



OCTOBER 2011

The Ten Mile Creek Water Preserve Area (WPA) is an above-ground reservoir with a stormwater area (STA), located in St. Lucie County near Fort Pierce, and is intended to improve the health of the St. Lucie Estuary.

PROJECT PURPOSE

A water preserve area is a large-scale structure designed to capture and retain water in the landscape for gradual release, for the purpose of mimicking a more natural stormwater flow regime. The purpose of the Ten Mile Creek WPA is to provide seasonal and temporary storage of peak stormwater flows from the Ten Mile Creek basin and to slowly release those flows back into the creek to moderate the salinity levels and reduce sediment loads in the downstream St. Lucie River and Estuary.

PROJECT DESCRIPTION

Project features include an above-ground reservoir of approximately 526 acres surrounded by a 12 to 15-foot tall embankment. The reservoir was designed to store up to 6,000 acre feet of water at an average depth of 10 feet. The project also includes the following components: a natural preserve area, a pump station for filling the reservoir from Ten Mile Creek, a gated water level control structure for the moderated release of water back to the creek, and a 132-acre STA with associated pumps and structures for water treatment and release.



PURPOSE OF TEMPORARY OPERATIONAL TESTING

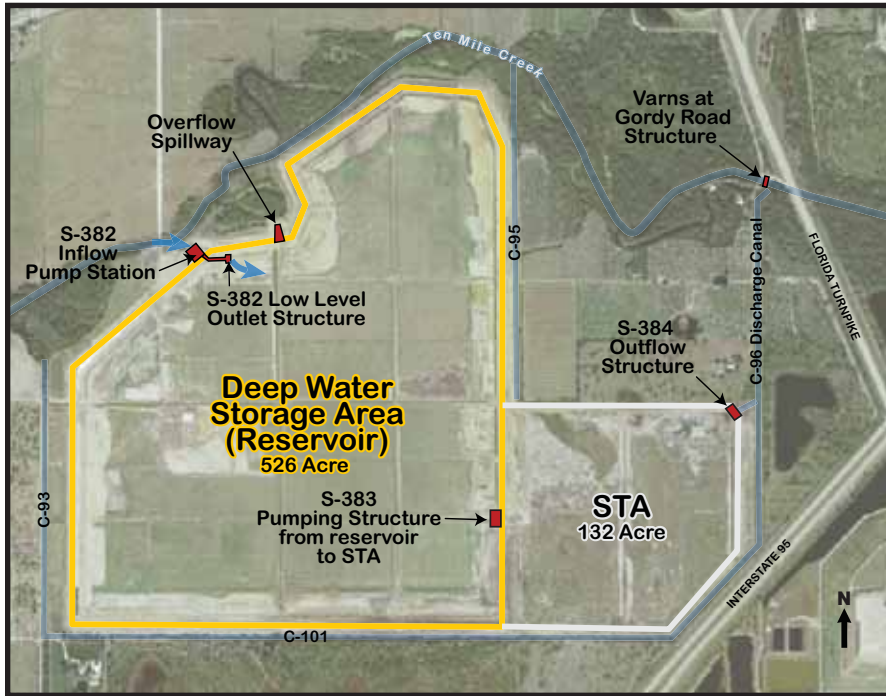
The Ten Mile Creek WPA project has been in a passive operating state since 2009. During the winter of 2011, the Ten Mile Creek WPA project will begin temporary operational testing of the reservoir for data collection purposes. In order to monitor and evaluate the performance of the reservoir, the temporary operational testing will be conducted for approximately three months.

OPERATIONS

Water from Ten Mile Creek will be pumped into the reservoir using the primary pump station. The primary pump station will pump the water out of the reservoir and back into Ten Mile Creek at the conclusion of the monitoring activities.

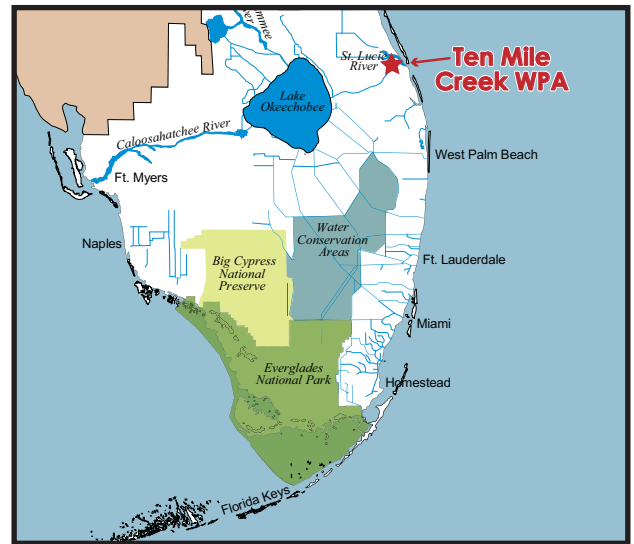
FILLING THE RESERVOIR

- The reservoir filling process will take between approximately 60-90 days, depending on the observed conditions during the controlled filling and the availability of water.
- The reservoir is scheduled to be filled in a series of four phases based on water levels, or stages in the reservoir. The reservoir water level will be raised in 0.5-foot increments, held and closely monitored for a 24-hour period before filling to the next 0.5-foot increment. Once the reservoir level reaches one of the four prescribed stages, it will be held for several days, while reservoir conditions are monitored and inspected.
- The facility will be monitored continuously during the filling process through instrumentation and visual inspections. Instrumentation will include piezometers, which monitor the pressure and depth of groundwater, and water flow weirs, which monitor the changes in flows in the canals.
- Temporary operations of the reservoir will not impact local users of the Ten Mile Creek.



PROJECT LOCATION

The Ten Mile Creek WPA is located in St. Lucie County near Fort Pierce at the headwaters of the North Fork of the St. Lucie River Aquatic Preserve.



SAFETY MEASURES

The incremental filling plan will include extended observation periods at the end of each fill phase, which was designed to minimize safety risks.

A detailed reservoir filling plan will be provided to all design, inspection, monitoring and operations personnel. This plan will use all applicable hydrologic, hydraulic, structural and geotechnical criteria that was developed during the design and construction of the project. Prior to the initiation of fill activities, all personnel will meet to assure that the plan, including all roles and responsibilities, is clearly understood.

An emergency action plan will be developed and tested. In addition, emergency exercises will be held to introduce scenarios so that implementation of the reservoir filling plan can be tested and improved.

An inspection/surveillance plan will be developed to facilitate the effectiveness of the monitoring efforts and the reporting of results.

- The inspection/surveillance plan will lay out the process for reading the instruments and evaluating the data throughout the entire filling process. This plan includes the expected readings and is also tied to specific responses in the event of readings outside the prescribed range.
- The inspection/surveillance plan will clearly define reporting requirements and specific actions to be taken for all observed problems. An appropriate level of response will be clearly identified and implemented.

PATH FORWARD AFTER THE TEMPORARY OPERATIONS ACTIVITIES

Upon completion of the limited operations of the Ten Mile Creek WPA, all water will be pumped out of the reservoir and back into Ten Mile Creek. The project will be returned to a passive operating state. The data collected will be used by the government and will assist the U.S. Army Corps of Engineers in identifying the future operation plan for the Ten Mile Creek WPA.

FOR MORE INFORMATION



**US Army Corps
of Engineers®**
Jacksonville District

KIM VITEK, Project Manager
US Army Corps of Engineers
701 San Marco Blvd. • Jacksonville, FL 32207
(904) 232-2583 • kimberly.a.vitek@usace.army.mil

