LAKE OKEECHOBEE | Aquifer Storage and Recovery Pilot Project

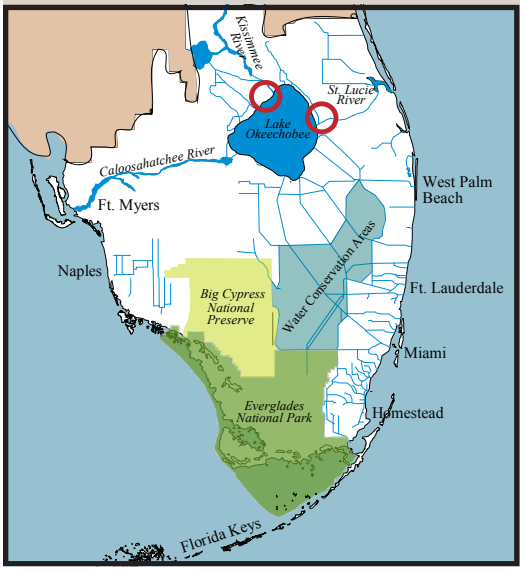
FACTS & INFORMATION

NOVEMBER 2013

The Lake Okeechobee Aquifer Storage and Recovery (ASR) Pilot project will evaluate ASR technology near Lake Okeechobee. The pilot project site is located along the Kissimmee River near its outlet to Lake Okeechobee in Okeechobee County. The pilot facility will provide data to the ASR Regional Study Team to determine the most appropriate locations for future ASR wells.

PROJECT PURPOSE

The pilot project will evaluate technical performance and regulatory compliance during the testing phase of the ASR system. The ASR pilot project, along with the ASR Regional Study, are intended to reduce uncertainty associated with the scale proposed in the Comprehensive Everglades Restoration Program (CERP). They are also necessary to identify the most suitable sites, optimum configuration, and operational measures for wells in the vicinity of Lake Okeechobee.



PROJECT OVERVIEW

ASRs can store large volumes of freshwater, which can be used to meet ecological and other water resource needs in south Florida during the dry season or during drought conditions. The design capacity for each ASR well is five million gallons per day.

The ASR pilot project was authorized in the Water Resources Development Act (WRDA) of 1999 and 2000, and received additional authorization in WRDA 2007. The project, being conducted by the U.S. Army Corps of Engineers (USACE), in coordination with the South Florida Water Management District (SFWMD), will gather scientific information required to address technical uncertainties associated with regional-scale ASR facilities proposed in CERP.

The CERP proposes to construct as many as 333 ASR wells to store as much as 1.6 billion gallons of fresh water per day to ensure water for the Everglades, improve conditions in Lake Okeechobee and prevent damaging releases of freshwater to coastal estuaries. Some water would also be available to support agriculture and to protect urban wells located near the coast from saltwater intrusion.

The ASRs will collect additional or excessive surface waters to meet federal and state water standards. The water is pumped into a deep Floridan aquifer, which is separated from the overlying aquifer by hundreds of feet of low-permeability sediments. The pumped water is stored in the brackish (slightly salty) water of the Floridan Aquifer. When needed, the stored water is recovered through pumping.

The pilot project and regional study will determine the specific water quality characteristics of the receiving aquifer, water quality characteristics of recharged, stored and recovered water, and the amount of water recovered from the aquifer at each ASR system. Information obtained from the pilot project will provide the hydrogeological and geotechnical characteristics of the upper Floridan Aquifer System (FAS) within the region, and assess the ability of the FAS to maintain recharged water for future environmental water supply and other water needs in South Florida.

PROJECT FEATURES

The ASR pilot project sites consist of:

- Recharge and recovery pumps
- Filtration and UV disinfection pre-treatment components
- ASR (recharge/recovery) and monitoring wells
- On-site storage ponds

PROJECT STATUS

Four operational tests of the ASR facility were conducted for four years to assess the local hydrogeological properties of the Hawthorn confining unit and Floridan aquifers and to evaluate recovered water treatment requirements. Data and conclusions from the ASR pilot project will be utilized by the ASR Regional Study Team to address uncertainties about regional ASR implementation.

Exploratory wells were installed at sites around Lake Okeechobee in 2005-2006 to obtain the preliminary lithologic, geophysical and hydrogeologic information. The results of this preliminary investigation concluded that these sites are viable for ASR purposes. These results were incorporated into the Pilot Project Design Report that led to the implementation of the ASR pilot study projects.

Construction of the Lake Okeechobee ASR pilot facility was completed in late 2008. Cycle testing operations began in 2009 and completed in July 2013. A Technical Data Report summarizing results and findings of four years of testing is currently under review, and will be available to the public once completed.

ASR wellhead

PATH FORWARD

The pilot facilities will provide the ASR Regional Study Team with technical and engineering information for additional plan formulation and development. From this data, judgments can be made on the number of wells required, where to site these wells, and any specific treatment requirements during the installation and testing phase.

FOR MORE INFORMATION

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