support from the SFWMD at a level deemed appropriate. Various planning, well permitting and testing, and preliminary design services have already been performed. Up to 50% co-funding of Phase I is requested by the applicant. As the projected total capital cost is estimated at \$131,503,000 (in FY 2017 dollars), the applicant is requesting up to \$65,751,500 in co-funding support from the SFWMD.

Water Made Available

Phase I of this project will produce up to 17 MGD of new water supply.

Schedule

The schedule reflects the anticipated time to complete design, permitting, and construction of Phase I of the Cypress Lake Wellfield AWS WTP. The funding request and schedule reflects the project status as of early FY2017.

Phase 1 Program Implementation

• Concentrate Disposal Well Exploratory Program:	FY 17 - FY 18
• Design:	FY 18 - FY 19
• Permitting:	FY 17 - FY 19
• Production Well, and Raw Water Main Construction:	FY 19 - FY 20
• WTP Construction:	FY 20 - FY 21

Outcome and Benefits

This large-scale alternative water supply project will ultimately provide up to 34 MGD of additional water supply capacity as a multi-jurisdictional project of regional benefit. Phase I of the project will be designed to provide up to 17 MGD of potable water supply.

The project will pioneer the use of reverse osmosis for treatment of brackish groundwater in the CFWI area, setting a regional precedent to avoid added fresh groundwater withdrawals and develop proven, sustainable concentrate disposal alternatives.